

EPIC™ PERFORATING CATALOG

February 6, 2025

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About GEODynamics

GEODynamics is the global technology and manufacturing leader in perforating, downhole completion, intervention, and wireline-conveyed solutions. GEODynamics creates and delivers downhole solutions that enable unsurpassed well economics, performance, and lifespan.

Patents

www.oilstatesintl.com/patents

Terms and Conditions

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Revisions

ISSUE	DATE	NOTES
1	May 1, 2024	Initial release of EPIC™ Perforating Catalog.
1	February 6, 2025	Issue 1, 2025. Added 2.50" OD EPIC Precision, 2.50" OD EPIC Flex, 2.75" Flex Orbit, and 3.125' Flex Orbit systems. Updated charge performance details (FraclQ and Basix Frac). Added EPIC Flex reusable sub with rebuild kit details. Additional edits and updates throughout.



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EPIC™ Systems EPIC™ Command II Shooting Panel



GEODynamics' EPIC™ Command II shooting panel interfaces between the wireline and a logging system to deliver state-of-the-art efficiency in perforating operations.

Seamless integration with GEODynamics' EPIC addressable switches and the EPIC Test box makes for a feature-rich plug-and-perf shooting panel for today's high speed, multi-well, zipper frac completion techniques. Command's advanced electronic telemetry makes for trouble-free conveyance and POOH, while shooting on the fly is a breeze.

The EPIC Command shooting panel inventories the string at a rate of one (1) switch per second, reducing risk in shooting-on-the-fly operations.



EM-ASSP-BP-0002

FEATURES

- Shot plot display on panel for real-time review; shot plot data stored for future review
- All switch interactions stored in an easily readable text file with simple USB download
- Auto-adjust telemetry requires no user intervention; successfully tested on over 35k' greaseless wireline
- CCL hosting capabilities for on-panel display, audible CCL alarm, and output to logging system
- LOG and AUX line routing to host non-ballistic services
- HDMI output to support panel display on an external monitor
- Check-fire capabilities

BENEFITS

- Clean, intuitive, touch-screen user interface
- Drop-in replacement for existing panels
- Shot power controlled via button fire sequence
- Panel delivers only enough power to initiate the ignitor or detonator, then ends the shot to minimize abuse on wireline and collector rings
- No separate panel required for CCL hosting or check-fire functions

SPECIFICATIONS

- Firing voltage up to 350V, software limited to 2A maximum
- Variable Correlation Voltage (Switch Mode vs. WRT Mode)
- Correlation current hardware limited to 125mA
- Safe Key termination per RP-67
- 2ru rackmount height
- Compatible with GEODynamics EPIC™ Switches and wireline release tools

EPIC™ Systems EPIC™ Command II Shooting Panel





FUNCTIONAL OVERVIEW

ARM Used with the FIRE button to enable shooting power supply.

CCL GAIN & VOLUME Adjust CCL gain and signal volume when key is in CCL mode.

AUX Signal feedthrough via the AUX jack on back. Typical connection to another wireline panel.

LOG Signal feedthrough via the LOG connection on back.

KEY POSITION (Operating Modes)

SAFE No power on the line; line is terminated per RP-67. Safe key is removable.

CCL Displays the virtual CCL meter. Signal is routed through the rear CCL port to CCL logging system.

ARM Enables inventory, arming, and shooting functions.

TOUCH SCREEN Input commands and view system/function responses.

USB Download job-specific data files or perform panel software update.

POWER SWITCH Controls both AC and DC power.

FIRE Used along with the ARM button to enable shooting power supply.



REAR INPUTS and OUTPUTS

AC INPUTS	120VAC input (5A, 3AG fused)
DC INPUTS	12V truck battery input (2A, 3AG fused)
LIGHTS	2A, 3AG fuse for safe light circuit
USB	Reserved for future use

CCL CCL output to logging system

HDMI HDMI output to support panel display on an external monitor

ETHERNET Reserved for future use

LIGHTS Standard output to truck safe lights

AUX ¼" phone connection; LINE is routed here when key is in AUX position LOG PL-259 connection; LINE is routed here when key is in LOG position

LINE Wireline connection

EPIC™ Systems EPIC™ Test Box



GEODynamics' EPIC™ Test box delivers an all-in-one testing, diagnostics, and configuration solution for perforating toolstrings equipped with EPIC™ Switch technologies. The test box acknowledges the presence of switches and detonators, facilitates pre-run validation and switch configuration, and reports any problems detected.

FEATURES

- Allows switch configuration to operate as a Set/Fire or BRT switch
- Real-time indication of detonator/ignitor presence on surface
- All switch interactions stored in an easily readable text file with simple USB download
- Rugged and water-resistant for field operational environments
- Automatic sleep/shutdown after idle periods to minimize battery consumption
- Easy replacement of rechargeable battery for minimal downtime
- Magnet supplied for easy ground connection

BENEFITS

- Clean, intuitive, touch-screen user interface
- Test traceability from the gun shop to the wellsite
- No offline downtime for battery charging
- Battery status indicator displayed on every screen

SPECIFICATIONS

- Facilitates switch string interrogation and switch configuration
- Redundant current limit on interrogation supply
- RP-67 compliant; certified per Franklin Applied Physics
- Powered by a single rechargeable battery (spare battery included)
- Communicates with GEODynamics EPIC™ Switches and wireline release tools



EM-ASTB-0001-0000

EPIC™ Systems EPIC™ Addressable Packet Switches



GEODynamics' EPIC™ Switches deliver the safety and intelligence of an addressable system and facilitate compatibility with standard pass-through bulkheads and non-ported subs, offering unparalleled flexibility.

On surface, the EPIC™ Test box is used to inventory the perforating string. The inventory process is repeatable while running in hole as a verification of viable switches.

CAPABILITIES

- Intrinsically safe
- Shoot on the fly
- Dual fire (switch types: normal or Set/Fire)
- Convertible to wireline/ballistic release tool
- Viable switch count before each shot—checks connections to detonator, feed-through, and ground
- Reassign address on surface without disassembly
- Skip gun capability (skip a problematic gun and prevent non-productive time (NPT))
- Inventory rate: One (1) switch per second

COMMON FEATURES

Performance Stable communications protocol capable on over 34,000ft (10,363m) of 0.288in (0.7315cm) greaseless line cable

Set/Fire Efficiency Plug set and fire first gun from a single switch (dual fire capability)

• Independent Third Party Organization (ITPO) certified RF Safe, ESD Safe, and API RP-67 compliant

• All wired connections, including detonator, safely tested with the EPIC Test box

Quality Fully tested post-manufacturing; Quality Assured to ISO:9001:2015

COMPATIBILITIES

Safety

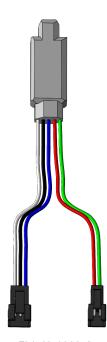
Equipment	EL1-AL-1000 / EL1-AL-1000-C	ASW-130 / ASW-130-C				
EPIC™ Command Shooting Panel	EM-ASSP-0002 Serial No. 100xxx-2 or 000xxx-2	EM-ASSP-BP-0002 Serial No. BPT-xxx or BPG-xxx				
EPIC™ Test Box	EM-ASTB-0001-0000	EM-ASTB-0001-0000				

Switches are compatible with Canatex® BRT, ICSI® BRT, and the Hunting® release tools, and can also be run with the Probe® Shooting Panel and Warrior® Interface Panel

Warrior® is a registered trademark of Scientific Data Systems, Inc. Probe® is a registered trademark of Probe Technologies Holdings, Inc. Canatex® is a registered trademark of Canatex Completions Solutions, Inc. ICSI® is a registered trademark of Innovative Completion Systems, Inc. Hunting® is a registered trademark of Hunting PLC



EL1-AL-1000



EL1-AL-1000-C

EPIC™ Systems EPIC™ Addressable Packet Switches

GEODynamics*

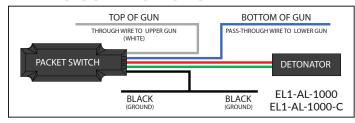
SPECIFICATIONS

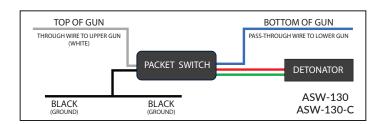
Electrical										
EPIC Packet Switch	EL1-AL-1000 / EL1-AL-1000-C	ASW-130 / ASW-130-C								
Firing Voltage Polarity	Negative	Negative								
Operating Voltage	-20 VDC to -70 VDC	-20 VDC to -300 VDC								
Dump Fire Voltage	> -140 VDC	-180 VDC								
Operating Temperature Range	-70°F to 350°F	-20°F to 347°F								

Mechanical										
	Part Number	Dimensions (L x W x H)								
	EL1-AL-1000	2.25" x 0.625" x 0.25"								
	ASW-130	1.50" L x 0.75" W								

Accessories	Part Number	
UY2 Scotchlok Connector (recommended)	AP-M-26224	
UY Scotchlok Connector (may be substituted for the	AP-M-26214	
above UY2, but use on switch wires only)	AP-IVI-20214	
UR2 Scotchlok Connector (three-gang for ground wires)	AP-M-26201	

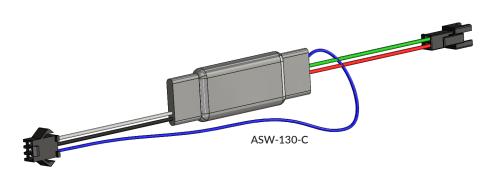
WIRING CONNECTIONS





GEODynamics' EPIC™ Flex and Flex Orbit perforating systems offer locking-pin connectors, which facilitate quick, reliable, and error-free wiring connections from gun to switch (3-pin) and switch to detonator (2-pin).

Both EPIC addressable packet switches are available with standard flying leads or preinstalled locking-pin connectors. Refer to EPIC Flex and EPIC Flex Orbit sections in this catalog for more information about these versatile perforating systems.





EPIC™ Precision Perforating Systems Precision RFX, 2-1/2 in (64 mm), GID Spiral



GEODynamics' advanced EPIC™ Precision RFX offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. Precision integrates EPIC™ Slim U addressable switch technology with industry-standard detonator options into a programmable detonator module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gunstring assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers EPIC Precision RFX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointTop-fired, wirelineMode of FireSelect fire, addressable

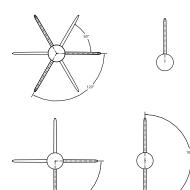
Detonating Cord 40-grain ribbon

Compatible Perforating ChargesConnex®, Razor®, Basix™, Refrax™Maximum Gun Swell (in)[mm]2.66" [67.56] @ 11.5g (In Fluid)



Maximum Pressure (psi)[MPa] 20,000 [137.90]

Maximum Tensile* (lbf)[kN] 137,500 [611.63] *Hardware Calculated Breaking Point



CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with T094 Tandem Sub		
Part Nulliber	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)	
GID25-O01	1 Shot	0°	9.5	24.1			N/A		4.0	1.8	9.88	25.1	
GID25-J02	2 Shot	180°	11.5	29.2	5.25				5.3	2.4	11.88	30.2	
GID25-G03	3 Shot	120°	13.5	34.3		5.25	133.35	2.0	50.8	6.6	3.0	13.88	35.3
GID25-B04	4 Shot	90°	15.5	39.4			2.0	30.6	7.9	3.6	15.88	40.3	
GID25-A06	6 Shot	60°	19.5	49.5					10.6	4.8	19.88	50.5	

Additional shot and phasing options available by special order with lead time:

- Up to 10 shots per gun with 0° phasing (2.4" shot spacing (5 spf equivalent)).
- Up to 12 shots per gun with 60°, 90°, 120°, or 180° phasing (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.

Refer to Components and Accessories for ancillary equipment.







DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Chanad Charas	Part Number	Perforating	Fynlasiya	Shot Density /	^Casing O.D.	Performance in Concrete		Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2511 Connex SDP	EC2-25A1121-RC		11.5g, RDX		3-1/2" 9.2# L-80			0.28 [0.71]	11.50 [29.21]
		EC2-25A1122-RC	Fluid	11.5g, HMX	6 spf /60°				0.29 [0.74]	12.00 [30.48]
2-1/2"	2511 Razor XDP	EC1-25A1121		11.5g, RDX					0.26 [0.66]	13.00 [33.02]
11.5g		EC1-25A1122		11.5g, HMX			0.32 [0.81]	31.10 [78.99]	0.24 [0.61]	12.23 [31.06]
	0511 Daniy VDD	EC2-25A1121-E		11.5g, RDX					0.30 [0.76]	9.10 [23.11]
	2511 Basix XDP	EC2-25A1122-E		11.5g, HMX						

DUAL CASING

Carrier O.D.			Perforating	Explosive	Shot Density / Phasing		Inner Cas	sing		Outer Casing			
	Shaped Charge	Part Number	Condition			OD/Wt/	EHD Range	EHD Avg	EHD	OD/Wt/	EHD Range	EHD Avg	EHD
			Condition		Tilasing	Material	(in)[cm]	(in)[cm]	Variance*	Material	(in)[cm]	(in)[cm]	Variance*
	2511 Refrax					3-1/2" 9.2#	0.39-0.41	0.40 [1.02]	2.23 %	4-1/2" 13.5#	0.43-0.49	0.46 [1.17]	5.68 %
		EC2-25A1171-R	Fluid	11.0g, RDX		P110	[0.99-1.04]	0.10[1.02]	2.20 70	P110	[1.09-1.24]	0.10[1.17]	3.00 70
2-1/2"						4" 9.5# P110	0.37-0.45 [0.94-1.14]	0.40 [1.02]	8.25 %	5-1/2" 23# P110	0.38-0.48 [0.97-1.22]	0.43 [1.09]	8.26 %
11.0g	2511 Connex	EC2-25A1121-RC	Fluid	11.0g, RDX	6 spf / 60°	3-1/2" 9.2# P110	0.34-0.40 [0.86-1.02]	0.36 [0.91]	4.69 %	4-1/2" 13.5# P110	0.28-0.33 [0.71-0.84]	0.31 [0.79]	6.53 %
	2511 Basix	EC2-25A1121-E	Fluid	11.0g, RDX		3-1/2" 9.2# P110	0.37-0.41 [0.94-1.04]	0.39 [0.99]	3.47 %	4-1/2" 13.5# P110	0.32-0.37 [0.81-0.94]	0.33 [0.84]	5.49 %

^{*}EHD variation decentralized.

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem ConnectionBooster to booster (no splice)Nominal OD / Wall Thickness (in)[mm]2.50" [63.50] / 0.250 [6.35]Upper/Lower Thread Connections2.092" - 8 STUB ACME 2G

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock. FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

EPIC™ Precision Perforating Systems Precision RFX, 2-1/2 in (64 mm), GID Spiral

GEODynamics°

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
2.50" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC25-GIC25 RKI-GN-QC31-0001 RKC-GN-QC31-0001
2.50" EPIC™ Precision Disposable Portless Tandem Sub Assy	GN-R25-T094-A
2.50" EPIC Precision Disposable Portless Orienting Tandem Sub Assy Lock Ring, Left-hand Thread	GN-R25-T279-A GN-R25-L75-320
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-225 OR-V95G-225
Detonating Cord (40-grain ribbon)	DET-40R511 (RDX) DET-40H512 (HMX)
Initiation Booster, HMX	DT-0875-400
EPIC Slim Detonator Module	DT-EPIC-230-R140
EPIC Slim Ignitor Module (bottom gun GN-R25-T094-A tandem sub to setting tool crossover)	IGN-EPIC-230-106
2.50" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x 2.5" Shorty Setting Tool (shown) GI Box x 3.5" Shorty Setting Tool	GN-RX25-BK10-GIC GN-RX25-2500-GID GN-RX25-3500-GID
Power Charge Ignitor with Ground Clip	DT-0425-101
2.50" Crossover Assy, GI Box x GO Firing Head Pin (connects to bottom gun -T078-A tandem) Includes GN-RX27-BK10-GO, Size 10 Firing Head. Intermediate Rebuild Kit Complete Rebuild Kit (all required parts)	GN-RX25-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
2.50" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R25-T172-A EM-EL1-THD-GOCQP OR-N569-222
2.375" and 2.50" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R25-STRX-BP
2.50" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-0250-A



EPIC PRECISION DISPOSABLE
TANDEM SUB ASSY
GN-R25-T094-A
AND
DT-EPIC-230-R140



EPIC PRECISION DISPOSABLE
ORIENTING TANDEM SUB ASSY
GN-R25-T279-A



2.50" DIRECT CONNECT QUICK CHANGE ASSY GN-QC25-GIC25

REBUILD KITS: RKI-GN-QC31-0001 RKC-GN-QC31-0001



2.50" EPIC Precision Disposable Portless Tandem Sub Assy GN-R25-T094-A





MULTIPLE SHOT AND
PHASING OPTIONS AVAILABLE





EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106

2.50" Crossover, GI Box x Size 10 Setting Tool GN-RX25-BK10-GIC (SHOWN)

EPIC™ Precision Perforating Systems Precision RFX, 2-3/4 in (70 mm), GID Spiral

GEODynamics*

GEODynamics' advanced EPIC™ Precision RFX offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. Precision integrates EPIC™ Slim U addressable switch technology with industry-standard detonator options into a programmable detonator module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gunstring assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers EPIC Precision RFX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointTop-fired, wirelineMode of FireSelect fire, addressable

Detonating Cord 80-grain round

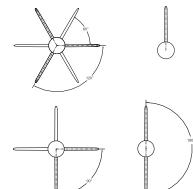
Compatible Perforating Charges FracIQ®, Connex®, Razor®, Basix™, Refrax™

Maximum Gun Swell (in)[mm] 2.91 [73.91] @ 15.0g In Fluid; 3.02 [76.20] @ 15.0g Dry



Maximum Pressure (psi)[MPa] 23,000 [158] 6 spf, 60° phasing

Maximum Tensile* (lbf)[kN] 166,700 [741] *Hardware Calculated Breaking Point



CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with T094 Tandem Sub		
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)	
GID27-O01	1	0°	9.5	24.1			N/A		6.4	2.9	9.88	25.10	
GID27-J02	2	180°	11.5	29.2	5.25	5.25	133.35	2.0		7.8	3.5	11.88	30.18
GID27-G03	3	120°	13.5	34.3					50.00	8.9	4.0	13.88	35.26
GID27-B04	4	90°	15.5	39.4			2.0	50.80	10.4	4.7	15.88	40.34	
GID27-A06	6	60°	19.5	49.5					13.4	6.1	19.88	50.50	

Additional shot and phasing options available by special order with lead time:

- Up to 12 shots per gun with 0°, 60°, 90°, 120°, or 180° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.

Refer to Components and Accessories for ancillary equipment.







CONSTANT ENTRY HOLE AND PENETRATION

Carrier			Perforating		Shot Density /	API 19B	Performance	in Concrete	Perfor	mance in Stressed	Berea
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Targeted Pipe*	EHD^ (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	EHD Variation	TTP (in)[cm]
О.Б.			Condition		Filasilig	largeteu Pipe	EUD. (ILI)[CILI]	I IP (III)[CIII]	END" (III)[CIII]	Decentralized	I IP (III)[CIII]
0.0/4"	FracIQ 30	EC2-27A1171		11.0g, RDX		4.4.(2)" OD	0.30 [0.76]		0.30 [0.76]	2.7 %	
2-3/4" 11g-15g	FracIQ 35	EC2-27A1271	Fluid	12.0g, RDX	6 spf / 60°	4-1/2" OD P110	0.35 [0.89]	13.0 [33.02]	0.35 [0.89]	5.9 %	5.0 [12.70]
118-138	FracIQ 40	EC2-27A1571		15.0g, RDX		P110	0.40 [1.02]		0.40 [1.02]	6.3 %	

DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Shaped Charge	Part Number	Perforating	Explosive	Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea		
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]	
	2715 Connex SDP	EC2-27A1521-RC		15.0g, RDX					0.30 [0.76]	11.70 [29.72]	
	2/15 Connex 3DP	EC2-27A1522-RC		15.0g, HMX					0.31 [0.79]	12.18 [30.94]	
0.0/4"		EC2-27A1521		15.0g, RDX		4.4./011.44.7.//	0.39 [0.99]	37.45 [95.12]			
2-3/4" 15g	2715 Razor XDP	EC2-27A1522	In Fluid or Dry	15.0g, HMX	6 spf /60°	4-1/2" 11.6# L-80	0.39 [0.99]	37.45 [95.12]			
108		EC2-27A1523		15.0g, HNS		L-00			0.31 [0.79]	10.50 [26.67]	
	2715 Basix XDP	EC2-27A1521-E		15.0g, RDX			0.39 [0.99]	31.80 [80.77]	0.32 (0.81)	9.40 [23.88]	
	7/12 pasix ydb	EC2-27A1522-E		15.0g, HMX			0.38 [0.97]	32.75 [83.19]	0.35 [0.89]	10.60 [26.92]	

DUAL CASING

Carrier	Shaped Charge	Part Number	Perforating	Explosive	Shot Density /	Inne	er Casing	Out	er Casing
O.D.	Shaped Charge	Part Nulliber	Condition	Explosive	Phasing	O.D./Material	EHD (in)[cm]	O.D./Material	EHD (in)[cm]
2-3/4"	2711 Refrax	EC2-27A1171-R	المناط	11.0g, RDX	6 amf / 600	4" D110	0.29-0.30 [0.74-0.76]	5-1/2" P110	0.37-0.41 [0.94-1.04]
11g-15g	2715 Refrax	EC2-27A1571-R	Fluid	15.0g, RDX	6 spf / 60°	4" P110	0.34-0.36 [0.86-0.91]	5-1/2 P110	0.34-0.42 [0.86-1.07]

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem ConnectionBooster to booster (no splice)Nominal OD / Wall Thickness (in)[mm]2.75" [69.85] / 0.313 [7.95]Upper/Lower Thread Connections2.375" - 8P ACME 2G

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock. FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

EPIC™ Precision Perforating Systems Precision RFX, 2-3/4 in (70 mm), GID Spiral

2.75" DIRECT CONNECT

QUICK CHANGE ASSY GN-QC27-GIC27 REBUILD KITS: RKI-GN-QC31-0001 RKC-GN-QC31-0001

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
2.75" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC27-GIC27 RKI-GN-QC31-0001 RKC-GN-QC31-0001
2.75" EPIC™ Precision Disposable Portless Tandem Sub Assy	GN-R27-T094-A
2.75" EPIC™ Precision Disposable Portless Orienting Tandem Sub Assy Lock Ring, Left-hand Thread	GN-R27-T279-A GN-R27-L75-275
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-227 OR-V95G-227
Detonating Cord	DET-80R111 (RDX) DET-80H212 (HMX)
Initiation Booster, HMX	DT-0875-400
EPIC Slim Detonator Module	DT-EPIC-230-R140
EPIC Slim Ignitor Module (GN-R27-T094-A tandem sub in bottom gun to -GID crossover)	IGN-EPIC-230-106
2.75" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x 2.5" Shorty Setting Tool (shown)	GN-RX27-BK10-GID GN-RX27-2500-GID
Power Charge Ignitor with Ground Clip	DT-0425-101
2.75" Crossover Assy, GI Box x GO Firing Head Pin (connects to bottom gun -T078-A tandem) Includes GN-RX27-BK10-GO, Size 10 Firing Head. Intermediate Rebuild Kit Complete Rebuild Kit (all required parts)	GN-RX27-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
2.75" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R27-T172-A EM-EL1-THD-GOCQP OR-N569-222
2.75" and 2.875" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R27-STRX-BP
2.75" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-2750-A



EPIC PRECISION DISPOSABLE TANDEM SUB ASSY GN-R27-T094-A DT-EPIC-230-R140



EPIC SLIM DETONATOR MODULE DT-EPIC-230-R140

2.75" EPIC Precision Disposable PORTLESS TANDEM SUB ASSY GN-R27-T094-A



EPIC PRECISION DISPOSABLE ORIENTING TANDEM SUB ASSY GN-R27-T294-A









2.75" CROSSOVER, GI BOX X SIZE 10 SETTING TOOL GN-RX27-BK10-GID (shown)

Precision, 3-1/8 in (79 mm), GID Spiral

GEODynamics' advanced EPIC™ Precision offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. Precision integrates EPIC™ Slim U addressable switch technology with industry-standard detonator options into a programmable detonator module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gunstring assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers EPIC Precision carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation Point Top-fired, wireline Mode of Fire Select fire, addressable

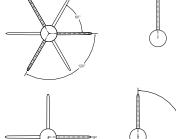
Detonating Cord 80-grain round, factory-loaded

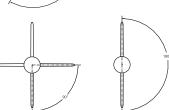
Compatible Perforating Charges FracIQ®, Connex®, Razor®, Basix™, Basix Frac, Refrax™ Maximum Gun Swell (in)[mm] 3.46 [87.88] @ 22.7g In Fluid; 3.60 [91.44] @ 19.0g Dry



Maximum Pressure (psi)[MPa] 20.000 [137.90]

Maximum Tensile* (lbf)[kN] 140,000 [622.75] *Hardware Calculated Breaking Point





CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Gross Weights (Fully Loaded Gun)		Make-Up Lengths with T094 Tandem Sub	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)
GID31-001	1	0°	9.5	24.1			N	/A	12.1	5.5	9.88	25.10
GID31-J02	2	180°	12.3	31.2			2.4	61.0	14.2	6.4	11.88	30.18
GID31-G03	3	120°	13.5	34.3	5.42	137.67			16.2	7.4	13.88	35.26
GID31-B04	4	90°	15.5	39.4			2.0	2.0 50.8	18.3	8.3	15.88	40.34
GID31-A06	6	60°	19.5	49.5					22.5	10.2	19.88	50.50

Additional shot and phasing options available by special order with lead time:

- Up to 10 shots per gun with 0° phasing (2.4" shot spacing (5 spf equivalent)).
- Up to 12 shots per gun with 180° phasing (2.4" shot spacing (5 spf equivalent)).
- Up to 12 shots per gun with 60°, 90°, or 120° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.



Precision, 3-1/8 in (79 mm), GID Spiral



CONSTANT ENTRY HOLE AND PENETRATION

Carrier			Dorforation		Shot Density /	API 19B	Performanc	e in Concrete	Perfori	nance in Stressec	d Berea
O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Phasing	Targeted Pipe*	EHD	TTP	EHD^	EHD Variation	TTP
0.0.			Condition		Filasilig	largeteu Fipe	(in)[cm]	(in)[cm]	(in)[cm]	Decentralized	(in)[cm]
3-1/8"	FracIQ 20	EC2-33A1271		12.0g, RDX		4-1/2" - 5-1/2" OD,	0.22 [0.56]	13.0 [33.02]	0.22 [0.56]	5.5%	5.0 [12.70]
12g-13g	Basix Frac 25	EC2-33A1271-BF	Fluid	12.0g, RDX	6 spf / 60°	P110	0.26 [0.66]	12.0 [30.48]	0.26 [0.66]	2.4 %	4.0 [10.16]
125 105	FracIQ 25	EC2-33A1371		13.0g, RDX		1110	0.26 [0.66]	13.0 [33.02]	0.26 [0.66]	4.1 %	5.0 [12.70]
	FracIQ Connex 30 †	EC2-33A1471-FRX		14.0g, RDX					0.31 [0.79]	6.0 %	5.0 [12.70]
3-1/8"	Basix Frac 30	EC2-33A1471-BF	Fluid	14.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD,	0.31 [0.79]	12.0 [30.48]	0.31 [0.79]	4.0 %	4.0 [10.16]
13g-16g	FracIQ 30	EC2-33A1671	Fluid	16.0g, RDX	0 Spi / 60	P110	0.31 [0.79]	13.0 [33.02]	0.31 [0.79]	3.1 %	5.0 [12.70]
	FracIQ 30	EC2-33A1672		16.0g, HMX			0.34 [0.86]	13.0 [33.02]	0.34 [0.86]	3.8 %	3.0 [12.70]
	FracIQ Connex 35 †	EC2-33A1671-FRX		16.0g, RDX					0.36 [0.91]	5.0 %	5.0 [12.70]
3-1/8"	Basix Frac 35	EC2-33A1871-BF	Fluid	18.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD,	0.36 [0.91]	12.0 [30.48]	0.36 [0.91]	3.4 %	4.0 [10.16]
16g-20g	FracIQ 35	EC2-33A2071	Fluid	20.0g, RDX	o spi / ou	P110	0.36 [0.91]	13.0 [33.02]	0.36 [0.91]	2.5 %	5.0 [12.70]
	FracIQ 35	EC2-33A2072		20.0g, HMX			0.37 [0.94]	13.0 [33.02]	0.37 [0.94]	3.0 %	5.0 [12.70]
	FracIQ Connex 40 †	EC2-33A1971-FRX		19.0g, RDX					0.41 [1.04]	6.5 %	
	FracIQ 40	EC2-33A2371		23.0g, RDX		4-1/2" - 5-1/2" OD,	0.40 [1.02]	13.0 [33.02]	0.40 [1.02]	3.3 %	5.0 [12.70]
3-1/8"	FracIQ 40	EC2-33A2372		23.0g, HMX		P110	0.41 [1.04]	13.0 [33.02]	0.41 [1.04]	3.8 %	
19g-23g	Basix Frac 40	EC2-33A2371-BF	Fluid	23.0g, RDX	6 spf / 60°		0.40 [1.02]		0.40 [1.02]	6.6 %	
175 205	Basix Frac 40	EC2-33A2371-BF		23.0g, RDX		6" OD, P110	0.40 [1.02]	12.0 [30.48]	0.40 [1.02]	7.5 %	4.0 [10.16]
	Basix Frac 40	EC2-33A2372-BF		23.0g, HMX		4-1/2" - 5-1/2" OD, P110		12.0 [50.40]			4.0 [10.10]
0.4.(0))	FracIQ 45	EC2-33A2071-45		20.0g, RDX		4.4.(0), 5.4.(0), 0.5	0.45 [1.14]	13.0 [33.02]	0.45 [1.14]	5.6 %	F 0 [40 70]
3-1/8"	FracIQ Connex 45 †	EC2-33A2371-FRX	Fluid	21.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110			0.45 [1.14]	3.2 %	5.0 [12.70]
20g-23g	Basix Frac 45	EC2-33A2371-BF45		23.0g, RDX		P110	0.45 [1.14]	12.0 [30.48]	0.45 [1.14]	5.9 %	4.0 [10.16]
	FracIQ 50	EC2-33A2371-50 †† EC2-33A2371-50G		23.0g, RDX		4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	13.0 [33.02]	0.50 [1.27]	1.5 %	5.0 [12.70]
3-1/8"	FracIQ 50	EC2-33A2372-RX	- 1 · 1	23.0g, HMX	((((((((((((((((((((5-1/2" OD, P110	0.50 [1.27]		0.50 [1.27]	4.6 %	
23g	Basix Frac 50	EC2-33A2371-BF50	Fluid	23.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	12.0 [30.48]	0.50 [1.27]	4.8 %	4.0 [10.16]
	FracIQ 55	EC2-33A2371-55		23.0g, RDX		4-1/2" OD, P110	0.55 [1.40]	13.0 [33.02]		3.8 %	5.0 [12.70]

†FracIQ® Connex® charges (part numbers ending with -FRX) designate charges that combine FracIQ technology with Connex Clean Perforation Technology to achieve a constant hole size and tunnel cleaning action in one shaped charge. ††EC2-33A2371-50G has a custom, externally-grooved case (special application).

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.
^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

^{*3-1/8&}quot; FracIQ charge performance is compatible in 4.5" 11.6-15.1# and 5.5" 17-23# P-110 casing.





BIG HOLE

Carrier	Shaped Charge	Part Number	Perforating	Explosive	Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in	Stressed Berea
O.D.	Shaped Charge	Part Nulliber	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
3-1/8"	3323 Basix BH	EC2-33A2331	Fluid	22.7g, RDX	6 and 1 400	4-1/2" 11.6#	0.78 [1.98]	7.60 [19.30]		
23g	SSZS BASIX BH	EC2-33A2332	riula	22.7g, HMX	6 spf / 60°	L-80	0.79 [2.01]	7.80 [19.81]		_

DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Chanad Charas	Dout Number	Perforating	Cymlosiya	Shot Density /	Shot Density / Phasing ^Casing O.D. Application 5 spf / 60° (Dry) o spf / 60° (Fluid) 4-1/2" 11.6# L-80 6 spf / 60° 4-1/2" 11.6# L-80	Performance	e in Concrete	Performance in Stressed Berea		
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]	
	3319 Connex RX	EC2-33A1991-RX	+ Fluid on Don	19.0g, RDX					0.32 [0.81]	11.30 [28.70]	
	3317 Colliex KA	EC2-33A1992-RX	‡ Fluid or Dry	19.0g, HMX					0.32 [0.81]	11.60 [29.46]	
	3319 Razor XDP	EC2-33A1921	+ Fluid or Dm/	19.0g, RDX			0.51 [1.30]	42.10 [106.93]			
0.4 (0)	3319 Kazor ADP	EC2-33A1922	‡ Fluid or Dry	19.0g, HMX	F (//00/D)	4.4./011.44.7.//	0.49 [1.24]	41.10 [104.39]	0.43 [1.09]	14.60 [37.08]	
3-1/8"	3319 Basix XDP	EC2-33A1921-E	+ Fluid or Dm/	19.0g, RDX			0.43 [1.09]	35.80 [90.93]			
19g	3314 Basix VDP	EC2-33A1922-E	‡ Fluid or Dry	19.0g, HMX	o spi / ou (riuiu)	L-00					
	3319 Basix XDP	EC2-33A1921-EG	Fluid	19.0g, RDX			0.43 [1.09]	35.70 [90.68]			
	3319 Basix DP	EC2-33A1951	+ Fluid on Don	19.0g, RDX			0.54 [1.37]	29.20 [74.17]			
	3319 Basix DP	EC2-33A1952	‡ Fluid or Dry	19.0g, HMX							
		EC2-33A2321-RC		22.7g, RDX					0.40 [1.02]	15.60 [39.62]	
	3323 Connex SDP	EC2-33A2322-RC		22.7g, HMX					0.46 [1.17]	15.31 [38.89]	
		EC2-33A2323-RC		22.7g, HNS					0.36 [0.91]	11.85 [30.10]	
		EC2-33A2321		22.7g, RDX					0.41 [1.04]	16.40 [41.66]	
3-1/8"	3323 Razor XDP	EC2-33A2322	LI''; Y	22.7g, HMX	6 amf / 600	4-1/2" 11.6#	0.42 [1.07]	39.02 [99.11]	0.44 [1.12]	15.68 [39.83]	
23g		EC2-33A2323	Fluid	22.7g, HNS	o spi / ou	L-80	0.35 [0.89]	26.05 [66.17]	0.37 [0.94]	12.12 [30.78]	
	2222 Davis VDD	EC2-33A2321-E		22.7g, RDX			0.42 [1.07]	46.00 [116.84]	0.39 [0.99]	12.30 [31.24]	
	3323 Basix XDP	EC2-33A2322-E		22.7g, HMX			0.43 [1.09]	46.37 [117.78]			
	3323 Basix GH	EC2-33A2321-EG		22.7g, RDX					0.41 [1.04]	11.90 [30.23]	
	3323 Basix GH	EC2-33A2322-EG		22.7g, HMX			0.43 [1.09]	45.70 [116.08]	0.40 [1.02]	11.90 [30.23]	

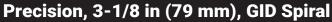
[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.





DUAL CASING

Carrier	Chanad Charas	Part Number	Perforating	Evaloriva	Shot Density /	Inne	er Casing	Outer Casing		
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	O.D./Material	EHD (in)[cm]	O.D./Material	EHD (in)[cm]	
	3314 Refrax	EC2-33A1471-D		14.0g, RDX		E	0.33-0.33 [0.84-0.84]		0.30-0.30 [0.76-0.76]	
0.4 (0)	3316 Refrax	EC2-33A1671-D		16.0g, RDX	6 spf / 60°	Expanded 4" P110	0.37-0.38 [0.94-0.95]	5-1/2 P110	0.35-0.35 [0.89-0.89]	
3-1/8" 14g-23g	3320 Refrax	EC2-33A2071-D	Fluid	20.0g, RDX		P110	0.41-0.42 [1.04-1.07]		0.40-0.40 [1.02-1.02]	
148-238	3316 Refrax	EC2-33A1671-D		16.0g, RDX	/ f / / O0	4 4 /0" D440	0.30-0.32 [0.76-0.81]	7.0" D110	0.39-0.41 [0.99-1.04]	
	3323 Refrax	EC2-33A2371-D		23.0g, RDX	6 spf / 60°	4-1/2" P110	0.41-0.42 [1.04-1.07]	7.0" P110	0.35-0.35 [0.89-0.89]	

GOOD HOLE

Carrier	Shaped Charge	Part Number	Perforating	Evolosivo	Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	3319 Connex XEH	EC2-33A1941-RC		19.0g, RDX					0.41 [1.04]	14.20 [36.07]
3-1/8"	3319 Connex VEH	EC2-33A1942-RC	+ []d a []	19.0g, HMX	5 spf / 60° (Dry)	4-1/2" 11.6# L-80			0.42 [1.07]	14.37 [36.50]
19g	3319 Basix GH	EC2-33A1941	‡ Fluid or Dry 19.0g, RDX	6 spf / 60° (Fluid)	4-1/2 11.0# L-00	0.60 [1.52]	28.60 [72.64]			
	2214 Basix GLI	EC2-33A1942		19.0g, HMX						
	3323 Connex XEH	EC2-33A2341-RC		22.7g, RDX		4-1/2"			0.43 [1.09]	15.60 [39.62]
3-1/8"	3323 Connex AEH	EC2-33A2342-RC	Fluid	22.7g, HMX	6 amf / 600	4-1/2			0.43 [1.09]	15.89 [40.36]
23g	2222 Pacity CLI	EC2-33A2341-E	riula	22.7g, RDX	6 spf / 60°	5-1/2" 17.0# L-80	0.43 [1.09]	44.0 [111.76]		
	3323 Basix GH	EC2-33A2342-E		22.7g, HMX		4-1/2"				

[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem Connection Disposable switch tandem sub

 $\textbf{Nominal OD / Wall Thickness (in)} [mm] \\ 3.15 [80.01] / 0.315 [8.00] \text{ or } 3.125 [79.38] / 0.3125 [7.94]$

Upper/Lower Thread Connections 2.750" 6P ACME-2G

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

Precision, 3-1/8 in (79 mm), GID Spiral

GEODynamics°

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" EPIC™ Precision Disposable Portless Tandem Sub Assy	GN-R31-T094-A
3.13" EPIC Precision Disposable Portless Orienting Tandem Sub Assy Lock Ring, Left-hand Thread	GN-R31-T294-A GN-R31-L75-320
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
Detonating Cord	DET-80R111 (RDX) DET-80H212 (HMX)
Initiation Booster, HMX	DT-0875-400
EPIC Slim Detonator Module	DT-EPIC-230-R140
EPIC Slim Ignitor Module (GN-R31-T094-A tandem sub in bottom gun (to -GIC crossover)	IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A



EPIC PRECISION DISPOSABLE
TANDEM SUB ASSY
GN-R31-T094-A
AND
DT-EPIC-230-R140



EPIC Precision Disposable Orienting Tandem Sub Assy GN-R31-T294-A



3.13" DIRECT CONNECT QUICK CHANGE ASSY GN-QC31-GIC31

REBUILD KITS: RKI-GN-QC31-0001 RKC-GN-QC31-0001



3.13" EPIC PRECISION DISPOSABLE PORTLESS TANDEM SUB ASSY GN-R31-T094-A



EPIC SLIM DETONATOR MODULE DT-EPIC-230-R140



3.13" EPIC PRECISION CARRIER ASSEMBLY GID31-G03 (SHOWN)

MULTIPLE SHOT AND PHASING OPTIONS AVAILABLE



3.13" EPIC Precision Disposable Portless Tandem Sub Assy GN-R31-T094-A



EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106



3.13" Crossover, GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC (shown)

EPIC™ Flex Perforating SystemsFlex Orbit, 2-3/4 in (70 mm), GOB Self-Orienting

GEODynamics°

GEODynamics' advanced EPIC™ Flex Orbit perforating system delivers a versatile, addressable switch-ready, portless, self-orienting solution that provides high levels of precision and reliability. The open architecture design allows engineering teams to plan and complete multistage plug-and-perf operations more safely, precisely, and cost-effectively. Flex Orbit can accommodate a variety of market-leading shaped charge designs, including GEODynamics charges. GEODynamics can provide Flex Orbit fully loaded, or ready to load, and with or without an addressable switch.

APPLICATION SPECIFICATIONS

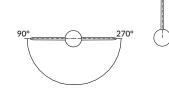
Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointBottom-fired, WirelineMode of FireSelect fire, addressable

Detonating Cord 80-grain round

Compatible Perforating Charges FracIQ®, Connex®, Razor®, Basix™, Refrax™

Maximum Gun Swell (in)[mm] Details available upon request



ENVIRONMENTAL

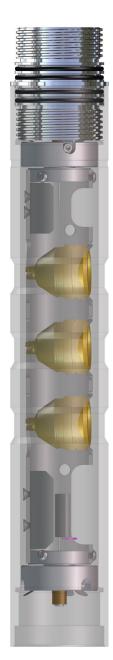
Maximum Pressure (psi)[MPa] 23,000 [158]

Maximum Tensile* (lbf)[kN] 140,000 [622] *Hardware Calculated Breaking Point

CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Pha	sing Options	Gun Lengths			Gun End to Center of First Band		Distance Band to Band		ng Assy s (no sub)	Make-Up Lengths with Tandem Sub	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T078 (in)	T077 (in)
GOB27-O01	1		13.2	33.5					7.9	3.6	13.33	14.10
GOB27-O02	2		15.6	39.6					8.6	3.9	15.73	16.50
GOB27-O03	3		18.0	45.7					9.3	4.2	18.13	18.90
GOB27-O04	4		20.4	51.8					10.0	4.5	20.53	21.30
GOB27-O05	5	0°	22.8	57.9	7.10	100 / 0	2.4	/10	10.7	4.9	22.93	23.70
GOB27-O06	6	0°	25.2	64.0	7.19	182.63	2.4	61.0	11.4	5.2	25.33	26.10
GOB27-O07	7		27.6	70.1					12.1	5.5	27.73	28.50
GOB27-O08	8		30.0	76.2					12.8	5.8	30.13	30.90
GOB27-O09	9		32.4	82.3					13.5	6.1	32.53	33.30
GOB27-O10	10		34.8	88.4					14.2	6.4	34.93	35.70
GOB27-W02	2		15.6	39.6					2.8	1.3	15.73	16.50
GOB27-W04	4		20.4	51.8					4.2	1.9	20.53	21.30
GOB27-W06	6	90°/270°	25.2	64.0	7.19	182.63	2.4	61.0	5.6	2.5	25.33	26.10
GOB27-W08	8]	30.0	76.2		102.00	2		7.0	3.2	30.13	30.90
GOB27-W10	10		34.8	88.4					8.4	3.8	34.93	35.70

For proper weight distribution, GOB27-WXX guns require blank charge cases when loaded with an odd number of shots. Nitrile or Viton o-rings available with any assembly. Additional shot and phasing options available with lead time.



EPIC™ Flex Perforating SystemsFlex Orbit, 2-3/4 in (70 mm), GOB Self-Orienting



HARDWARE

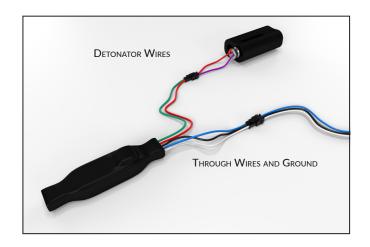
Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & RetentionRound steel tube strip; bend tab retentionType of Tandem ConnectionDisposable and reusable tandem subsNominal OD / Wall Thickness (in)[mm]2.750 [69.85] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.375" 8P ACME 2G

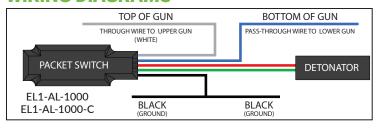
LOCKING PIN CONNECTORS

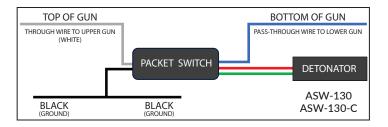






WIRING DIAGRAMS





Flex Orbit, 2-3/4 in (70 mm), GOB Self-Orienting

GEODynamics°

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
2.75" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC27-GIC27 RKI-GN-QC31-0001 RKC-GN-QC31-0001
2.75" Disposable Portless Tandem Contact Sub Assembly (solid feedthrough)	GN-R27-T078-A
2.75" Reusable Portless Tandem Contact Sub Assembly Complete Rebuild Kit (feed-through assembly, retainer nut, contact support bushing)	GN-R27-T077-A RKC-RXX-T077
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-227 OR-V95G-227
EPIC™ Slim Ignitor Module (GN-R27-T094-A tandem sub in bottom gun to -GID crossover)	IGN-EPIC-230-106
2.75" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x 2.5" Shorty Setting Tool (shown)	GN-RX27-BK10-GID GN-RX27-2500-GID
Power Charge Ignitor with Ground Clip	DT-0425-101
2.75" Crossover Assy, GI Box x GO Firing Head Pin (connects to bottom gun -T078-A tandem) Includes GN-RX27-BK10-GO, Size 10 Firing Head. Intermediate Rebuild Kit Complete Rebuild Kit (all required parts)	GN-RX27-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
2.75" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R27-T172-A EM-EL1-THD-GOCQP OR-N569-222
2.75" and 2.875" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R27-STRX-BP
2.75" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-2750-A



EPIC FLEX DISPOSABLE
TANDEM SUB
GN-R27-T078-A



EPIC FLEX REUSABLE TANDEM SUB GN-R27-T077-A







6-SHOT SHOWN

2.75" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSY GN-R27-T078-A



6-SHOT SHOWN





EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106

2.75" Crossover, GI Box x Size 10 Setting Tool GN-RX27-BK10-GID (SHOWN)

EPIC™ Flex Perforating Systems Flex Orbit, 3-1/8 in (79 mm), GOB Self-Orienting



GEODynamics' advanced EPIC™ Flex Orbit perforating system delivers a versatile, addressable switch-ready, portless, selforienting solution that provides high levels of precision and reliability. The open architecture design allows engineering teams to plan and complete multistage plug-and-perf operations more safely, precisely, and cost-effectively. Flex Orbit can accommodate a variety of market-leading shaped charge designs, including GEODynamics charges. GEODynamics can provide Flex Orbit fully loaded, or ready to load, and with or without an addressable switch.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

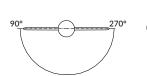
Initiation Point Bottom-fired, Wireline Mode of Fire Select fire, addressable

Detonating Cord 80-grain round

Compatible Perforating Charges

Maximum Gun Swell (in)[mm]





ENVIRONMENTAL

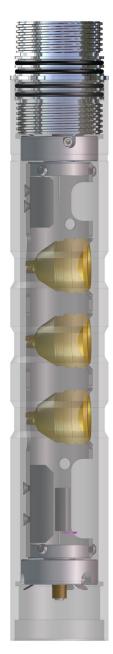
Maximum Pressure (psi)[MPa] 18,000 [124]

Maximum Tensile* (lbf)[kN] 140,000 [622] *Hardware Calculated Breaking Point

CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phas	Shot & Phasing Options		engths		Gun End to Center of First Band		Band to	Shippir Weights	ng Assy s (no sub)	Make-Up Lengths with Tandem Sub	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T078 (in)	T077 (in)
GOB31-O01	1		13.2	33.5					11.7	5.3	13.33	14.10
GOB31-O02	2		15.6	39.6					14.1	6.4	15.73	16.50
GOB31-O03	3		18.0	45.7					16.5	7.5	18.13	18.90
GOB31-O04	4		20.4	51.8					18.9	8.6	20.53	21.30
GOB31-O05	5	0°	22.8	57.9	6.10	154.9	2.4	61.0	21.3	9.6	22.93	23.70
GOB31-O06	6		25.2	64.0			2.4	01.0	23.7	10.7	25.33	26.10
GOB31-O07	7		27.6	70.1					26.1	11.8	27.73	28.50
GOB31-O08	8		30.0	76.2					28.5	12.9	30.13	30.90
GOB31-O09	9		32.4	82.3					30.9	14.0	32.53	33.30
GOB31-O10	10		34.8	88.4					33.3	15.1	34.93	35.70
GOB31-W02	2		15.6	39.6					19.4	8.8	15.73	16.50
GOB31-W04	4		20.4	51.8					24.2	11.0	20.53	21.30
GOB31-W06	6	90°/270°	25.2	64.0	6.10	154.9	2.4	61.0	29.0	13.2	25.33	26.10
GOB31-W08	8		30.0	76.2		131.7	2.1	01.0	33.8	15.4	30.13	30.90
GOB31-W10	10		34.8	88.4					38.6	17.6	34.93	35.70

For proper weight distribution, GOB31-WXX guns require blank charge cases when loaded with an odd number of shots. Nitrile or Viton o-rings available with any assembly. Additional shot and phasing options available with lead time.



EPIC™ Flex Perforating SystemsFlex Orbit, 3-1/8 in (79 mm), GOB Self-Orienting



CHARGE PERFORMANCE DATA, 3-1/8" BANDED CARRIER

Carrion	Carrier Shaped Charge		Perforating		Shot Density /	API 19B	Performance in Stressed Berea			
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing Tested	Targeted Pipe*	EHD^ (in)[cm]	EHD Variation Decentralized	TTP (in)[cm]	
	3323 Basix XDP	EC2-33A2321-E		23.0g, RDX	5 spf / 90°-270°	5-1/2" 23# P-110	0.35 [0.89]	5%	12.30 [31.24]	
	FracIQ 40	EC2-33A2371	Fluid	23.0g, RDX	5 spf / 0°		0.39 [0.99]	1%	5.0 [12.70]	
3-1/8"	Basix Frac 40	EC2-33A2371-BF40		23.0g, RDX			0.39 [0.99]	2%	4.0 [40.47]	
	Basix Frac 45	EC2-33A2371-BF45		23.0g, RDX			0.40 [1.02]	2%	4.0 [10.16]	
	FracIQ 50	EC2-33A2371-50		23.0g, RDX			0.44 [1.12]	2%	5.0 [12.70]	

[^]Entry hole diameter and variation data specifically for 3-1/8" OD banded carriers only,

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & RetentionRound steel tube strip; bend tab retentionType of Tandem ConnectionDisposable and reusable tandem subs

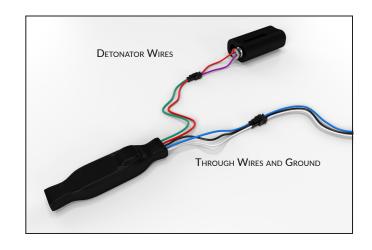
Nominal OD / Wall Thickness (in)[mm] 3.125 [79.38] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.750" 6P ACME-2G

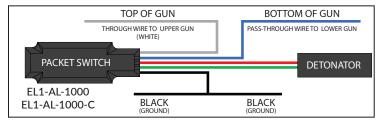
LOCKING PIN CONNECTORS

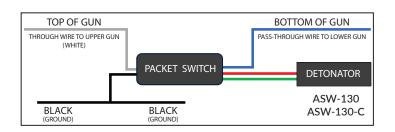






WIRING DIAGRAMS





EPIC™ Flex Perforating SystemsFlex Orbit, 3-1/8 in (79 mm), GOB Self-Orienting

GEODynamics°

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" Disposable Portless Tandem Contact Sub Assembly (solid feed-through)	GN-R31-T078-A
3.13" Reusable Portless Tandem Contact Sub Assembly Complete Rebuild Kit (feed-through assembly, retainer nut, contact support bushing)	GN-R31-T077-A RKC-RXX-T077
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun (to -GIC crossover) EPIC™ Slim Ignitor Module (T094-A tandem sub in bottom gun (to -GIC crossover)	DT-0425-106 IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A



EPIC FLEX DISPOSABLE TANDEM SUB GN-R31-T078-A



EPIC FLEX REUSABLE TANDEM SUB GN-R31-T077-A



EPIC Ignitor (Gen 1)
DT-0425-106



3.13" DIRECT CONNECT QUICK CHANGE ASSY GN-QC31-GIC31

3.13" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T078-A





3.13" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T078-A

3.13" EPIC FLEX ORBIT GOB31-W06 6-SHOT, 90-270° SHOWN



3.13" EPIC PRECISION DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T094-A

EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106

3.13" Crossover, GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC

Flex RFX, 2-1/2 in (64 mm), GIB Spiral



GEODynamics' advanced EPIC™ Flex RFX perforating system delivers a versatile, addressable switch-ready, portless solution that provides high levels of precision and reliability. The open architecture design allows engineering teams to plan and complete multistage plug-and-perf operations more safely, precisely, and cost-effectively. Flex RFX can accommodate a variety of marketleading shaped charge designs, including GEODynamics charges. GEODynamics can provide Flex RFX fully loaded, or ready to load, and with or without an addressable switch.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation Point Bottom-fired, wireline Mode of Fire Select fire, addressable

Compatible Perforating Charges Connex[®], Razor[®], Basix[™], Refrax[™]

2.66" [67.56] @ 11.5g (In Fluid) Maximum Gun Swell (in)[mm]

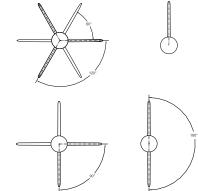


Detonating Cord

Maximum Pressure (psi)[MPa] 20.000 [137.90]

Maximum Tensile* (lbf)[kN] 137,500 [611.63] *Hardware Calculated Breaking Point

40-grain ribbon



CARRIER SPECIFICATIONS

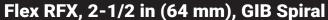
Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with T078 Tandem Subs	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T078 subs (in)	T077 subs (in)
GIB25-O01	1	0°	12.31	31.27			N	/A	6.0	2.72	12.44	13.21
GIB25-J02	2	180°	13.91	35.33		177.80	2.4	61.0	7.4	3.36	14.04	14.81
GIB25-G03	3	120°	15.50	39.37	7.0			.0 50.8	7.8	3.54	15.63	16.40
GIB25-B04	4	90°	17.50	44.45			2.0		9.0	4.08	17.63	18.40
GIB25-A06	6	60°	21.50	54.61					11.8	5.35	21.63	22.40

Additional shot and phasing options available by special order with lead time:

- Up to 12 shots per gun with 0° or 180° phasings (2.4" shot spacing (5 spf equivalent)).
- Up to 12 shots per gun with 60°, 90°, or 120° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.

Refer to Components and Accessories for ancillary equipment.







DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Chanad Charge	Part Number	Perforating Expl	Fymlosiya	Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2511 Connex SDP	EC2-25A1121-RC	Fluid	11.5g, RDX	6 spf /60°	3-1/2" 9.2# L-80			0.28 [0.71]	11.50 [29.21]
		EC2-25A1122-RC		11.5g, HMX					0.29 [0.74]	12.00 [30.48]
2-1/2"	2511 Razor XDP	EC1-25A1121		11.5g, RDX					0.26 [0.66]	13.00 [33.02]
11.5g		EC1-25A1122		11.5g, HMX			0.32 [0.81]	31.10 [78.99]	0.24 [0.61]	12.23 [31.06]
	0511 D: VDD	EC2-25A1121-E		11.5g, RDX					0.30 [0.76]	9.10 [23.11]
	2511 Basix XDP	EC2-25A1122-E		11.5g, HMX						

DUAL CASING

Carrier			Dorforating	Evolosivo	Shot Density /		Inner Cas	sing		Outer Casing			
O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Phasing	OD/Wt/	EHD Range	EHD Avg	EHD	OD/Wt/	EHD Range	EHD Avg	EHD
O.D.			Condition		1 Hasing	Material	(in)[cm]	(in)[cm]	Variance*	Material	(in)[cm]	(in)[cm]	Variance*
						3-1/2" 9.2# P110	0.39-0.41 [0.99-1.04]	0.40 [1.02]	2.23 %	4-1/2" 13.5# P110	0.43-0.49 [1.09-1.24]	0.46 [1.17]	5.68 %
2-1/2"	2511 Refrax	EC2-25A1171-R	Fluid	11.0g, RDX		4" 9.5# P110	0.37-0.45 [0.94-1.14]	0.40 [1.02]	8.25 %	5-1/2" 23# P110	0.38-0.48 [0.97-1.22]	0.43 [1.09]	8.26 %
11.0g	2511 Connex	EC2-25A1121-RC	Fluid	11.0g, RDX	6 spf / 60°	3-1/2" 9.2# P110	0.34-0.40 [0.86-1.02]	0.36 [0.91]	4.69 %	4-1/2" 13.5# P110	0.28-0.33 [0.71-0.84]	0.31 [0.79]	6.53 %
	2511 Basix	EC2-25A1121-E	121-E Fluid 11.0g, RDX		3-1/2" 9.2# P110	0.37-0.41 [0.94-1.04]	0.39 [0.99]	3.47 %	4-1/2" 13.5# P110	0.32-0.37 [0.81-0.94]	0.33 [0.84]	5.49 %	

^{*}EHD variation decentralized.

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

EPIC™ Flex Perforating SystemsFlow REX 2.1(2 in (64 mm)) CIR Spirel

Flex RFX, 2-1/2 in (64 mm), GIB Spiral



HARDWARE

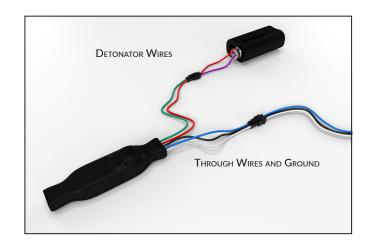
Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem ConnectionBooster to booster (no splice)Nominal OD / Wall Thickness (in)[mm]2.50" [63.50] / 0.250 [6.35]Upper/Lower Thread Connections2.092" - 8 STUB ACME 2G

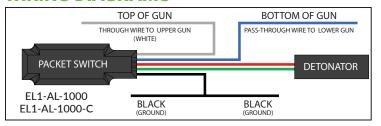
LOCKING PIN CONNECTORS

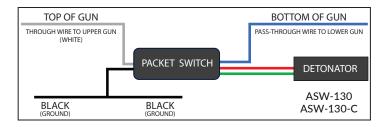






WIRING DIAGRAMS





Flex RFX, 2-1/2 in (64 mm), GIB Spiral

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
2.50" and 2.375" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC25-GIC25 RKI-GN-QC31-0001 RKC-GN-QC31-0001
2.50" and 2.39" Disposable Portless Tandem Contact Sub Assembly (solid feedthrough)	GN-R25-T078-A
2.50" Reusable Portless Tandem Contact Sub Assembly Complete Rebuild Kit (feed-through assembly, retainer nut, contact support bushing)	GN-R25-T077-A RKC-RXX-T077
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-225 OR-V95G-225
EPIC™ Slim Ignitor Module (GN-R25-T094-A tandem sub in bottom gun to -GID crossover)	IGN-EPIC-230-106
2.50" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x 2.5" Shorty Setting Tool (shown) GI Box x 3.5" Shorty Setting Tool	GN-RX25-BK10-GIC GN-RX25-2500-GID GN-RX25-3500-GID
Power Charge Ignitor with Ground Clip	DT-0425-101
2.50" Crossover Assy, GI Box x GO Firing Head Pin (connects to bottom gun -T078-A tandem) Includes GN-RX27-BK10-GO, Size 10 Firing Head. Intermediate Rebuild Kit Complete Rebuild Kit (all required parts)	GN-RX25-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
2.50" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R25-T172-A EM-EL1-THD-GOCQP OR-N569-222
2.375" and 2.50" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R25-STRX-BP
2.50" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-0250-A



EPIC FLEX DISPOSABLE TANDEM SUB GN-R25-T078-A



EPIC FLEX REUSABLE TANDEM SUB GN-R25-T077-A



GN-QC25-GIC25 REBUILD KITS:

RKI-GN-OC31-0001 RKC-GN-QC31-0001

2.50" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSY GN-R25-T078-A



MULTIPLE SHOT AND PHASING OPTIONS AVAILABLE





2.50" EPIC PRECISION DISPOSABLE PORTLESS TANDEM SUB ASSY GN-R25-T094-A





2.50" Crossover, GI Box x SIZE 10 SETTING TOOL GN-RX25-BK10-GIC (shown)

Flex RFX, 2-3/4 in (70 mm), GIB Spiral

GEODynamics*

GEODynamics' advanced EPIC™ Flex RFX perforating system delivers a versatile, addressable switch-ready, portless solution that provides high levels of precision and reliability. The open architecture design allows engineering teams to plan and complete multistage plug-and-perf operations more safely, precisely, and cost-effectively. Flex RFX can accommodate a variety of market-leading shaped charge designs, including GEODynamics charges. GEODynamics can provide Flex RFX fully loaded, or ready to load, and with or without an addressable switch.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointBottom-fired, wirelineMode of FireSelect fire, addressable

Detonating Cord 80-grain round

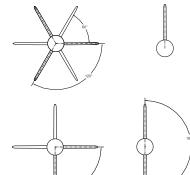
Compatible Perforating Charges FraclQ®, Connex®, Razor®, Basix™, Refrax™

Maximum Gun Swell (in)[mm] 2.91 [73.91] @ 15.0g In Fluid; 3.02 [76.20] @ 15.0g Dry



Maximum Pressure (psi)[MPa] 23,000 [158] 6 spf, 60° phasing

Maximum Tensile* (lbf)[kN] 166,700 [741] *Hardware Calculated Breaking Point



CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with T078 Tandem Subs	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)
GIB27-O01	1	0°	11.5	29.21			N.	/A	7.7	3.5	11.63	29.54
GIB27-J02	2	180°	13.5	34.29			0.0		9.3	4.2	13.63	34.62
GIB27-G03	3	120°	15.5	39.37	7.0	177.80		50.0	10.9	5.0	15.63	39.70
GIB27-B04	4	90°	17.5	44.45		2	2.0	50.8	12.5	5.7	17.63	44.78
GIB27-A06	6	60°	21.5	54.61					15.7	7.1	21.63	54.86

Additional shot and phasing options available by special order with lead time:

- Up to 12 shots per gun with 0°, 60°, 90°, 120°, or 180° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.

Refer to Components and Accessories for ancillary equipment.







CONSTANT ENTRY HOLE AND PENETRATION

Carrier					Shot Density /	API 19B	Performance in Concrete		Performance in Stressed Berea		
O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Phasing	Targeted Pipe*	EHD^ (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	EHD Variation	TTP (in)[cm]
О.Б.			Condition		Filasilig	largeteu Pipe	EUD. (ILI)[CILI]	I IP (III)[CIII]	END" (III)[CIII]	Decentralized	I IP (III)[CIII]
0.0/4"	FracIQ 30	EC2-27A1171		11.0g, RDX		4.4.(2)" OD	0.30 [0.76]		0.30 [0.76]	2.7 %	
2-3/4" 11g-15g	FracIQ 35	EC2-27A1271	Fluid	12.0g, RDX	6 spf / 60°	4-1/2" OD P110	0.35 [0.89]	13.0 [33.02]	0.35 [0.89]	5.9 %	5.0 [12.70]
118-138	FracIQ 40	EC2-27A1571		15.0g, RDX		P110	0.40 [1.02]		0.40 [1.02]	6.3 %	

DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Shaped Charge	Dort Number	Part Number Perforating Explosive		Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2715 Connex SDP	EC2-27A1521-RC		15.0g, RDX					0.30 [0.76]	11.70 [29.72]
	2713 Connex 3DP	EC2-27A1522-RC	In Fluid or Dry	15.0g, HMX		4.4./01/44.7.//			0.31 [0.79]	12.18 [30.94]
0.0/4"	2715 Razor XDP	EC2-27A1521		15.0g, RDX			0.39 [0.99]	37.45 [95.12]		
2-3/4"		EC2-27A1522		15.0g, HMX	6 spf /60°	4-1/2" 11.6# L-80	0.39 [0.99]	37.45 [95.12]		
15g		EC2-27A1523		15.0g, HNS		L-80			0.31 [0.79]	10.50 [26.67]
	2715 Danis VDD	EC2-27A1521-E		15.0g, RDX			0.39 [0.99]	31.80 [80.77]	0.32 (0.81)	9.40 [23.88]
	2715 Basix XDP	EC2-27A1522-E		15.0g, HMX			0.38 [0.97]	32.75 [83.19]	0.35 [0.89]	10.60 [26.92]

DUAL CASING

Carrier	Shaped Charge	Part Number	Perforating	Explosive	Shot Density /	Inn	er Casing	Out	er Casing
O.D.	D.D. Snaped Charge	Part Nulliber	Condition	Explosive	Phasing	O.D./Material	EHD (in)[cm]	O.D./Material	EHD (in)[cm]
2-3/4"	2711 Refrax	EC2-27A1171-R	FI 'I	11.0g, RDX	6 amf / 600	4" D110	0.29-0.30 [0.74-0.76]	5-1/2" P110	0.37-0.41 [0.94-1.04]
11g-15g	2715 Refrax	EC2-27A1571-R	Fluid	15.0g, RDX	6 spf / 60°	4" P110	0.34-0.36 [0.86-0.91]	5-1/2 P110	0.34-0.42 [0.86-1.07]

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

Flex RFX, 2-3/4 in (70 mm), GIB Spiral



HARDWARE

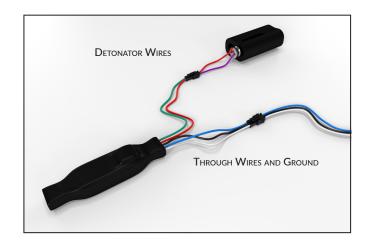
Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem ConnectionBooster to booster (no splice)Nominal OD / Wall Thickness (in)[mm]2.75" [69.85] / 0.313 [7.95]Upper/Lower Thread Connections2.375" - 8P ACME 2G

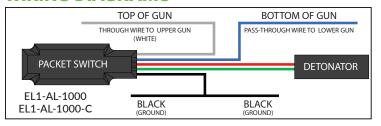
LOCKING PIN CONNECTORS

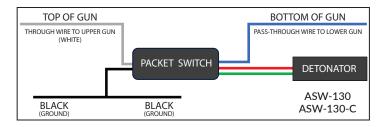






WIRING DIAGRAMS





Flex RFX, 2-3/4 in (70 mm), GIB Spiral

GEODynamics*

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
2.75" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC27-GIC27 RKI-GN-QC31-0001 RKC-GN-QC31-0001
2.75" Disposable Portless Tandem Contact Sub Assembly (solid feedthrough)	GN-R27-T078-A
2.75" Reusable Portless Tandem Contact Sub Assembly Complete Rebuild Kit (feed-through assembly, retainer nut, contact support bushing)	GN-R27-T077-A RKC-RXX-T077
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-227 OR-V95G-227
EPIC™ Slim Ignitor Module (GN-R27-T094-A tandem sub in bottom gun to -GID crossover)	IGN-EPIC-230-106
2.75" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x 2.5" Shorty Setting Tool (shown)	GN-RX27-BK10-GID GN-RX27-2500-GID
Power Charge Ignitor with Ground Clip	DT-0425-101
2.75" Crossover Assy, GI Box x GO Firing Head Pin (connects to bottom gun -T078-A tandem) Includes GN-RX27-BK10-GO, Size 10 Firing Head. Intermediate Rebuild Kit Complete Rebuild Kit (all required parts)	GN-RX27-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
2.75" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R27-T172-A EM-EL1-THD-GOCQP OR-N569-222
2.75" and 2.875" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R27-STRX-BP
2.75" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-2750-A



EPIC FLEX DISPOSABLE
TANDEM SUB
GN-R27-T078-A



TANDEM SUB GN-R27-T077-A 2.75" DIRECT CONNECT QUICK CHANGE ASSY GN-QC27-GIC27

2.75" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSY GN-R27-T078-A

2.75" EPIC FLEX RFX
CARRIER ASSEMBLY
GIB27-G03 (SHOWN)

MULTIPLE SHOT AND PHASING OPTIONS AVAILABLE





Portless Tandem Sub Assy GN-R27-T094-A



2.75" EPIC Precision Disposable



Flex, 3-1/8 in (79 mm), GIB Spiral

GEODynamics*

GEODynamics' advanced EPIC™ Flex perforating system delivers a versatile, addressable switch-ready, portless solution that provides high levels of precision and reliability. The open architecture design allows engineering teams to plan and complete multistage plug-and-perf operations more safely, precisely, and cost-effectively. Flex can accommodate a variety of market-leading shaped charge designs, including GEODynamics charges. GEODynamics can provide Flex fully loaded, or ready to load, and with or without an addressable switch.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options

Multiple Shot & Phasing Options

Initiation PointBottom-fired, wirelineMode of FireSelect fire, addressable

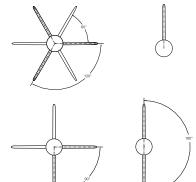
Detonating Cord 80-grain round

Compatible Perforating ChargesFracIQ®, Connex®, Razor®, Basix™, Basix Frac, Refrax™Maximum Gun Swell (in)[mm]3.46 [87.88] @ 22.7g In Fluid; 3.60 [91.44] @ 19.0g Dry



Maximum Pressure (psi)[MPa] 20,000 [137.90]

Maximum Tensile* (lbf)[kN] 140,000 [622.75] *Hardware Calculated Breaking Point



CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with T078 Tandem Subs	
	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)
GIB31-O01	1	0°	11.5	29.21		177.80	N/A		8.4	3.8	11.63	29.54
GIB31-J02	2	180°	14.0	35.56	7.0		2.4	61.0	10.5	4.8	13.63	34.62
GIB31-G03	3	120°	15.5	39.37			2.0	50.8	11.8	5.4	15.63	39.70
GIB31-B04	4	90°	17.5	44.45					13.5	6.1	17.63	44.78
GIB31-A06	6	60°	21.5	54.61					16.9	7.7	21.63	54.86

Additional shot and phasing options available by special order with lead time:

- Up to 12 shots per gun with 0° phasing (2" shot spacing for -O02; 3" shot spacing -O03 and greater (4 spf equivalent)).
- Up to 12 shots per gun with 180° phasing (2.4" shot spacing (5 spf equivalent)).
- Up to 12 shots per gun with 60°, 90°, or 120° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.



Flex, 3-1/8 in (79 mm), GIB Spiral



CONSTANT ENTRY HOLE AND PENETRATION

Carrier O.D.		Part Number	Perforating Condition	Explosive	Shot Density / Phasing	API 19B	Performanc	e in Concrete	Performance in Stressed Berea		
	Shaped Charge					Targeted Pipe*	EHD	TTP	EHD^	EHD Variation	TTP
						largeteu Fipe	(in)[cm]	(in)[cm]	(in)[cm]	Decentralized	(in)[cm]
3-1/8" 12g-13g	FracIQ 20	EC2-33A1271	Fluid	12.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110	0.22 [0.56]	13.0 [33.02]	0.22 [0.56]	5.5%	5.0 [12.70]
	Basix Frac 25	EC2-33A1271-BF		12.0g, RDX			0.26 [0.66]	12.0 [30.48]	0.26 [0.66]	2.4 %	4.0 [10.16]
	FracIQ 25	EC2-33A1371		13.0g, RDX			0.26 [0.66]	13.0 [33.02]	0.26 [0.66]	4.1 %	5.0 [12.70]
3-1/8" 13g-16g	FracIQ Connex 30 †	EC2-33A1471-FRX	Fluid	14.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110			0.31 [0.79]	6.0 %	5.0 [12.70]
	Basix Frac 30	EC2-33A1471-BF		14.0g, RDX			0.31 [0.79]	12.0 [30.48]	0.31 [0.79]	4.0 %	4.0 [10.16]
	FracIQ 30	EC2-33A1671		16.0g, RDX			0.31 [0.79]	13.0 [33.02]	0.31 [0.79]	3.1 %	5.0 [12.70]
	FracIQ 30	EC2-33A1672		16.0g, HMX			0.34 [0.86]		0.34 [0.86]	3.8 %	
3-1/8" 16g-20g	FracIQ Connex 35 †	EC2-33A1671-FRX	Fluid	16.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110			0.36 [0.91]	5.0 %	5.0 [12.70]
	Basix Frac 35	EC2-33A1871-BF		18.0g, RDX			0.36 [0.91]	12.0 [30.48]	0.36 [0.91]	3.4 %	4.0 [10.16]
	FracIQ 35	EC2-33A2071		20.0g, RDX			0.36 [0.91]	13.0 [33.02]	0.36 [0.91]	2.5 %	5.0 [12.70]
	FracIQ 35	EC2-33A2072		20.0g, HMX			0.37 [0.94]		0.37 [0.94]	3.0 %	
3-1/8" 19g-23g	FracIQ Connex 40 †	EC2-33A1971-FRX	Fluid	19.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110		13.0 [33.02]	0.41 [1.04]	6.5 %	5.0 [12.70]
	FracIQ 40	EC2-33A2371		23.0g, RDX			0.40 [1.02]		0.40 [1.02]	3.3 %	
	FracIQ 40	EC2-33A2372		23.0g, HMX			0.41 [1.04]		0.41 [1.04]	3.8 %	
	Basix Frac 40	EC2-33A2371-BF		23.0g, RDX			0.40 [1.02]	12.0 [30.48]	0.40 [1.02]	6.6 %	
	Basix Frac 40	EC2-33A2371-BF		23.0g, RDX		6" OD, P110	0.40 [1.02]		0.40 [1.02]	7.5 %	
	Basix Frac 40	EC2-33A2372-BF		23.0g, HMX		4-1/2" - 5-1/2" OD, P110					
3-1/8" 20g-23g	FracIQ 45	EC2-33A2071-45		20.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110	0.45 [1.14]	13.0 [33.02]	0.45 [1.14]	5.6 %	5.0 [12.70]
	FracIQ Connex 45 †	EC2-33A2371-FRX	Fluid	21.0g, RDX					0.45 [1.14]	3.2 %	
	Basix Frac 45	EC2-33A2371-BF45		23.0g, RDX			0.45 [1.14]	12.0 [30.48]	0.45 [1.14]	5.9 %	4.0 [10.16]
3-1/8" 23g	FracIQ 50	EC2-33A2371-50 †† EC2-33A2371-50G	- Fluid	23.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	13.0 [33.02]	0.50 [1.27]	1.5 %	5.0 [12.70]
	FracIQ 50	EC2-33A2372-RX		23.0g, HMX		5-1/2" OD, P110	0.50 [1.27]		0.50 [1.27]	4.6 %	
	Basix Frac 50	EC2-33A2371-BF50		23.0g, RDX		4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	12.0 [30.48]	0.50 [1.27]	4.8 %	4.0 [10.16]
	FracIQ 55	EC2-33A2371-55		23.0g, RDX		4-1/2" OD, P110	0.55 [1.40]	13.0 [33.02]		3.8 %	5.0 [12.70]

†FracIQ® Connex® charges (part numbers ending with -FRX) designate charges that combine FracIQ technology with Connex Clean Perforation Technology to achieve a constant hole size and tunnel cleaning action in one shaped charge. ††EC2-33A2371-50G has a custom, externally-grooved case (special application).

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

^{*3-1/8&}quot; FracIQ charge performance is compatible in 4.5" 11.6-15.1# and 5.5" 17-23# P-110 casing.

EPIC™ Flex Perforating Systems

Flex, 3-1/8 in (79 mm), GIB Spiral



DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Chanad Charas	Part Number	Perforating	Cymlaeiye	Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	3319 Connex RX	EC2-33A1991-RX	‡ Fluid or Dry	19.0g, RDX					0.32 [0.81]	11.30 [28.70]
	3319 Connex RX	EC2-33A1992-RX	‡ Fluid or Dry	19.0g, HMX					0.32 [0.81]	11.60 [29.46]
	3319 Razor XDP	EC2-33A1921	+ Fluid on Day	19.0g, RDX		4-1/2" 11.6# L-80	0.51 [1.30]	42.10 [106.93]		
0.4/0"	3319 Kazor ADP	EC2-33A1922	‡ Fluid or Dry	19.0g, HMX	F (//00/D)		0.49 [1.24]	41.10 [104.39]	0.43 [1.09]	14.60 [37.08]
3-1/8" 19g	2210 Danis VDD	EC2-33A1921-E	‡ Fluid or Dry	19.0g, RDX	5 spf / 60° (Dry) 6 spf / 60° (Fluid)		0.43 [1.09]	35.80 [90.93]		
178	3319 Basix XDP	EC2-33A1922-E	‡ Fluid or Dry	19.0g, HMX	o spi / oo (Fiulu)	L-00				
	3319 Basix XDP	EC2-33A1921-EG	Fluid	19.0g, RDX			0.43 [1.09]	35.70 [90.68]		
	3319 Basix DP	EC2-33A1951	‡ Fluid or Dry	19.0g, RDX			0.54 [1.37]	29.20 [74.17]		
		EC2-33A1952		19.0g, HMX						
		EC2-33A2321-RC		22.7g, RDX					0.40 [1.02]	15.60 [39.62]
	3323 Connex SDP	EC2-33A2322-RC		22.7g, HMX					0.46 [1.17]	15.31 [38.89]
		EC2-33A2323-RC		22.7g, HNS					0.36 [0.91]	11.85 [30.10]
		EC2-33A2321		22.7g, RDX					0.41 [1.04]	16.40 [41.66]
3-1/8"	3323 Razor XDP	EC2-33A2322	Fluid	22.7g, HMX	6 and 1 400	4-1/2" 11.6#	0.42 [1.07]	39.02 [99.11]	0.44 [1.12]	15.68 [39.83]
23g		EC2-33A2323	Fluid	22.7g, HNS	6 spf / 60°	L-80	0.35 [0.89]	26.05 [66.17]	0.37 [0.94]	12.12 [30.78]
	2222 Daniu VDD	EC2-33A2321-E		22.7g, RDX			0.42 [1.07]	46.00 [116.84]	0.39 [0.99]	12.30 [31.24]
	3323 Basix XDP	EC2-33A2322-E		22.7g, HMX			0.43 [1.09]	46.37 [117.78]		
	3323 Basix GH	EC2-33A2321-EG		22.7g, RDX	<				0.41 [1.04]	11.90 [30.23]
		EC2-33A2322-EG		22.7g, HMX			0.43 [1.09]	45.70 [116.08]	0.40 [1.02]	11.90 [30.23]

[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

DUAL CASING

Carrier	Chanad Chausa	Part Number	Perforating	Explosive	Shot Density /	Inne	er Casing	Outer Casing		
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	O.D./Material	EHD (in)[cm]	O.D./Material	EHD (in)[cm]	
	3314 Refrax EC2-33A1471-D		14.0g, RDX	X	Ermandad 4"	0.33-0.33 [0.84-0.84]		0.30-0.30 [0.76-0.76]		
0.4/0"	3316 Refrax	EC2-33A1671-D	Fluid	16.0g, RDX	6 spf / 60°	Expanded 4" P110 4-1/2" P110	0.37-0.38 [0.94-0.95]	5-1/2 P110	0.35-0.35 [0.89-0.89]	
3-1/8"	3320 Refrax	EC2-33A2071-D		20.0g, RDX			0.41-0.42 [1.04-1.07]		0.40-0.40 [1.02-1.02]	
14g-23g	3316 Refrax	EC2-33A1671-D		16.0g, RDX	6 amf / 600		0.30-0.32 [0.76-0.81]	7.0" P110	0.39-0.41 [0.99-1.04]	
	3323 Refrax	EC2-33A2371-D		23.0g, RDX	6 spf / 60°		0.41-0.42 [1.04-1.07]	7.0 P110	0.35-0.35 [0.89-0.89]	

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

EPIC™ Flex Perforating Systems

Flex, 3-1/8 in (79 mm), GIB Spiral



BIG HOLE

Carrier	Shaped Charge	Part Number	Perforating	Shot Density /		- Fynlosive		^Casing O.D.	Performance	e in Concrete	Performance in	Stressed Berea
O.D.	Shaped Charge	Part Nulliber	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]		
3-1/8"	3323 Basix BH	EC2-33A2331	Fluid	22.7g, RDX	6 and 1 400	4-1/2" 11.6#	0.78 [1.98]	7.60 [19.30]				
23g	SSZS BASIX BH	EC2-33A2332	riula	22.7g, HMX	6 spf / 60°	L-80	0.79 [2.01]	7.80 [19.81]		_		

GOOD HOLE

Carrier	Shaped Charge	Part Number	Explosive		Shot Density /	^Casing O.D.	Performance	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2210 Connov VELI	EC2-33A1941-RC	‡ Fluid or Dry	19.0g, RDX		4-1/2" 11.6# L-80			0.41 [1.04]	14.20 [36.07]
3-1/8"	3-1/8" 3319 Connex XEH 19g 3319 Basix GH	EC2-33A1942-RC		19.0g, HMX	5 spf / 60° (Dry) 6 spf / 60° (Fluid)				0.42 [1.07]	14.37 [36.50]
19g		EC2-33A1941		19.0g, RDX			0.60 [1.52]	28.60 [72.64]		
		EC2-33A1942		19.0g, HMX						
	3323 Connex XEH	EC2-33A2341-RC	- Fluid -	22.7g, RDX	6 spt / 60°	4-1/2"			0.43 [1.09]	15.60 [39.62]
3-1/8"	3323 Colliex VEH	EC2-33A2342-RC		22.7g, HMX		4-1/2			0.43 [1.09]	15.89 [40.36]
23g	2222 Pacity CLI	EC2-33A2341-E		22.7g, RDX		5-1/2" 17.0# L-80	0.43 [1.09]	44.0 [111.76]		
	3323 Basix GH	EC2-33A2342-E		22.7g, HMX		4-1/2"				

[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

HARDWARE

Gun Body Configuration/Material

Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & RetentionRound steel tube strip; bend tab retentionType of Tandem ConnectionDisposable and reusable tandem subs

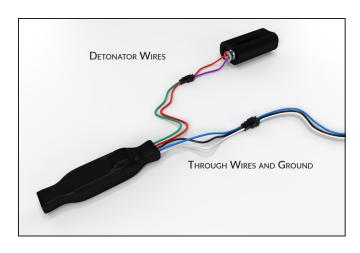
Nominal OD / Wall Thickness (in)[mm] 3.15 [80.01] / 0.315 [8.00] or 3.125 [79.38] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.750" 6P ACME-2G

LOCKING PIN CONNECTORS







EPIC™ Flex Perforating Systems

Flex, 3-1/8 in (79 mm), GIB Spiral

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" Disposable Portless Tandem Contact Sub Assembly (solid feed-through)	GN-R31-T078-A
3.13" Reusable Portless Tandem Contact Sub Assembly Complete Rebuild Kit (feed-through assembly, retainer nut, contact support bushing)	GN-R31-T077-A RKC-RXX-T077
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun (to -GIC crossover) EPIC™ Slim Ignitor Module (T094-A tandem sub in bottom gun (to -GIC crossover)	DT-0425-106 IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A







3.13" DIRECT CONNECT QUICK CHANGE ASSY GN-QC31-GIC31

3.13" EPIC FLEX DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T078-A

3.13" EPIC FLEX GIB31-G03

3-shot, 120° shown

MULTIPLE SHOT AND PHASING OPTIONS AVAILABLE





STRATX® DISPOSABLE TANDEM SUB GN-R31-T076-A



EPIC IGNITOR (GEN 1) DT-0425-106



3.13" EPIC PRECISION DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T094-A

EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106



3.13" Crossover. GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC

3-1/8 in (79 mm), GIC Spiral



GEODynamics STRATX® offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. STRATX integrates EPIC™ Switch addressable technology with industry-standard detonator options into a programmable initiation control (PIC) module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gun-string assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers STRATX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointTop-fired, wirelineMode of FireSelect fire, addressable

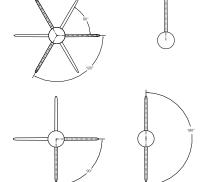
Detonating Cord 80-grain round, factory-loaded

Compatible Perforating ChargesFracIQ®, Connex®, Razor®, Basix™, Basix Frac, Refrax™Maximum Gun Swell (in)[mm]3.46 [87.88] @ 22.7g In Fluid; 3.60 [91.44] @ 19.0g Dry



Maximum Pressure (psi)[MPa] 20,000 [137.90]

Maximum Tensile* (lbf)[kN] 140,000 [622.75] *Hardware Calculated Breaking Point



CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Gross Weights (Fully Loaded)		Make-Up Lengths with Tandem Subs				
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T076 (in)	T279 (in)			
GIC31-O01	1	0°	9.5	24.1			N.	/A	12.1	5.5	9.63	10.38-10.55			
GIC31-J02	2	180°	11.5	29.2			† 2.0	50.8	14.2	6.4	11.63	12.38-12.55			
GIC31-G03	3	120°	13.5	34.3	4.25	107.95			16.2	7.4	13.63	14.38-14.55			
GIC31-B04	4	90°	15.5	39.4						2.0	2.0 50.8	18.3	8.3	15.63	16.38-16.55
GIC31-A06	6	60°	19.5	49.5					22.5	10.2	19.63	20.38-20.55			

Additional shot and phasing options available by special order with lead time:

- Up to 10 shots per gun with 0° phasing (2" shot spacing for -O02; 3" shot spacing for -O03 and greater (4 spf equivalent)).
- † Up to 12 shots per gun with 180° phasing (2" shot spacing for -J02; 2.4" shot spacing for -J03 and greater (5 spf equivalent)).
- Up to 12 shots per gun with 60°, 90°, or 120° phasings (2" shot spacing (6 spf equivalent)).
- Nitrile or Viton o-rings available with any assembly.
- Contact your sales representative for additional shot and phasing options.

3-1/8 in (79 mm), GIC Spiral



CONSTANT ENTRY HOLE AND PENETRATION

Carrier			Dorforation		Shot Density /	API 19B	Performanc	e in Concrete	Perfori	d Berea		
O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Phasing	Targeted Pipe*	EHD	TTP	EHD^	EHD Variation	TTP	
0.0.			Condition		Filasilig	largeteu Fipe	(in)[cm]	(in)[cm]	(in)[cm]	Decentralized	(in)[cm]	
3-1/8"	FracIQ 20	EC2-33A1271		12.0g, RDX		4-1/2" - 5-1/2" OD,	0.22 [0.56]	13.0 [33.02]	0.22 [0.56]	5.5%	5.0 [12.70]	
12g-13g	Basix Frac 25	EC2-33A1271-BF	Fluid	12.0g, RDX	6 spf / 60°	P110	0.26 [0.66]	12.0 [30.48]	0.26 [0.66]	2.4 %	4.0 [10.16]	
125 105	FracIQ 25	EC2-33A1371		13.0g, RDX		1110	0.26 [0.66]	13.0 [33.02]	0.26 [0.66]	4.1 %	5.0 [12.70]	
	FracIQ Connex 30 †	EC2-33A1471-FRX		14.0g, RDX					0.31 [0.79]	6.0 %	5.0 [12.70]	
3-1/8"	Basix Frac 30	EC2-33A1471-BF	Fluid	14.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD,	0.31 [0.79]	12.0 [30.48]	0.31 [0.79]	4.0 %	4.0 [10.16]	
13g-16g	FracIQ 30	EC2-33A1671	Fluid	16.0g, RDX	0 Spi / 60	P110	0.31 [0.79]	13.0 [33.02]	0.31 [0.79]	3.1 %	5.0 [12.70]	
	FracIQ 30	EC2-33A1672		16.0g, HMX			0.34 [0.86]	13.0 [33.02]	0.34 [0.86]	3.8 %	3.0 [12.70]	
	FracIQ Connex 35 †	EC2-33A1671-FRX		16.0g, RDX					0.36 [0.91]	5.0 %	5.0 [12.70]	
3-1/8"	Basix Frac 35	EC2-33A1871-BF	Fluid	18.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD,	0.36 [0.91]	12.0 [30.48]	0.36 [0.91]	3.4 %	4.0 [10.16]	
16g-20g	FracIQ 35	EC2-33A2071	Fluid	20.0g, RDX	o spi / ou		0.36 [0.91]	13.0 [33.02]	0.36 [0.91]	2.5 %	5.0 [12.70]	
	FracIQ 35	EC2-33A2072		20.0g, HMX			0.37 [0.94]	13.0 [33.02]	0.37 [0.94]	3.0 %	3.0 [12.70]	
	FracIQ Connex 40 †	EC2-33A1971-FRX		19.0g, RDX					0.41 [1.04]	6.5 %		
	FracIQ 40	EC2-33A2371		23.0g, RDX		4-1/2" - 5-1/2" OD,	0.40 [1.02]	13.0 [33.02]	0.40 [1.02]	3.3 %	5.0 [12.70]	
3-1/8"	FracIQ 40	EC2-33A2372		23.0g, HMX		P110	0.41 [1.04]	13.0 [33.02]	0.41 [1.04]	3.8 %		
19g-23g	Basix Frac 40	EC2-33A2371-BF	Fluid	23.0g, RDX	6 spf / 60°		0.40 [1.02]		0.40 [1.02]	6.6 %		
175 205	Basix Frac 40	EC2-33A2371-BF		23.0g, RDX		6" OD, P110	0.40 [1.02]	12.0 [30.48]	0.40 [1.02]	7.5 %	40[1016]	
	Basix Frac 40	EC2-33A2372-BF		23.0g, HMX		4-1/2" - 5-1/2" OD, P110		12.0 [50.40]			4.0 [10.16]	
0.4.(0))	FracIQ 45	EC2-33A2071-45		20.0g, RDX		4.4.(0), 5.4.(0), 0.5	0.45 [1.14]	13.0 [33.02]	0.45 [1.14]	5.6 %	F 0 [40 70]	
3-1/8"	FracIQ Connex 45 †	EC2-33A2371-FRX	Fluid	21.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110			0.45 [1.14]	3.2 %	5.0 [12.70]	
20g-23g	Basix Frac 45	EC2-33A2371-BF45		23.0g, RDX		P110	0.45 [1.14]	12.0 [30.48]	0.45 [1.14]	5.9 %	4.0 [10.16]	
	FracIQ 50	EC2-33A2371-50 †† EC2-33A2371-50G		23.0g, RDX		4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	13.0 [33.02]	0.50 [1.27]	1.5 %	5.0 [12.70]	
3-1/8"	FracIQ 50	EC2-33A2372-RX	Fluid	23.0g, HMX	((((((((((((((((((((5-1/2" OD, P110	0.50 [1.27]		0.50 [1.27]	4.6 %		
23g	Basix Frac 50	EC2-33A2371-BF50		23.0g, RDX	6 spf / 60°	4-1/2" - 5-1/2" OD, P110	0.50 [1.27]	12.0 [30.48]	0.50 [1.27]	4.8 %	4.0 [10.16]	
	FracIQ 55	EC2-33A2371-55		23.0g, RDX	X combine FracIO tech	4-1/2" OD, P110	0.55 [1.40]	13.0 [33.02]		3.8 %	5.0 [12.70]	

†FracIQ® Connex® charges (part numbers ending with -FRX) designate charges that combine FracIQ technology with Connex Clean Perforation Technology to achieve a constant hole size and tunnel cleaning action in one shaped charge. ††EC2-33A2371-50G has a custom, externally-grooved case (special application).

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

^{*3-1/8&}quot; FracIQ charge performance is compatible in 4.5" 11.6-15.1# and 5.5" 17-23# P-110 casing.

3-1/8 in (79 mm), GIC Spiral



BIG HOLE

Carrier	Chanad Chausa	Part Number	Perforating	Perforating Condition Explosive		^Casing O.D.	^Casing O.D. Performance in Concrete		Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition			Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
3-1/8"	2222 Danis DII	EC2-33A2331	السنام	22.7g, RDX	6 amf / 600	4-1/2" 11.6#	0.78 [1.98]	7.60 [19.30]		
23g	3323 Basix BH	EC2-33A2332	Fluid	22.7g, HMX	6 spf / 60°	L-80	0.79 [2.01]	7.80 [19.81]		

DEEP PENETRATING/EXTREME DEEP PENETRATING

Carrier	Chanad Charge	Dout Number	Perforating	Cymlosiya	Shot Density /	^Casing O.D.	Performanc	e in Concrete	Performance in Stressed Berea	
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2210 Campay DV	EC2-33A1991-RX	+ Fluid on Day	19.0g, RDX					0.32 [0.81]	11.30 [28.70]
	3319 Connex RX	EC2-33A1992-RX	‡ Fluid or Dry	19.0g, HMX					0.32 [0.81]	11.60 [29.46]
	2240 D VDD	EC2-33A1921	4 Fl.:1 D	19.0g, RDX		4-1/2" 11.6# L-80	0.51 [1.30]	42.10 [106.93]		
0.4.(0))	3319 Razor XDP	EC2-33A1922	‡ Fluid or Dry	19.0g, HMX	5 spf / 60° (Dry) 6 spf / 60° (Fluid)		0.49 [1.24]	41.10 [104.39]	0.43 [1.09]	14.60 [37.08]
3-1/8"	2240 D: VDD	EC2-33A1921-E	‡ Fluid or Dry	19.0g, RDX			0.43 [1.09]	35.80 [90.93]		
	3319 Basix XDP	EC2-33A1922-E + Fluid	‡ Fluid or Dry	19.0g, HMX						
	3319 Basix XDP	EC2-33A1921-EG	Fluid	19.0g, RDX			0.43 [1.09]	35.70 [90.68]		
	3319 Basix DP	EC2-33A1951	‡ Fluid or Dry	19.0g, RDX			0.54 [1.37]	29.20 [74.17]		
		EC2-33A1952		19.0g, HMX						
		EC2-33A2321-RC		22.7g, RDX					0.40 [1.02]	15.60 [39.62]
	3323 Connex SDP	EC2-33A2322-RC		22.7g, HMX					0.46 [1.17]	15.31 [38.89]
		EC2-33A2323-RC		22.7g, HNS					0.36 [0.91]	11.85 [30.10]
		EC2-33A2321		22.7g, RDX					0.41 [1.04]	16.40 [41.66]
3-1/8"	3323 Razor XDP	EC2-33A2322		22.7g, HMX	6 and 1 400	4-1/2" 11.6#	0.42 [1.07]	39.02 [99.11]	0.44 [1.12]	15.68 [39.83]
23g		EC2-33A2323	Fluid	22.7g, HNS	6 spf / 60°	L-80	0.35 [0.89]	26.05 [66.17]	0.37 [0.94]	12.12 [30.78]
	2222 Basis VDD	EC2-33A2321-E		22.7g, RDX			0.42 [1.07]	46.00 [116.84]	0.39 [0.99]	12.30 [31.24]
	3323 Basix XDP	EC2-33A2322-E		22.7g, HMX	(<u> </u>		0.43 [1.09]	46.37 [117.78]		
	3323 Basix GH	EC2-33A2321-EG		22.7g, RDX					0.41 [1.04]	11.90 [30.23]
		EC2-33A2322-EG		22.7g, HMX			0.43 [1.09]	45.70 [116.08]	0.40 [1.02]	11.90 [30.23]

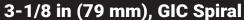
[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.





DUAL CASING

Carrier	Shaped Charge	Part Number	Perforating	Explosive	Shot Density /	Inne	er Casing	Outer Casing		
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	O.D./Material	EHD (in)[cm]	O.D./Material	EHD (in)[cm]	
	3314 Refrax	EC2-33A1471-D		14.0g, RDX		Expanded 4"	0.33-0.33 [0.84-0.84]		0.30-0.30 [0.76-0.76]	
0.4/0"	3316 Refrax	EC2-33A1671-D	Fluid	16.0g, RDX	6 spf / 60°		0.37-0.38 [0.94-0.95]	5-1/2 P110	0.35-0.35 [0.89-0.89]	
3-1/8"	3320 Refrax	EC2-33A2071-D		20.0g, RDX			0.41-0.42 [1.04-1.07]		0.40-0.40 [1.02-1.02]	
14g-23g	3316 Refrax	EC2-33A1671-D		16.0g, RDX	6 spf / 60°	4 1 /0" D110	0.30-0.32 [0.76-0.81]	7.0" P110	0.39-0.41 [0.99-1.04]	
	3323 Refrax	EC2-33A2371-D		23.0g, RDX	6 Spt / 60°	4-1/2" P110	0.41-0.42 [1.04-1.07]	7.0 PII0	0.35-0.35 [0.89-0.89]	

GOOD HOLE

Carrier	Shaped Charge	Part Number	Perforating Explosive		Shot Density /	^Casing O.D.	Performance in Concrete		Performance in Stressed Berea	
O.D.	Shaped Charge	Part Nulliber	Condition	LAPIOSIVE	Phasing	Application	EHD (in)[cm]	TTP (in)[cm]	EHD^ (in)[cm]	TTP (in)[cm]
	2210 Cannay VELL	EC2-33A1941-RC		19.0g, RDX					0.41 [1.04]	14.20 [36.07]
3-1/8"	3-1/8" 3319 Connex XEH	EC2-33A1942-RC	‡ Fluid or Dry	19.0g, HMX	5 spf / 60° (Dry) 6 spf / 60° (Fluid)	4-1/2" 11.6# L-80			0.42 [1.07]	14.37 [36.50]
19g	3319 Basix GH	EC2-33A1941		19.0g, RDX			0.60 [1.52]	28.60 [72.64]		
	3319 Basix GH	EC2-33A1942		19.0g, HMX						
	2222 Cannov VELL	EC2-33A2341-RC		22.7g, RDX		4-1/2"			0.43 [1.09]	15.60 [39.62]
3-1/8"	-1/8" 3323 Connex XEH	EC2-33A2342-RC	j j	22.7g, HMX	((((((((((((((((((((4-1/2			0.43 [1.09]	15.89 [40.36]
23g	2222 Pacity CLI	EC2-33A2341-E	Fluid	22.7g, RDX	6 spf / 60°	5-1/2" 17.0# L-80	0.43 [1.09]	44.0 [111.76]		
	3323 Basix GH	EC2-33A2342-E		22.7g, HMX		4-1/2"				

[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem Connection Disposable switch tandem sub

Nominal OD / Wall Thickness (in)[mm] 3.15 [80.01] / 0.315 [8.00] or 3.125 [79.38] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.750" 6P ACME-2G

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

3-1/8 in (79 mm), GIC Spiral

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct connection to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" STRATX® Portless Tandem Subs, Disposable Assembly Orienting Disposable Tandem Sub Assembly Lock Ring for Orienting Disposable Tandem (left hand threads)	GN-R31-T076-A GN-R31-T279-A GN-R31-L75-320
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
Detonating Cord	DET-80R111 (RDX) DET-80H212(HMX)
Initiation Booster, HMX	DT-0875-400
EPIC™ Gen 2V Detonator Module EPIC™ Gen 2B Detonator Module	DT-EPIC2-110-R140 DT-EPIC2-130-R140
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun to -GIC crossover) EPIC™ Slim Ignitor Module (T094-A tandem sub in bottom gun to -GIC crossover)	DT-0425-106 IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A



DIRECT CONNECT QUICK CHANGE ASSY GN-QC31-GIC31



PORTLESS TANDEM SUB ASSEMBLY GN-R31-T279-A (Lock Ring: GN-R31-L75-320)

EPIC DETONATOR MODULE DT-EPIC2-110-R140 DT-EPIC2-130-R140



STRATX GIC31-J02

2-shot, 180° shown MULTIPLE SHOT AND PHASING OPTIONS



EPIC PRECISION DISPOSABLE TANDEM GN-R31-T094-A



EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106



EPIC IGNITOR MODULE DT-0425-106

3.13" CROSSOVER, GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC (shown)

3-1/8 in (79 mm), SandIQ® (GIC-SIQ) Spiral



GEODynamics STRATX® offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. STRATX integrates EPIC™ Switch addressable technology with an industry-standard detonator into a programmable initiation control (PIC) module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gun-string assembly saves time and increases efficiencies at the wellsite.

SandIQ® charge technology provides an "off ramp" for more efficient diversion of proppant. Perforating tunnels are tilted 45 degrees in direction of fluid flow. Angled holes are engineered to create a physical diversion on the toe side of the casing for proppant to naturally flow into the formation. GEODynamics delivers STRATX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing Options Multiple Shot & Phasing Options

Initiation PointTop-fired, wirelineMode of FireSelect fire, addressable

Detonating Cord 80-grain round

Compatible Perforating Charges SandIQ®

Maximum Gun Swell (in)[mm] 3.46 [87.88] @ 22.7g In Fluid

ENVIRONMENTAL

Maximum Pressure (psi)[MPa] 20,000 [137.90]

Maximum Tensile* (lbf)[kN] 140,000 [622.75] *Hardware Calculated Breaking Point

CARRIER SPECIFICATIONS

Carrier Assembly Part Number		Shot & Phasing Options Gun Lengths		Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Shipping Assy Weights		Make-Up Lengths with Tandem Subs		
Fait Nullibei	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T076 (in)	T279 (in)
GIC31-SO01	1	0°	10.5	26.7			N	/A	7.9	3.6	10.63	11.38-11.55
GIC31-SO02	2	0°	15.0	38.1					11.3	5.1	15.13	15.88-16.05
GIC31-SJ02	2	180°	15.0	38.1					11.3	5.1	15.13	15.88-16.05
GIC31-SG03	3	120°	19.0	48.3			0.50	88.9	14.3	6.5	19.13	19.88-20.05
GIC31-SO03	3	0°	18.0	45.7					13.5	6.1	18.13	18.88-19.05
GIC31-SO04	4	0°	21.5	54.6	3.805	96.65			17.3	7.9	21.63	22.38-22.55
GIC31-SB04	4	90°	21.5	54.6			3.50		17.3	7.9	21.63	22.38-22.55
GIC31-SP05	5	72°	25.5	64.8					20.3	9.2	25.63	26.38-26.55
GIC31-SA06	6	60°	29.5	74.9					23.3	10.6	29.63	30.38-30.55
GIC31-SA09	9	60°	40.0	101.6					33.3	15.1	40.13	40.88-41.05
GIC31-SA10	10	60°	43.5	110.5					35.3	16.0	43.63	44.38-44.55

Refer to Components and Accessories for ancillary equipment.



STRATX[®] Perforating System 3-1/8 in (79 mm), SandIQ[®] (GIC-SIQ) Spiral





SandIQ® 45° TILT ANGLE

Camian			Daufauatina		Phasing /	API 19B	Perfo	Performance in Stressed Berea			
Carrier O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Explosive Charge Tilt Angle		EHD^ at 45° (in)[cm]	EHD Variation Decentralized	TTP (in)[cm]		
	SandIQ B	EC2-33A1371-SB		13.0g, RDX		5-1/2" OD, 23# P-110	0.28 [0.71]	4.2 %			
	SandIQ C	EC2-33A1671-SC		16.0g RDX			0.31 [0.79]	3.8 %	5.0 [12.70]		
	SandIQ D	EC2-33A1671-SD		16.0g, RDX	60° / 45°		0.38 [0.97]	2.6 %			
	SanuiQ D	EC2-33A1672-SD		16.0g, HMX			0.35 [0.89]	1.7 %			
3-1/8"	SandIQ E	EC2-33A2071-SE	Fluid	20.0g, RDX			0.42 [1.07]	3.7 %			
	SanuiQ E	EC2-33A2072-SE		20.0g, HMX			0.41 [1.04]	4.8 %			
	SandIQ F	EC2-33A2371-SF		23.0g, RDX			0.44 [1.12]	1.0 %			
	Salluly F	EC2-33A2372-SF		23.0g, HMX			0.43 [1.09]	6.0 %			
	SandIQ G	EC2-33A2371-SG		23.0g, RDX			0.51 [1.30]	5.2 %			

^{*3-1/8&}quot; SandIQ charge performance is compatible in 4.5" 11.6-15.1# and 5.5" 17-23# P-110 casing.

HARDWARE

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem Connection Disposable switch tandem subs

3.15 [80.01] / 0.315 [8.00] or 3.125 [79.38] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.750" 6P ACME-2G

Performance in concrete represents API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock. FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

Revised: February 5, 2025 5:19 PM

Nominal OD / Wall Thickness (in)[mm]

3-1/8 in (79 mm), SandIQ® (GIC-SIQ) Spiral



COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct connection to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" STRATX® Portless Tandem Subs, Disposable Assembly Orienting Disposable Tandem Sub Assembly Lock Ring for Orienting Disposable Tandem (left hand threads)	GN-R31-T076-A GN-R31-T279-A GN-R31-L75-320
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
Detonating Cord	DET-80R111 (RDX) DET-80H212(HMX)
Initiation Booster, HMX	DT-0875-400
EPIC™ Gen 2V Detonator Module EPIC™ Gen 2B Detonator Module	DT-EPIC2-110-R140 DT-EPIC2-130-R140
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun to -GIC crossover) EPIC™ Slim Ignitor Module (T094-A tandem sub in bottom gun to -GIC crossover)	DT-0425-106 IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A



DIRECT CONNECT QUICK CHANGE ASSY GN-QC31-GIC31



STRATX® ORIENTING DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T279-A (LOCK RING: GN-R31-L75-320)

EPIC DETONATOR MODULE DT-EPIC2-110-R140 DT-EPIC2-130-R140



STRATX GIC31-SJ02

2-SHOT, 180° SHOWN
MULTIPLE SHOT AND PHASING OPTIONS



EPIC PRECISION DISPOSABLE TANDEMGN-R31-T094-A



EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106



EPIC Ignitor Module DT-0425-106

3.13" Crossover, GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC (shown)

3-1/8 in (79 mm), HELLFire® (GIC-HF) Planar



GEODynamics STRATX® offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. STRATX integrates EPIC™ Switch addressable technology with industry-standard detonator options into a programmable initiation control (PIC) module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gun-string assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers STRATX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing

1 to 6 shots per cluster, 120° planar phasing

(shots 1-3: 0°, 120°, 240°; shots 4-6: 60°, 180°, 300°)

Initiation Point Top-fired, wireline

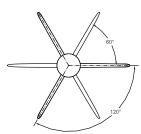
Mode of Fire Select fire, addressable

Perforating Condition In Fluid

Detonating Cord 80-grain round, factory-loaded

Compatible Perforating Charges HELLFire®

Maximum Gun Swell (in)[mm] 3.46 [87.88] @ 7.0g



ENVIRONMENTAL

Maximum Pressure (psi)[MPa] 16,000 [110.32]

Maximum Tensile* (lbf)[kN] 140,000 [622.75] *Hardware Calculated Breaking Point

CARRIER SPECIFICATIONS

Carrier Assembly Part Number		Phasing ions	Gun Lengths		Gun Lengths Gun End to Center of First Scallop @ 0°					Weights oaded)	Make-Up Lengths with Tandem Subs	
Part Nulliber	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	T076 (in)	T279 (in)
GIC31-HF03	1-3	120°	8.00	20.32	2.07	N	/A			8.13	8.88-9.05	
GIC31-HF06	4-6	60°	9.50	24.13	3.87	98.30	1.42	36.07	7.90	3.58	9.63	10.38-10.55
	Fully Loaded 6-Shot Carrier with attached Tandem Sub								11.55	5.24		

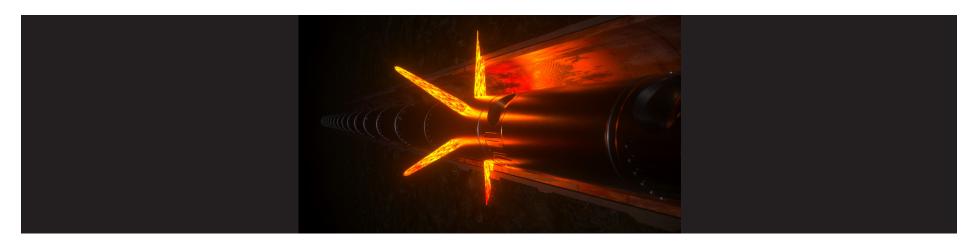
Refer to Components and Accessories for ancillary equipment.



GIC31-HF06
EXTERNALLY-SCALLOPED CARRIER

STRATX[®] Perforating System 3-1/8 in (79 mm), HELLFire[®] (GIC-HF) Planar





HELLFire® CONSTANT ENTRY HOLE AND PENETRATION - EXTERNAL SCALLOPS

Carrier			Perforating		Shot Density /	API 19B	Performance in Stressed Berea (API RP19B Sec. 2)			
O.D.	Shaped Charge	Part Number	Condition	Explosive	Phasing	Targeted Pipe	EHD^ (in)[cm]	EHD Variation Decentralized	TTP (in)[cm]	
2 4 (2)	HELLFire 26	EC2-31K0671-26	6.0g, RDX 6.0g, RDX Fluid 7.0g, RDX 7.0g, RDX			0.26 [0.66]	7.4 %			
3-1/8"	HELLFire 28	EC2-31K0671-28		6.0g, RDX	1 to 6 shots per cluster	4-1/2" OD, P110	0.28 [0.71]	5.5 %	3.2 [8.13]	
External Scallops	HELLFire 33	EC2-31K0771-33		7.0g, RDX			0.33 [0.84]	2.9 %		
6g-7g	HELLFire 36	EC2-31K0771-36		7.0g, RDX			0.36 [0.91]	1.6 %		
96 / 6	HELLFire 42	EC2-31K0771-42		7.0g, RDX			0.42 [1.07]	3.8 %		

HELLFire 31K and 33K charges are NOT interchangeable. EC2-31K series are for 3-1/8" HELLFire; EC2-33K series are for 3-3/8" HELLFire.

HARDWARE SPECIFICATIONS

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem Connection Disposable switch tandem sub

Nominal OD / Wall Thickness (in)[mm] 3.15 [80.01] / 0.315 [8.00] or 3.125 [79.38] / 0.3125 [7.94]

Upper/Lower Thread Connections 2.750" 6P ACME-2G

Performance in concrete represents API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.

^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock. FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics.

IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

STRATX[®] Perforating System 3-1/8 in (79 mm), HELLFire[®] (GIC-HF) Planar

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.13" Direct Connect Quick Change Assy (direct connection to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC31-GIC31 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.13" STRATX® Portless Tandem Subs, Disposable Assembly Orienting Disposable Tandem Sub Assembly Lock Ring for Orienting Disposable Tandem (left hand threads)	GN-R31-T076-A GN-R31-T279-A GN-R31-L75-320
O-Ring Materials and Size, Nitrile (Standard) Viton 95D (optional)	OR-N569-230 OR-V95G-230
Detonating Cord	DET-80R111 (RDX) DET-80H212(HMX)
Initiation Booster, HMX	DT-0875-400
EPIC™ Gen 2V Detonator Module EPIC™ Gen 2B Detonator Module	DT-EPIC2-110-R140 DT-EPIC2-130-R140
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun to -GIC crossover) EPIC™ Slim Ignitor Module (T094-A tandem sub in bottom gun to -GIC crossover)	DT-0425-106 IGN-EPIC-230-106
3.13" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX31-BK10-GIC GN-RX31-BK20-GIC GN-RX31-3625-GIC GN-RX31-3500-GIC GN-RX31-DB20-GIC
3.13" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC31-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.13" Crossover, Gl Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX31-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.13" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R31-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.13" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R31HF-0022
3.13" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3125-A



DIRECT CONNECT QUICK CHANGE ASSY GN-OC31-GIC31



STRATX DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T076-A



EPIC DETONATOR MODULE DT-EPIC2-110-R140 DT-EPIC2-130-R140



GIC31-HF06 EXTERNALLY-SCALLOPED CARRIER





EPIC SLIM IGNITOR MODULE IGN-EPIC-230-106



STRATX DISPOSABLE PORTLESS TANDEM SUB ASSEMBLY GN-R31-T076-A

> **EPIC IGNITOR MODULE** DT-0425-106

3.13" CROSSOVER, GI Box x Size 20 Setting Tool GN-RX31-BK20-GIC (shown)

3-3/8 in (86 mm), HELLFire® (GIC-HF) Planar

GEODynamics°

GEODynamics STRATX® offers a factory-loaded, plug-and-play, limited entry perforating system for unconventional reservoirs. STRATX integrates EPIC™ Switch addressable technology with industry-standard detonator options into a programmable initiation control (PIC) module, delivering an intrinsically-safe, deployment-ready design. Quick and simple gun-string assembly saves time and increases efficiencies at the wellsite. GEODynamics delivers STRATX carriers fully loaded to match customer specifications and preferences.

APPLICATION SPECIFICATIONS

Shot Density and Phasing

1 to 6 shots per cluster, 120° planar phasing

(shots 1-3: 0°, 120°, 240°; shots 4-6: 60°, 180°, 300°)

Initiation Point Top-fired, wireline

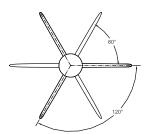
Mode of Fire Select fire, addressable

Perforating Condition In Fluid

Detonating Cord 80-grain round, factory-loaded

Compatible Perforating Charges HELLFire®

Maximum Gun Swell (in)[mm] Ø3.48" [88.39] @ 7.0g



ENVIRONMENTAL

Maximum Pressure (psi)[MPa] 15,000 [103.42]

Maximum Tensile* (lbf)[kN] 175,000 [778] *Hardware Calculated Breaking Point

CARRIER SPECIFICATIONS

Carrier Assembly Part Number	Shot & Phasing Options		Gun Lengths			Gun End to Center of First Scallop @ 0°		Distance Shot to Shot		Approx. Weights (Fully Loaded)		Make-Up Lengths with T076 Tandem Sub	
Part Number	# Shots	Phasing	(in)	(cm)	(in)	(mm)	(in)	(mm)	(lbs)	(kgs)	(in)	(cm)	
GIC33-HF06	1-3	120°	0.5	.5 24.1	1 3.87	98.30	30 1.42	1.42 36.07	9.93	4.50	9.63	245	
(External Scallops)	4-6	60°	9.5									24.5	
GIC33-HD06	1-3	120°	0.5	04.4	4.1 3.87	98.30	00.00	4.40 07.07			0.70	04.5	
(Internal Scallops)	4-6	60°	9.5	24.1			1.42	36.07			9.63	24.5	
Fully Loaded (Externally Scalloped) 6-Shot Carrier with attached Tandem Sub 13.79 6.26													

Refer to Components and Accessories for ancillary equipment.

GIC33-HD06

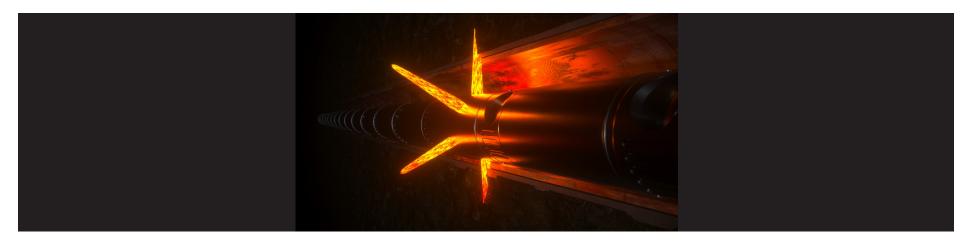
INTERNALLY-SCALLOPED CARRIER OFFERS
MORE CHARGE PERFORMANCE OPTIONS
(SEE NEXT PAGE FOR DETAILS)



GIC33-HF06
EXTERNALLY-SCALLOPED CARRIER

STRATX[®] Perforating System 3-3/8 in (86 mm), HELLFire[®] (GIC-HF) Planar





CONSTANT ENTRY HOLE AND PENETRATION

Carrier			Doutousting		Shot Density /	API 19B	Performance in Stressed Berea (API RP19B Sec. 2)		
O.D.	Shaped Charge	Part Number	Perforating Condition	Explosive	Phasing	Targeted Pipe	EHD^ (in)[cm]	EHD Variation Decentralized	TTP (in)[cm]
3-3/8"	HELLFire 25	EC2-33K0571	Fluid	5.0g, RDX		5-1/2" - 6.0" OD, P110	0.25 [0.64]	4.3 %	
Internal	HELLFire 30	EC2-33K0771		7.0g, RDX	1 to 6 shots per cluster		0.30 [0.76]	2.7 %	3.5 [8.89]
Scallops 5g-7g	HELLFire 36	EC2-33K0771-RX		7.0g, RDX			0.36 [0.91]	4.6 %	
3-3/8"	HELLFire 25	EC2-33K0671-25		6.0g, RDX		5-1/2" OD, P110	0.25 [0.64]	3.9%	3.5 [8.89]
External	HELLFire 30	EC2-33K0771-30	Fluid	7.0g, RDX	1 to 6 shots		0.30 [0.76]	5.5%	
Scallops	HELLFire 33	EC2-33K0771-33		7.0g, RDX	per cluster		0.33 [0.84]	3.6%	
6g-7g	HELLFire 34	EC2-33K0771-34		7.0g, RDX			0.34 [0.86]	5.8%	

HELLFire 31K and 33K charges are NOT interchangeable. EC2-31K series are for 3-1/8" HELLFire; EC2-33K series are for 3-3/8" HELLFire.

HARDWARE SPECIFICATIONS

Gun Body Configuration/Material Threaded and scalloped, proprietary gun steel, similar to 41XX alloy steel

Charge Tube Type & Retention Round steel tube strip; bend tab retention

Type of Tandem ConnectionDisposable switch tandem subNominal OD / Wall Thickness (in)[mm]3.375" [86] / 0.375" [9.53]Upper/Lower Thread Connections2.8125" 6P ACME-2G

Performance in concrete represents API RP43 or API RP19B Section I testing results with the shot density/phasing, casing OD, casing weight, and casing grade specified.
^EHD performance in stressed berea represents API RP19B Section 2 testing results with casing flat metal plate equivalent to 0.500" 120KSI yield and penetration (TTP) in stressed berea rock.

3-3/8 in (86 mm), HELLFire® (GIC-HF) Planar

GEODynamics°

COMPONENTS AND ACCESSORIES

Description	Part Number(s)
3.38" Direct Connect Quick Change Assy (direct connection to top gun tandem) Intermediate Rebuild Kit (contacts, teflon tubing, screw, spring, insulating ret.) Complete Rebuild Kit with O-Rings (all required parts)	GN-QC33-GIC33 RKI-GN-QC31-0001 RKC-GN-QC31-0001
3.38" STRATX® Disposable Portless Tandem Sub Assy	GN-R33-T076-A
O-Ring Materials and Size, Nitrile Standard Viton 95D (standard)	OR-N569-231 OR-V95G-231
Detonating Cord	DET-80R111 (RDX) DET-80H212 (HMX)
Initiation Booster, HMX	DT-0875-400
EPIC™ Gen 2V Detonator Module EPIC™ Gen 2B Detonator Module	DT-EPIC2-110-R140 DT-EPIC2-130-R140
EPIC™ Ignitor Module (Gen 1) (T076-A tandem sub in bottom gun to -GIC crossover)	DT-0425-106
3.38" Crossover, GI Box (Bottom Gun Tandem) to Setting Tool GI Box x Size 10 Setting Tool GI Box x Size 20 Setting Tool GI Box x 3.63" Wireline Compact Setting Tool GI Box x 3.5" Shorty Setting Tool GI Box x Size 20 Diamondback Setting Tool (shown)	GN-RX33-BK10-GIC GN-RX33-BK20-GIC GN-RX33-3625-GIC GN-RX33-3500-GIC GN-RX33-DB20-GIC
3.38" Crossover to Pumpdown Sub GI Pin x 3.13" Conventional Pin Connects bottom gun to pumpdown sub	GN-RX31-GIC33-050
Power Charge Ignitor with Ground Clip	DT-0425-101
3.38" Crossover, GI Box x GO Firing Head Box Intermediate Rebuild Kit Complete Rebuild Kit (all required parts) T078-A tandem in bottom gun to GO connection	GN-RX33-GO33-A RKI-GN-RX31-GO33 RKC-GN-RX31-GO33
3.38" Disposable Crossover, GI Pin x 1.63" ACME Box (disposable bottom sub) Thread Protector (1.63" box connection) Thread Protector o-ring For existing industry-standard quick change connections	GN-R33-T172-A EM-EL1-THD-GOCQP OR-N569-222
3.38" Bull Plug (bottom gun, e.g., for toe preps in vertical wells)	GN-R33HF-0022
3.38" Tandem Sub Removal Tool (1/2" drive socket)	GN-SIT-3375-A



DIRECT CONNECT QUICK CHANGE ASSY GN-QC33-GIC33



DISPOSABLE PORTLESS TANDEM
SUB ASSEMBLY
GN-R33-T076-A



EPIC DETONATOR MODULE DT-EPIC2-110-R140 DT-EPIC2-130-R140



GIC33-HF06 EXTERNALLY-SCALLOPED CARRIER





EPIC Ignitor Module DT-0425-106



3.38" Crossover, GI Box x Size 20 Setting Tool GN-RX33-BK20-GIC (shown)

Top Gun Connector Assembly

GEODynamics*

GEODynamics' direct connect crossovers provide reliable and efficient connections directly to EPIC™ Precision, EPIC™ Flex, and STRATX® perforating systems. The top connector shoulders up to industry-standard casing collar locators (CCL) and makes up to the tandem sub at the top gun.

	Mechanical Specifications									
Gun Size (OD)	Assembly Part Number	Housing Stamped Part Number	Upper O-Rings	Internal O-Ring	Makeup Length	Uphole Thread	Downhole Thread			
2-1/2"	GN-QC25-GIC25	GN-QC25-0041		OR-N569-210	5.98 in 15.19 cm	1-5/8" 6P ACME Pin	2.092" 8 STUB ACME-2G			
2-3/4"	GN-QC27-GIC27	GN-QC27-0041	OD NE (0.000				2-3/8" 8P ACME Box			
3-1/8"	GN-QC31-GIC31	GN-QC31-0041	OR-N569-222				2-3/4" 6P ACME Box			
3-3/8"	GN-QC33-GIC33	GN-QC33-0041					2-13/16" 6P ACME Box			

Environm	Environmental Specifications							
Maximum Pressure	20,000 psi	1378.95 bar						
Maximum Temperature	350°F	177°C						
Maximum Tensile Force	50,000 lbs	224.41 kN						

Electrical Specifications						
Maximum Voltage (QC)	500VDC					
Maximum Current (QC)	3A					

Rebuild Kits				
Quick Rebuild*	RKI-GN-QC31-0001			
Complete Rebuild*	RKC-GN-QC31-0001			

^{*}Rebuild Kit BOM details on following pages.





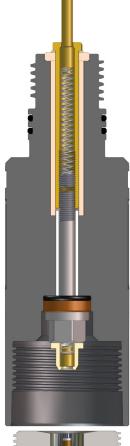
EPIC™ GEN 2 DETONATOR MODULE

DT-EPIC2-110-R140

DT-EPIC2-130-R140



HOUSING STAMPED P/N GN-QC27-0041



EPIC™ Precision Disposable Portless Tandem Sub Assy GN-R27-T094-A

EPIC SLIM DETONATOR MODULE DT-EPIC-230-R140

EPIC PRECISION SYSTEMS



Revised: February 5, 2025 5:19 PM

Tandem Sub and Detonator Module Assemblies







EPIC FLEX SYSTEMS



EPIC™ FLEX DISPOSABLE TANDEM SUBS

GN-R25-T078-A GN-R27-T078-A GN-R31-T078-A GN-R33-T078-A

EPIC™ FLEX REUSABLE TANDEM SUBS

GN-R25-T077-A GN-R27-T077-A GN-R31-T077-A GN-R33-T077-A



STRATX® DISPOSABLE TANDEM SUBS

(3-1/8" OR 3-3/8" GUNS ONLY) GN-R31-T076-A GN-R33-T076-A

STRATX® DISPOSABLE ORIENTING TANDEM SUB GN-R31-T279-A

EPIC GEN 2 DETONATOR MODULE

DT-EPIC2-110-R140 DT-EPIC2-130-R140



EPIC™ PRECISION DISPOSABLE TANDEM SUBS

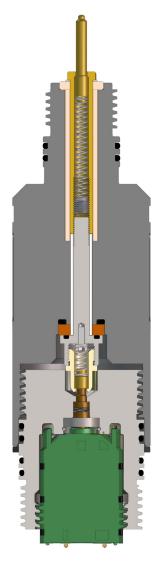
GN-R25-T094-A GN-R27-T094-A GN-R31-T094-A

EPIC™ PRECISION DISPOSABLE ORIENTING TANDEM SUBS

GN-R25-T279-A GN-R27-T279-A GN-R31-T294-A

EPIC SLIM DETONATOR MODULE

DT-EPIC-230-R140



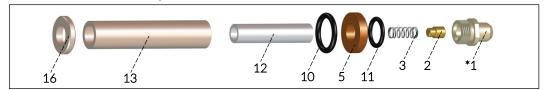
GN-QC31-GIC31 w/ GN-R31-T076-A AND DT-EPIC2-110-R140

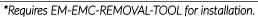
STRATX Systems

Top Gun Connector Rebuild Kits



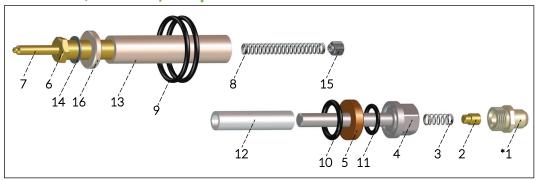
RKI-GN-QC31-0001, Quick Rebuild Kit

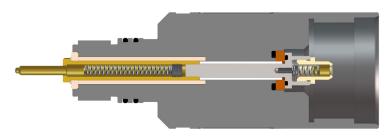






RKC-GN-QC31-0001, Complete Rebuild Kit





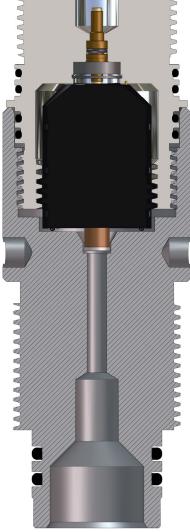
*Requires EM-EMC-REMOVAL-TOOL for installation.

Item	Part Number	Description	QTY	
1	EM-QC31-0022*	Short QC Bottom Insulating Retainer	1	
2	EM-032-0040	Contact, Sliding Contact V2	1	
3	HD-SPG-296X236X031WD	Spring, Compression, .296 OD x .236 ID x .031 WD x .88 length, Century Spring # GG-2 SS	1	
4	GN-QC27-0033	Contact Rod, 3-1/4" Short QC V2		
5	EM-EN-035-02684-0003	Washer, Insulating, QC Assembly	1	
6	EM-EC-3354 Barrel, Sliding Contact, QC Assembly			
7	EM-EC-3356	Contact, Plunger, QC Assembly	1	
8	HD-SPG-296X224X2_63	Spring, Compression, QC Assembly, Upper	1	
9	OR-N569-222 O-Ring, #222 Nitrile, 90 Durometer (six total in kit; two used for each redress)		6	
10	OR-N569-210	O-Ring, #210 Nitrile, 90 Durometer	1	
11	OR-HN90-114	O-Ring, HNBR #114, 90 Durometer	1	
12	EM-EN-500x375x50 TT	PTFE Tubing, 3/8" ID X 1/2" OD by 3/8" ID by 1/16" Wall, 2.23" Nominal Length	1	
13	EM-EN-3354	Insulator, Sliding Contact	1	
14	EM-EC-3355	Washer, Contact, Sliding, QC Assembly		
15	EM-QC-QC275-00GO-0020	20 Set Screw, Modified, QC Assembly		
16	EM-EC-3357	Washer, Insulating, Top, QC Assembly	1	

Ignitor Modules and Setting Tool Crossovers



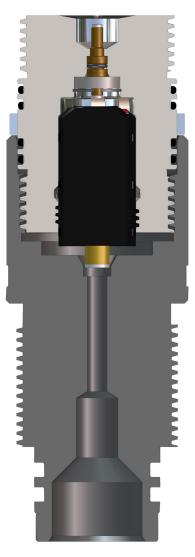
EPIC[™] Precision, EPIC[™] Flex, and STRATX® perforating systems provide reliable and efficient connections from the bottom gun to the setting tool. The EPIC[™] Ignitor Module is a patented combination of electronics and ignitor technology, initiated by the bottom switch in the gun string. These non-addressable ignitor modules are designed to run with the EPIC[™] Command Shooting Panel and are fully compatible with third-party addressable switches.



GN-R31-T076-A, TANDEM SUB DT-0425-106, IGNITOR MODULE (GEN 1) GN-RX31-BK20-GIC, CROSSOVER







GN-R31-T094-A, TANDEM SUB IGN-EPIC-230-106, IGNITOR MODULE GN-RX31-BK20-GIC, CROSSOVER

Setting Tool Crossover Specifications









BK Size 10

3-5/8" COMPACT †

DIAMONDBACK

Mechanical Specifications							
Gun OD	Part Number	Description	O-Ring Size	Makeup Length			
	GN-RX25-BK10-GIC	2.50" Crossover, GI Box x Size 10	#222	3.25"			
2-1/2"	GN-RX25-2500-GID	2.50" Crossover, GI Box x 2.5" Shorty	#224	2.25"			
	GN-RX25-3500-GID	2.50" Crossover, GI Box x 3.5" Shorty	#332	3.00"			
	GN-RX27-BK10-GID	2.75" Crossover, GI Box x Size 10	#222	3.25"			
2-3/4"	GN-RX27-2500-GID	2.75" Crossover, GI Box x 2.5" Shorty	#224	2.75"			
	GN-RX27-3500-GID	2.75" Crossover, GI Box x 3.5" Shorty	#332	2.83"			
	GN-RX31-BK10-GIC	3.13" Crossover, GI Box x Size 10	#222	3.25"			
	GN-RX31-BK20-GIC	3.13" Crossover, GI Box x Size 20	#328	3.00"			
3-1/8"	GN-RX31-3625-GIC	† 3.13" Crossover, GI Box x 3.63" Compact	#226	6.53"			
	GN-RX31-3500-GIC	3.13" Crossover, GI Box x 3.5" Shorty	#332	3.00"			
	GN-RX31-DB20-GIC	3.13" Crossover, GI Box x Diamondback Setting Tool	n/a	5.67"			
	GN-RX33-BK10-GIC	3.38" Crossover, GI Box x Size 10	#222	3.25"			
	GN-RX33-BK20-GIC	3.38" Crossover, GI Box x Size 20	#328	3.00"			
3-3/8"	GN-RX33-3625-GIC	† 3.38" Crossover, GI Box x 3.63" Compact	#226	6.53"			
	GN-RX33-3500-GIC	3.38" Crossover, GI Box x 3.5" Shorty	#332	3.00"			
	GN-RX33-DB20-GIC	3.38" Crossover, GI Box x Diamondback Setting Tool	n/a	5.67"			



2-1/2" SHORTY



3-1/2" SHORTY

† BLEEDER VALVE COMPONENTS BRASS RUPTURE DISC: ST-0000-001 BLEEDER NUT: 025-1020-001 O-RING: OR-N569-213



EPIC™ Direct Connection Crossovers Conventional Ignitor, GO33 Setting Tool Crossovers

GEODynamics*

EPIC[™] Precision, EPIC[™] Flex, and STRATX[®] perforating strings can be configured with standard GO connections to the setting tool. The EPIC[™] Flex Disposable Contact Tandem Sub Assembly connects the bottom gun to a reusable GO crossover assembly for use with industry-standard ignitors.

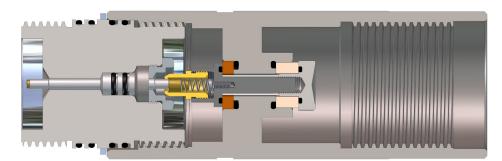
	Mechanical Specifications								
Gun OD	Part Number	Description	O-Ring Size	Makeup Length					
		2.50" Crossover Assy, GI Box to Size 10 Setting Tool	2.50" Crossover Assy, GI Box to Size 10 Setting Tool #222 8.05"						
2-1/2"	GN-RX25-GO33-A	Assembly includes two crossover components: 2.50" GI Box x GO Box Crossover, GN-RX25-GO33 2.75" GO Firing Head Pin x Size 10 Setting Tool Crossover, GN-RX27-BK10-GO							
		2.75" Crossover Assy, GI Box to Size 10 Setting Tool	#222	8.05"					
2-3/4"	GN-RX27-GO33-A	Assembly includes two crossover components: 2.75" GI Box x GO Box Crossover, GN-RX27-GO33 2.75" GO Firing Head Pin x Size 10 Setting Tool Crossover, GN-RX27-BK10-GO							
3-1/8"	GN-RX31-GO33-A	3.13" Crossover Assy, GI Box x GO Firing Head Box n/a 8.44"							
3-3/8"	GN-RX33-GO33-A	3.38" Crossover Assy, GI Box x GO Firing Head Box							



GEODYNAMICS POWER CHARGE IGNITOR WITH GROUND CLIP DT-0425-101

Rebuild Kits					
Quick Rebuild*	RKI-GN-RX31-GO33				
Complete Rebuild*	RKC-GN-RX31-GO33				

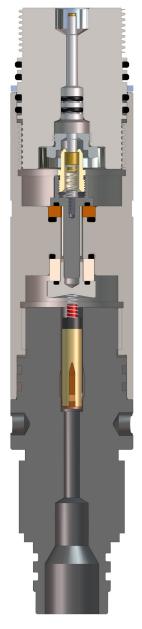
*Rebuild Kit BOM lists on next page



EPIC™ FLEX DISPOSABLE CONTACT TANDEM SUB ASSEMBLIES GN-R31-T078-A GN-R33-T078-A GI Box to GO Firing Head Box Crossover Assemblies: GN-RX31-GO33-A GN-RX33-GO33-A EPIC™ FLEX DISPOSABLE CONTACT TANDEM SUB ASSEMBLIES: GN-R25-T078-A GN-R27-T078-A

GI Box to Size 10 Setting Tool Crossover Assemblies: GN-RX25-GO33-A GN-RX27-GO33-A

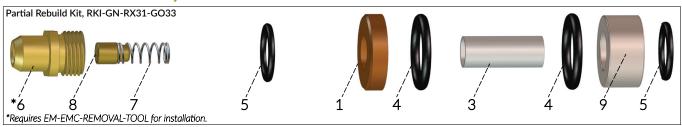
Power Charge Ignitor with Ground Clip DT-0425-101



EPIC™ Direct Connection Crossovers GO33 Setting Tool Crossover Rebuild Kits

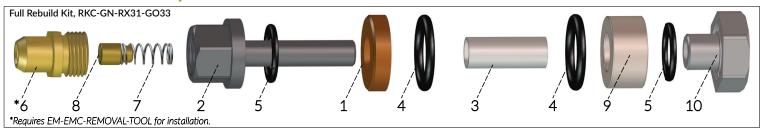


RKI-GN-RX31-G033, PARTIAL REBUILD KIT





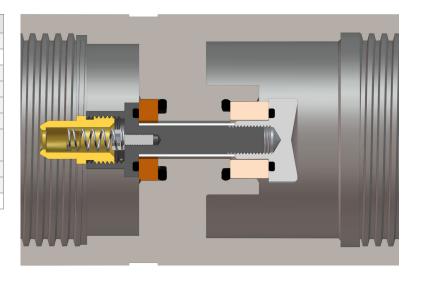
RKC-GN-RX31-G033, FULL REBUILD KIT



Item	Part Number	Description	QTY
1	EM-EN-035-02684-0003	Washer, Insulating, QC Assembly	1
2	GN-QC27-0035	Contact Rod, 3-1/8" to GO	1
3	EM-52355K15-1125	Teflon Tubing, 3/8" ID X 7/16" OD X 1.125" Long	1
4	OR-N569-210	O-Ring, #210 Nitrile, 90 Durometer	2
5	OR-HN90-114	O-Ring, HNBR #114, 90 Durometer	2
6	EM-QC31-0022*	Short QC Bottom Insulating Retainer	1
7	HD-SPG-296X236X031WD	Spring, Compression, .296" OD x .236" ID x .031" WD x .88" length, Century Spring # GG-2 SS	1
8	EM-032-0040	Contact, Sliding Contact V2	1
9	EM-EN-100X520X500	Insulating Washer, 1.00" OD X .520" ID by 1/2" Long	1
10	EM-QC-QC275-00GO-0023	Contact Rod, GO Style QC Assembly	1



Shaded rows with bold text represent parts in the partial rebuild kit.



EPIC™ Flex Accessories

Reusable Portless Tandem Sub and Rebuild Kit



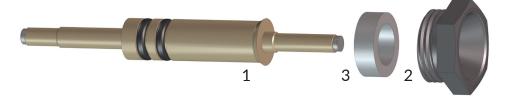
GEODynamics' EPIC™ Flex can be run with disposable or reusable tandem subs. Reusable subs are available in four sizes with a universal rebuild kit.

Rebuild the reusable sub after every run. Stop using the sub after 25 runs (25 rebuilds).

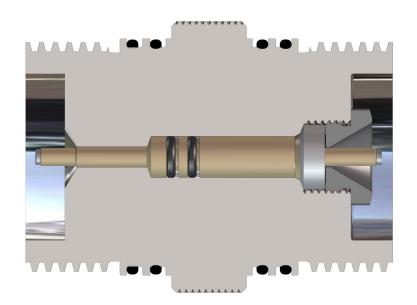
GN-RXX-T077-A, Specifications

Gun Size (OD)	Assembly Part Number	External O-Rings	Makeup Length	Rebuild Kit
2-1/2"	GN-R25-T077-A	OR-N569-225		
2-3/4"	GN-R27-T077-A	OR-N569-227	0.90" / 2.29 cm	RKC-RXX-T077
3-1/8"	GN-R31-T077-A	OR-N569-230	0.90 / 2.29 CM	RNC-RAA-10//
3-3/8"	GN-R33-T077-A	OR-N569-231		

RKC-RXX-T077, Rebuild Kit



Item	Part Number	Description	QTY
1	GN-036-110-A	GIB Feed-Thru Assembly, Molded PEEK over SS Pin (includes two o-rings, #109 HNBR, 90 Durometer)	1
2	RNTC-ZT1	Retainer Nut, ZT1 (may be substituted with P/N RNTD-GEP)	1
3	GN-IGS-086	Contact Support Bushing	1





EPIC™ Systems Mechanical Performance





Carrier O.D. / System Type	SPF / Phasing (tested)	Maximum Pressure (psi) [MPa]	ressure Tensile* Charge Size/Type		Charge Part Number	Perforating Condition	API Maximum Gun Swell (in)[mm]
2-1/2" EPIC Precision	2-1/2" EPIC Precision 6 spf / 60°		127 500 [/12]	11.5g, HMX, Razor XDP	EC2-25A1122	FI:.1	0 (/ [/7.5/]
GID25 Series	6 spf / 60°	20,000 [138]	137,500 [612]	11.5g, HMX, Connex	EC2-25A1122-RC	Fluid	2.66 [67.56]
2-1/2" EPIC Flex	6 spf / 60°	20,000 [120]	137,500 [612]	11.5g, HMX, Razor XDP	EC2-25A1122	Fluid	2 (/ [/ 7 5 /]
GIB25 Series	6 spf / 60°	20,000 [138]	137,300 [612]	11.5g, HMX, Connex	EC2-25A1122-RC	Fluid	2.66 [67.56]
2-3/4" EPIC Precision	/ / / 00	22 000 [4 50]	1// 700 [741]	45.0- LIMY D VDD	FC0 0744F00	Fluid	2.90 [73.66]
GID27 Series	6 spf / 60°	23,000 [158]	166,700 [741]	15.0g, HMX, Razor XDP	EC2-27A1522	Dry	3.02 [76.71]
2-3/4" EPIC Flex Orbit GOB27 Series	5 spf / 0° 5 spf / 90°-270°	23,000 [158]	140,000 [622]	Various Charge Options	See Catalog Pages	Fluid	Details upon request
2-3/4" EPIC Flex	/4" EPIC Flex		FC0 0744F00	Fluid	2.90 [73.66]		
GIB27 Series	6 spf / 60°	23,000 [158]	166,700 [741]	15.0g, HMX, Razor XDP	EC2-27A1522	Dry	3.02 [76.71]
3-1/8" EPIC Precision	/ out / /00	20,000 [120]	140,000 [422)	Various Charge Ontions	Con Catalan Dansa	Fluid (22.7g)	3.46 [87.88]
GID31 Series	6 spf / 60°	20,000 [138]	140,000 [622)	Various Charge Options	See Catalog Pages	‡ Dry (19.0g)	3.60 [91.44]
3-1/8" EPIC Flex Orbit GOB31 Series	5 spf / 0° 5 spf / 90°-270°	18,000 [124]	140,000 [622]	Various Charge Options	See Catalog Pages	Fluid	Details upon request
3-1/8" EPIC Flex	/ (//00	00 000 [400]	4.40.000 [(00]	V : Cl O !:	C CII D	Fluid (22.7g)	3.46 [87.88]
GIB31 Series	6 spf / 60°	20,000 [138]	140,000 [622]	Various Charge Options	See Catalog Pages	‡ Dry (19.0g)	3.60 [91.44]
3-1/8" STRATX®	/ (//00	00 000 [400]	4.40.000 [(00]	V : Cl O !:	C CII D	Fluid (22.7g)	3.46 [87.88]
GIC31 Series	6 spf / 60°	20,000 [138]	140,000 [622]	Various Charge Options	See Catalog Pages	‡ Dry (19.0g)	3.60 [91.44]
3-1/8" STRATX® SandIQ GIC31-S Series	6 spf / 60°	20,000 [138]	140,000 [622]	Various Charge Options	See Catalog Pages	Fluid (22.7g)	3.46 [87.88]
3-1/8" STRATX® HELLFire GIC31-HF Series	6 shot HELLFire®	16,000 [110]	140,000 [622]	7.0g, RDX, HELLFire®	EC2-31K Series	Fluid	3.46 [87.88]
3-3/8" STRATX® HELLFire GIC33-HF Series	6 shot HELLFire	15,000 [103]	175,000 [778]	7.0g, RDX, HELLFire®	EC2-33K Series	Fluid	3.48 [88.39]

^{*}Hardware calculated breaking point

FLUID: Qualified for shooting in FLUID only with perforating systems qualified by GEODynamics. IN FLUID or DRY: Qualified for shooting in FLUID or DRY GAS with perforating systems qualified by GEODynamics.

[‡] For 3-1/8" 19g in dry gas, maximum shot density is 5 spf or limited to one- (1) and two- (2) shot short guns only.

Part Number Descriptions EPIC™ Loaded Gun Systems



Examples: Loaded Gun Part Numbers and Descriptions						
LGID27B08-08I1171-RX-DXN	EPIC™ Precision Loaded, 2.75" x 23.5", 08 Shots, 90° (6 spf), DET-80R111, EC2-27A1171-R, 08 Loaded, 0 Blank, DS-Tandem-T094A, No Switch, Nitrile-OR					
LGIB27B08-08I1171-RX-BXN	EPIC™ Flex Loaded, 2.75" x 25.5", 08 Shots, 90° (6 spf), DET-80R111, EC2-27A1171-R, 08 Loaded, 0 Blank, D-Tandem-T078A, No Switch, Nitrile-OR					
LGIC31A06-06I2321-EX-AXN	STRATX® Loaded, 3.13" x 19.5", 06 Shots, 60° (6 spf), DET-80R111, EC2-33A2321-E, 06 Loaded, 0 Blank, D-Tandem-T076A, No Switch, Nitrile-OR					
LGIC33HF06-03I0771-30-AXV	STRATX® Loaded, 3.38" x 9.5", 06 Shots, 120/60° (HF), DET-80R111, EC2-33K0771-30, 03 Loaded, 3 Blank, D-Tandem-T076A, No Switch, Viton-OR					

A	Gun Assembly	Gun Series	Carrier OD	Phasing	# Shots	-	# Loaded Shots	Detonating Cord	Charge P/N (without EC2-33X prefix)	-	Charge P/N (suffix)	-	Sub	Switch	O-Ring Material
LG	Loaded Gun	XX	NN	XX	NN	-	NN	X	NNNN	-	XX thru XXXXX	_	х	X	X

	Gun Series								
IB	GIB	EPIC™ Flex							
IC	GIC	STRATX®							
ID	GID	EPIC Precision							
OB	GOB	EPIC Flex Orbit							
PO	GPO	EPIC Precision Orbit							

Carrier OD		
Size	Code	
2-1/2"	25	
2-3/4"	27	
3-1/8"	31	
3-3/8"	33	

		Phasing	# Snots	
	Α	60°	Total shots available in	
	В	90°	the carrier (e.g., 06, 12)	
	B4	90° (4 spf)		
	G	120°	#Loaded Sho	nte
	G3	120° (3 spf)		
	J	180°	Number of loaded shots	, 0
	J4	180° (4 spf)	holds 06, but 05 loade	a per oraer)
	0	0°		
	Р	72°		
	S	0° rotated 90°		
	Т	0° rotated 180°		
	U	Reserved		
	٧	+10°/-10°		
	V4	+45°/-45°		
	W	90° - 270°		
	W4	90° - 270°		
	Υ	0° rotated 270°		
	HD	120°/60°		
	HF	120°/60°		
	SA	45° T, 60°		
	SB	45° T, 90°		
	SC	45° T, 135°		
	SD	45° T, 140°		
	SG	45° T, 120°		
	SJ	45° T, 180°		
	SO	45° T, 0°		
ĺ	SP	45° T, 72°		
	ST	45° T, 0 rotated 180°		
	SW	45° T, 90° - 270°		

Phasing

Shots

	Detonating Cord	Charge P/N
В	DET-40H512 (HMX)	The 4-digit charge part number followed
D	DET-40R511 (RDX)	by -XX or a 2- to 5-character suffix;
F	DET-80H212 (HMX)	e.g., EC2-33A1371 = 1371-XX
ı	DET-80R111 (RDX)	EC2-33A2371-BF45 = 2371-BF45

	Sub			
Х	No Sub			
Α	STRATX T076-A (3.13" EPIC2)			
В	EPIC Flex T078-A			
С	Disposable XVR T172A			
D	EPIC Precision T094-A (EPIC Slim)			
Е	STRATX T279-A Orienting (3.13" EPIC2)			
F	EPIC Precision T279-A Orienting (2.5", 2.75" EPIC Slim)			
G	EPIC Precision T294-A Orienting (3.13" EPIC Slim)			

	Switch
Χ	No Switch (EPIC Module Shipped Separately)
Α	EPIC Packet Switch, EL1-AL-1000
В	EPIC Gen 2V Detonator Module, R140 (T076 subs)
С	EPIC Packet Switch, ASW-130
D	RESERVED for EPIC Packet Switch, ASW-120
Е	Third Party Packet Switch
F	EPIC Slim Detonator Module, R140 (T094 subs)
G	EPIC Gen 2B Detonator Module, R140 (T076 subs)
Н	STRATX Gen 1 PIC Module (T076 subs)
K	EPIC Packet Switch, EL1-AL-1000-C (w/Connectors)
L	EPIC Packet Switch, ASW-130-C (w/Connectors)

	O-Ring Material		
X No O-Rings (No Sub)			
N Nitrile			
٧	Viton		

Part Number Descriptions Shaped Charges





Examples: Shaped Charge Part Numbers and Descriptions				
EC2-33A2341	33A Charge Case (carrier OD 3.13/3.38", or larger carrier with 33A load tube), 23 grams, RDX			
EC2-33A2322	33A Charge Case (carrier OD 3.13/3.38", or larger carrier with 33A load tube), 23 grams, HMX			
EC2-40A3922-RC	40A Charge Case (carrier OD 4.0", or larger carrier with 40A load tube), 39 grams, HMX, Reactive Charge			

Explosive		Gun Type		Carrier OD	Case Type	Explosive Weight	Charge Type	Explosive Type	_	Suffix
Charge	Code	Description	_							
FC	1	Retrievable Tubing Gun	_ NN	NINI	Х	NN (g)	N.	N		VV 41 VVVVVV
EC	2	Retrievable Casing Gun		ININ			NN (g) N	IN	IN IN	-

Carrie		
Size	Code	Repr
1-9/16"	15	pr mate
1-3/4"	17	shap
2"	20	ment
2-3/8"	23	l
2-1/2"	25	
2-3/4"	27	
2-7/8"	28	
3-1/8"	31, 33	
3-3/8"	33	
4"	40	
4-1/2"	45	
4-5/8"	46	
4-3/4"	48	
5"	51	
5-1/8"	51	
6-3/4"	68	
7"	70	

Case Type	Charge
Represents charge case properties, such as material, case size, case shape, or shot arrange- ment (in the gun carrier). Used internally.	Represents charge. Som are: DP, XD GH, and Equ char

Charge Type	Explosive Type		
Represents the type of	1	RDX	
charge. Some examples	2	HMX	
are: DP, XDP, BH, SBH, GH, and Equal Hole size	3	HNS	
charges.			

Charge P/N Suffix
Extra characters, e.g., EC2-33A2371-BF45 is (Basix Frac, 0.45" entry hole). See list below.

Charge P/N Suffixes				
-BF	Basix™ Frac			
-C	IsoLoc™ Charges			
-D	Refrax™ Dual Casing			
-E	Economy			
-EG	Economy Grooved			
-FRX	FracIQ® Connex®			
-G	Grooved Case			
-LD	Low Debris			
-L, -LS	Low Swell			
-R	Refrax™ Dual Casing			
-RC	Connex® Reactive Charge			
-RX	Reactive Charge			
-SB	SandIQ®			
-SC	SandIQ®			
-SD	-SD SandIQ®			
-SE	E SandIQ®			
-SF	SandIQ®			
-SG	SandIQ®			
See Nomenclature for more details				

Nomenclature

Abbreviations, Acronyms, and Terms



	A - B - C		T-U
API	American Petroleum Institute	TCP	Tubing-Conveyed Perforating
BH	Big Hole	THD	Thread
BRT	Ballistic Release Tool		V - W - X
CCL	Casing Collar Locator	WL	Wireline
	D-E-F	WRT	Wireline Release Tool
DP	Deep Penetrating	XLS	Extra Low Swell
DUB	Dynamic Underbalance	XDP	Extreme Deep Perforating
EH	Entry Hole	7.2.	Y-Z
EHD	Entry Hole Diameter	ZTC	Zero Tension Connector
EUE	External Upset End (tubing connection)	210	Zero rension connector
FLUID	Fluid Only	SHADED	CHARGE ABBREVIATIONS & PART NUMBER SUFFIXES
FLUID or DRY	Fluid or Dry Gas	SHAPED	
	, G - H - I	-45	All two-digit numerical suffixes represent the entry hole diameter
GH	Good Hole	_	(EHD), e.g., BF45 is Basix Frac with 0.45" EHD.
HD	Heavy Duty	-B	IsoLoc™ Charge
HF	HELLFire®	-BF	Basix™ Frac
HMX	Cyclotetramethylene Trinitramine	BH	Big Hole
HNS	Hexanitrosilbene	-C, -C1, -C3, -C4	IsoLoc™ Charges (various liner materials and performance)
HP	High Pressure	-D	Refrax [™] Dual Casing
HPHF	High Pressure, High Flow	-DP	Deep Penetrating
ID	Internal Diameter	-E	Economy
ISO	Internal Organization for Standardization	-EG	Economy Grooved Case
ITPO	Independent Third-Party Organization	-FRX	FracIQ® Connex®
•	J - K - L	-G	Grooved Case
LEH	Limited Entry Hole	GH	Good Hole
LH	Left Hand (e.g., left-hand threads)	-L, -LS	Low Swell
L11	M - N - O	-LD	Low Debris
NDT	Non-Productive Time	-LEH	Limited Entry Hole
NPT		-R	Refrax [™] Dual Casing
OD	Outer Diameter	-RC	Connex® Reactive Charge
	P - Q - R	-RX	Reactive Charge other than Connex® (can be FracIQ® and other
PSA	Plug/Shoot Adapter		special charges with reactive liner material)
QC	Quick Change	-SB, -SC, -SD,	SandIQ®
RDX	Cyclotrimethylene Trinitramine	-SE, -SF, -SG	
RF Safe	Radio Frequency Safe	SBH	Super Big Hole
RH	Right Hand (e.g., right-hand threads)	-Т	IsoLoc™ Charge
RTG	Retrievable Tubing Gun	TL	Twistlock
	S	XDP	Extra Deep Penetrating
SBH	Super Big Hole	-XEH	Extra Entry Hole
SPF	Shots Per Foot		
SPM	Shots Per Meter		
SQC	Short Quick Change		
STD	Standard		



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NOTES

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