



KODIAK Enhanced Perforating System™

3.125 inch
3.375 inch
4.500 inch

MAN-KOD1-000 (R01)

Owen Oil Tools LP

12001 CR 1000

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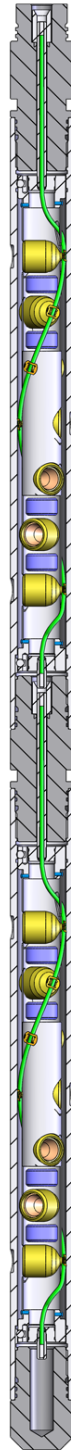


Description

Owen's KODIAK Enhanced Perforating System™ combines perforating and well stimulation in one operation. KODIAK has been developed to address a broader range of potential applications. The system integrates specifically designed perforating charges with a new energetic material. The detonation of the perforating charges initiates a complex, sequentially burning reaction of the energetic material generating a high pressure gas pulse. This pulse initiates and propagates fractures into the surrounding reservoir improving production/injection performance.

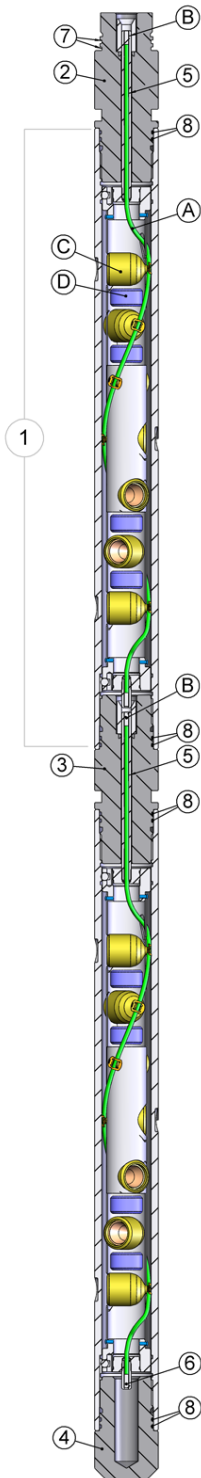
Features and Benefits

As compared to existing StimGun products, the KODIAK system requires substantially less fluid tump in the well to ignite the energetic material and stimulate the well; as little as 100 ft (31 m) of fluid is required. External rings and centralizers are not required, allowing stimulation of wells with complex casing configurations. The high temperature rating of the energetic material also increases the range of potential applications.





3.125 inch BOM and Schematic



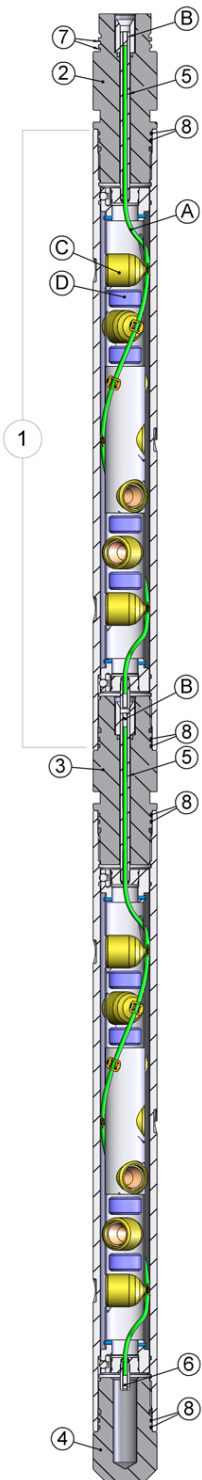
Item	Part Number	Description
1	S31-0446-A21A	Shipping Assembly, 3-1/8" x 21', 4 spf, 60° Spiral
	S31-0446-A15A	Shipping Assembly, 3-1/8" x 15', 4 spf, 60° Spiral
	S31-0446-A11A	Shipping Assembly, 3-1/8" x 11', 4 spf, 60° Spiral
	S31-0446-A07A	Shipping Assembly, 3-1/8" x 7', 4 spf, 60° Spiral
	S31-0446-A04A	Shipping Assembly, 3-1/8" x 4', 4 spf, 60° Spiral
2	TAG-3125-280	Top Sub 3-1/8" Adapts to TCP or Wireline Systems
3	TAG-3125-281	Tandem Sub 3-1/8"
4	TAG-3125-162	Bull Plug 3-1/8"
	TAG-3125-162S	Bull Plug 3-1/8" w/2-3/8" EUE pin on bottom
5	TCP-0100-275	Booster Transfer Kit, Universal - 3-1/8, 3-3/8 & 4" TAG
	TAG-0100-040	Insert (Included w/ Transfer Kit) see page con-1.0
6	DET-0010-001	Detonating Cord End Cover
7	OOO-N569-230	O-Ring, #230, 90 Duro Nitrile - see ref. section
	OOO-V569-230	O-Ring, #230, 90 Duro Viton - see ref. section
8	OOO-N569-230	O-Ring, #230, 90 Duro Nitrile - see ref. section
	OOO-V569-230	O-Ring, #230, 90 Duro Viton - see ref. section
A	A578017	Detonating Cord, 80 gr., RDX, LS - see ref. section
	A571017	Detonating Cord, 80 gr., HMX, LS - see ref. section
B	DET-3050-429	Bi-Directional Booster
C	KOD-3125-311NT	Charge, 3-1/8" KODIAK SDP, RDX
	KOD-3125-411NT	Charge, 3-1/8" KODIAK SDP, HMX
D	KOD-3125-400	KODIAK DISK 3-1/8" - 3-3/8" 400°F



Note: The KODIAK Enhanced Perforating System™ is qualified in fluid only.

Specifications		
Pressure Rating	144.8 MPa	21,000 psi
Temperature	UP TO 204°C	UP TO 400°F
Tensile Strength	90.720 kg	200,000 lbs
Carrier Thread	2-3/4" - 6 ACME	
Gun Weight Loaded	19.3 kg/m	13.0 lb/ft
Gun Swell	86.4 mm	3.4in.

3.375 inch BOM and Schematic



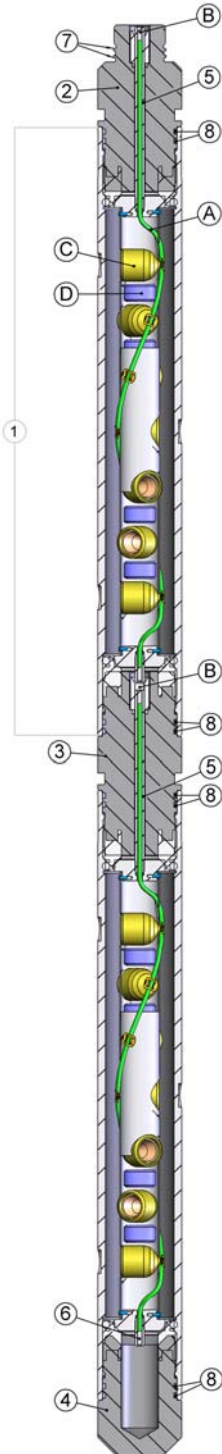
Item	Part Number	Description
1	S33-0446-A21A	Shipping Assembly, 3-3/8" x 21', 4 spf, 60° Spiral
	S33-0446-A15A	Shipping Assembly, 3-3/8" x 15', 4 spf, 60° Spiral
	S33-0446-A11A	Shipping Assembly, 3-3/8" x 11', 4 spf, 60° Spiral
	S33-0446-A07A	Shipping Assembly, 3-3/8" x 7', 4 spf, 60° Spiral
	S33-0446-A04A	Shipping Assembly, 3-3/8" x 4', 4 spf, 60° Spiral
2	TAG-3375-280	Top Sub 3-3/8" Adapts to TCP or Wireline Systems
3	TAG-3375-281	Tandem Sub 3-3/8"
4	TAG-3375-078	Bull Plug 3-3/8"
	TAG-3375-078S	Bull Plug 3-3/8" w/2-3/8" EUE pin on bottom
5	TCP-0100-275	Booster Transfer Kit, Universal - 3-1/3, 3-3/8 & 4" TAG
	TAG-0100-040	Insert (Included w/Transfer Kit) see page con-1.0
6	DET-0010-001	Detonating Cord End Cover
7	OOO-N569-230	O-Ring, #230, 90 Duro Nitrile - see ref. section
	OOO-V569-230	O-Ring, #230, 90 Duro Viton - see ref. section
8	OOO-N569-231	O-Ring, #231, 90 Duro Nitrile - see ref. section
	OOO-V569-231	O-Ring, #231, 90 Duro Viton - see ref. section
A	A578017	Detonating Cord - 80 gr., RDX, LS - see ref. section
	A571017	Detonating Cord - 80 gr., HMX, LS - see ref. section
B	DET-3050-429	Bi-Directional Booster
C	KOD-3375-311NT	Charge, 3-3/8" KODIAK SDP RDX
	KOD-3375-411NT	Charge, 3-3/8" KODIAK SDP HMX
D	KOD-3125-400	KODIAK Disk 3-1/8" - 3-3/8" , 400°F



Note: The KODIAK Enhanced Perforating System™ is qualified in fluid only.

Specifications		
Pressure Rating	137.9 MPa	20,000 psi
Temperature	UP TO 204°C	UP TO 400°F
Tensile Strength	90.720 kg	200,000 lbs
Carrier Thread	2-13/16" - 6 ACME	
Gun Weight Loaded	23.8 kg/m	16.0 lb/ft
Gun Swell	91.4 mm	3.6 in.

4.500 inch BOM and Schematic



Item	Part Number	Description
1	S45-0403-A21A	Shipping Assembly, 4-1/2" x 21', 4 spf, 60° Spiral
	S45-0403-A15A	Shipping Assembly, 4-1/2" x 15', 4 spf, 60° Spiral
	S45-0403-A11A	Shipping Assembly, 4-1/2" x 11', 4 spf, 60° Spiral
	S45-0403-A07A	Shipping Assembly, 4-1/2" x 7', 4 spf, 60° Spiral
	S45-0403-A04A	Shipping Assembly, 4-1/2" x 4', 4 spf, 60° Spiral
2	TAG-4500-280L	Top Sub 4-1/2" Adapts to TCP or Wireline Systems
3	TAG-4500-281L	Tandem Sub 4-1/2"
4	TAG-4500-060	Bull Plug 4-1/2"
	TAG-4500-060S	Bull Plug 4-1/2" w/2-7/8" EUE pin on bottom
5	TCP-0100-275L	Booster Transfer Kit
	TCP-0100-275LT	Booster Transfer Kit - High Temp
6	DET-0010-001	Detonating Cord End Cover
7	OOO-N569-230	O-Ring, #230, 90 Duro Nitrile - see ref. section
	OOO-V569-230	O-Ring, #230, 90 Duro Viton - see ref. section
8	OOO-N569-342	O-Ring, #342, 90 Duro Nitrile - see ref. section
	OOO-V569-342	O-Ring, #342, 90 Duro Viton - see ref. section
9	TAG-4500-339	Support Ring, qty.(2 - 11'), (3 - 15'), (4 - 21')
A	A578017	Detonating Cord - XHV, 80 gr., RDX - see ref. section
	A571017	Detonating Cord - XHV, 80 gr., HMX - see ref. section
B	DET-3050-429	Bi-Directional Booster
C	KOD-4500-311	Charge, KODIAK 4-1/2", RDX
	KOD-4500-411	Charge, KODIAK 4-1/2", HMX
D	KOD-4500-400	KODIAK Disk 4-1/2", 400°F



Note: The KODIAK Enhanced Perforating System™ is qualified in fluid only.

Specifications		
Pressure Rating	117.2 MPa	17,000 psi
Temperature	UP TO 204°C	UP TO 400°F
Tensile Strength	167,800 kg	370,000 lbs
Carrier Thread	3-15/16" - 6 ACME	
Tandem Shot Spacing	0.37 m	1.22 ft
Gun Weight Loaded	33.9 kg/m	23 lb/ft
Gun Swell	121.9 mm	4.8 in.





Warning: Explosives are destructive by nature! Do not attempt to disassemble or alter explosive products in any manner! Do not crush, hammer, pinch, impact, pull wires or abuse any explosive product!



Warning: Be sure to follow safe operating practices as found in API RP-67 in accordance with governmental regulations, company policies and manufacturer's recommendations!



Caution: The KODIAK Enhanced Perforating System™ is a fully integrated oil and gas well perforating system, designed, developed, and manufactured by Owen Oil Tools LP! The various components, including the charges, have been qualified ONLY as a system and are not recommended for use in any other perforating / gun system! Prior to use, make sure all components are matched as per the attached catalog pages! Failure to follow this warning could result in catastrophic failure of the carrier!



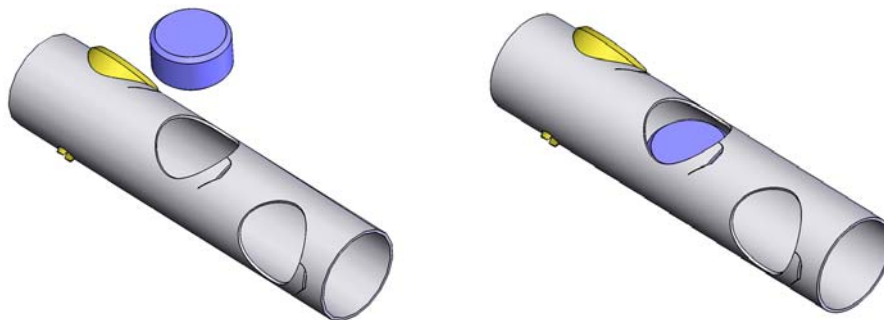
Caution: Never remove the wrapping from the disks!




Note: Before loading, visually inspect all parts for any defects.

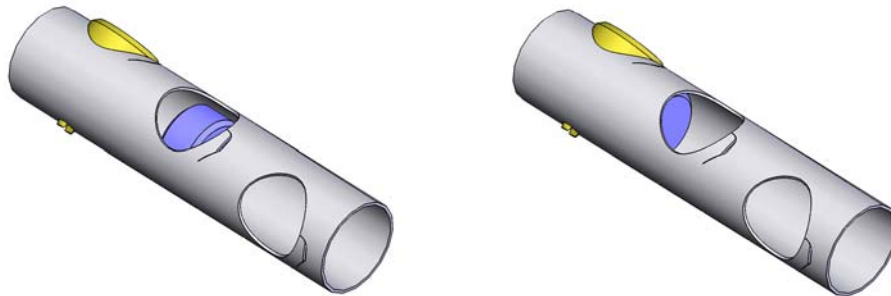
1.0 KODIAK Disk Loading Procedures

1.1 After the first charge is installed (as per MAN-TGS1-000) into the strip, insert a KODIAK disk into the charge cutout as shown below

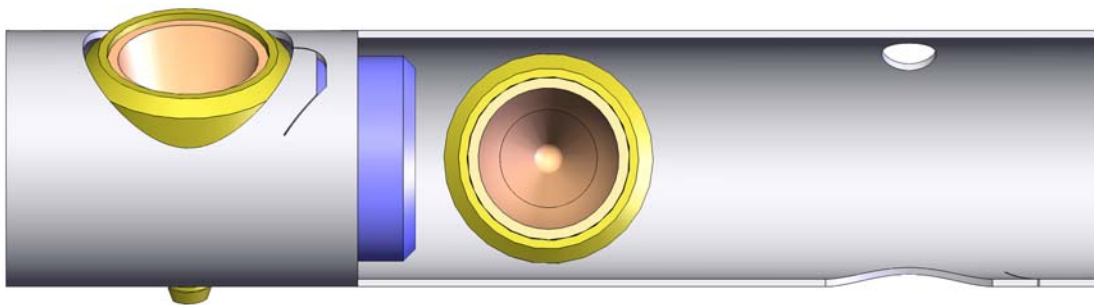



 *Note: Be careful not to tear or rip the disk wrapper while inserting and positioning the disk.*

1.2 Using your fingers, flip the disk sideways and then slide the disk up against the loaded charge.




1.3 Insert the next KODIAK Perforating Charge and repeat steps 1.1 - 1.2 until the strip is **fully** loaded.



 *Note: Only load disks between charges.*

 *Note: There will be one less disk than charges in a fully loaded strip.*

 *Note: Always use new O-rings and generously grease the plugs and subs when making up the gun to your system. The generous use of grease, allows the subs/plugs to be easily removed after the system has been fired.*