

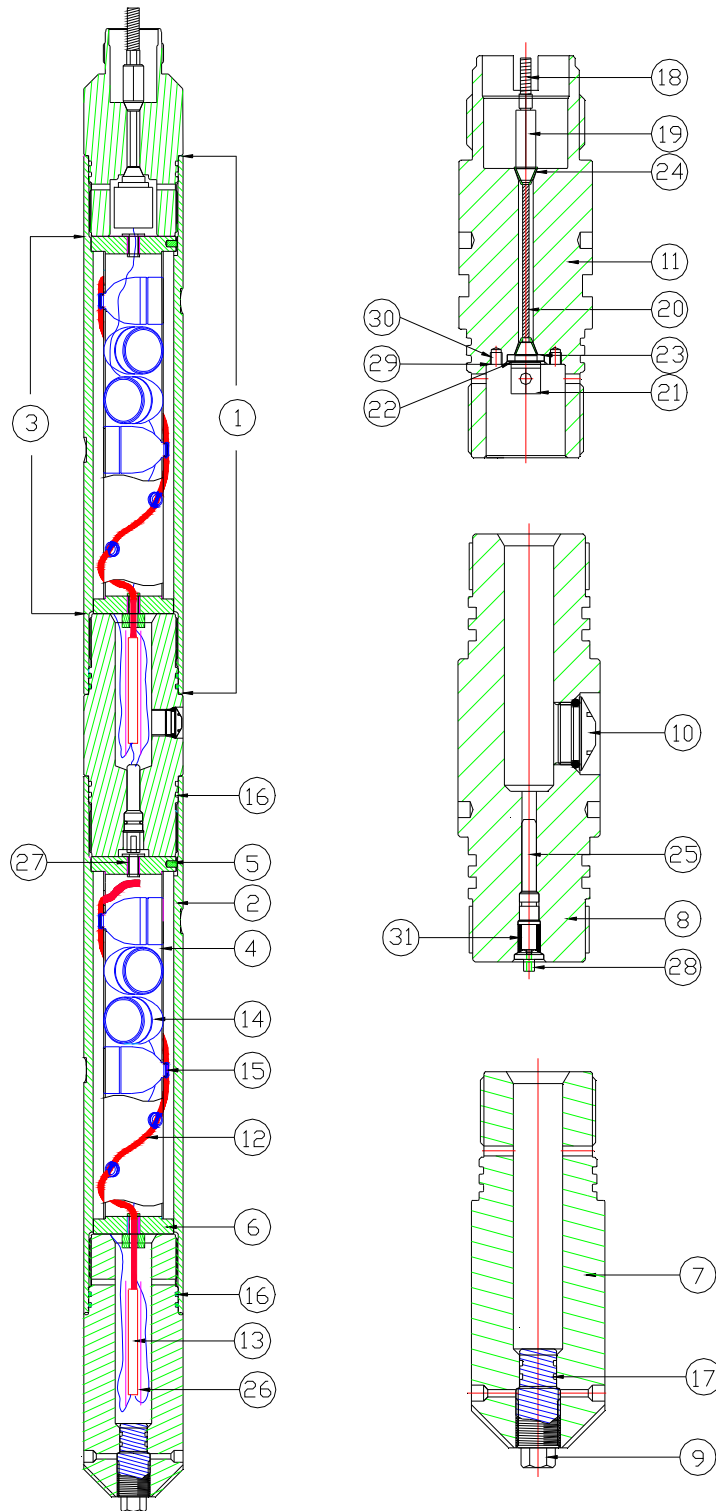
7.00" (178 mm) EXPENDABLE HIGH SHOT DENSITY GUN SYSTEM, 1 to 12 SPF

Gun Specifications

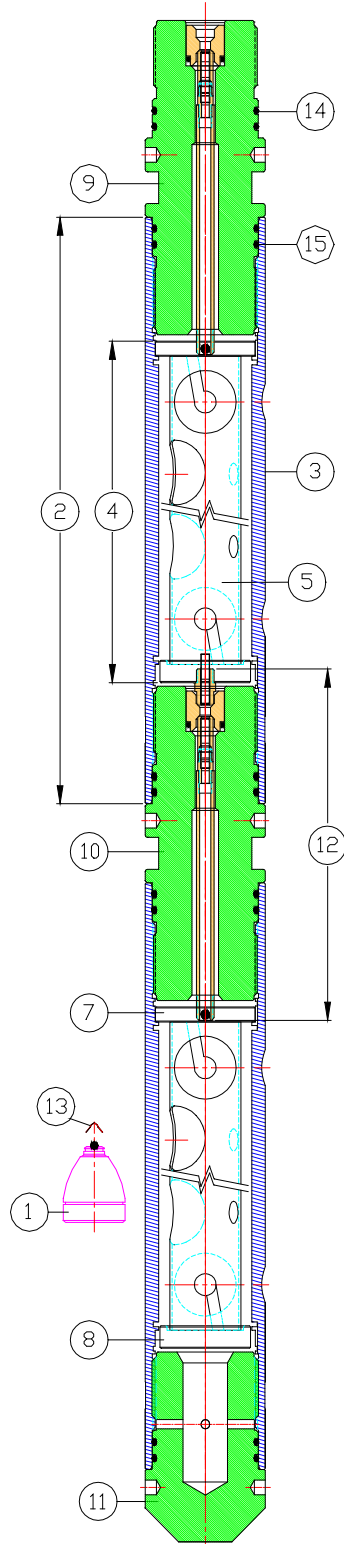
	(Imperial)	(Metric)
GUN SIZE	7-00 inches	178 mm
GUN PHASING	60 or 135 degrees	60 or 135 degrees
SHOT DENSITY	1 to 12 shots/ft	3 to 39 shots/meter
SHOT SPACING	inches	60.96 mm
GUN LENGTH	20, 10, 5 ft	6, 3, 1.5 meter
GUN WEIGHT	1166, 650, 385 lbs	521,290,172 kg
MAXIMUM PRESSURE	12,000 psi	816 bar
MAXIMUM SAFE PULL	500,000 lbs	223,000 kg
MINIMUM PRESSURE	0 psi in water	0 bar in water
MAXIMUM O.D. AFTER	7.2 inches	183 mm
TEMPERATURE	See Time Temperature Curve	

1. The guns may be conveyed on wire-line, slick-line, regular or coiled tubing.
2. The weight includes the charges and one tandem connector.
3. The gun can be shot without splitting at atmospheric pressure if immersed in water.
4. The gun is available in lengths up to 20ft (6metre), special lengths can be accommodated on request.
5. The system can be supplied in nominal imperial or nominal metric lengths.
6. The maximum O.D. corresponds to the maximum measured gun diameter including burrs and swell, on a gun fired at atmospheric pressure immersed in water.
7. The 7-00" (178 mm) gun system may be loaded with RDX, HMX or XHT charges. The same load tube assemblies can be used with either Deep Penetrating (D.P.) charges or Big Hole (B.H.) charges.
8. The 7-00" (178 mm) system is recommended for use in 9-5/8" casing and larger.
9. The guns are made for standard service. For operations in H₂S environments, special equipment must be specified.

7.00" HSD, Wireline System Assembly



7.00" HSD, TCP System Assembly



7.00" HSD, Wireline Assembly Parts

ITEM	DESCRIPTION
	Charge, HSD 39g HMX SDP
	Charge, HSD 39g HMX BH
	Charge, HSD 39g RDX SDP
	Charge, HSD 39g RDX BH
2a	7-0"Carrier Assy, 6 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 11 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 16 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 21 ft, 12spf, 135/45°phase
3a	7-0" Carrier, 6 ft, 12spf, 135/45°phase
	7-0" Carrier, 11 ft, 12spf, 135/45°phase
	7-0" Carrier, 16 ft, 12spf, 135/45°phase
	7-0" Carrier, 21 ft, 12spf, 135/45°phase
4a	7-0" Load Tube Assy, 6 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 11 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 16 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 21 ft, 12spf, 135/45°phase
5a	Top Alignment Plate
6a	Bottom Alignment Plate
7a	Bottom Nose Wireline
8a	Wireline Tandem Sub
9a	Arming Plug
10a	Selective Port Plug w O Ring
11a	Wireline Adapter Head
12a	Detonating Cord
13a	Detonator Fluid Desensitized.
16a	O-rings, Nitrile (2 required per connection)
17a	O-rings, Nitrile 2- 119 (2 required per Arming Plug)
31a	Selective Switch

7.00" HSD, TCP Assembly Parts

ITEM	DESCRIPTION
1	Charge, HSD 39g HMX DP
	Charge, HSD 39g HMX SDP
2	7-0"Carrier Assy, 6 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 11 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 16 ft, 12spf, 135/45°phase
	7-0"Carrier Assy, 21 ft, 12spf, 135/45°phase
3	7-0" Carrier, 6 ft, 12spf, 135/45°phase
	7-0" Carrier, 11 ft, 12spf, 135/45°phase
	7-0" Carrier, 16 ft, 12spf, 135/45°phase
	7-0" Carrier, 21 ft, 12spf, 135/45°phase
4	7-0" Load Tube Assy, 6 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 11 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 16 ft, 12spf, 135/45°phase
	7-0" Load Tube Assy, 21 ft, 12spf, 135/45°phase
5	7-0" Load Tube, 6 ft, 12spf, 135/45°phase
	7-0" Load Tube , 11 ft, 12spf, 135/45°phase
	7-0" Load Tube, 16 ft, 12spf, 135/45°phase
	7-0" Load Tube, 21 ft, 12spf, 135/45°phase
6	7-0" Spacer with Dummy Tube, 6 ft
	7-0" Spacer with Dummy Tube, 11 ft
	7-0" Spacer with Dummy Tube, 16 ft
	7-0" Spacer with Dummy Tube, 21 ft
7	Top Alignment Plate
8	Bottom Alignment Plate
9	7-0" Top Sub
10	7-0" Tandem Sub
11	7-0" Bottom Sub
12	Booster Transfer Kit
13	Charge Clip
14	O-rings, 2-361 (2 required for Top Sub)
15	O-rings, 2-361 (2 required per connection)

Time Temperature Curve

Oiltech manufactures charges with the highest quality RDX and HMX explosives. HNS determine the type of shaped charge and detonating cord to be used. See Chart 1 on temperature vs. time curve. These two factors determine the appropriate O-ring seal material appropriate in the assembly. Refer to Chart 2. Oiltech recommends Viton 90D o-rings for Tubing Conveyed Perforating (TCP) systems and Nitrile 75D for wireline application.

Chart 1: Temperature vs. Time for Common Explosive Materials

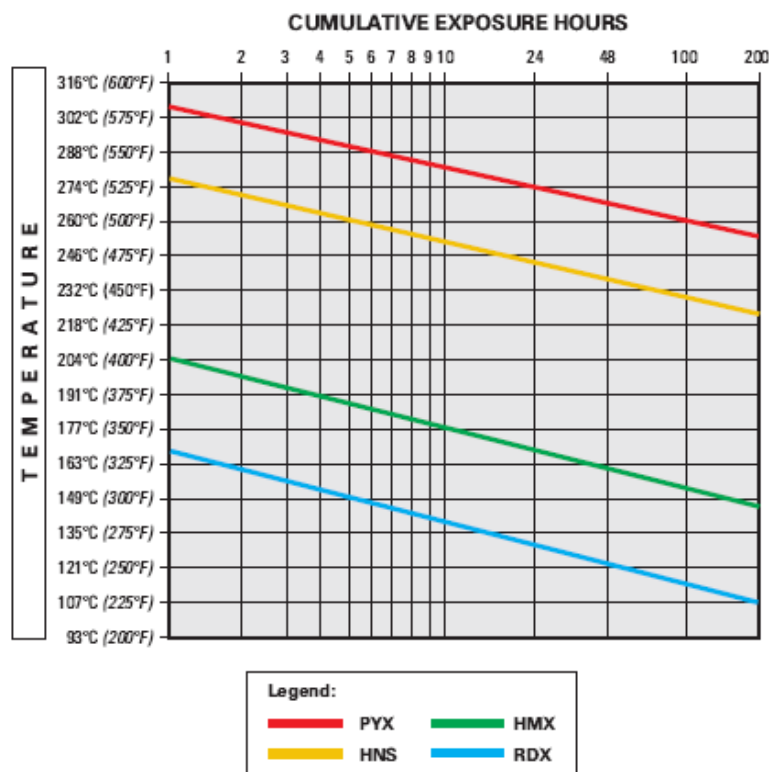


Chart 2: O-ring Seals Selection

		Crude Oil	Water Based Drilling Mud	Oil Based Drilling Mud	CaCl Brines	H2S 7%	H2S 15%	Bromides
Nitrile 75 D	275°F / 135°C	OK	OK	OK	OK	NO*	NO	NO
Viton 90 D	450°F / 232°C	OK	OK	OK	OK	OK	Up to 300°F	OK
Kalrez	550°F / 288°C	OK	OK	OK	OK	OK	OK	OK

*Not recommended for prolonged exposure to H2S environment, but can be used for short term exposure.