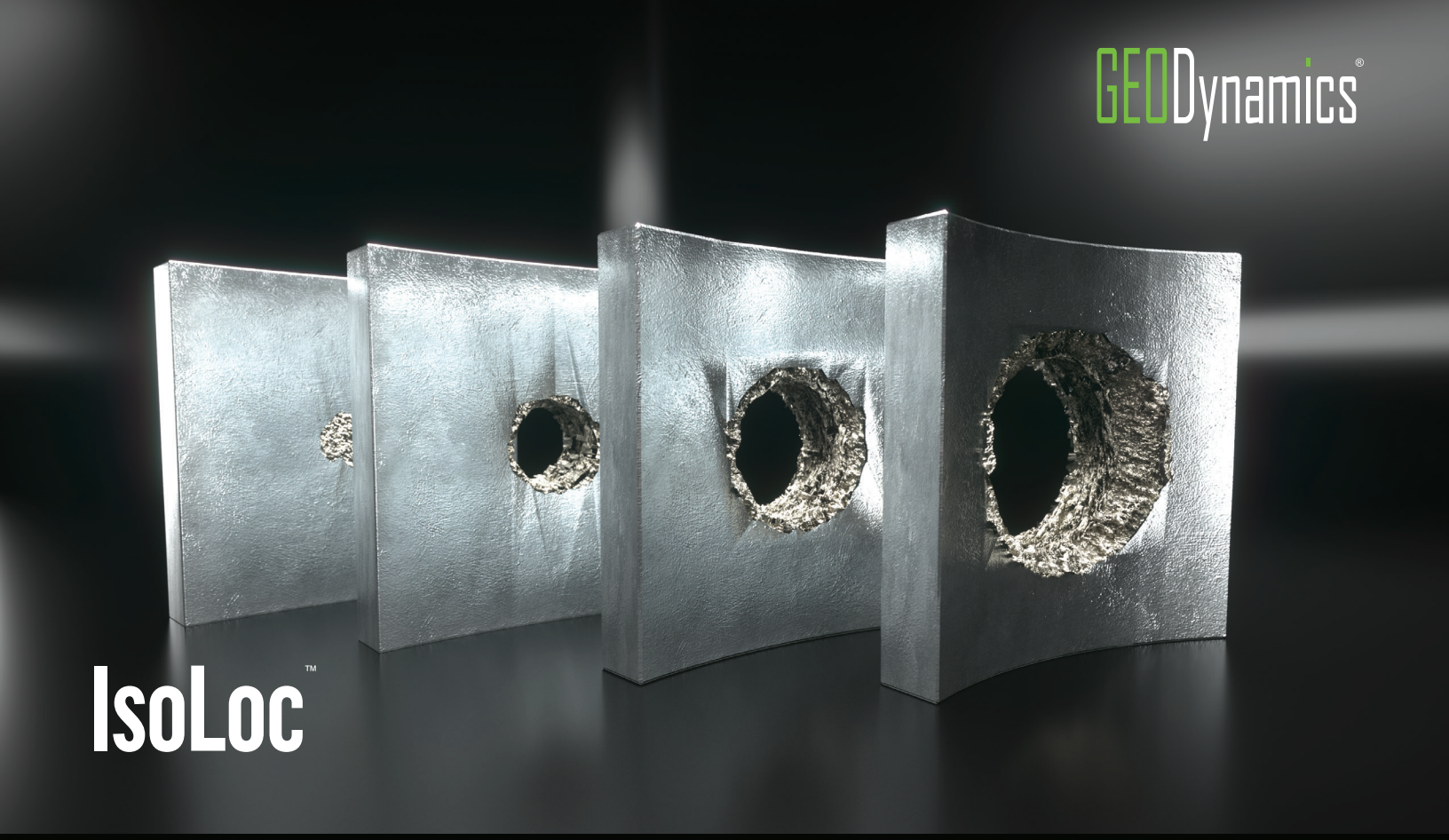


IsoLoc Perforating System

GEODynamics IsoLoc perforating system utilizes bi-directional boosters, non-lead azide explosives, customised connectors and inserts and high velocity-low shrink detonating cord. Additionally, all GEODynamics perforating assemblies are scalloped to optimise charge performance and prevent casing damage from perforating exit hole burrs while shot phasing is designed to maintain the integrity and collapse resistance of the casing after perforating. These attributes, along with premium quality gun material and gun connectors, allow GEODynamics to deliver safe, efficient and reliable perforating solutions to our customers.

GEODynamics IsoLoc perforating system are utilized to establish annular communication between multiple casing strings. IsoLoc systems limited entry perforating charges custom designed to penetrate inner strings of casing without penetrating the outer most string or strings during P&A or squeeze cementing operations. IsoLoc perforating charges deliver large and consistent entrance holes in the casing using standard phasing for perforation distribution. IsoLoc allows access to specific annuli for the clean out prior to cement placement for zonal isolation.

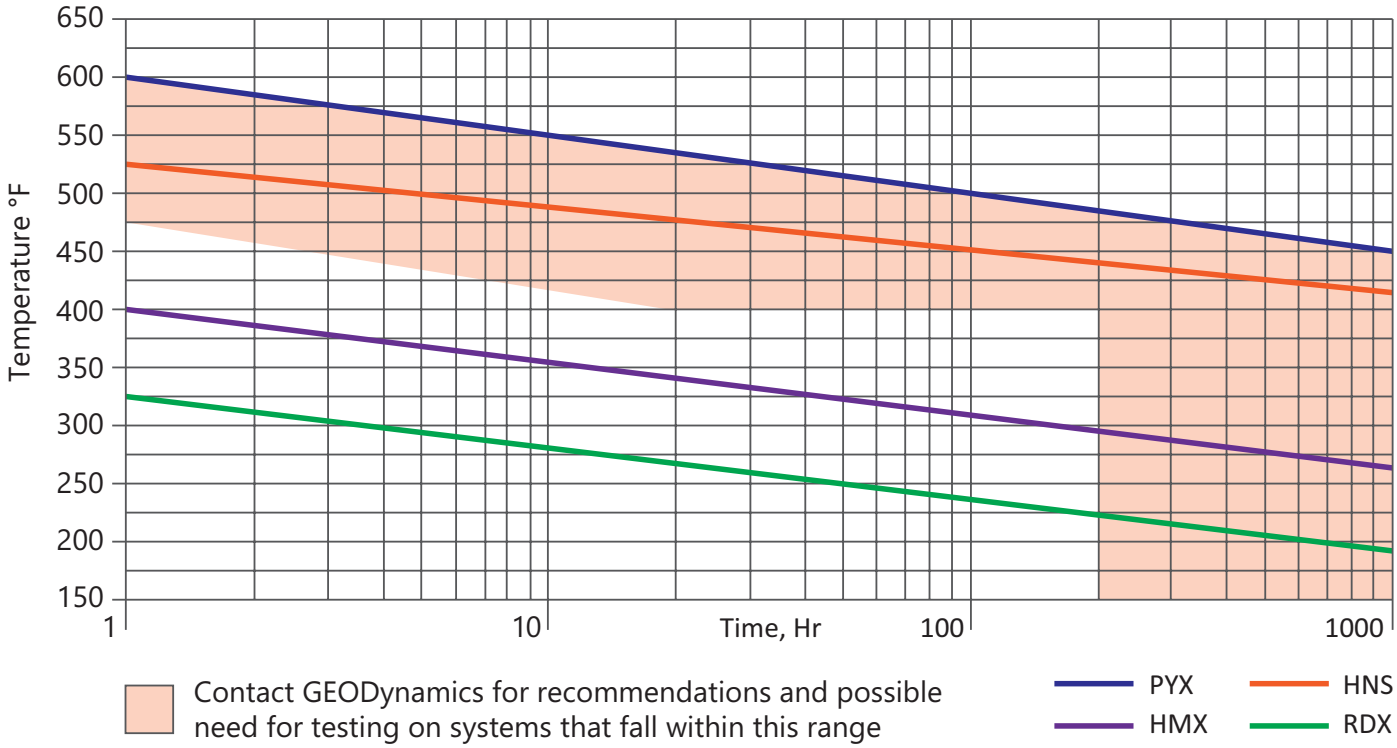
With systems designed to access A, B, C and D annuli GEODynamics offers a broad range of IsoLoc solutions for 3 3/8" 12 spf, 4 5/8" & 5 1/8" 16 spf and 7" 12, 15 and 20 spf gun systems.

IsoLoc charges are controlled performance perforating charges finely tuned for very specific applications. Data such as casing weight and grade, fluid type, and weight are critical to a successful IsoLoc operations.

FEATURES/BENEFITS

- Available in standard shot density and phasing
- Large entrance holes for circulating and cementing operations
- Designed for limited entry controlled perforating
- Does not penetrate outer casing string regardless of casing position
- Available in several carrier sizes
- Available in RDX, HMX or HNS as required
- Custom shaped charges designed as required per specific applications
- Coupon and barrel testing are available for system qualification

TIME VS TEMPERATURE CHART



CHARGE LISTING

Gun System	Part Number	Casing 1	EHD Casing 1	Annular Medium 1 vs 2	Casing 2	EHD Casing 2	Annular Medium 2 vs 3	Casing 3	EHD Casing 3	Annular Medium 3 vs 4	Casing 4	EHD Casing 4
2" 6 spf	EC1-20A0721-E	3-1/2" 9.2# L80	0.25"	Cement	9-5/8" 47# L80	0.15"	Cement	13 3/8" 68# L80	No Damage	-	-	-
3 3/8" 12 spf	EC2-31B0731	5 1/2" 23.5# P110	0.51"	Cement	7-5/8" 39# P110	No Damage	-	-	-	-	-	-
5" 16 spf	EC2-51C2731	7" 32.0# L80	0.70"	Cement/ Water	10-3/4" 55.5# K55	No Damage	-	-	-	-	-	-
5 1/8" 16 spf	EC2-51A3031-D	9-5/8" 53.5# P110	0.41"	Cement/ Water	13 3/8" 72# P110	No Damage	-	-	-	-	-	-
7" 15 spf	EC2-70C3731	9-5/8" 47# L80	0.85"	Cement/ Water	13 3/8" 72# P110	No Damage	-	-	-	-	-	-
7" 15 spf	EC2-70C3731	10 3/4" 55.5# L80	0.56"	Cement/ Water	13 3/8" 72# P110	No Damage	-	-	-	-	-	-
7" <15 spf	EC2-70C3731-B	9-7/8" 62.8# P110	0.68"	Cement/ Water	13 3/8" 72# P110	No Damage	-	-	-	-	-	-
7" <15 spf	EC2-70C3731-D	9-5/8" 47# L80	0.88"	Water	13 3/8" 68# K55	0.44"	Cement/ Water	18-5/8" 87.5# H40	No Damage	-	-	-
7" <15 spf	EC2-70C3931-T	9-5/8" 53.5# Q125	0.68"	Cement	13 3/8" 72# P110	0.36"	Cement	16" 84# K55	0.35"	Cement	20" 94# H40	No Damage
7" <20 spf	EC2-70K3731	9-5/8" 47# L80	0.86"	Cement/ Water	13 3/8" 72# P110	No Damage	-	-	-	-	-	-

Notes.
1. Fluid between gun and inner most casing is water for all cases.
2. All data is based on centralized gun position.
3. Decentralized data available on request.
4. The above list is a general selection of systems only, please contact GEODynamics for additional gun and casing combinations.
5. Coupon and barrel testing available as required.