



# EXTENDED RANGE

**EXTENDED RANGE CHARGE (ERC)  
FOR 155 MM ARTILLERY**

# OVERMATCH YOUR ADVERSERY

With the availability of precision guidance to artillery projectiles, maintaining accuracy at extended ranges has become possible and range as a major component of the error budget can be eliminated.

The ERC has been designed to extend the effective range of precision guided munitions and to meet the operational requirement to shoot to ever increasing range. It is of course also complimentary to extending the range of non-guided Base Bleed (BB) and Rocket Assisted Projectiles (RAP).

The charge system uses the latest temperature independent P6 propellant technology to maximise the muzzle velocity performance of the projectile and howitzer. The muzzle velocity is increased above the normal JBMoU velocities

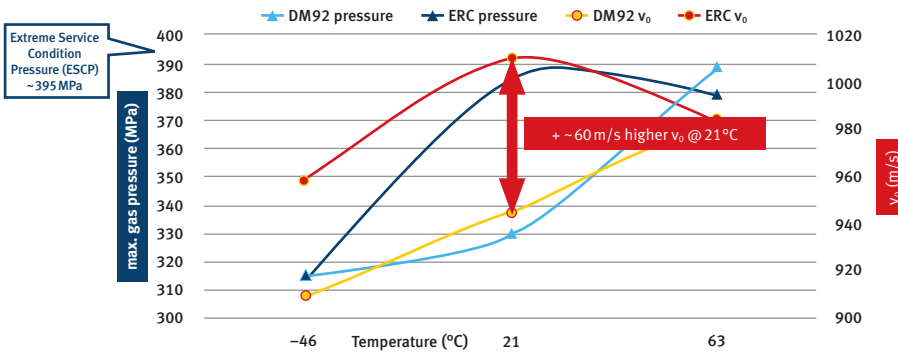
while maintaining the maximum pressure within the safety limits of the weapon and ammunition system.

The ERC is available in two calibre lengths, one optimised for the standard 23 litre chamber of a 52 calibre JBMoU barrel and the other optimised for the 18.7 litre chamber of the 39 calibre barrel.

## CHARACTERISTICS

- Increased performance  $\geq 5.000$  meters in range
- Temperature insensitive propellant
- Insensitive Munitions Compliant (IM)
- Environmentally robust A1/C3
- Low barrel wear (same EFC as MCS zone 6)
- Long logistic shelf life

## PERFORMANCE INCREASE BASED ON SURFACE TREATED PROPELLANT

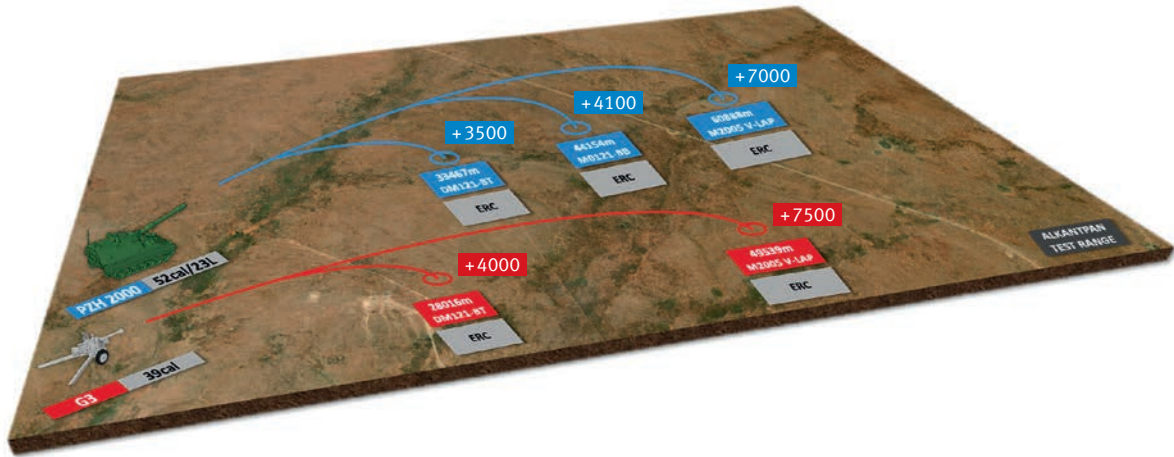


Firing results PzH 2000 52 cal

## TEST 1 – ALKANTPAN TEST RANGE – NOVEMBER 2019

Gun System	Barrel	Projectile	Charge
	RDM 39–18l max. pressure: <416 MPa	DM121 BT	NC-L39 ER Charge
	RWM 52–23l max. pressure: <416 MPa	DM121 BT	NC-L52-23 ER Charge
		Assegai M1711 BB	NC-L52-23 ER Charge
	RDM 39–18l max. pressure: <416 MPa	Assegai M2005 V-LAP	NC-L39 ER Charge
	RWM 52–23l max. pressure: <416 MPa	Assegai M2005 V-LAP	NC-L52-23 ER Charge

**TEST 1 – RESULTS AND RANGES OF TEST FIRING IN NOVEMBER 2019**



Ranges on International Civil Aviation Organization MET MSL

**TEST 2 – ALKANTPAN TEST RANGE – MARCH 2021**

**Objectives**

- Test Precision Guidance Fuze with RDM projectile and Nitrochemie ERC on a number of different projectiles and gun systems
- Generate aero-ballistic data for Guidance Fuze on RDM projectile
- Demonstrate Nitrochemie propellant performance with multiple gun systems
- Evaluate 70 km range requirement options

RESULTS						
Cannon	Projectile	Fuze	Charge	Velocity	Pressure	Range
				m/s	MPa	km
L39	XM1816 VLAP	Mass model	M92 z5	835	298	40.7
L39	XM1816 VLAP	Mass model	ERC	908	383	48.1
L52/23 liter	XM1816 VLAP	Mass model	ERC	1013	377	60.3
L52/25 liter	M9703 VLAP	Mass model	ERC	1055	494	67.4

**TEST 3 – US PROJECTILE COMPATIBILITY AT YUMA PROVING GROUND – MAY 2021**

**Objectives**

- Programme of work supported by US-Army DEVCOM-AC
- Undertake test on a US Test Range with US equipment
- Demonstrate the performance of the ERC with US ammunition

**Equipment**

- L39 Calibre M119 Cannon
- L52 Calibre XM282E1 JBMoU Cannon
- Projectiles (inert) M795, M982 Excalibur, XM1113 RAP weight 46.3 – 47 kg
- Charges 30x L39 ERC and 30x L52 ERC

**Ballistic Test Results L52**

- M795 15.3 kg ERC gave 950 m/s at 383 MPa
- M982 Excalibur 15.5 kg ERC gave a velocity of 965 m/s at 386 Mpa ~+5,000 meters
- All pressures are well below cannon MOP



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