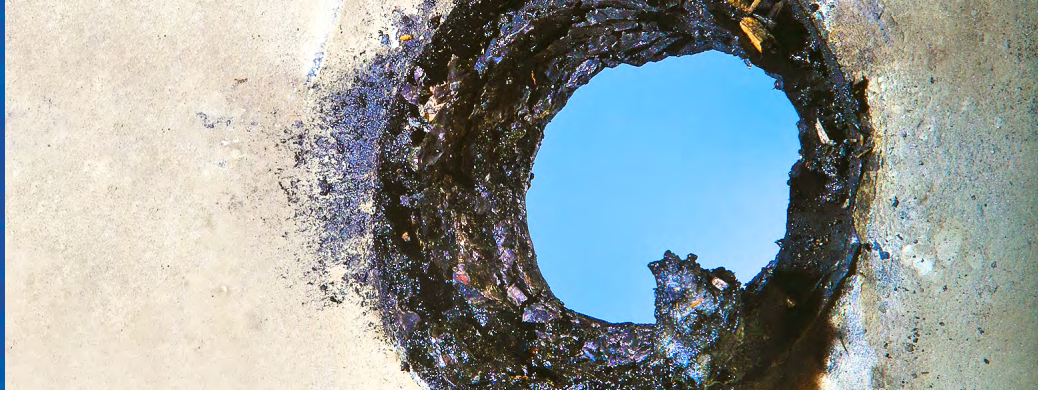




SOUTHWEST RESEARCH INSTITUTE



Large Two-Stage Light-Gas Gun Facility

Southwest Research Institute® (SwRI®) operates a large two-stage light-gas gun (LGG) capable of achieving launch velocities up to 7 km/s. The facility is located in a specially designed building that accommodates the 22-meter-long gun system and its 13-meter-long flight/target range. The gun system is used to study novel armors and penetrators, perform missile defense engagement scenarios, conduct flyer-plate type experiments for EOS (equation of state) studies, and launch fragments to simulate space debris and micrometeoroid impacts.

LGG Facility Features

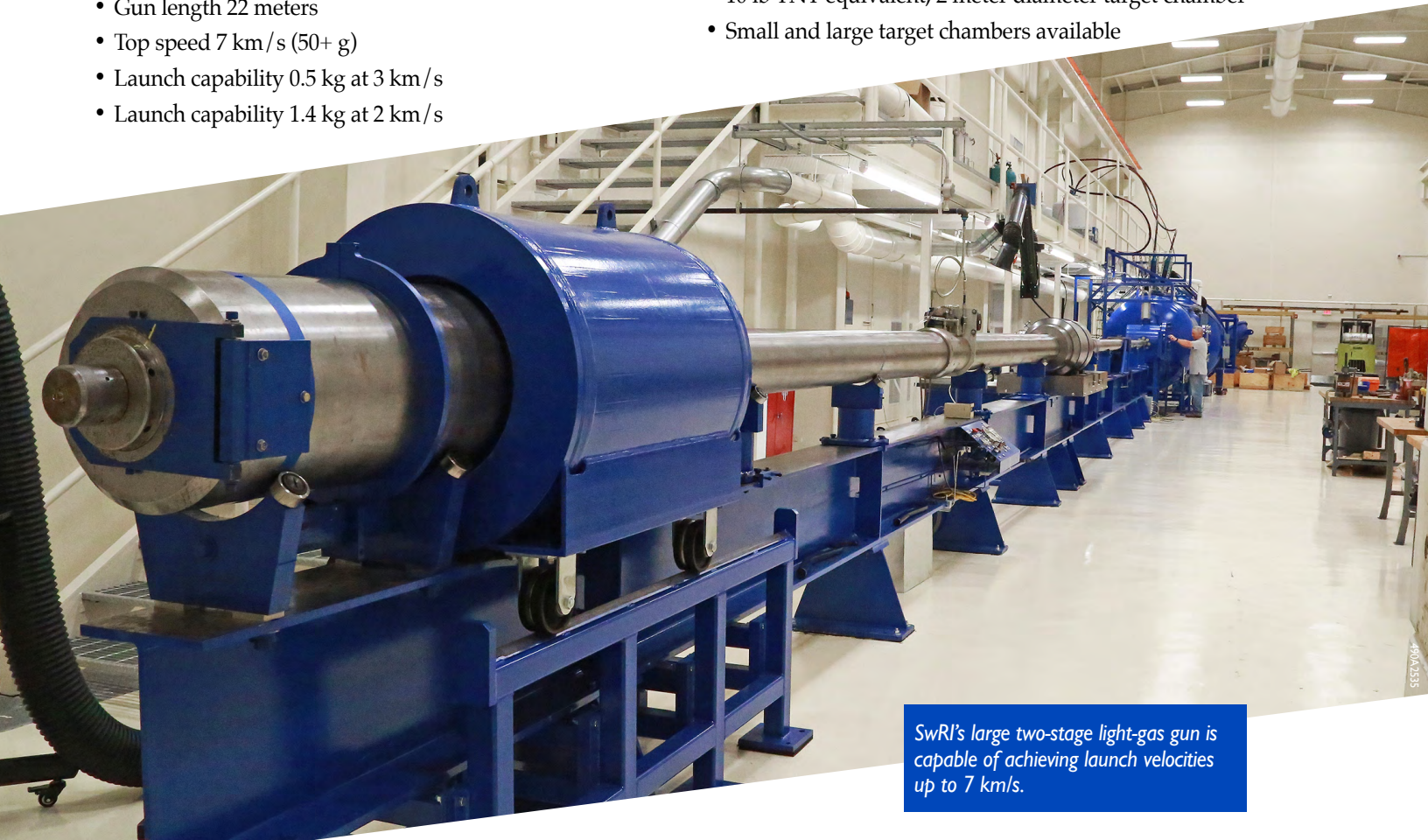
- Pump tube 115 mm diameter
- Launch tube 38 mm diameter
- Gun length 22 meters
- Top speed 7 km/s (50+ g)
- Launch capability 0.5 kg at 3 km/s
- Launch capability 1.4 kg at 2 km/s

Instrumentation

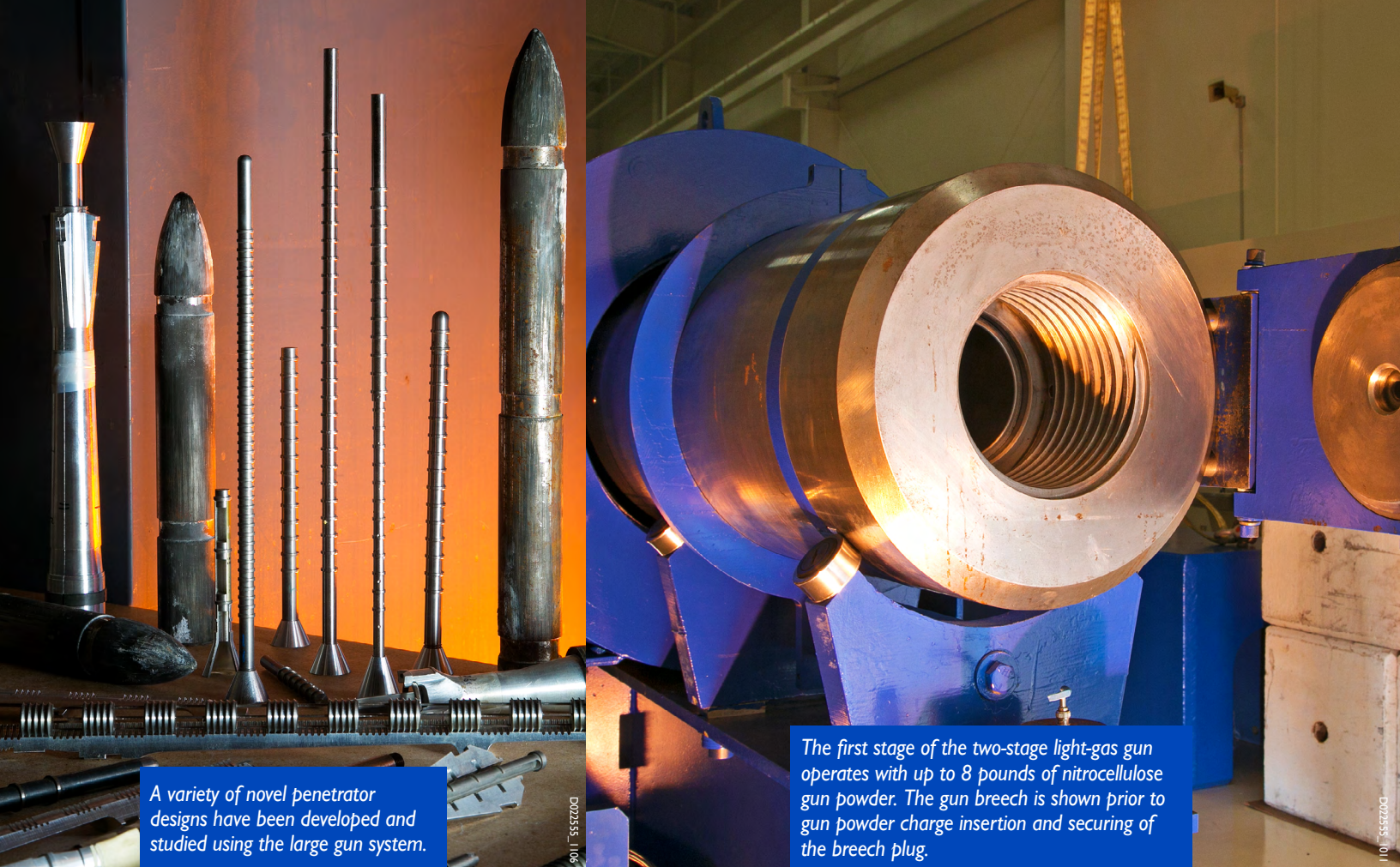
- Photonic Doppler velocimeter (PDV)
- Flash X-rays (digital, up to 450 kV)
- Ultra-high-speed camera (200 Mfps)
- Digital image correlation system
- High-speed video cameras
- Dynamic shock, pressure, strain, and temperature measurement

Flight Range and Target Chambers

- Evacuated flight line and target chambers
- Multiple flash X-ray and camera stations
- 10 lb TNT equivalent, 2 meter diameter target chamber
- Small and large target chambers available



SwRI's large two-stage light-gas gun is capable of achieving launch velocities up to 7 km/s.



A variety of novel penetrator designs have been developed and studied using the large gun system.

The first stage of the two-stage light-gas gun operates with up to 8 pounds of nitrocellulose gun powder. The gun breech is shown prior to gun powder charge insertion and securing of the breech plug.

We welcome your inquiries.
For more information, please contact:

Donald J. Grosch
Manager, Ballistics and Explosives Range
210.522.3176
donald.grosch@swri.org

James D. Walker, Ph.D.
Director, Engineering Dynamics Department
210.522.2051
james.walker@swri.org

Engineering Dynamics Department
Mechanical Engineering Division

engdyn.swri.org

SOUTHWEST RESEARCH INSTITUTE

Southwest Research Institute is a premier independent, nonprofit research and development organization using multidisciplinary services to provide solutions to some of the world's most challenging scientific and engineering problems. Headquartered in San Antonio, Texas, our client-focused, client-funded organization occupies 1,200 acres, providing more than 2 million square feet of laboratories, test facilities, workshops, and offices for nearly 2,700 employees who perform contract work for government and industry clients.

An Equal Employment Opportunity/Affirmative Action Employer
Race/Color/Religion/Sex/Sexual Orientation/Gender Identity/National Origin/Disabled/Veteran
Committed to Diversity in the Workplace

swri.org

SwRI Business Inquiries
PO Drawer 28510
San Antonio, Texas 78228-0510 USA

ask@swri.org • 210.522.2122



©2017 Southwest Research Institute.
All rights reserved.

Designed & printed by SwRI MPS 18-0917 JCN 257657 tp

Benefiting
government,
industry and the
public through
innovative science
and technology