

# SPEER®

## Technical Brief

# 45 Glock Automatic Pistol Cartridge (45 G.A.P.)

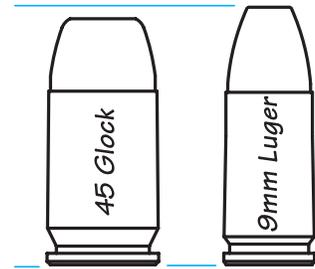
CCI-SPEER • Development Engineering • Lewiston ID 83501 • USA



In 2003, a joint development program by Glock® and Speer® resulted in a new cartridge—the 45 Glock Automatic Pistol (G.A.P.). The cartridge delivers 45 caliber performance to a broad class of compact semi-auto pistols.

The 45 G.A.P. utilizes a cartridge case length of 0.775 inch, essentially the same as the 9mm Luger (9x19mm) cartridge case. The maximum cartridge length is 1.070 inch, somewhat shorter than the 9mm Luger to accommodate the profile of 45 caliber bullets.

These dimensions mean that the 45 G.A.P. cartridge is ideally suited to compact and sub-compact pistols. This permits 45 caliber performance in firearms no larger than typical 9mm firearms. For shooters with small hands who find modern 45 Auto handguns too large for a secure grip, a 45 G.A.P. pistol has a grip that is no greater in diameter than a 9mm.



*The 45 G.A.P. cartridge is slightly shorter than the 9mm Luger*

### 45 G.A.P. Performance

The 45 G.A.P. allows 185 and 200 grain bullets to match muzzle, downrange, and terminal performance of the 45 Auto when fired in equivalent barrel lengths. The standard test barrel for the 45 Auto is 5 inches, so published 45 Auto velocities are slightly higher than the G.A.P. However, when both cartridges are fired in a 4 inch barrel, performance is virtually equal. Figure 1 (see attachment) compares 45 G.A.P. performance velocity and energy to the 40 S&W and 45 Auto from reference barrels.

To achieve this parity, the 45 G.A.P. is loaded to the same maximum average pressure as 45 Auto +P— 23,000 psi. Compared to 9mm Luger and 40 S&W pressures of 35,000 psi, the new cartridge achieves its performance at moderate pressures. Please refer to Figure 2 for comparison.



*45 G.A.P. 200 gr Gold Dot fired into bare gelatin at 952 ft/sec*

### Terminal Performance

The 185 and 200 grain Gold Dot 45 G.A.P. loads were subjected to six FBI test protocol stages and the IWBA heavy clothing protocol. Depending on the test protocol barriers, penetration was 12.3 to 18.3 inches of ordnance gelatin for the 200 grain GDHP, and 10.6 to 18.7 inches for the 185 grain GDHP. Figures 3 and 4 plot the results by test stage. Photographs of expanded bullets and the pertinent information of expanded diameter and retained weights are included in the attachment.

## Questions and Answers : the 45 G.A.P Cartridge

**Q. What 45 G.A.P. ammunition types will SPEER offer?**

A. Speer will release four loads in 2003. Gold Dot® premium hollow point ammunition for service and defense will be available in 185 and 200 grain weights. For training, practice, and target shooting, the same weights will be available in Speer’s Lawman® line. Lawman 45 G.A.P. is loaded with economical yet accurate Speer TMJ® bullets.

**Q. What are the performance figures for SPEER’S 45 G.A.P. ammo?**

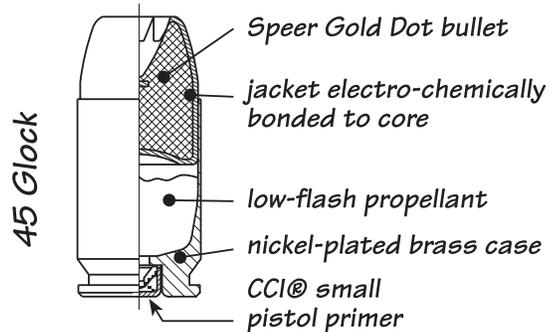
A. Here is a chart showing the 2003 loads:

		45 G.A.P. 185 grain Gold Dot HP	45 G.A.P. 200 grain Gold Dot HP	45 G.A.P. 185 grain Lawman TMJ	45 G.A.P. 200 grain Lawman TMJ
Velocity, fps	Muzzle	1020	950	1020	950
	50 yds	935	895	923	877
	100 yds	869	848	851	818
Energy	Muzzle	427	401	427	401
	50 yds	359	355	350	342
	100 yds	310	319	297	297
Max. Ordinate if sighted for:	50 yds	0.9"	1.0"	0.9"	1.1"
	100 yds	4.7"	5.2"	4.8"	5.4"
Use		Service/Defense		Training/Practice	

**Q. Is the 45 G.A.P. cartridge case simply a shortened 45 Auto?**

A. No. It is a unique case. The G.A.P. rim is slightly rebated compared to the 45 Auto, and the extraction cannellure width is optimized to case length and web profile, resulting in a 10° difference in the lead-in angle. The internal case wall profile is significantly different from 45 Auto cases to permit seating 45 caliber bullets without bulging. The most obvious difference is that the 45 G.A.P. uses a small pistol primer to put distance between the primer and breech/action elements present in 9mm-frame pistols.

It is unsafe to cut off 45 Auto cases to make 45 G.A.P. cases. The most significant issue is the difference in primer size. A large pistol primer that fits the 45 Auto case will over-ignite safe powder charges developed in proper G.A.P. cases with small primers. High pressure will result. The 45 G.A.P. case has a much different internal taper; cut-off 45 Auto cases will bulge when bullets are seated to recommended lengths.



**Q. Can the 45 G.A.P. be fired in a 45 Auto pistol?**

A. We cannot recommend this practice because it violates the basic firearms safety rule, “Only use ammunition that matches markings on your firearm.” Both cartridges headspace on the case mouth. The shorter 45 G.A.P. case is not properly headspaced in a 45 Auto chamber.

**Q. Is there a difference in point-of-impact (POI) between the two bullet weights, and between the Gold Dot and Lawman loads of the same weight?**

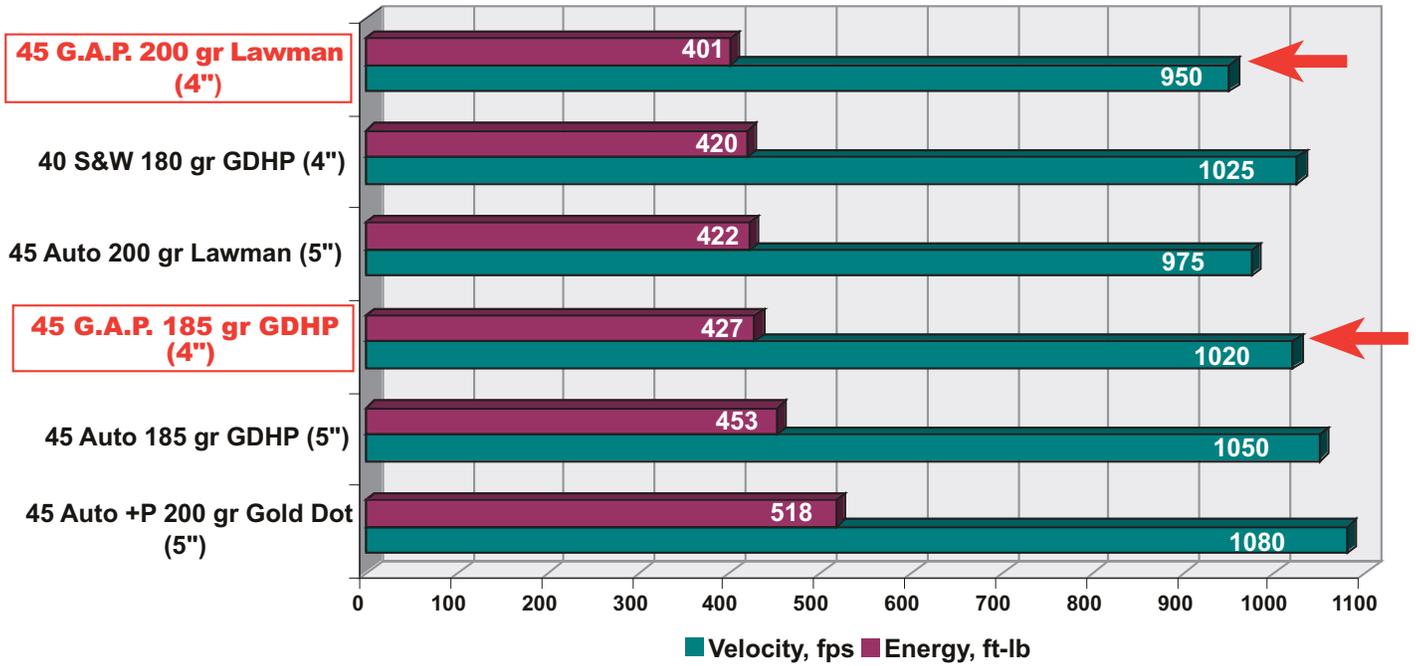
A. It is negligible. At 50 yards, the maximum shift in POI between the 185 and 200 grain bullets is just over one-half inch. Within a bullet weight, Gold Dot and Lawman loads print within 1/20th inch of each other. See Figures 5 and 6.

**Q. When Will 45 G.A.P. Ammunition be Available?**

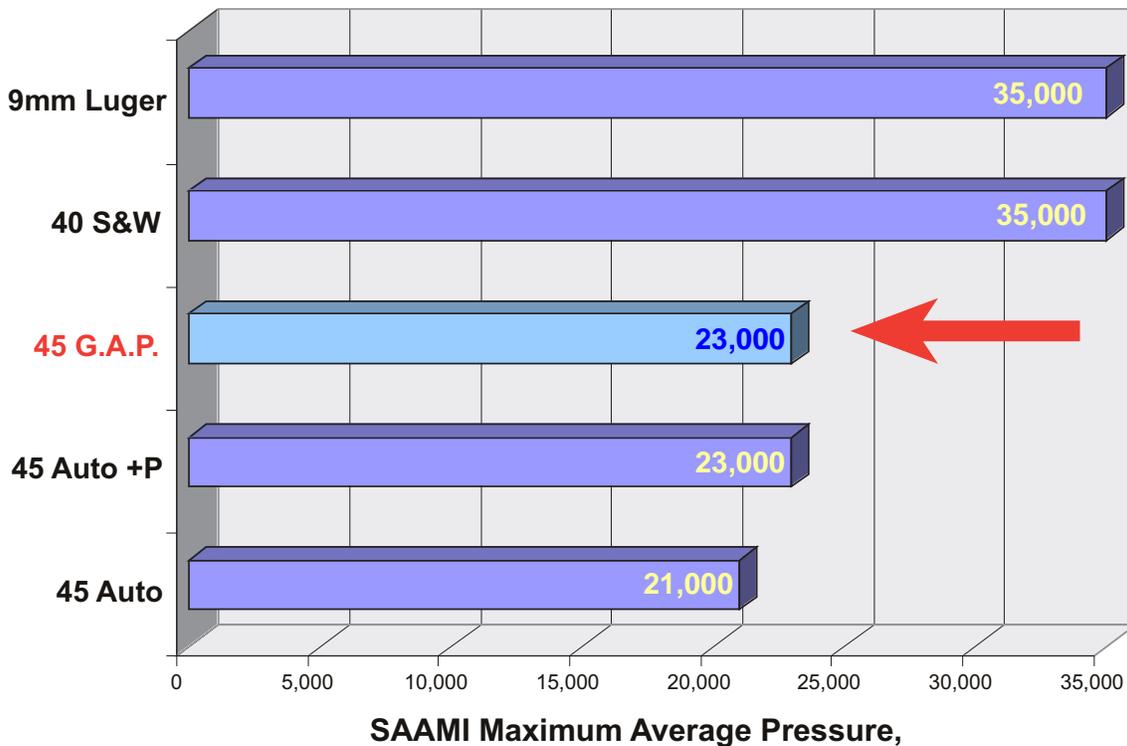
A. Speer will make its first shipments by the end of May 2003.



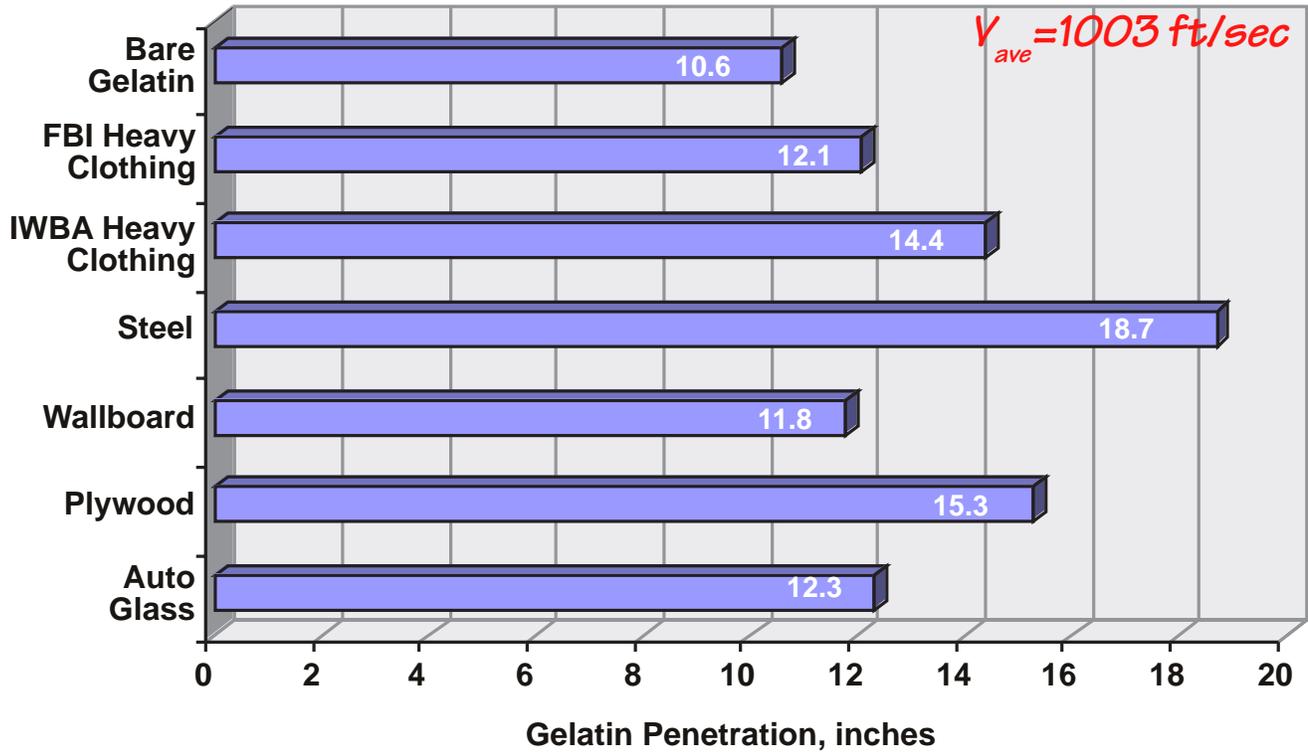
**Figure 1: 45 G.A.P. Velocity/Energy Comparison**



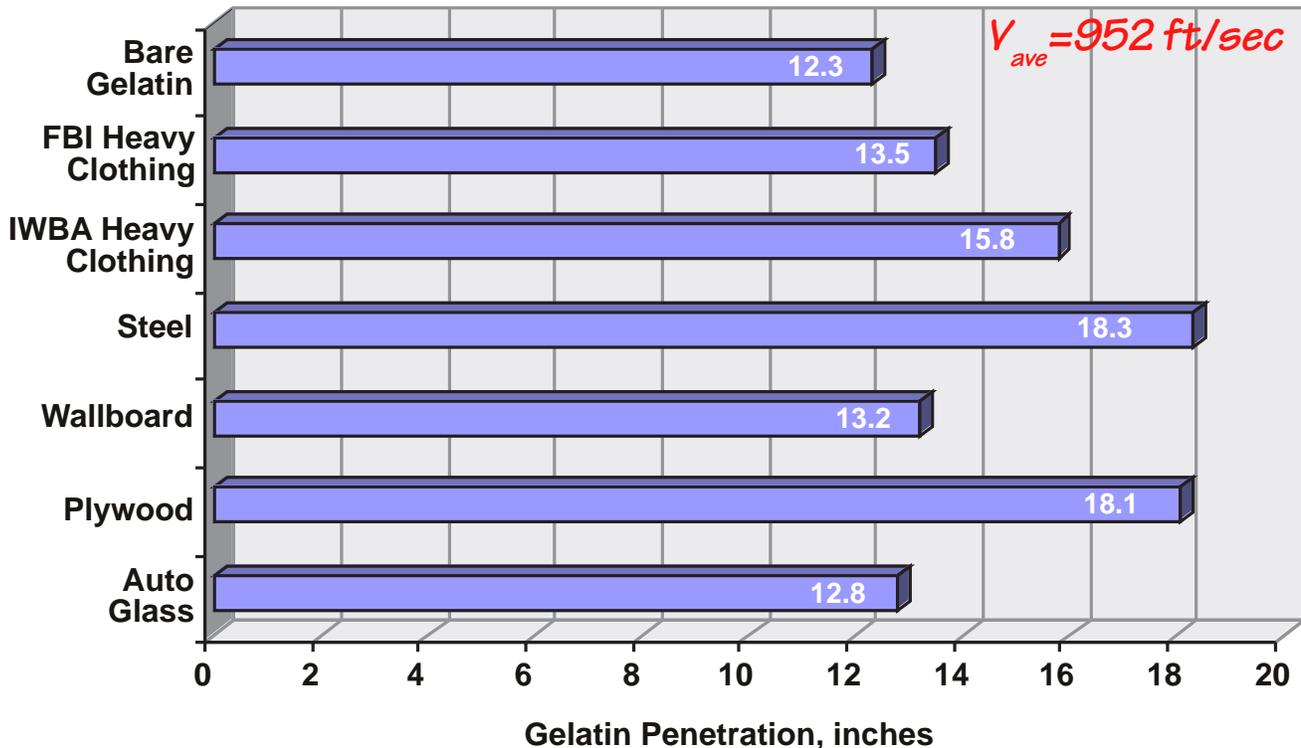
**Figure 2: Maximum Average Pressure for Handgun Cartridges**



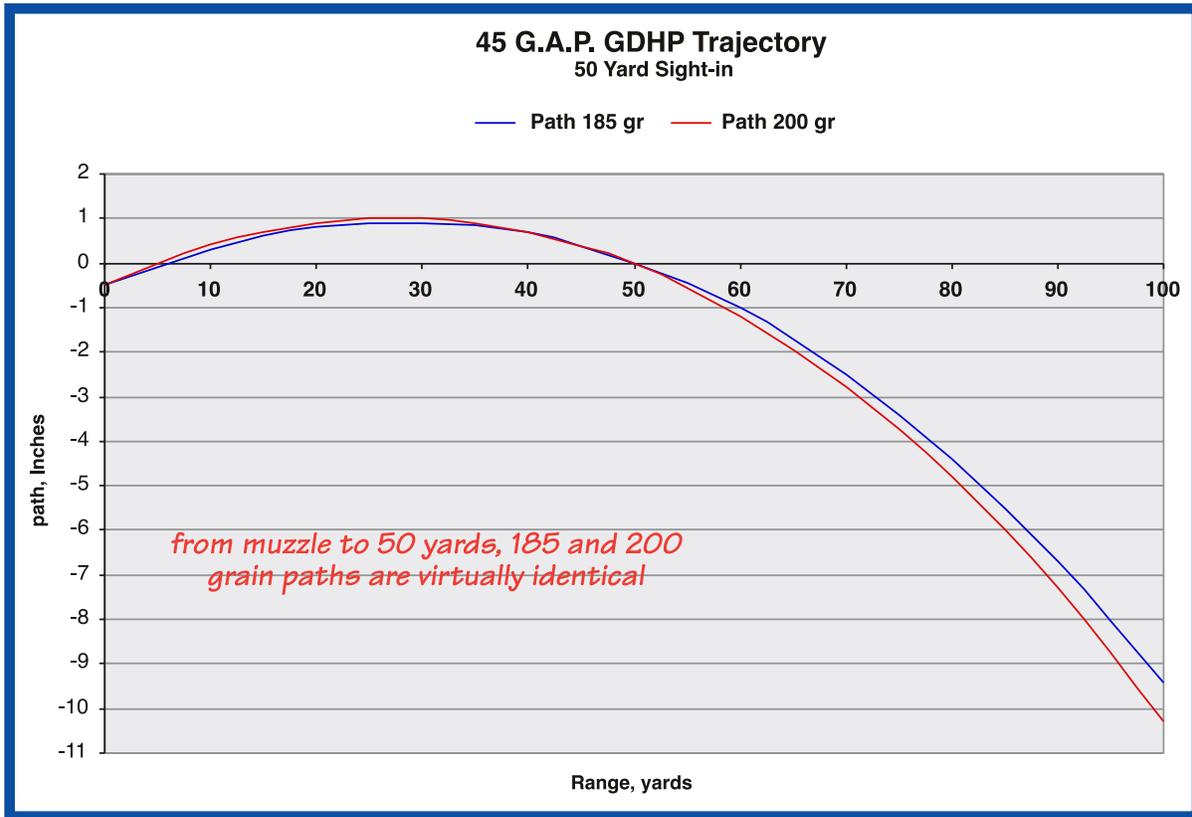
**Figure 3: 185 gr Gold Dot 45 G.A.P. Gelatin Penetration**



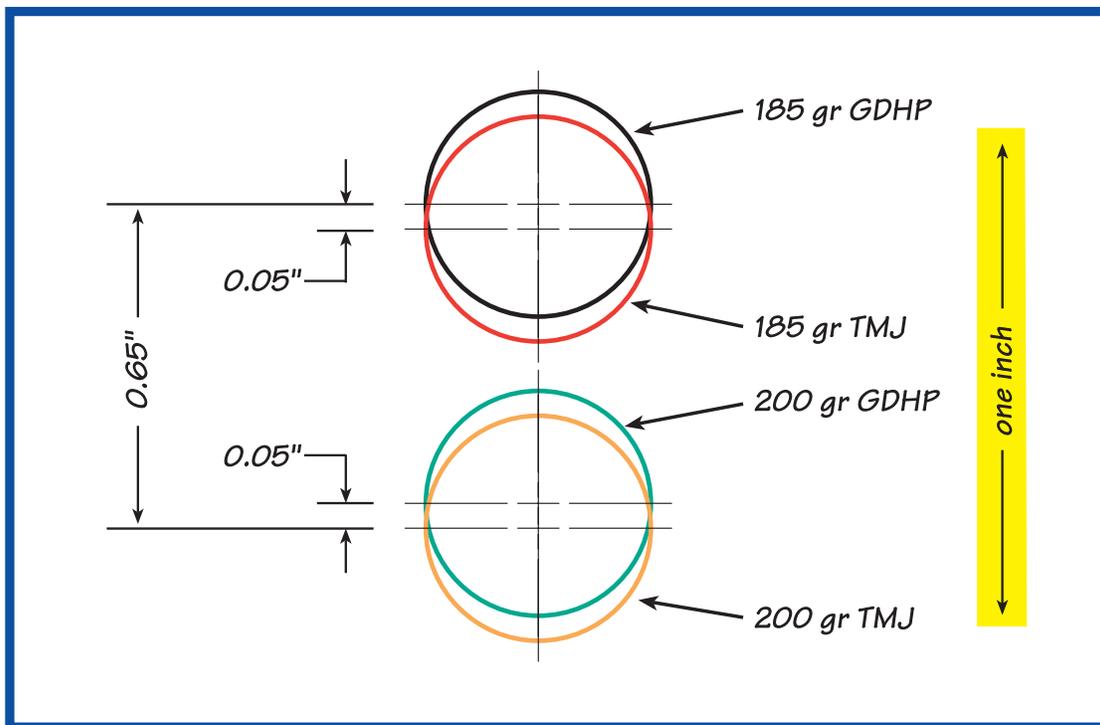
**Figure 4: 200 gr Gold Dot 45 G.A.P. Gelatin Penetration**



**Fig. 5: Trajectory Comparison—185 and 200 gr Gold Dot®**



**Fig. 6: 50 yd Point-of-Impact—185 and 200 gr Gold Dot® and Lawman®**



*185 gr Gold Dot is the reference point*

**SPEER®****45 G.A.P. Gold Dot Terminal Performance****45 G.A.P.  
200 gr  
Gold Dot®** $V_{ave} = 952 \text{ ft/sec}$ 

Media	Bare Gelatin	FBI Heavy Clothing	IWBA Heavy Clothing	Wallboard
Penetration	12.3 in.	12.3 in.	12.3 in.	13.2 in.
Expansion	.768 in.	.704 in.	.704 in.	.755 in.
Retained Wt %	99.8%	100.0%	100.0%	100.0%



Media	Sheet Steel	Plywood	Auto Glass
Penetration	18.3 in.	16.3 in.	12.8 in.
Expansion	.517 in.	.594 in.	.669 in.
Retained Wt %	99.7%	99.9%	95.3%

**45 G.A.P.  
185 gr  
Gold Dot®** $V_{ave} = 1003 \text{ ft/sec}$ 

Media	Bare Gelatin	FBI Heavy Clothing	IWBA Heavy Clothing	Wallboard
Penetration	10.6 in.	12.1 in.	14.4 in.	11.8 in.
Expansion	.810 in.	.751 in.	.693 in.	.732 in.
Retained Wt %	99.7%	99.7%	99.9%	100.0%



Media	Sheet Steel	Plywood	Auto Glass
Penetration	18.7 in.	15.3 in.	12.3 in.
Expansion	.509 in.	.741 in.	.723 in.
Retained Wt %	99.4%	99.9%	89.7%

Numerical values based on average of six shots into calibrated ordnance gelatin. Bullet photos are representative samples.