



HECKLER & KOCH

Heckler & Koch's New Personal Defense Weapon (PDW)

Presented at the:

2000 NDIA Small Arms Section Symposium

Indianapolis, IN

28 – 31 August 2000

Presented by: Jim Schatz

Heckler & Koch, Inc.

Revised 12/00





HK Personal Defense Weapon

4.6 x 30mm PDW Weapon System

Program Management

HK GmbH
Oberndorf, Germany



BAe Systems
Cheshire, England

Weapon

HK GmbH,
Oberndorf, Germany

Reflex Sight

Hensoldt Systemtechnik GmbH
Wetzlar, Germany

Ammunition

Royal Ordnance (Radway Green),
Cheshire, England

Carrying Rig

HK Inc.,
Sterling, VA





HK Personal Defense Weapon

PDW Design Goals

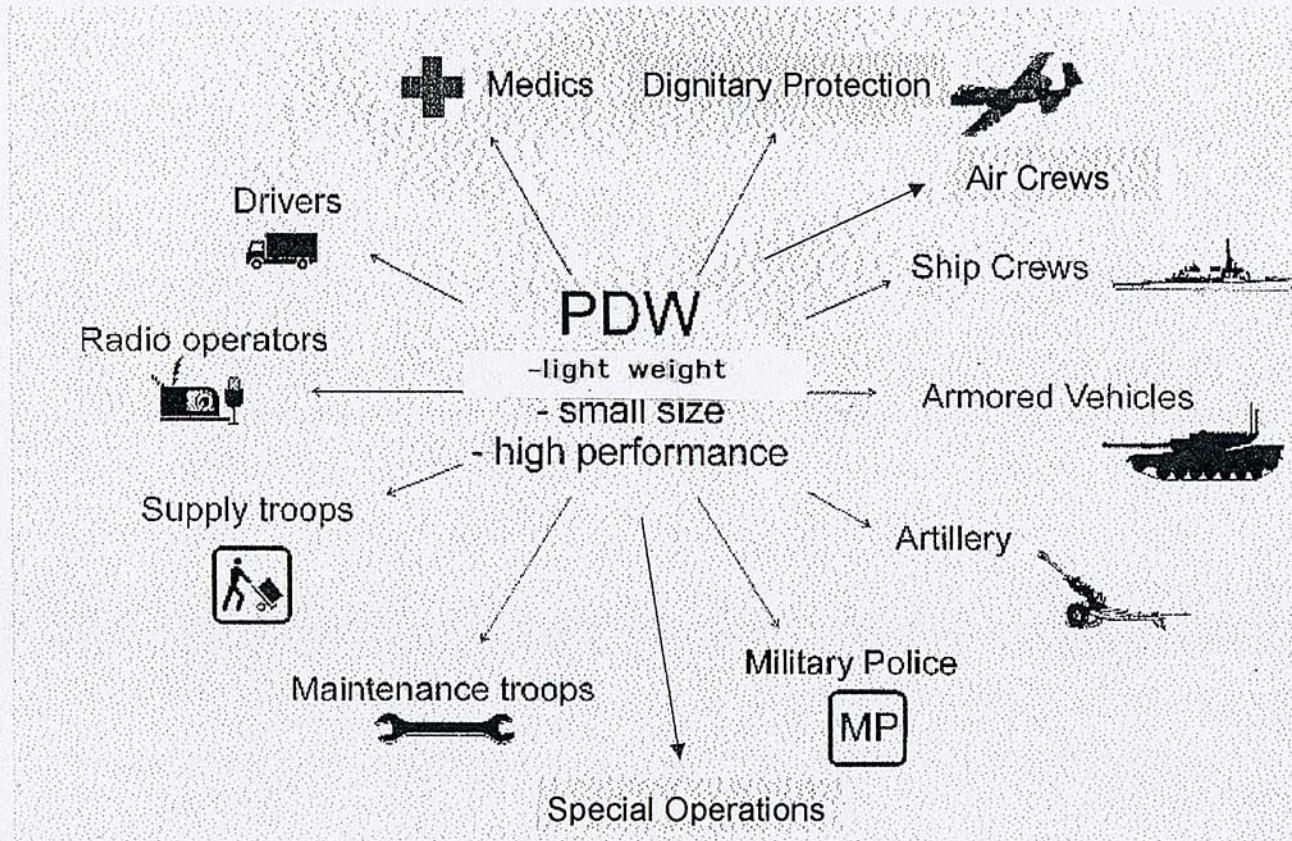
- Lightweight (3.81 lbs. w/ 20 rounds)
- Small, easily portable, always available
- Defeats all known standard issue military body armor meeting CRISAT specifications (1.6mm titanium, 20 layers Kevlar)
- High hit probability due to low recoil impulse, ergonomic design
 - Required by STANAG 4512: 90% at 50 m
50% at 100 m
 - Achieved by PDW: 50% at 200 m





HK Personal Defense Weapon

Potential PDW Users





HK Personal Defense Weapon

PDW Design Goals

- Easy to use, maintain
- Replace handguns, submachine guns, some carbines and rifles
- Low cost weapon, ammunition





HK Personal Defense Weapon



“Near 5.56X45mm rifle effectiveness out to 200 meters from a handgun-size weapon.”





HK Personal Defense Weapon

Current Program Status

- 1990 – PDW Program started at HK GmbH with 5.56, 4.85 & 4.6 mm calibers in response to NATO D29
- 1992 – NATO target changed from 48 layers Kevlar to Ti/Kevlar combo
- 1993 – Hit probability tests conducted
- 1994 – Settled on 4.6 mm after caliber studies
- 1995 – First 4.6 x 30 mm ammunition produced
– First prototype completed
- 8/2000 – Configuration 5 prototypes assembled
- Current – Advanced testing, user input & T&E
- March 2001 – 50 Configuration 6 prototypes available for T&E
- Late 2001 – Series production commences
- Early 2002 – First series production weapons available





HK Personal Defense Weapon

Ammunition

- Why 4.6x30 mm?
Optimum efficiency.
- Lethal
 - Required by STANAG 4513: Incapacitate protected soft targets up to 100 m
 - Achieved by HK PDW: Incapacitates protected soft targets at > than 200 m
- Muzzle Energy > 9x19 mm NATO ball round at 100 meters after perforating CRISAT target
- Low recoil impulse (Bolt face impulse)
 - Gas operated locked breech HK PDW 4.6 x 30 mm: 1.93 N/s
 - Blowback operated unlocked breech FN P90 5.7 x 28 mm: 3.94 N/s





HK Personal Defense Weapon

Ammunition

- Excellent penetration
 - ▶ CRISAT target > 200 meters
 - ▶ 2 CRISAT targets up to 30 meters
 - ▶ Laminated plates rated for .357 and .44 magnum at 200 meters
 - ▶ Copper training round penetrates CRISAT up to 50 meters





HK Personal Defense Weapon

Ammunition

- Low cost (@ 9¢/round)
- Experience with HK36 & 4.6 X 36 mm cartridge in 1960's
- UK, FRG and US production plants (RO, DNAG, Federal Cartridge Co.)
- All rounds non-toxic "Green" (Primer, Projectile, Propellant)





HK Personal Defense Weapon

Cartridge 4.6x30 mm

Cartridge

- Type Rimless center fire cartridge
- Length 1.50 inches / 38 mm
- Diameter 0.31 inches / 8 mm
- Weight 92.60 grains / 6 grams

Projectile

- Type Copper-plated steel bullet (hardened)
- Length Approx. 0.64 inches / 16.5 mm
- Diameter 0.18 inches / 4.65 mm
- Weight 24.70 grains / 1.6 grams





HK Personal Defense Weapon

Cartridge 4.6x30 mm

Case

- Type Rimless brass case with NATO boxer primer
- Length 1.18 inches / 30 mm
- Diameter 0.31 inches / 8 mm at base
- Weight Approx. 58.64 grains / 3.8 g

Ballistics

- Muzzle velocity Approx. 2,378 ft. per sec. / 725 m/s
- Muzzle energy Approx. 310 ft. lbs. / 420 Joules

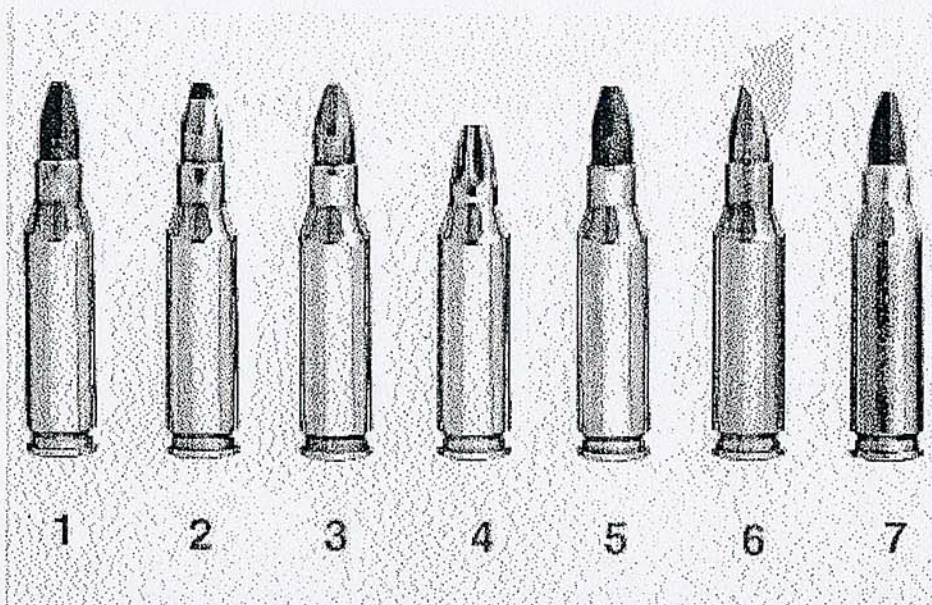




HK Personal Defense Weapon

Ammunition 4.6x30 mm

- 1 Ball
- 2 Tracer (Brass)
- 3 Training (Copper)
- 4 Blank
- 5 Frangible
- 6 Spoon Nose Training (Copper)
- 7 Drill
- 8 SubSonic (New Start)





HK Personal Defense Weapon

Ammunition for PDW, cal 4.6x30 mm

#	Type	Status	Bullet Construction	Employment	Remarks
1	Ball	In production	Steel, hardened and copper plated	Military use, AP	Penetrates at 200 m the NATO Titanium / Kevlar-Plate
2	Ball, Tracer	Limited pre-series production. Available July 2001	Brass with hollow base	Military use	Titanium/Kevlar penetration up to about 50 m. Tracer up to 200 m
3	Training round	In production	Copper solid	Military and police use	Will penetrate Kevlar amour-vests and Ti/Kevlar at 50 m
4	Blank	In preparation, available Sept. 2000	N/A	Maneuver use	Brass case





HK Personal Defense Weapon

Ammunition for PDW, cal 4.6x30 mm

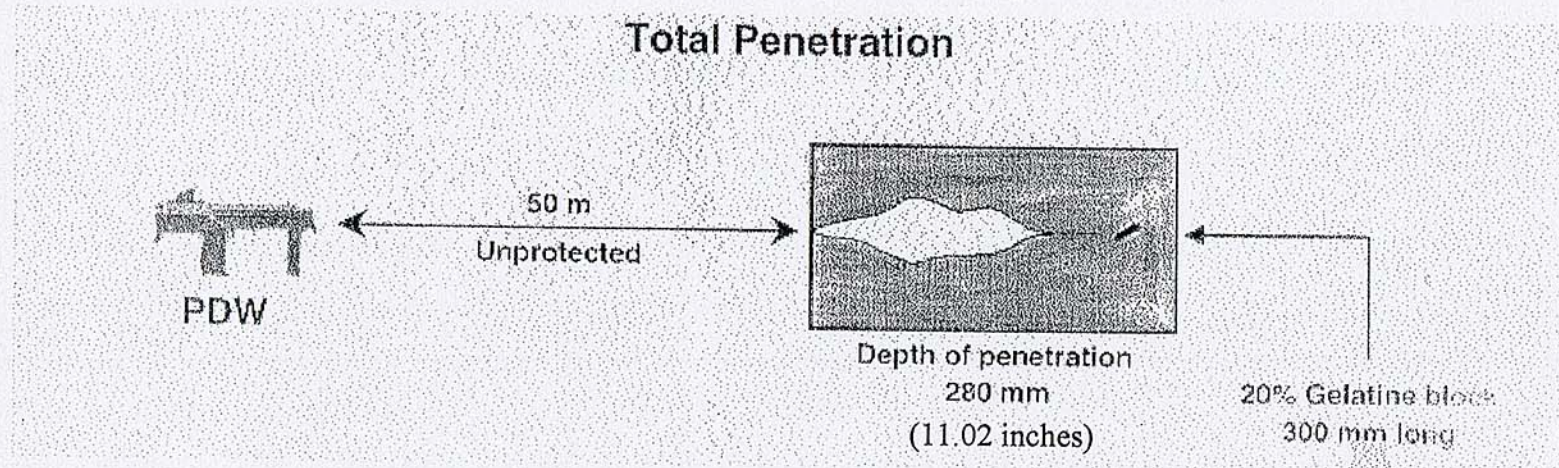
#	Type	Status	Bullet Construction	Employment	Remarks
5	ROTA	In preparation, available March 2001	Frangible	Training round with reduced range	
6	Spoon Nosed Training round	In preparation, available Sept. 2000	Copper solid with spoon nose point	Special police and military use	Maximum energy transfer, minimal soft target penetration
7	Drill	In preparation, available Sept. 2000	Plastic	Non-firing training	
8	SubSonic	Test Lots	Steel with hardened tip	Suppressed use with sound suppressor	Defeats CRISAT target at 50 m. 100dB reduction. 30% of MP5SD report. (Like M4 carbine hammer fall)





HK Personal Defense Weapon

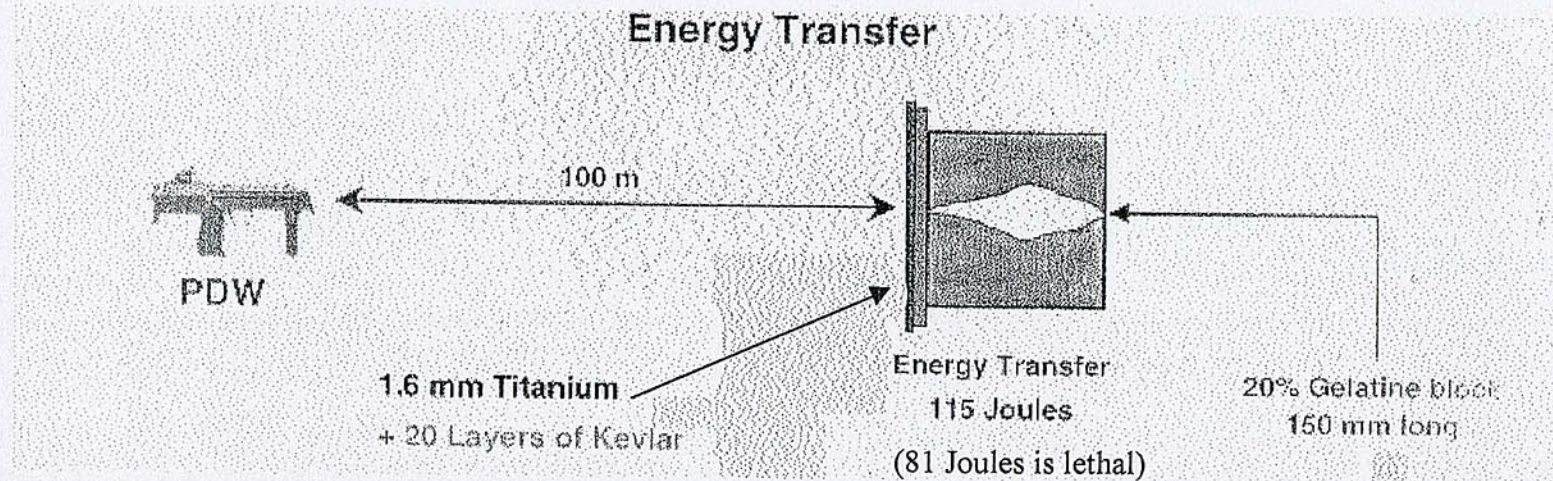
Terminal Ballistics – 50 m Range





HK Personal Defense Weapon

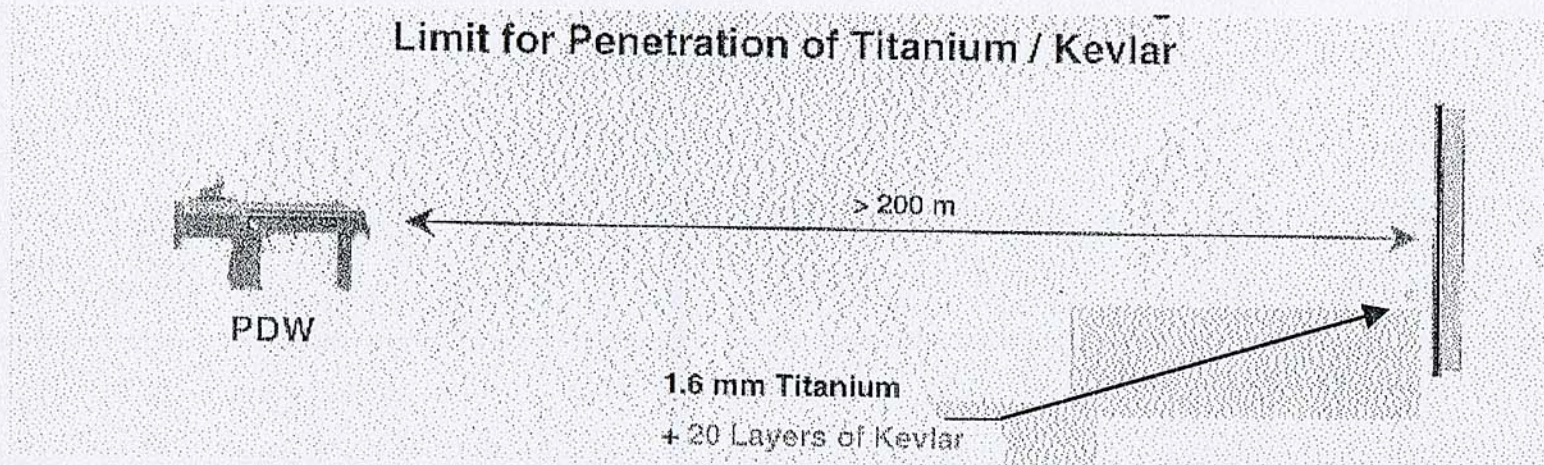
Terminal Ballistics – 100 m Range





HK Personal Defense Weapon

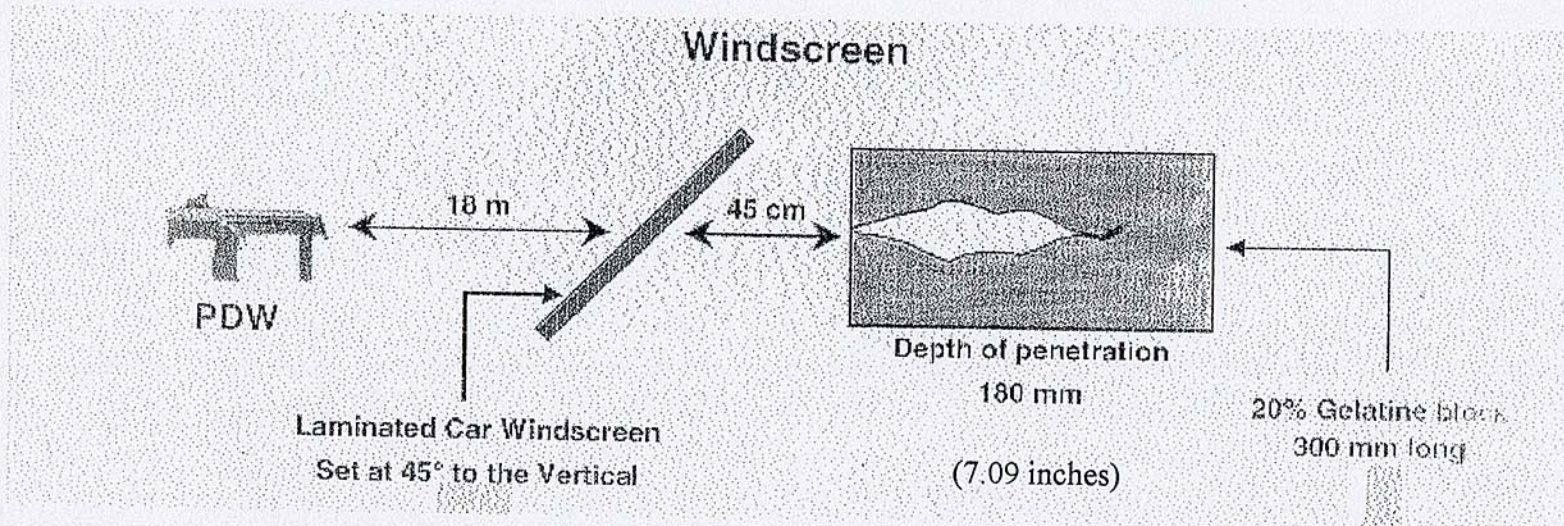
Terminal Ballistics – Penetration Range





HK Personal Defense Weapon

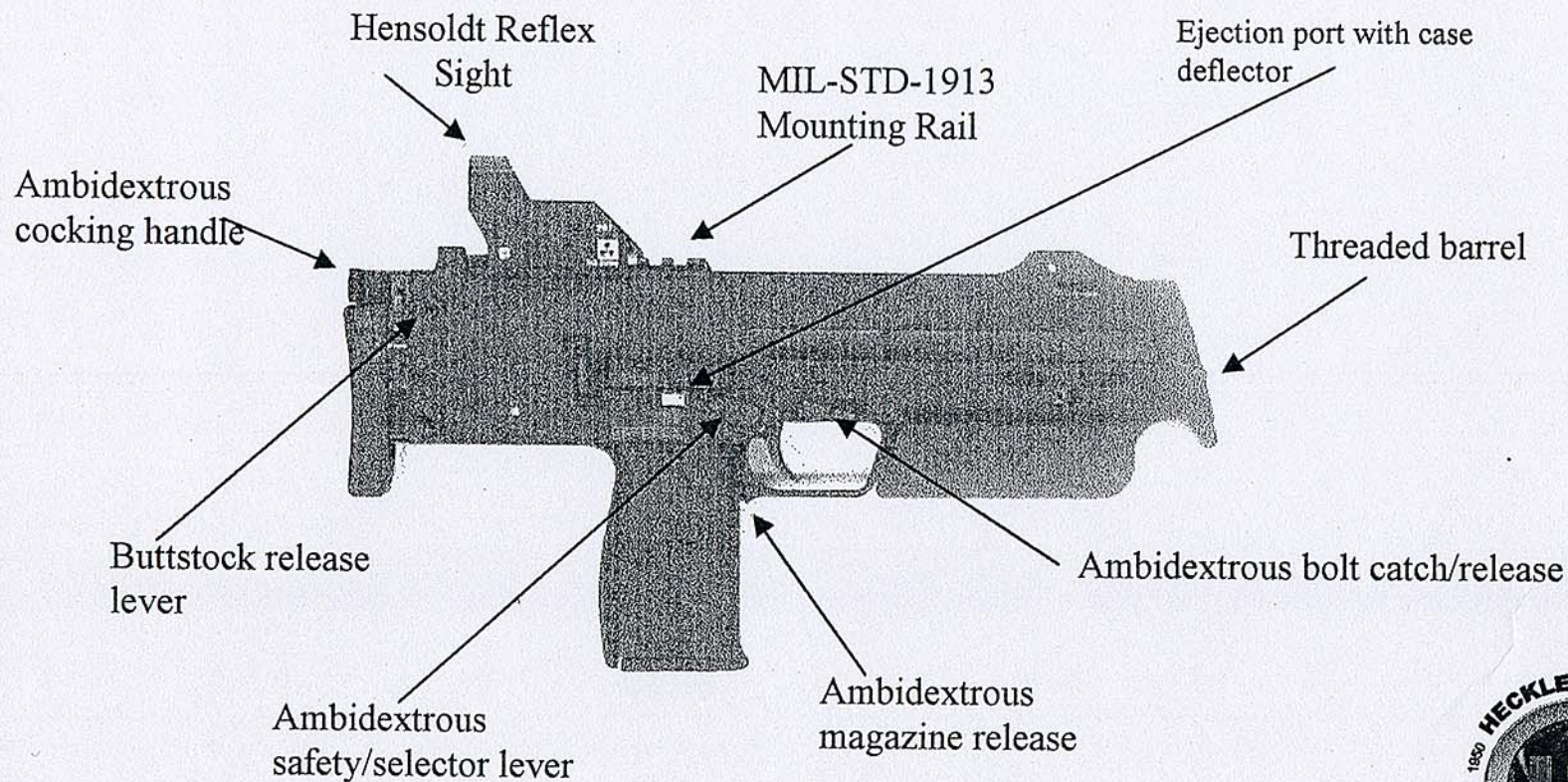
Terminal Ballistics – (FBI Test)





HK Personal Defense Weapon

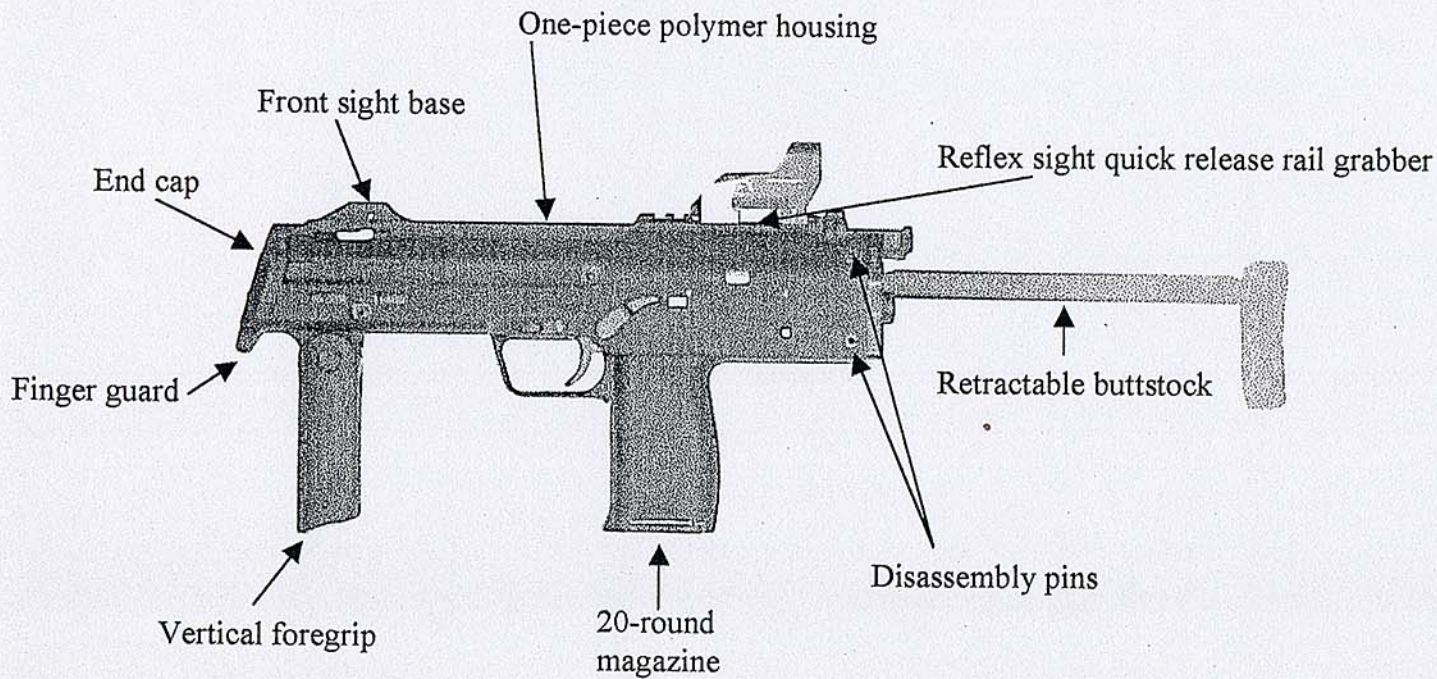
The Weapon





HK Personal Defense Weapon

The Weapon





HK Personal Defense Weapon

Technical Specifications

Developer	Heckler & Koch GmbH Oberndorf
Type	Personal Defense Weapon for shoulder supported and hand-held applications
Operating System	Gas-operated
Bolt Principle	Locked breech with rotating bolt head
Barrel	Chromium-plated barrel 7.09 inches/180 mm length Twist length 6.03 inches
Firing modes	Semi-auto and fully automatic





HK Personal Defense Weapon

Technical Specifications

Ammunition feeding system	Double row box magazine for 20 and 40 rounds
Theoretical rate of fire	Approx. 950 rounds / min
Sighting system	Optical and iron sights up to 250 m
Dimensions	Length 13.38 inches / 340 mm
	Width 1.65 inches / 42 mm
	Height 6.77 inches / 172 mm





HK Personal Defense Weapon

Technical Specifications

Weights System weight with empty 20 round magazine:
3.53 lbs / 1600 grams

Weapon without magazine: 3.31 lbs / 1500 grams

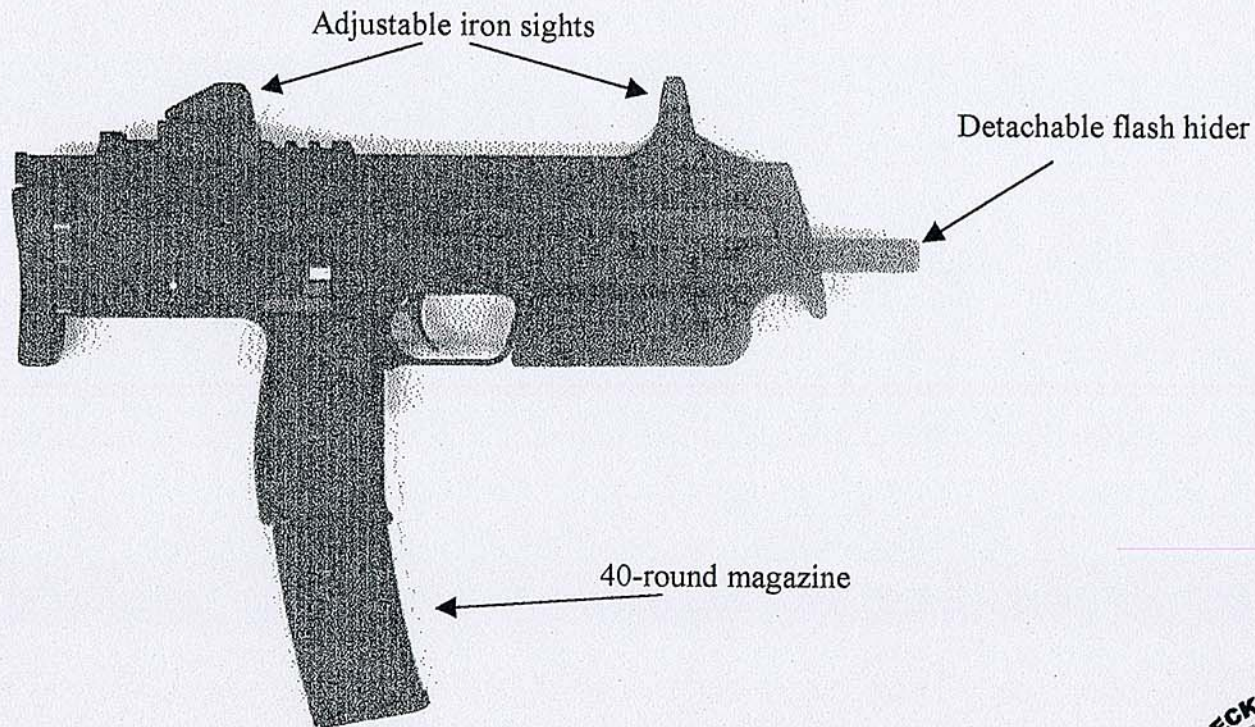
Empty magazine: 0.22 lbs / 100 grams





HK Personal Defense Weapon

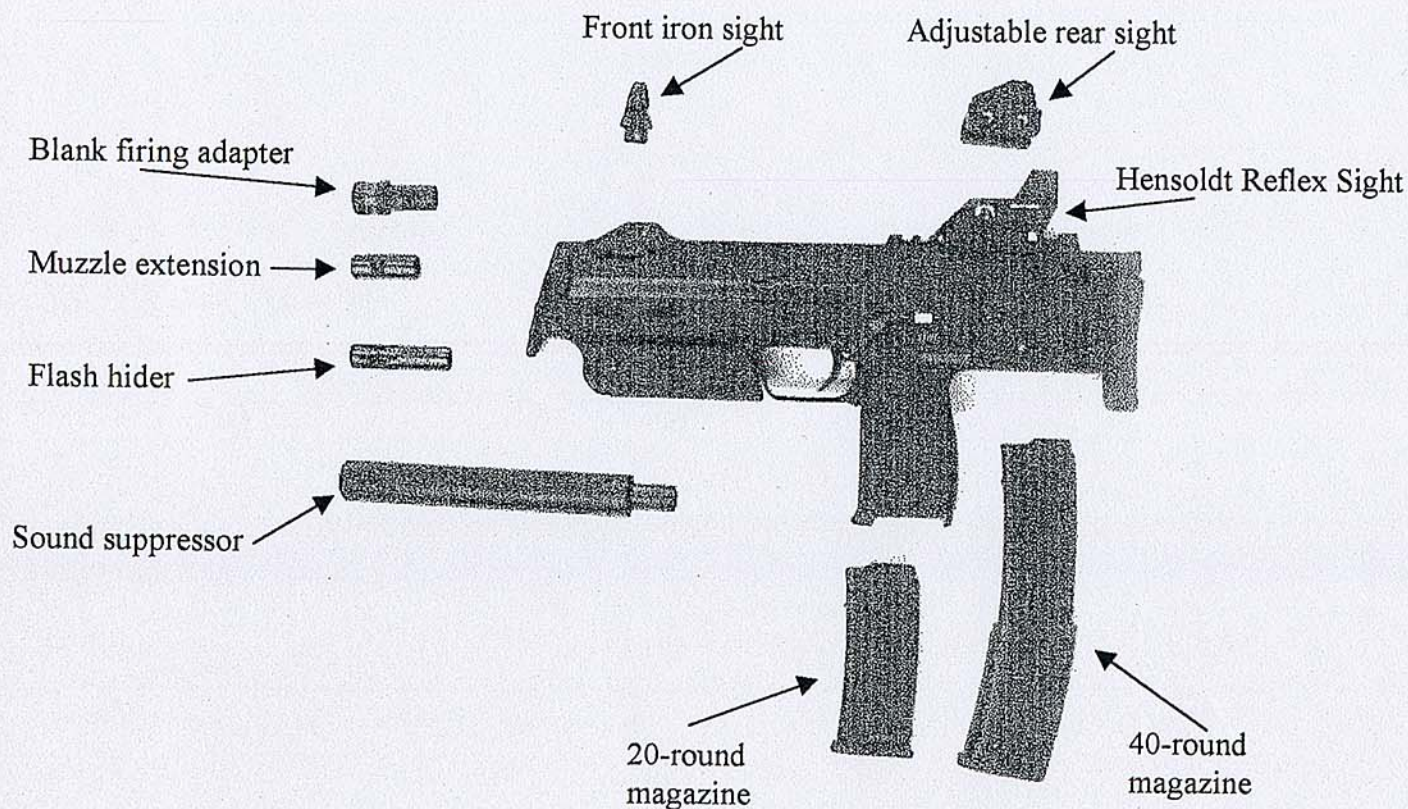
The Weapon





HK Personal Defense Weapon

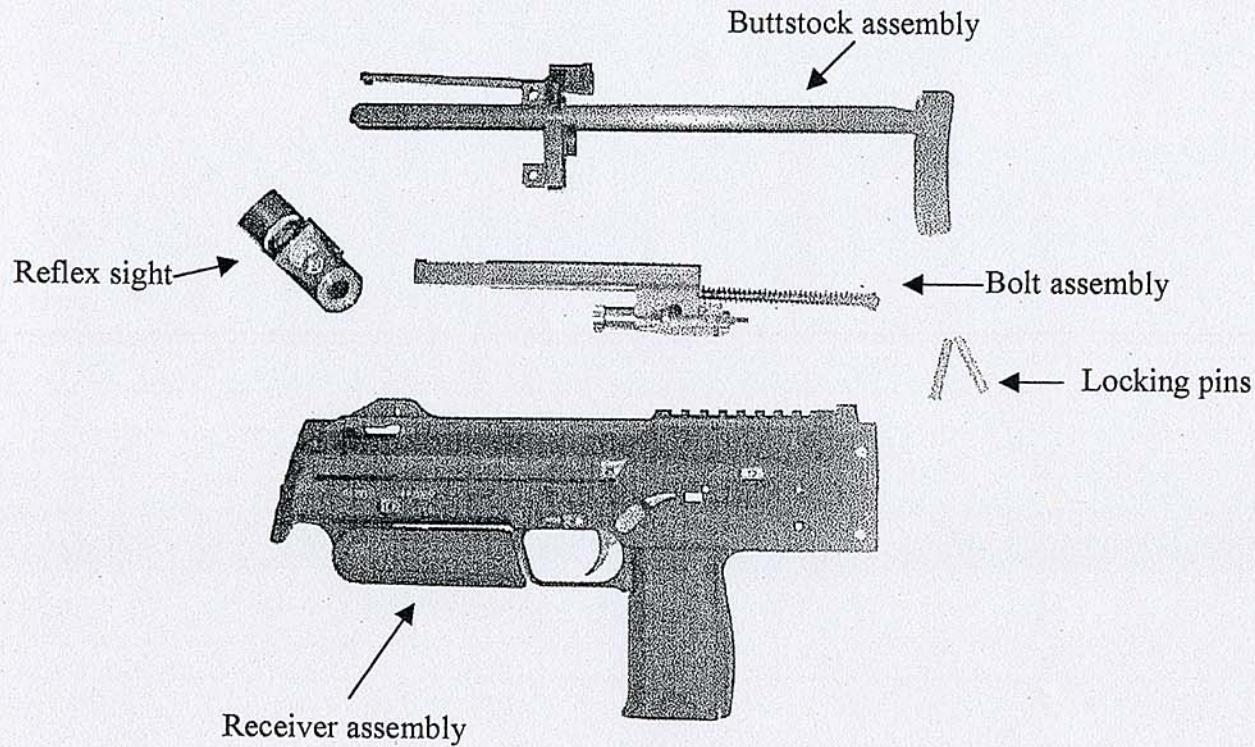
The Weapon – PDW w/ accessories





HK Personal Defense Weapon

PDW Field Stripped





HK Personal Defense Weapon

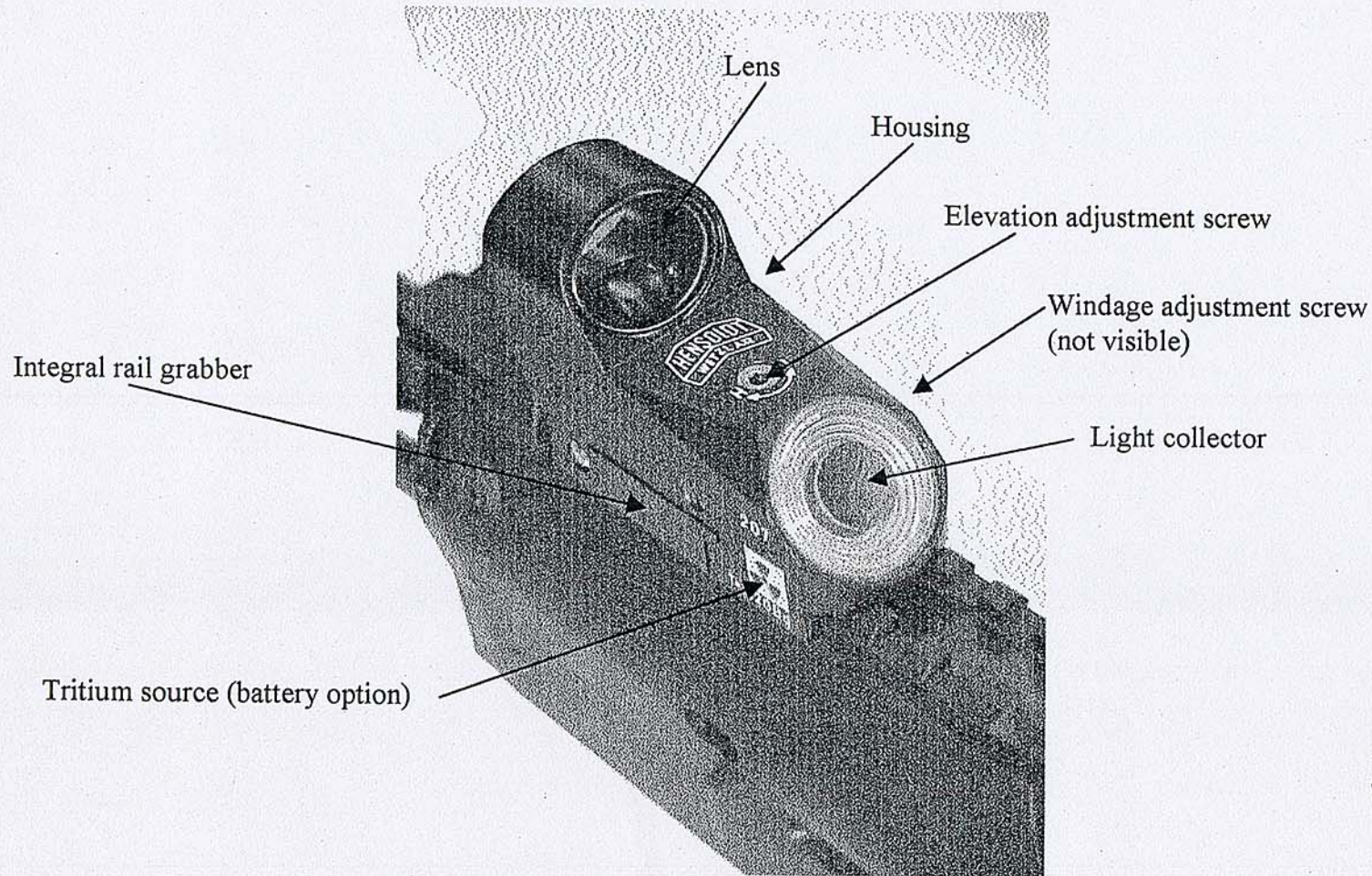
Size Comparison – MP5, PDW, MK23





HK Personal Defense Weapon

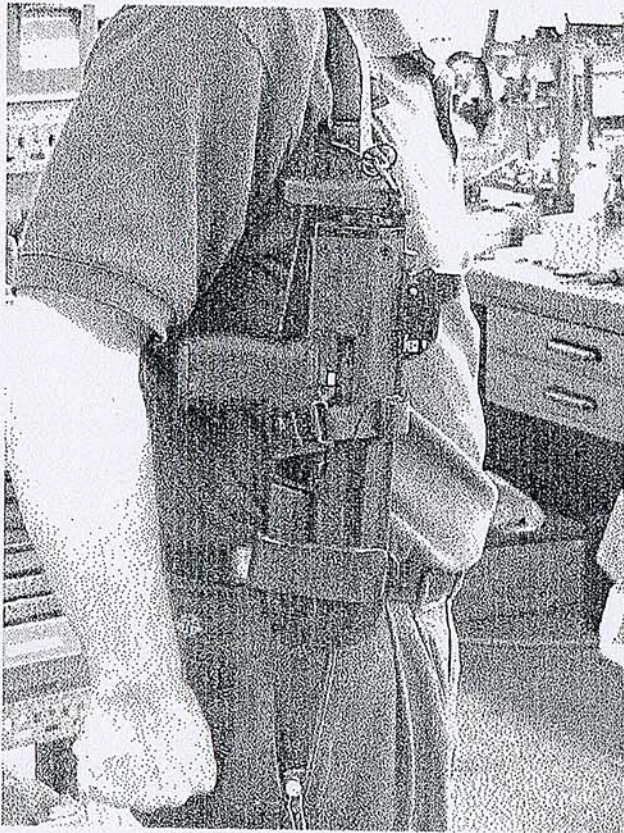
Reflex sight





HK Personal Defense Weapon

Shoulder Carrying rig



(IN)



(OUT)





HK Personal Defense Weapon

Thigh Carrying rig



Product Comparison

HK 4.6mm Personal Defense Weapon (PDW) Prototype Configuration 5 verses current issue personal weapons

11/00

<u>Specification</u>	<u>HK 4.6m PDW</u>	<u>US M9 Pistol</u>	<u>US MK23 MOD 0 Pistol</u>	<u>HK 9mm MP5K-PDW</u>	<u>FN 5.7mm P90 SMG</u>	<u>US M4 Carbine</u>
* Caliber:	4.6X30mm	9X19mm NATO	.45 ACP	9X19mm NATO	5.7X28mm	5.56X45mm NATO
* Operation:	Gas	Short recoil	Short recoil	Delayed blowback	Blowback	Gas
* Modes of Fire:	Semi Auto Full Auto	Semi Auto	Semi Auto	Semi Auto Full Auto	Semi Auto Full Auto	Semi Auto Full Auto
* Cyclic Rate of Fire (rounds/minute):	950	NA	NA	900	900	750-900
* Magazine Capacity	20/40	15	12	15/30	50	20/30
* Length (inches):						
- Barrel:	7.09	4.92	5.87	5.50	10.35	14.50
- Overall: (stock closed/open)	13.38/21.29	8.54/NA	9.65/NA	14.50/23.75	19.70/NA	29.80/33.00

Product Comparison

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* Weight (lbs.):						
- Unloaded with empty magazine:	3.53	2.09	2.66	6.52	5.60	5.90
- Loaded (Wt/Rds.):	3.81/20 4.09/40	2.56/15	2.88/12	6.53/15 6.54/30	7.06/50	6.60/20 6.89/30
* Portability: (weight divided by magazine capacity)	.19 (20) .10 (40)	.17	.24	.44 .22	.14	.33 .23
* Effective Firing Methods:						
- One handed:	Yes	Yes	Yes	No	No	No
- Two handed:	Yes	Yes	Yes	Yes	Yes	Yes
- From Shoulder:	Yes	No	No	Yes	Yes	Yes
- From Holster:	Yes	Yes	Yes	No	No	Yes
- From Sling:	Yes	No	No	Yes	Yes	Yes

Product Comparison

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* Projectile Weight: 24.70 (grains)		123	230	123	23.50	62 (M855)
* Muzzle Velocity: (feet per second)	2,378	1,280	850	1,230	2,855	2,612
* Muzzle Energy: (foot pounds)	310	383	369	412	425	943
* Maximum Effective Range:	> 200 m.	50 m.	50 m.	100 m.	150 m.	360 m.
* CRISAT Target Penetration: (20 layers Kevlar, 1.6 mm titanium)	> 200 m	None	None	None	150 m.	> 400 m.

“ProductcomparisonPDW”
JS/js 11/28/00
Using Proto. Conf. 5 Data

4069



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