

*Book 10*

*Armory and Ordinance*

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***TRAVELLER***

*Science-Fiction Adventure  
in the Far Future*

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## **Traveller Plus**

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# Conventions

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## USING THE DESIGN SEQUENCES

1. With most sequences, start with the weapon base *frame*, which will determine the weapon's base weight, damage and other capabilities. Pistol is an example of a weapon frame.
2. Choose the desired options for the intended weapon, noting such factors as CostX and WeightX, which are multipliers that affect cost and weight.
3. Also take note of other factors, such as recoil, flash, damage modifiers, and so on, for each particular weapon. These are also likely to affect the weapon's cost and weight.
4. When all options are chosen, summarize the weapon.
  - a. All factors labeled as X will multiply together. (For example, a frame with a base weight of 1 kg, with WeightX of 1.2 for rate of fire and a WeightX of .75 for materials will have a total weight of  $1 \text{ kg} \times 1.2 \times .75 = .9 \text{ kg}$ .)
  - b. All modifiers labeled with a + will add together. For example, a weapon with a base damage of 2D and a Damage Mod of +2D for weapon caliber will do 4D damage.)

For guns, start the design sequence with the ammunition type, which will determine many of the choices for weapon design. For example, gauss ammunition can only be fired by a gun with a gauss action.

Lasers do not have frames, but are built around a given energy output, which determines their characteristics.

**Weapon Summary:** Either the complex summary described here can be shown or the simpler **Traveller** Book 1 stats can be used.

## ABBREVIATIONS

The following tables use these abbreviations:

AD	Armor Divisor. Divide Armor Value by this number on a successful hit.
BD Mod	Add or subtract this number to the weapon's base Damage. Convert each +3 of base damage modifiers into an additional +1D.
CostX	Multiply the weapon's base cost by this factor.
PM	Penetration Multiplier. Multiply damage that has penetrated armor by this number.
RangeX	Multiply the weapon's base range by this factor.
Size Mod	Add or subtract this number to the weapon's base Size.
TL	Tech Level
WeightX	Multiply the weapon's base weight by this factor.

## TECH LEVEL EFFECTS

A weapon can only be produced at the Tech Level of its most advanced component. For example, gyrostabilizers are available at TL 10, so a normally TL 8 weapon that uses them can only be constructed at TL 10. This is called the Design TL.

The Build TL is the TL at which the weapon is actually constructed. It can never be lower than the Design TL.

At higher tech levels, weapons of lower tech levels become easier to produce and therefore cheaper. Impose a 10% discount per TL difference between the weapon's Design TL and Build TL. For example, an ETC weapon (TL 9) constructed at TL 10 receives a 10% discount.

## SIZE

Weapon Size measures the basic length of the weapon. A Size of 1 is one standard 'pistol-length', or approximately 25 cm (10 inches.). Size affects the ability to holster, store and conceal a weapon, and use it at close range.

Size corresponds to the following dimensions:

<i>Size</i>	<i>Length</i>
-1	Up to 6 cm
0	Up to 12.5 cm
1	Up to 25 cm
2	Up to 50 cm
3	Up to 75 cm
4	Up to 100 cm
5	Up to 125 cm
6	Up to 150 cm

The actual weapon length is whatever the designer wishes, within the limits above. For instance, a weapon with a size of 4 can have a length of anywhere from 76 cm to 100 cm.

# Gun Design

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Guns include standard slugthrower firearms, electrothermal/chemical (ETC) weapons, and accelerator weapons and gauss guns. Firing a gun uses the Gun Combat (Guns) skill.

To design a gun, first design the ammunition, then the actual weapon. A weapon can have multiple ammunition types, as long as the caliber and type matches. For example, a 9mm ETC pistol must fire 9mm ETC pistol ammunition.

## I. Ammunition Design

### 1. Choose Tech Level

Slugthrowers become available at TL 4.

By TL 8, most slugthrowers use caseless munitions.

By TL 9, Electrothermal/Chemical (ETC) technology becomes standard in slugthrowers. Accelerator rounds, for low recoil, also become available.

By TL 12, slugthrowers use gauss technology to propel rounds.

### 2. Design Ammunition

**a. Type:** Decide whether the round will be fired from a pistol or a rifle, and whether it will be a standard slug or a gauss round.

<i>Purpose</i>	<i>Base Slug Weight</i>	<i>Base Gauss Weight</i>	<i>Base Damage</i>
Pistol Round	10 g	1.6 g	0D
Rifle Round	25 g	4 g	2D

**b. Caliber:** Choose a caliber for the round.

<i>Slug Caliber</i>	<i>WeightX</i>	<i>Gauss Caliber</i>	<i>Gauss WeightX</i>	<i>BD Mod</i>
3 mm	0.1	--	--	+0D
4 mm	0.2	--	--	+0D+1
5 mm	0.3	--	--	+0D+2
6 mm	0.45	1 mm	0.1	+1D
7 mm	0.6	1.5 mm	0.15	+1D+1
8 mm	0.8	2 mm	0.25	+1D+2
9 mm	1.0	2.5 mm	.4	+2D
10 mm	1.25	3 mm	.6	+2D+1
11 mm	1.5	3.5 mm	.8	+2D+2
12 mm	1.8	4 mm	1.0	+3D
13 mm	2	4.5 mm	1.25	+3D+1
14 mm	2.4	5 mm	1.5	+3D+2

<i>Slug Caliber</i>	<i>WeightX</i>	<i>Gauss Caliber</i>	<i>Gauss WeightX</i>	<i>BD Mod</i>
15 mm	2.8	5.5 mm	2	+4D
16 mm	3.2	6 mm	2.25	+4D+1
17 mm	3.6	6.5 mm	2.5	+4D+2
18 mm	4	7 mm	3	+5D

**c. Configuration:** A round needs to be fired from one of four types of slugthrower: standard, accelerator, ETC, and gauss. Pick the appropriate line from the table below.

<i>Round Type</i>	<i>TL</i>	<i>WeightX</i>	<i>CostX</i>	<i>BD Mod</i>	<i>Notes</i>
Standard	4	1	1	+0	Standard solid slugs
Standard Caseless	8	0.8	1	+0	Only for caseless weapons.
Accelerator	8	1	1.5	+0	Accelerator action only
ETC	9	1.1	1.25	+1D	ETC action only
Gauss Dart	12	1.0	1.25	+1D	Gauss action only

*Standard* rounds are standard low-tech slugs.

*Standard caseless* are an advanced form of slugs that are lighter and less bulky than standard rounds.

*Accelerator* rounds are like tiny rocket-propelled rounds with low recoil.

*ETC rounds* are Electrothermal-chemical rounds using advanced propellant.

*Gauss darts* are rounds fired from magnetic flux guns.

**d. Special Munitions:** Determine, munition type, if any.

<i>Munition</i>	<i>TL</i>	<i>WeightX</i>	<i>CostX</i>	<i>BD Mod</i>	<i>Notes</i>
Shotgun	4	2.0	1.0	+0	Cannot be caseless.
Magnum	5	1.0	1.2	+2 total	Pistols only

Munitions types can be combined with different configurations; for instance, a gauss shotgun round can be created using the *CostX* and *WeightX* of its components multiplied together.

#### 4. Totals

Summarize each ammunition type as follows:

**Weight:** The weight of a round of ammunition, in grams, is equal to its Base Weight times all *WeightXs* multiplied together.

**Cost:** The cost of a round of ammunition, in credits, is the equal to its weight in grams times 0.1 times any *CostX*.

**Damage:** The base damage of a round, in dice, is the Base Damage plus all BD Mods, with a minimum of 1D. Replace every +3 in damage DMs with an additional D. For example, a total damage of 3D+6 becomes 5D.

**Armor Divisor:** Special munitions can give an Armor Divisor against armored targets.

## II. Weapon Design

### 1. Pick Weapon Frame

A weapon frame is the base for the weapon's construction. Generally, a pistol is intended to be used at short range and fired with one hand. A long arm is intended for longer ranges and is usually fired with two hands.

A frame can only fire rounds of the same type as chosen in Ammunition Design. (i.e., pistols can only fire pistol rounds, rifles only rifle rounds.)

<i>Frame Type</i>	<i>Base Wt</i>	<i>Base Cost</i>	<i>Base Size</i>	<i>Base Range</i>
Pistol	0.75 kg	200	1	50m
Rifle	3 kg	400	4	100m

### 2. Caliber Modifier

Depending on the caliber of the weapon's rounds, a modifier is imposed on a frame's base weight and cost.

<i>Caliber</i>	<i>WeightX</i>	<i>CostX</i>
Up to 7 mm slug / 1.5 mm gauss	0.9	0.9
Up to 11 mm slug / 3.5 mm gauss	1.0	1.0
Up to 15 mm slug / 5.5 mm gauss	1.2	1.2
Up to 18 mm slug / 7 mm gauss	1.4	1.4

### 3. Choose Action

The weapon's action is the mechanism it uses to propel rounds. The action must match the ammunition configuration chosen in Step 1.2.c above.

<i>Action</i>	<i>TL</i>	<i>CostX</i>	<i>Effects</i>
Standard	4	1.0	
Standard Caseless	8	1.0	Fires caseless rounds only
Accelerator	8	1.0	Fires accelerator rounds
ETC	9	1.25	Includes power supply.
Gauss	12	3	Includes power supply. RangeX 1.1

### 4. Choose Rate of Fire

The weapon's rate of fire (ROF) is the number of rounds it can fire each time the trigger is pulled. Because of the lack of friction in gauss weapons, a high rate of fire is possible at less expense in cost and weight.

<i>ROF</i>	<i>Shots</i>	<i>Standard WeightX and CostX</i>	<i>Gauss WeightX and CostX</i>
Semi-automatic	1	1	1
Burst	3	1.1	1
Auto	5	1.2	1
Rapid	10	1.3	1.1
Very Rapid	20	1.4	1.2

**Selective Fire:** A weapon that can fire multiple rounds can fire at any lower rate. For instance, a weapon with an ROF 10 can also be set to fire at ROF 1, 3 or 5.

### 5. Choose Materials

By TL 8, firearms are most often made of composite, non-metallic polymers.

<i>Material</i>	<i>TL</i>	<i>WeightX</i>	<i>CostX</i>
Metal	4	1.0	1.0
Polymer	8	0.9	1.1
Nanocarbon	11	0.75	1.2

### 6. Choose Special Configuration

Standard frames can be configured to achieve different purposes, such as decreased size or the ability to fire special ammunition.

<i>Option</i>	<i>WeightX</i>	<i>CostX</i>	<i>RangeX</i>	<i>Size Mod</i>	<i>Other Effects</i>
Shotgun	1.1	0.6	-1		Must fire shotgun ammo
<i>Pistols Only</i>					
Revolver	1	0.6			Automatically ammo capacity 6 and ROF 1
Snub Nose	0.75	0.9	.5	-1	
Compact	0.8	1.25	.9	-1	
Subcompact	0.6	1.4	.75	-2	
Submachinegun	3	2	1.2	+1	
<i>Long Arms Only</i>					
Bullpup	0.9	1.25	.9	-1	
Sniper Rifle	1.25	1.5	1.5	+1	
Carbine	0.8	0.8	.9	-1	Size -1, Max Range -1

A *shotgun* can be a rifle or a pistol. It has reduced range, increased recoil, but does damage in a cone to multiple targets.

A *submachine gun* fires pistol ammunition, and is built using the pistol frame. A *revolver* automatically has an ammo capacity of 6 and an ROF of 1.

With referee's permission, some configurations can be combined; for instance, a snub-nosed revolver or a shotgun carbine. However, only one configuration can be chosen that affects a weapon's Size—for example, combining a bullpup and carbine is not allowed.

## 7. Determine Magazine Load

Determine the weapon's magazine load for any ammunition designed in Phase I. A revolver may not use a magazine, but has an ammo capacity of 6.

- a. *Magazine Type*:
  - o *Grip Magazine*: a grip magazine can store rounds equal to 120 divided by its caliber in mm. Only a pistol can use a grip magazine.
  - o *Box Magazine*: a box magazine is the standard weapon magazine type. Maximum ammunition load cannot exceed 40 shots or 30% of the weapon weight, whichever is lower.
  - o *Breach Loader*: a breach loading weapon can store 1 round at time.
- b. *Magazine Weight and Cost*: multiply ammunition cost and weight by magazine capacity to determine magazine weight and cost. For gauss weapons, add .1 kg and Cr25 to the magazine for the weight and cost of the integral battery.

## 8. Determine Recoil

Slugthrowers have a base Recoil equal to Damage Dice-1. For instance, a basic automatic pistol, which does 3D, has Recoil of 2. Increase or decrease the weapon's Recoil based on the following criteria:

<i>Action</i>	
Accelerator Action	-3
ETC Action	-1
Gauss Action	-2
<i>Automatic Fire</i>	
Burst Fire	+1
Auto Fire	+2
Rapid Fire	+3
Very Rapid Fire	+4
<i>Configuration</i>	
Shotgun	+1
Snub Nosed	+1
Magnum Rounds	+1
Compact or Subcompact	+1
Submachine Gun	-1
Rifle	-1
<i>Compensation</i>	
Gyrostabilizer	-2

Recoil may never be reduced below 0.

### 9. Determine Noise and Flash

**Noise:** Weapon Noise is rated on a scale from 0-3, with 0 being the quietest and 3 being the noisiest.

<i>Noise Level</i>	<i>Description</i>
0	Silent
1	Quiet
2	Average
3	Noisy

Slugthrowers have a base Noise level of 2. Use the following criteria to modify weapon Noise level. Noise may never be greater than 3 or less than 0.

Silencer	-2
Slug Caliber > 12 mm	+1
Gauss Weapon	-1
Shotgun	+1
ROF 3, 5, 10	+1
ROF 20	+2
Explosive Rounds	+2

**Flash:** Weapon Flash is also rated on a scale from 0-3. Slugthrowers have a base Flash of 2. Use the following criteria to modify Flash level.

Flash Suppressor	-2
Slug Caliber >12 mm	+1
ROF 3, 5, 10	+1
ROF 20	+2

Gauss weapons always have a Flash of 0 no matter their ROF.

### 10. Determine Reliability

Reliability indicates how well the weapon is constructed or can hold up under wear and tear.

<i>Reliability</i>	<i>Breakdown</i>	<i>Cost</i>
Low	8+	.5
Average	10+	0
High	12+	1.5

### 11. Optional Accessories

A list of weapon accessories is shown on page 22.

<i>Accessory</i>	<i>TL</i>	<i>Weight</i>	<i>Cost</i>	<i>Effects</i>
Silencer	6	0.1 kg	Cr300	RangeX .5

Telescopic Sight	6	0.8 kg	Cr200	+2 DM at L and VL
Laser Sight	8	0.4 kg	Cr600	+2 at M or less
Electronic Sight	8	0.5 kg	Cr1000	Image enhancement and IR
Flash Suppressor	6	0.5 kg	Cr600	Reduces Noise
Gyrostabilizer	10	10% of weapon weight	Cr500	Reduces Recoil by 2

## 12. Totals

Summarize the weapon as follows:

**Name:** weapon name and model. (For instance, Colt .45 M1911A).

**Description:** brief description of the weapon. (Standard automatic pistol.)

**Tech Level:** see Step I-1.

**Weight:** The empty weight of the weapon, in kilograms, is its Base Weight multiplied by all WeightXs.

**Cost:** The cost of the weapon, without ammunition, is the frame's Base Cost multiplied by all CostXs, times any tech level discount. After all modifiers, the minimum cost of a firearm is Cr100.

**Caliber:** See Step I-2.

**Size:** The Size of the weapon is its frame's Size plus or minus any configuration modifiers.

**Length:** Look up the weapon length on the Size table on page 4.

**ROF:** Step II-4.

**Effective Range:** A gun's Effective Range equals:  
 (Base Range) x (All RangeX) x (Damage Dice/3)  
 In addition, multiply in these additional factors:

- o Gauss weapon 1.1
- o Silencer .5

**Shots:** Step II-7.

**Recoil:** Step II-8

**Noise:** Step II-9.

**Flash:** Step II-9.

**Reliability:** Step II-10.

**Accessories:** Step II-11

**Skill:** All slugthrowers need Gun Combat (Guns) skill for proper use.

# Laser Small Arms Design

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Laser small arms become available by TL 8. Their high range, lack of recoil and silence make them favored high tech weapons. Lasers are generally more expensive than guns.

Firing a laser requires the Gun Combat (Lasers) skill.

Laser design is slightly different from gun design. To design a laser, choose discharge energy first. This will determine base weight, cost and damage. The weapon stock and configuration will determine the laser's maximum range.

## 1. Choose TL

Visible light small arms lasers become available at TL 8. Other wavelengths become available at higher tech levels.

## 2. Discharge Energy

The laser's Discharge Energy (DE) affects the amount of damage it can deliver to the target. DE is measured in 5 kilojoule intervals, up to 300 kilojoules.

A laser's base weight in kilograms equals  $(DE^2 / 10000) + .4$

A laser's base cost equals  $Cr750 * \text{Base Weight}$ .

Consult the table here to determine base damage

<i>Kilojoules</i>	<i>Base Damage</i>
5	0D
10	0D+1
20	0D+2
30	1D
40	1D+1
50	1D+2
60	2D
70	2D+1
80	2D+2
90	3D
100	3D+1
110	3D+2
120	4D
130	4D+1
140	4D+2
150	5D
160	5D+1
170	5D+2
180	6D
190	6D+1
200	6D+2

<i>Kilojoules</i>	<i>Base Damage</i>
210	7D
220	7D+1
230	7D+2
240	8D
250	8D+1
260	8D+2
270	9D
280	9D+1
290	9D+2
300	10D

### 3. Choose Wavelength

Lasers fire light beams in a single wavelength. Pick one.

<i>Wavelength</i>	<i>TL</i>	<i>CostX</i>	<i>WeightX</i>	<i>Flash</i>
Visible Light	8	1.0	1	+0
Infrared	9	1.1	1	-3
Microwave	10	1.1	.9	None
X-Ray	13	1.25	.8	None

### 4. Rate of Fire

The laser's rate of fire (ROF) is the number of times it can fire each time the trigger is pulled. A beam laser fires 1 round/turn; a pulse laser fires more often.

<i>ROF</i>	<i>TL</i>	<i>Shots</i>	<i>WeightX</i>	<i>CostX</i>
Beam	8	1	1	1.0
Burst Pulse	9	3	1.1	1.1
Auto Pulse	9	5	1.2	1.25
Rapid Pulse	9	10	1.3	1.5
VRF Pulse	10	20	1.4	2

### 5. Configuration

Standard frames can be configured to achieve different purposes, such as decreased size.

<i>Configuration</i>	<i>WeightX</i>	<i>CostX</i>	<i>Size Mod</i>
Compact	.85	1.25	-1

### 6. Stock

A laser's stock will determine how easy it is to aim at range. Pick a stock for the weapon, which will add to its weight, cost and size.

<i>Stock</i>	<i>Weight (kg)</i>	<i>Cost (Cr)</i>	<i>Size Mod</i>	<i>Base Range</i>
Bullpup	0.5	50	1	75
Pistol	0	0	0	50
Rifle	1	100	2	100

## 7. Materials

By TL 8, most weapons are made of composite, non-metallic polymers. As such, polymer is the default material for laser construction.

<i>Material</i>	<i>TL</i>	<i>WeightX</i>	<i>CostX</i>
Polymer	8	1	1
Nanocarbon	11	0.85	1.1

## 8. Enhancements

<i>Option</i>	<i>TL</i>	<i>CostX</i>	<i>BD Mod</i>
Ruggedized	8	1.1	
Adaptive Optics	10	1.1	+1/D

A *ruggedized* weapon can be used as a melee weapon without breaking.

*Adaptive optics* is a computer-optimized lensing system that adapts the laser energy for best transmission through the local atmosphere. It increases the damage the laser can deliver.

## 9. Flash/Noise

Visible light lasers have a base Flash of 2. Increase Flash according to the following criteria:

ROF 3-5	+1
ROF 10-20	+2
Discharge Energy > 120 kJ	+1

Infrared, microwave and x-ray lasers always have a Flash of 0.

Lasers always have a Noise of 0.

## 10. Reliability

Reliability indicates how well the weapon is constructed or can hold up under wear and tear.

<i>Reliability</i>	<i>Breakdown</i>	<i>Cost</i>
Low	8+	.5
Average	10+	0
High	12+	1.5

## 11. Power Supply

Laser weapons require a power supply. This can be either a rechargeable, backpack-mounted capacitor, or at TL 12+ it can be a disposable power cell. Power supply weight and costs are expressed in terms of weapon weight and cost.

In the table, WeightX and CostX indicate the weight and cost of the item as a percentage of the weapon weight and cost. For example, a Standard power pack

for a 2 kg, Cr2000 laser weapon weighs  $2 \times 1=2$  kg and costs  $\text{Cr}2000 \times .4=\text{Cr}800$ .

<i>Power Supply</i>	<i>TL</i>	<i>WeightX</i>	<i>CostX</i>	<i>Shots</i>	<i>Notes</i>
Standard Power Pack	8	1.0	0.4	200	
Long Duration Pack	9	1.2	0.5	400	
Light Duty Pack	9	0.5	0.5	40	
Power Cell	12	0.1	--	40	Cell cost is $\text{Cr}1000 \times$ cell weight
Advanced Power Pack	12	1.0	0.4	1000	

## 12. Sights

Because of their design, weapons are considered to have integral laser sights, using a low-power precursor beam. However, an electronic sight can also be purchased.

<i>Accessory</i>	<i>TL</i>	<i>Weight</i>	<i>Price</i>	<i>Effects</i>
Electronic Sight	8	0.5 kg	Cr1000	Image enhancement and IR

## 13. Summary

Summarize the weapon as follows:

**Name:** laser name and model. (LasBlaster 3000)

**Description:** brief description of the laser. (100 kJ x-ray laser carbine).

**Tech Level:** See Step 1.

**Weight:** The weight of the laser, in kilograms, is its Base Weight multiplied by all WeightXs.

**Cost:** The cost of the laser, without ammunition, is the frame's Base Cost multiplied by all CostXs.

**Discharge Energy:** See Step 2.

**Wavelength:** See Step 3.

**Damage:** Add the base damage from output plus any Damage Mods.

**Enhancements:** See Step 8.

**Size:** The Size of the laser is its frame's Size plus or minus any configuration modifiers.

**Length:** Look up the laser length on the Size table on page 4.

**ROF:** See Step 4.

**Effective Range:** a laser's Effective Range is computed as follows:  
(Base Range) x (All Range Xs) x (Damage Dice/4)

**Power Supply Type:** Either cell or power pack. See Step 11.

**Power Supply Weight:** See Step 11.

**Power Supply Cost:** See Step 11.

**Shots:** See Step 11.

**Recoil:** Lasers have no recoil.

**Noise:** lasers make no noise.

**Flash:** See Step 9.

**Reliability:** See Step 10.

**Sights:** See Step 12. Lasers have integral laser sights.

**Skill:** Gun Combat (Lasers) skill is needed to fire all laser weapons .

# Melee Weapon Design

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Melee weapons can only be used at short range (under 5m).

## 1. Frame

Choose a weapon frame.

<i>Frame</i>	<i>Base Weight</i>	<i>Base Cost</i>	<i>Base Damage</i>	<i>Base Size</i>
Club	0.75 kg	Cr10	0	2
Knife	0.5 kg	Cr25	1D	1
Spear	1.5 kg	Cr25	1D	4
Sword	1 kg	Cr50	2D	3

## 2. Reach

A weapon's reach indicates its overall size.

<i>Reach</i>	<i>WeightX</i>	<i>CostX</i>	<i>Size Mod</i>	<i>BD Mod</i>
Short	1	1	-1	--
Medium	1.5	2	0	+2
Long	2	3	1	+1D

## 3. Configuration

Configuration is a weapon's overall bulk and shape.

<i>Configuration</i>	<i>WeightX</i>	<i>CostX</i>	<i>BD Mod</i>
Very Light	0.5	0.5	--
Light	0.75	0.75	+1
Standard	1	1	+2
Heavy	1.1	1.1	+1D
Very Heavy	1.25	1.25	+1D+1

## 4. Quality

Melee weapon quality will influence the amount of damage it inflicts.

<i>Quality</i>	<i>WeightX</i>	<i>CostX</i>	<i>BD Mod</i>
Low	1	0.75	-2
Standard	1	1	--
High	1	2	+2

## 5. Hands

Decide how many hands the weapon takes to use. A two-handed weapon is larger and does more damage than its one-handed counterpart.

A knife can only be one-handed.

<i>Hands</i>	<i>WeightX</i>	<i>CostX</i>	<i>Size Mod</i>	<i>Damage Mod</i>
One-Handed	1	1	0	0
Two-Handed	1.5	1.5	+1	+1D

## 6. Materials

Choose a construction material for the weapon.

<i>Materials</i>	<i>WeightX</i>	<i>CostX</i>	<i>BD Mod</i>	<i>TL</i>
Wood	0.75	0.5	-2D	1
Steel	1	1	0	2
Polymer	0.9	1.1	0	8
Nanocarbon	0.75	1.2	0	11

## 7. Options

Technological advances can increase the effectiveness of melee weapons.

<i>Option</i>	<i>WeightX</i>	<i>CostX</i>	<i>Special</i>	<i>AD</i>	<i>TL</i>
Stun	1	3	Stun	N/A	8
Plasma	1.2	25		10	14
Monofilament	1	3		3	12
Vibro	1.1	2		2	10

A *stun* weapon delivers an electrical charge to the target, in addition to its regular damage.

A *vibro* weapon uses subsonic vibrations to increase the effective damage of the weapon.

A *monofilament* blade uses a monomolecular cutting edge.

A *plasma* blade uses subsonically vibrated nanowire as an enhanced cutting edge.

Wooden weapons cannot use any of these options.

## 7. Summary

Summarize the weapon as follows:

**Name:** weapon name and model.

**Description:** brief description of the weapon.

**TL:** see Step 1.

**Weight:** The weight of the weapon, in kilograms, is its Base Weight multiplied by all WeightXs.

**Cost:** The cost of the weapon is the frame's Base Cost multiplied by all CostXs.

**Size:** The Size of the weapon is its frame's Size plus or minus any Size modifiers.

**Length:** Look up the weapon length on the Size table on page 4.

**Damage Options:** note any damage options, such as Stun.

**Damage:** Add the base damage from weapon frame, reach and configuration, plus any Damage Mods.

**Armor Divisor :** See Step 6.

**Skill:** The following skills are needed for use of a melee weapon.

- Blade weapon <50 cm: Short Blade
- Blade weapon >=50 cm: Long Blade
- Spear: Polearm
- Club: Cudgel

# Grenade Design

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Grenades can deliver a variety of payloads to an entire area.

## 1. Tech Level

Grenades are available at TL 4.

## 2. Size

Pick a grenade size.

Type	TL	Weight (kg)	Cost (Cr)	Size	Burst (m)
Regular	5	.5	10	1	3
Mini	8	.25	20	0	3
Pellet	10	.1	30	-1	3

## 3. Propulsion

A grenade can either be thrown or fired like a rocket.

Type	TL	WeightX	CostX
Hand	4	1	1
Rocket	8	10	10

## 3. Munition

Pick a grenade munition.

Munition	TL	Cost X	Effects on Target
HE	5	1	6D HE damage
Smoke	5	1	Smoke cloud obscures vision, lasts 3D turns
Concussion	7	1.5	Target is Stunned for 1D rounds
HEAP	8	3	6D damage, armor divisor 2
Tranq Gas	8	5	Endur check or unconscious for 3D turns
Poison Gas	8	20	Endur check or 8D damage
Anti-Laser	8	2	Cloud obstructs vision and lasers, lasts 3D turns
Reactive	10	5	9D HE damage
Plasma	12	10	12D HE damage

## 4. Summary

Summarize the grenade as follows:

**Name:** weapon name and model.

**Description:** brief description of the weapon.

**TL:** see Step 1.

**Weight:** The weight of the grenade, in kilograms, is its Base Weight multiplied by all WeightXs.

**Cost:** The cost of the grenade is the frame's Base Cost multiplied by all CostXs.

**Size:** See Step 2.

**Burst:** See Step 2.

**Damage:** See Step 3.

**Duration:** See Step 3.

# Weapon Accessories

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**Silencer (100 g, Cr300, TL 6):** Silencers are available for all handguns. They give a DM of -6 to all attempts to hear a weapon. A silencer makes a handgun less accurate: it will have an attack DM of -1 and a maximum range of Medium. Use of explosive rounds in a handgun will negate a silencer.

**Telescopic Sight: (800 grams; Cr200; TL 6):** High-quality telescopic sights for attachment to rifles and carbines, for increasing their accuracy, especially at longer ranges. A rifle equipped with such sights has a DM of +2 to hit at long and very long ranges. Note that this DM is in addition to other allowed and required DMs.

**Laser Sight:** (800 grams, Cr1000, TL8) Laser sights give a DM +2 at Close, Short and Medium ranges.

**Electronic Sight:** (1500 grams; Cr2000; TL 9): Electronic sights with image enhancement and low-light capabilities are available to provide the capability to see and hit in the dark.

**Heads-up Display Goggles:** (300 grams, Cr5000, TL 10): HUD goggles incorporate all the capabilities of laser sights and electronic sights with all weapons used by a particular combatant. An HUD will work with any hand-held, non-melee weapon.

**HUD Contacts** (no weight, Cr 5000, TL 13): these work exactly like HUD goggles, but are worn as contact lenses. A laser projects the image directly on to a wearer's retinas.

# Body Armor Design

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This body armor design system uses the **Traveller Plus** armor rules.

## ASSUMPTIONS

This design sequence makes the following assumptions:

- Body armor is designed for a person of average human height and weight.
- It cannot be layered or combined with different types.
- Body armor is full body suit, providing head-to-toe protection, including helmet, boots and gloves. In the case of flexible armor, the helmet is assumed to be made of rigid material, but has the same AV as the rest of the body armor.
- Armor is not concealable, except in the case of weave armor.

## ARMOR VALUE

Armor Value, or AV, reflects the amount of damage armor can absorb from an attack before the wearer takes injury.

## ARMOR TYPES

Body armor comes in two categories:

*Rigid armor* stops damage inflicted by weapons up to its Armor Value. Simply subtract the AV from the damage and the remainder is applied versus characteristics as wounds. Rigid armor is denoted by the prefix R before the Armor Value.

- **Increased Stability:** Rigid armor adds +5 to the target's knockdown threshold. For example, a character with a Strength 8 who is wearing rigid armor would need to take 21 or more hits from a single attack to be knocked down.
- **Reduced Mobility:** Because of its lack of flexibility, rigid armor reduces the wearer's effective Dexterity by 2. This may affect combat DMs.

*Flexible armor* also stops damage up to its AV, but the force of powerful attacks from blunt trauma can still injure the wearer. Subtract the AV from any weapon damage and apply the remainder as wounds. Flexible armor is denoted by the prefix F before the Armor Value.

- **Blunt Trauma:** Apply a minimum of 1 point of damage to the target for each die done by the weapon, to reflect blunt trauma damage. Flexible armor is denoted by the prefix F before the Armor Value.

## ARMOR LOCATIONS

**Hit Locations:** All attacks are assumed to be against an armored location. Hitting an unarmored location on a target requires a Called Shot, with a DM of -4.

## ARMOR DESIGN SEQUENCE

1. **Select design tech level:** select the design tech level of the armor.
2. **Select basic armor material:** armor can be built on a base material that is rigid or flexible.
3. **Select options:** rigid and flexible armor have different options, depending on the armor's intended purpose.
4. **Select armor enhancements:** armor can be enhanced to improve its defenses, depending on its TL.
5. **Design summary:** total the characteristics of the armor, including:
  - a. Price
  - b. Weight
  - c. Armor Values
  - d. Armor Capabilities

## RIGID ARMOR MATERIALS

The rigid armor table shows the armor value per kilogram of a given material. There is no limit to the bulk of rigid armor, but bear in mind that no character can carry more than 4x his Strength in kilograms in total equipment.

<i>Rigid Armor</i>	<i>TL</i>	<i>AV/kg</i>	<i>Cost/kg</i>
Steel	3	.33	Cr33
Titanium	6	.66	Cr66
Compoz	8	1	Cr100
Crystalloy	10	1.33	Cr166
Hyperdense	12	1.66	Cr200

To determine the AV and cost of a given suit, multiply its weight in kilograms by AV/kg and cost/kg. For instance, a 10 kg crystalloy suit is available at TL 10, has a rigid AV of 13.3 (rounded to R13), and costs Cr1660.

**Undersuit:** Rigid armor is considered to include a skintight, durable suit worn under the armor itself.

### Rigid Armor Options

The following option is available for rigid armor:

**Bonded:** Bonded materials have had their atomic structure artificially enhanced. TL 13, +50% AV, double cost.

**Strikepoints:** Strikepoints enhance the wearer's ability to inflict damage in melee combat. TL 4, 1 kg, Cr100, +1D bonus to unarmed combat damage.

## FLEXIBLE ARMOR MATERIALS

Flexible armor cannot be purchased on a per kilogram basis. The suits below are considered to be as thick and dense as possible without impeding the wearer. Flexible armor suits include a rigid helmet with the same AV as the rest of the armor.

<i>Flexible Armor</i>	<i>TL</i>	<i>Flex AV</i>	<i>Weight</i>	<i>Cost</i>
Cloth	6	F3	6	250
Improved Cloth	8	F6	6	500
Ceramesh	10	F9	4	750
Protec	12	F12	3	1000
L-crys	14	F15	2	1250

### **Flexible Armor Options**

The following options are available for flexible armor:

**Jacket:** Flexible armor can be designed as a jacket, which will cover the torso and vitals, but gives no protection from attacks against other parts of the wearer's body. Halve the weight and cost of a given armor type. However, upon a hit, the wearer must roll a coverage roll on 2D. On a 6+, the armor provides full protection. The jacket option will preclude use of some of the enhancements shown below, such as environmental seals. Cost and weight of an armor jacket are half normal for the armor suit.

**Weave:** Any flexible armor can be disguised to look like ordinary street clothes, usually a long coat, shirt or jumpsuit. Fashionable tailoring is available at the referee's option. Weave cannot be combined with other any options. Cost is triple normal, weight is the same.

### **Armor Enhancements**

The following enhancements are available for any suit of armor and add to the base weight and price.

**Ablat:** Ablative material, added to the outer surface of any armor, is destroyed as it takes damage. For each kilogram of ablat, add AV +F3, which is permanently destroyed after taking any damage. TL 8, Cr 50/kg.

**Antipsi:** Psionic shielding can be incorporated into any armor. TL10, Cr4000, 1 kg.

**Cham:** Chameleon circuits will completely mask the IR signature of the wearer. TL 9, Cr1000, 2 kg.

**Environ:** Environmental filters protect against chemical and biological agents, atmospheric taints, and low-level background radiation. Environ provides a one-hour air supply. TL 8, Cr3000, +3 kg.

**Exo:** An enhanced biofeedback exoskeleton built into the armor triples the wearer's personal Strength, Endurance and movement rate. TL 12, Cr10000, +10 kg.

**Mimet:** When activated, mimetic circuitry, built into armor's outer surface, will take on the appearance of the surrounding terrain. The wearer becomes nearly invisible when stationary. Attempts to spot a wearer of mimetic armor are at -3. Mimetic circuits include chameleon circuitry, as described above. TL 13, Cr5000, 2 kg.

**Recyc:** A recyc system recycles body wastes and can provide complete life support nearly indefinitely. TL 12, Cr2500, 2 kg.

**Smartshirt:** A medical telemetry system that monitors body functions like blood pressure and respiration. It will also accurately report all wounds the wearer suffers, as well as immediately summon medical personnel to his aid. TL 9, Cr500, 0 kg.

**Vacc:** the armor is sealed against vacuum and can be worn as a vacc suit, with a 4 hour air supply. Vacc includes all the benefits of environmental filters. Vacc also includes boot magnets and other adaptations for moving in zero-g. TL 8, Cr5000, 8 kg.