New Damage and Armour System for CP2020

I've been playing CP2020 since looooong time ago and always felt something was not working properly with the way bullets, bodies and armours interact. Since when You tube offered a lot of visual material about weapons and body armours I felt this gap even more.

The solution was NOT as in the famous/infamous "Calibres IN CYBERPUNK 2020" from the site http//:www.cyberpunk2020.de, which suggest a general increase in weapon damages, but is in the way the armour reacts to them.

There is also a lot of wrong statements in the CP2020 rulebook suggesting a that powerful rifle ammunitions are difficult to counter by body armours: there are a lot of direct sources which in fact suggest the opposite.Just check for "Dragonskin" on Youtube to see how a "measly" 2.5kg armour can withstand several dozen of powerful assault rifle direct hits from very close distance, not to mention pistol round.

I started from basic data to rebuild the bullet performance based on Mass, Speed and energy to figure out how they perform in real world.Yellow is Rifle Rounds, Green is soft armours, ® is "Rimmed" for Revolvers and not viable for Auto and Semi Auto weapons.

Cartuccia	Cal	mm	Lengh	Joule	m/s	Grain	Grams	Mach	CP2020	New	Max	Aver
.22 Short	0,22	5,56	11	132	345	49	3,17	1,00	1d6+2	1d6	6	3,5
.32 S&W ®	0,32	8,00	23	159	220	85	5,50	0,64	2d6	1d6+1	7	4,5
.32 ACP	0,32	8,00	17	174	282	65	4,21	0,82	2d6	1d6+1	7	4,5
.22 Long rifle ®	0,22	5,56	15	191	440	31	2,01	1,28	1d6+2	1d6+1	7	4,5
.380 ACP	0,38	10,00	17	275	300	95	6,15	0,87	1d6+2	1d6+2	8	5,5
9mm Makarov	0,36	9,00	18	313	319	95	6,15	0,93	2d6	1d6+3	12	7
.38 Special ®	0,38	10,00	29	319	300	110	7,12	0,87	2d6	1d6+3	12	7
7.62mm Tokarev	0,31	7,62	25	489	409	90	5,82	1,19	2d6	2d6	12	7
9mm Parabellum	0,38	9,00	19	494	350	123	7,96	1,02	2d6+1	2d6+1	13	8
.45 ACP	0,45	11,45	23	500	260	230	14,88	0,76	2d6+2	2d6+2	14	9
5.7 FN	0,22	5,70	28	529	594	40	2,59	1,73	3D6	3d6	18	10,5
.40 S&W	0,40	10,00	22	606	300	165	10,68	0,87	2d6+3	2d6+3	15	10
.357 Magnum ®	0,36	9,00	31	778	430	130	8,41	1,25	3d6+1	3d6	18	10,5
10mm Auto	0,40	10,00	25	880	390	175	11,32	1,13	3d6+1	3d6+1	19	11,5
5.45mm	0,22	5,45	39	1316	915	50	3,24	2,66	4d6+1	5d6	25	15
.44 Magnum ®	0,44	10,80	41	1405	490	180	11,65	1,42	4d6	4d6+2	26	16
.50 AE	0,50	12,70	32	1666	398	325	21,03	1,16	4d6+2	4d6+3	27	17
5.56 NATO	0,22	5,56	45	1775	940	62	4,01	2,73	5d6	5d6+2	30	17,5
7.62 Sov	0,30	7,62	39	2010	710	123	7,96	2,06	5d6	5d6+2	32	19,5
6.8mm Remigton	0,27	6,80	42	2385	800	115	7,44	2,33	5d6+3	6d6-1	35	20
7.62 NATO/3.08 Winch.	0,30	7,62	51	3352	840	146	9,45	2,44	6d6+2	6d6+2	38	23
7.62 54R (Dragunov)	0,30	7,62	54	3953	900	150	9,71	2,62	6d6+2	6d6+3	39	24
.300 Winch. Magnum	0,30	7,62	67	4810	880	190	12,29	2,56	6d6+2	7d6+3	45	27,5
12.7 Sov	0,50	12,70	108	16086	817	744	48,14	2,38	6d10	6d10	60	33
.50 BMJ	0,50	12,70	99	18942	908	700	45,30	2,64	6d10	6d10+3	63	36

Kevlar	VP
Kevlar vest IIA	10
Kevlar vest II	14
Kevlar vest IIIA	20
Composito	
Flak Vest III	26
Flak Vest IV	46

Rifles act as true AP (1/2armor 1/2damage)

For rifle rounds only those passing through are halved

Several uncommon rounds were not considered (357SIG i.e), but you may compare them with their ® cousins.

All the ammo in this chart are cased. For all the fantasy “case less ammo” in CP2020 use the equivalent calibre: unfortunately we may never see case less ammo because the Brass rim is highly resistant and contribute by a big deal to keep the fire weapon temp low, as most of the “heat” is extracted with the brass case itself. Unless you have a water-cooled gun (like the first machineguns) Brass casing is the way to go.

How the chart works

In the above chart I put all the most common real world ammo, with ballistic data, from where we can sort out two main trend: Pistol ammos with relative heavy bullets and relative slow speed, which easily stop when they hit a target transferring all their Kinetic Energy, and Rifle rounds which have relative light bullets but very, very high energy. Kinetic energy is expressed in Joules.

Kinetic energy is the product of the formula **1/2*mv^2** (unless at relativistic speed) where Mass (m) is expressed in Kg or Newton and Speed (v) is in m/s

The rifle bullet easily acquire very high kinetic energy because of their speed, but in real world they tend to pass through targets and keep on travelling, meaning that, although they have very high energy, just a fraction of that is transferred to the target, exactly as when on a pool table the player ball hit another at an angle and keep travelling away instead of stopping and transferring its full impulse to the target.

For this reason I considered two different categories, one being **PISTOL BULLETS** and the other being **RIFLE BULLETS**. This is not entirely related to the weapon firing them since, I.E. 5.7 FN and 7.62 Tokarev are both pistol and small SMG bullets, but they both perform more akin to a rifle bullet then to a pistol rounds (small bullets high speed). You may think of the scene in the film “Ronin” when Robert DeNiro is wounded by a Tokarev although he was wearing body armour.

Aside some minor tweaking to very small calibres which are now more realistic and the fact that both 5.7FN and 5.45Sov are quite unstable on the axis and tend to tumble when they hit (meaning they transfer more energy then usual), all the D6 and D10 are calculated as a result of actual Kinetic energy.

Now, the idea is that, because Rifle rounds often overshoot the target, they always act as Armour Piercing ammos when you have to evaluate the damages: because of their very high standard damage this should not become a real issue and you still get probably “disabled” by an average rifle shot.

Now, the other thing is that rifle ammos only act as true AP against soft armour, meaning that they simply wont protect you from powerful and fast hits (as in real world).

To keep at bay rifle bullets you need body plates, usually inserted between Aramide and Kevlar vest.

In this case, your Rifle bullet will deliver damage to the armour exactly as if it were “lead balls”, meaning your rigid plates will stop it somehow, unless you are using expensive and uncommon AP rifle ammos: in that case the round act EXACTLY as any other AP bullet (Half armour – Half damage)

You have in green Soft real world armour (Kevlar, Aramide and Nylon) and in white you have rigid plates, heavy and cumbersome but highly resistant

BTW US agencies consider a body armour “protective” against certain rounds when it can with defeat a percentile number of rounds: i.e, 1000 rounds should not penetrate more then 50 times on a typical vest.

Flack Vest IV is a very heavy and cumbersome armour able to withstand AP incendiary 7.62Nato and 7.62Long bullet, but are more common for artificers and fixed position duties.

You can see in yellow what I consider “rifle ammos” and in white what is standard pistol rounds.

What you can gain from this new damage chart is that the armour now actually “perform” as intended, weapons are still moderately dangerous, as in the original CP2020 system without becoming unrealistically overpowering as we see in “Calibres IN CYBERPUNK 2020” charts. Most important, heavy flack armours now really protect from powerful rifle rounds compared with the old VP25 vs 6d6+2 (aka38 damages).

Another changing I strongly suggest is to “halve the Body Damage reduction when confronted with Fire weapons or piercing hits: COS 10 wont make you bullet proof against small pistols or knives although you’ll probably withstand less damage then a 35Kg Nanny, Yet you, as should be, will get very difficult to overpower in a brawl.

Keeping MAX BDM at -2 VS piercing damages, means you still have to get wary when trying to bully YOUR ARMED Grandma, but you’ll be a real Rhino when brawling at the bar at the end of the street with a grand BDM -4.