

Parameter	Unit	Baseline	Upgrade
Beam energy	GeV	63	63
Average luminosity	$10^{31}/\text{cm}^2/\text{s}$	1.7	8.0
Collision energy spread	MeV	3	4
Circumference, C	m	300	300
Number of IPs	-	1	1
$\beta^*$	cm	3.3	1.7
Number of muons / bunch	$10^{12}$	2	4
Number of bunches / beam	-	1	1
Beam energy spread	%	0.003	0.004
Normalized emittance, $\varepsilon_{\perp N}$	$\pi \bullet \text{mm} \bullet \text{rad}$	0.4	0.2
Longitudinal emittance, $\varepsilon_{\parallel N}$	$\pi \bullet \text{mm}$	1.0	1.5
Bunch length, $\sigma_s$	cm	5.6	6.3
Beam size at IP, r.m.s.	mm	0.15	0.075
Beam size in IR quads, r.m.s.	cm	4	4
Beam-beam parameter	-	0.005	0.02
Repetition rate	Hz	30	15
Proton driver power	MW	4	4