Table 1.6 Linear Colliders: Beam Delivery System and Interaction Point Parameters

	TESLA		JLC (C)		JLC/NLC* (X)		CLIC	
	500 GeV	800 GeV	500 GeV	1000 GeV	500 GeV	1000 GeV	500 GeV	3000 GeV
Beam delivery system length† (km)	3.2		3.8		3.8		5.0	
Collimation system length† (km)	1.4		1.4		1.4		4.0	
Final Focus system length† (km)	1.2		1.6		1.6		1.0	
$\gamma\varepsilon_x^*$ / $\gamma\varepsilon_y^*$ (m-rad $\times 10^{-6}$)	10 / 0.03	8 / 0.02	3.6 / 0.04		3.6 / 0.04		2.0 / 0.02	0.68 / 0.02
$\beta_x^\star$ / β_y^* (mm)	15 / 0.40	15 / 0.30	8 / 0.11	13 / 0.11	8 / 0.11	13 / 0.11	10 / 0.15	8 / 0.15
$\sigma_x^\star$ / σ_y^* (nm) before pinch	554 / 5.0	392 / 2.8	243 / 3.0	219 / 2.1	243 / 3.0	219 / 2.1	202 / 2.5	43 / 1.0
$\sigma_z^\star$ (μm)	300		110		110		35	
$\sigma_{\Delta E/E}^{\star}$‡ (%)	0.14 / 0.04		XX		0.25		XX	
Distance between IP and last quad	3.0		3.5		3.5		4.3	
Crossing Angle at IP (mrad)	0		7		7 (20)		20	
Disruptions D_x / D_y	0.23 / 25.3	0.20 / 28.0	0.16 / 13.1	0.10 / 10.3	0.16 / 13.1	0.10 / 10.3	0.03 / 2.8	0.12 / 5.2
Υ_0	0.05	0.09	0.13	0.28	0.13	0.28	0.30	8.3
δ_B (%)	3.2	4.3	4.6	7.5	4.6	7.5	4.1	30.5
n_γ (no. of γs per e)	1.56	1.51	1.26	1.30	1.26	1.30	0.74	2.32
$N_{\text{pairs}}(p_T^{\min} = 20\,\text{MeV/C}, \Theta_{\min} = 0.2)$	39.4	37.3	11.9	15.0	11.9	15.0	4.55	59.9
N_{hadrons}/crossing	0.248	0.399	0.103	0.270	0.103	0.270	0.045	4.07
$N_{\text{jets}} \times 10^{-2}(p_T^{\min} = 3.2\,\text{GeV/C}$	0.74	1.90	0.36	2.27	0.36	2.72	0.20	288.2
Geometric Luminosity (10^{33}cm^{-2}s^{-1})¶	16.4	28.1	11.8	18.5	17.7 (14.2)	18.5 (22.2)	7.8	45.1
H_D	2.11	1.90	1.49	1.42	1.49	1.42	1.80	2.22
Luminosity dilution for tuning [%]	0		5		5		0	
Peak Luminosity (10^{33}cm^{-2}s^{-1})¶	34.5	53.4	16.8	24.9	25.1 (20.1)	25.0 (30.0)	14.1	99.9
$L_{99\%}$ [%]	66	62	64	58	64	58	70	29
$L_{95\%}$ [%]	91	86	85	86	85	77	85	40
$L_{90\%}$ [%]	98	95	94	87	94	87	93	48

* Numbers in ( ) correspond to US site with 120 Hz repetition rate.

† System length includes both incoming beamlines

‡ Energy spread is for electrons / positrons if different

¶ For the sake of uniformity, the geometric luminosity is simply defined as $N^2/4\pi\sigma_x^*\sigma_y^*$ times the number of crossings per second, and in all cases assumes head-on collisions, no hour-glass effect and no pinch. The peak luminosity is calculated using the Guignea Pig program and incorporates all the effects, including the pinch enhancement, hour-glass, and crossing angle where applicable, plus any additional IP dilutions that may be expected.