

E+E- Source Sub-Systems

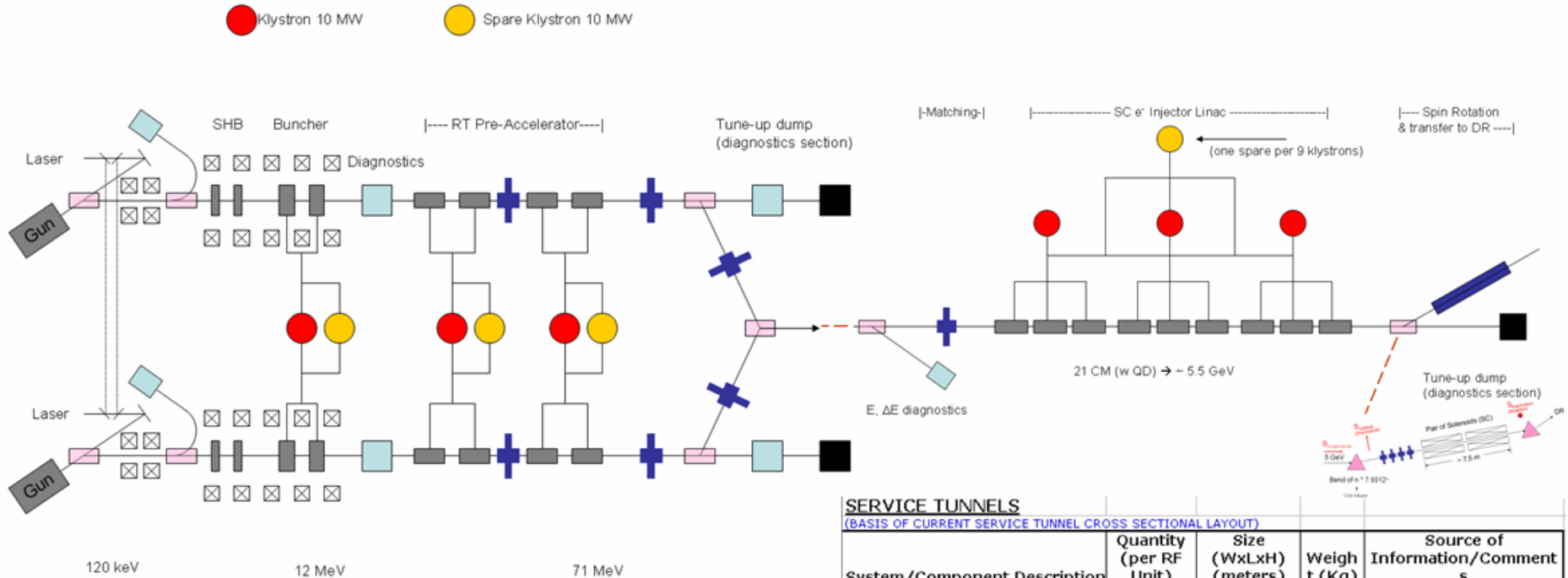
- 1. e^- Source: e^- Pre-Gun to Electron Damping Ring
- 2. e^+ Source: EML to Undulator to e^+ Transfer Line
- 3. e^+ Source: e^+ Transfer to e^+ Timing & 5 GeV Booster
- 4. e^+ Source: e^+ 5 GeV Booster to e^+ Damping Ring
- 5. e^- Source: e^- Auxiliary Gun to e^+ KA Source
- 6. e^+ Source: e^+ KA Source to e^+ 5 GeV Booster



International Linear Collider at Stanford Linear Accelerator Center

e+ e- Source Systems Design Development

e- Source: Guns & e- Auxiliary Gun



BEAM TUNNELS

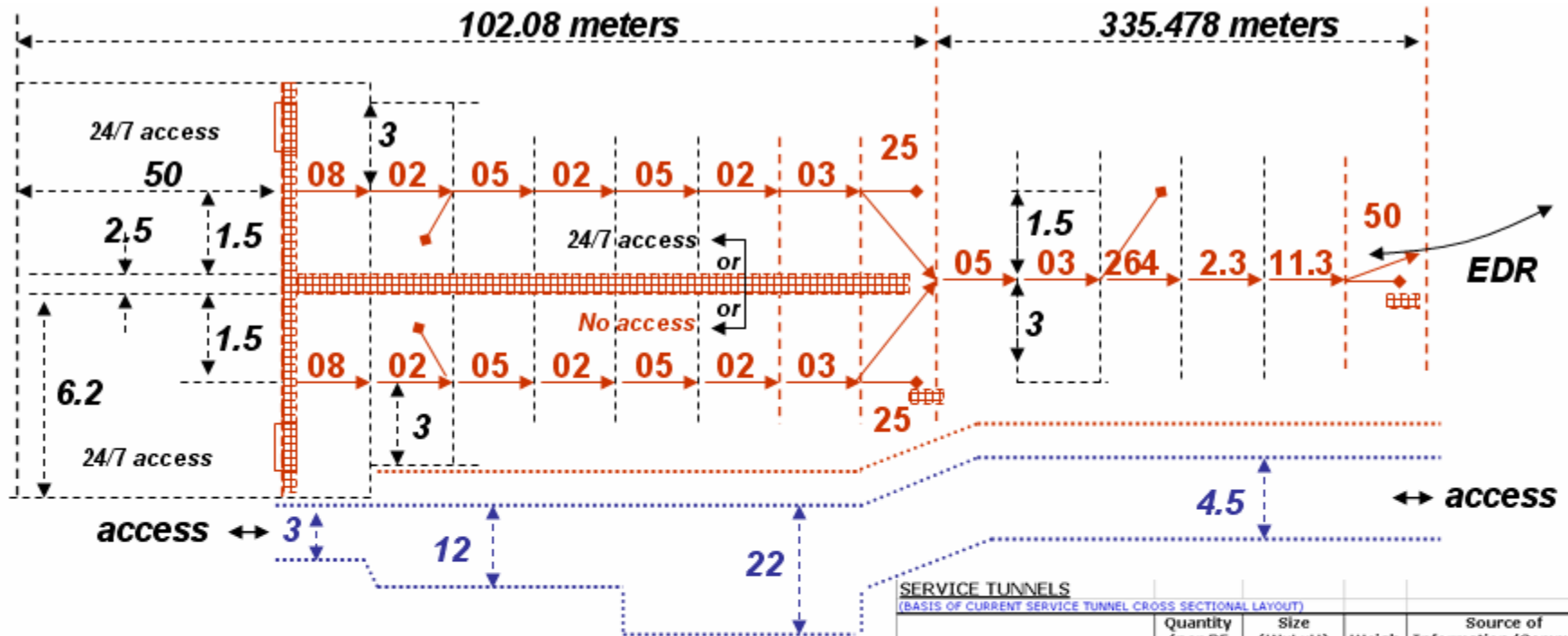
(BASIS OF CURRENT BEAM TUNNEL CROSS SECTIONAL LAYOUT)

System/Component Description	Quantity (per RF Unit)	Size (WxLxH) (meters)	Weight (Kg)	Source of Information/Comments
e- Pre-Gun 1		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 1
e- Pre-Gun 2		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 2
e- Gun 1 & Drive Laser		6.2 x 8 x H		Axel- Loadlock, Diagnostic Dump
e- Gun 2 & Drive Laser		6.2 x 8 x H		Axel- Loadlock, Diagnostic Dump
e- 12 MeV Bunching 1		4.5 x 9 x H		Axel- 2 NC WG Getaways
e- 12 MeV Bunching 2		4.5 x 9 x H		Axel- 2 NC WG Getaways
e- 70 MeV Pre-acceleration 1		4.5 x 10 x H		Axel- 4 NC WG Getaways
e- 70 MeV Pre-acceleration 2		4.5 x 10 x H		Axel- 4 NC WG Getaways
e- Doglegs, Dumps & Wye		4.5 x 25 x H		Axel- Worker Shielding Isolation Separation Tune-Up Dumps
e- 5.5 GeV Pre-accelerator		4.5 x 286 x H		Axel- Diagnostic Dump, 21 Cryomodules
e- Source to e- Damping Ring Transfer Line		4.5 x 50 x H		Axel- Tuning Dump, Spin Rotator

SERVICE TUNNELS

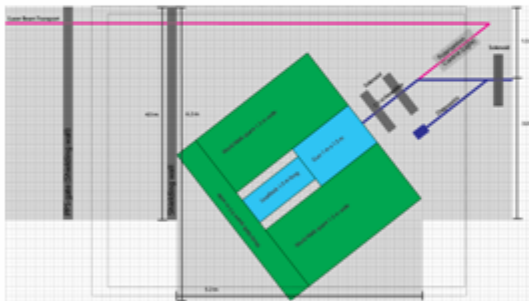
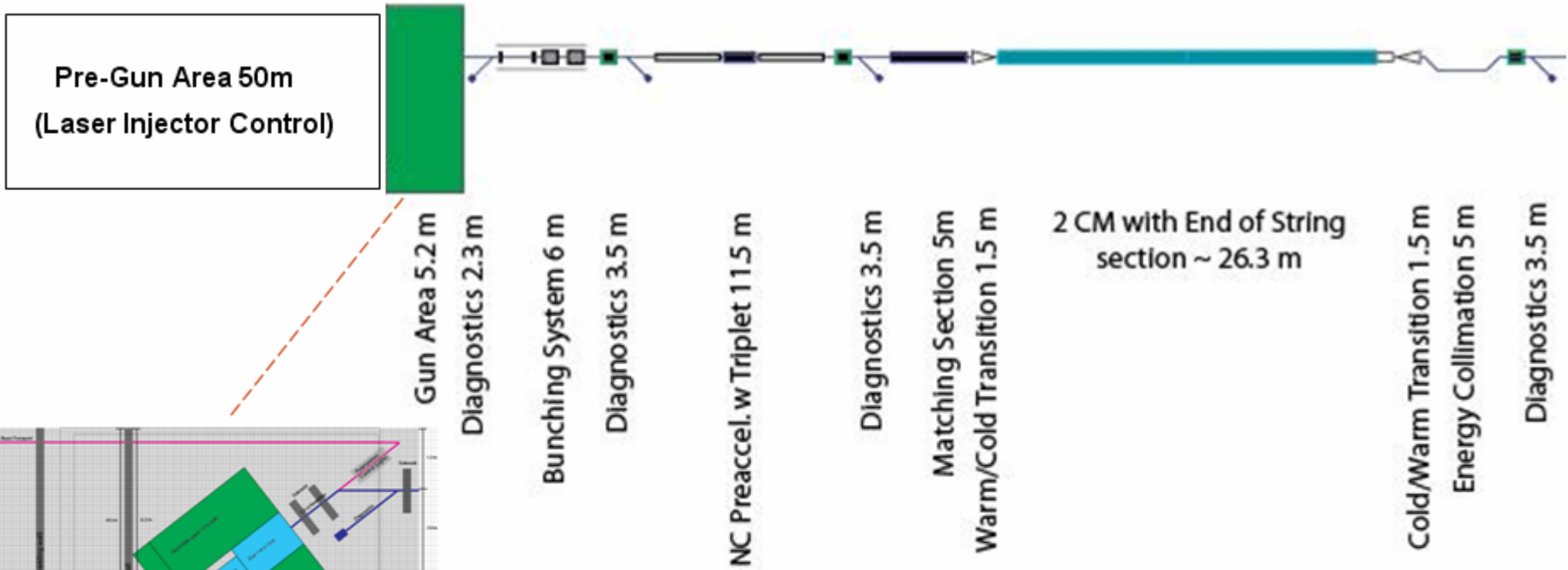
(BASIS OF CURRENT SERVICE TUNNEL CROSS SECTIONAL LAYOUT)

System/Component Description	Quantity (per RF Unit)	Size (WxLxH) (meters)	Weight (Kg)	Source of Information/Comments
e- Pre-Gun 1 Service Area		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 1, injector system controls, power supplies, racks, staging area, cooling, AC Pwr
e- Pre-Gun 2 Service Area		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 2, injector system controls, power supplies, racks, staging area, cooling, AC Pwr
e- Guns 1&2 & Drive Lasers		3 x 8 x H		Axel- Service Area Bypass Passage to Bunching
e- 12 MeV Bunching 1&2		12 x 9 x H		Axel- 2 NC WG, 2 Klys, 1 Mod, 1 Mod PS, Buncher Mag PS's, Racks, Cooling AC Pwr
e- 70 MeV Pre-acceleration 1&2		22 x 10 x H		Axel- 4 NC WG, 4 Klys, 2 Mod, 2 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Doglegs, Dumps & Wye		4.5 x 25 x H		Axel- Worker Shielding Isolation Separation & Tune-Up Dumps
e- 5.5 GeV Pre-accelerator		4.5 x 286 x H		Axel- 8 Klys, 7 Mod, 7 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Source to e- Damping Ring Transfer Line		4.5 x 50 x H		Axel- Tuning Dump, SC Spin Rotator, cooling, AC Pwr



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System/Component Description	Quantity (per RF Unit)	Size (WxLxH) (meters)	Weight (Kg)	Source of Information/Comments
e- Pre-Gun 1		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 1
e- Pre-Gun 2		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 2
e- Gun 1 & Drive Laser		6.2 x 8 x H		Axel- Loadlock, Diagnostic Dump
e- Gun 2 & Drive Laser		6.2 x 8 x H		Axel- Loadlock, Diagnostic Dump
e- 12 MeV Bunching 1		4.5 x 9 x H		Axel- 2 NC WG Getaways
e- 12 MeV Bunching 2		4.5 x 9 x H		Axel- 2 NC WG Getaways
e- 70 MeV Pre-acceleration 1		4.5 x 10 x H		Axel- 4 NC WG Getaways
e- 70 MeV Pre-acceleration 2		4.5 x 10 x H		Axel- 4 NC WG Getaways
e- Doglegs, Dumps & Wye		4.5 x 25 x H		Axel- Worker Shielding Isolation Separation Tune-Up Dumps
e- 5.5 GeV Pre-accelerator		4.5 x 286 x H		Axel- Diagnostic Dump, 21 Cryomodules
e- Source to e- Damping Ring Transfer Line		4.5 x 50 x H		Axel- Tuning Dump, Spin Rotator

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System/Component Description	Quantity (per RF Unit)	Size (WxLxH) (meters)	Weight (Kg)	Source of Information/Comments
e- Pre-Gun 1 Service Area		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 1, injector system controls, power supplies, racks, staging area, cooling, AC Pwr
e- Pre-Gun 2 Service Area		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun 2, injector system controls, power supplies, racks, staging area, cooling, AC Pwr
e- Guns 1&2 & Drive Lasers		3 x 8 x H		Axel- Service Area Bypass Passage to Bunching
e- 12 MeV Bunching 1&2		12 x 9 x H		Axel- 2 NC WG, 2 Kly's, 1 Mod, 1 Mod PS, Buncher Mag PS's, Racks, Cooling AC Pwr
e- 70 MeV Pre-acceleration 1&2		22 x 10 x H		Axel- 4 NC WG, 4 Kly's, 2 Mod, 2 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Doglegs, Dumps & Wye		4.5 x 25 x H		Axel- Worker Shielding Isolation Separation & Tune-Up Dumps
e- 5.5 GeV Pre-accelerator		4.5 x 286 x H		Axel- 8 Kly's, 7 Mod, 7 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Source to e- Damping Ring Transfer Line		4.5 x 50 x H		Axel- Tuning Dump, SC Spin Rotator, cooling, AC Pwr



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(BASIS OF CURRENT BEAM TUNNEL CROSS SECTIONAL LAYOUT)

System/Component Description	Quantity (per RF Unit)	Size (WxLxH) (meters)	Weight (Kg)	Source of Information/Comments
e- Aux-Pre-Gun		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun
e- Aux Gun & Drive Laser		6.2 x 8 x H		Axel- Loadlock, Diagnostic Dump
e- Aux Gun 12 MeV Bunching		4.5 x 9 x H		Axel- NC WG Getaways
e- Aux Gun 70-100 MeV Pre-acceleration		4.5 x 12 x H		Axel- NC WG Getaways
e- Aux Gun Pre/Post-Accelerator Transition		4.5 x 10 x H		Axel- Diagnostic Dump, Matching Section, N-S Xfer
e- Aux Gun 500 MeV Post-accelerator		4.5 x 27 x H		Axel- 2 Cryomodules
e- Aux Gun Source to e+ KAS Transfer Line		4.5 x 10 x H		Axel- S-N Xfer, E Collimation, Diagnostics Dump

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e- Aux-Pre-Gun		6.2 x 50 x H		Axel- 24/7 access, internal modular clean room w/laser table, shielding door to gun, injector system controls, power supplies, racks, staging area, cooling, AC Pwr
e- Aux Gun & Drive Laser		3 x 8 x H		Axel- Service Area Bypass Passage to Bunching
e- Aux Gun 12 MeV Bunching		12 x 9 x H		Axel- 1 NC WG, 2 Klys, 1 Mod, 1 Mod PS, Buncher Mag PS's, Racks, Cooling AC Pwr
e- Aux Gun 70-100 MeV Pre-acceleration		4.5 x 12 x H		Axel- 2 NC WG, 2 Klys, 2 Mod, 2 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Aux Gun Pre/Post-Accelerator Transition		4.5 x 10 x H		Axel- Diagnostic Dump, Matching Section, N-S Xfer
e- Aux Gun 500 MeV Post-accelerator		4.5 x 27 x H		Axel- 2 Klys, 2 Mod, 2 Mod PS, Mag PS's, Racks, cooling, AC Pwr
e- Aux Gun Source to e+ KAS Transfer Line		4.5 x 10 x H		Axel- S-N Xfer, E Collimation, Diagnostics Dump, cooling