

TABLE 1. HADRON (LEPTON) RINGs

GENERAL
Name of the machine
Purpose of the machine
Institution
Location
Person in charge (e-mail)
Person who supplied data (e-mail)
Web address
HISTORY and STATUS
Construction started on
First beam on
Present status (under design, under construction, commissioning, operational, decommissioned)
Construction cost (local currency)
Number of staff
Annual operational budget (with salaries or without salaries)
Typical annual operational time (hours)
MAJOR PARAMETERS
Particle
Beam energy (GeV)
Beam Intensity (particles per cycle or mA)
Repetition rate (Hz)
Power supply type (resonance or ramped)
Ring Circumference (m)
Tunnel/ Hall section width (m)
Tunnel/ Hall section height (m)
BEAM PARAMETERS
Energy range (injection/final) (GeV)
Number of bunches
Longitudinal emittance (injection/final 95% or rms , eV-s)
Bunch length (95%, ns) or natural bunch length (cm)
Energy spread (95%) or natural energy spread (rms)
Synchrotron tune (injection/final)
Transverse emittance (injection/final 95% normalized, H/V, or natural H emittance, μm)
Coupling (%)
Polarization (%)
Space charge tune shift
Beam power (kW)

Energy loss per turn (MeV)
Lifetimes... (hours)
Damping times (ms)
Coupling impedence
<ul style="list-style-type: none"> • Longitudinal ($Z/n, \Omega$) • Transverse ($M\Omega/m$)
LATTICE
Lattice type (TBA, Chasman Green, TME, FODO, FOBO, others)
Max/min β functions (m)
Max/min dispersion (m)
Betatron tunes (H/V)
Chromaticities (H/V)
Momentum compaction
Transition gamma
Periodicity
Synchrotron radiation integrals I2, I3, I4, I5, (m...)
Radiation loss (kW/turn)
BEAM LOSS
Injection (%)
Acceleration (%)
Transition (%)
Extraction (%)
Total (%)
RF SYSTEM
Number of cavity types
<ul style="list-style-type: none"> • Technology of each type • Number of cavities • Number of cells or accelerating gaps per cavity • Harmonic number • Frequency range (MHz) • Length (m) • Q (loaded/unloaded) • Shunt impedance ($k\Omega$) • RF Voltage (MV)
Amplifier of main rf system (triode, tetrode, klystron, solid state, others)
Amplifier class (A,B,C,AB)
RF power input peak (MW)
RF power input mean (MW)
Energy gain per turn (MeV)
MAGNET SYSTEM

<i>Bending magnets</i>
Magnet functions (combined, separated)
Technology (SC, normal, permanent)
Number of types
<ul style="list-style-type: none"> • Number of magnets of each type
<ul style="list-style-type: none"> • Field index
<ul style="list-style-type: none"> • Entrance angle (rectangular, sector, others)
<ul style="list-style-type: none"> • Sagitta
<ul style="list-style-type: none"> • Length (m)
<ul style="list-style-type: none"> • Aperture (H/V) (cm)
<ul style="list-style-type: none"> • Bending radius (m)
<ul style="list-style-type: none"> • Bending field at injection (T)
<ul style="list-style-type: none"> • Bending field at top energy (T)
Total magnet power peak (MVA)
Total magnet power average (MW)
<i>Quadrupoles</i>
Technology (SC, normal, permanent)
Number of families
Number of magnet types
<ul style="list-style-type: none"> • Number of magnets of each type
<ul style="list-style-type: none"> • Length (m)
<ul style="list-style-type: none"> • Aperture (H/V) (cm)
<ul style="list-style-type: none"> • Max. gradient (T/m)
<i>Insertion Device</i>
Number of magnet types
<ul style="list-style-type: none"> • Technology (SC, permanent, normal conducting)
<ul style="list-style-type: none"> • Wiggler, undulator, spin rotator
<ul style="list-style-type: none"> • Number of magnets
<ul style="list-style-type: none"> • Length (m)
<ul style="list-style-type: none"> • Gap (cm)
<ul style="list-style-type: none"> • Period (cm)
<ul style="list-style-type: none"> • Field (T)
VACUUM SYSTEM
Material of chamber
Chamber Aperture (H/V) (mm)
<ul style="list-style-type: none"> • Bending magnet
<ul style="list-style-type: none"> • Quadrupole
<ul style="list-style-type: none"> • Straight section
Average pressure (torr)
INJECTION SYSTEM
Injector name

Method (bucket to bucket, adiabatic, chopped, painting or not)
Injection period (s)
Injection period (turns)
Inflector type
Fill pattern (symmetric, sequential, box train, random)
EXTRACTION SYSTEM
Number of types
<ul style="list-style-type: none"> • Description of each type • Length of spill (s)
SECONDARY BEAMS
Number of secondary beams
<ul style="list-style-type: none"> • Particle • Momentum Range (MeV) • Intensity (particles per pulse or particles per second)
EXPERIMENTAL FACILITIES
Number of experiments
<ul style="list-style-type: none"> • Names
OTHER RELEVANT PARAMETERS, RECENT IMPROVEMENTS