

News

N.1 : DAE’s laudable contributions to LHC bring acclaim from CERN

Department of Atomic Energy (DAE) has been a partner of the European Organization for Nuclear Research, CERN, Geneva, which is building the world’s biggest particle accelerator, the Large Hadron Collider (LHC). DAE had joined the LHC programme in 1996 through a protocol signed by Secretary, DAE and Director-General, CERN, paving the way for DAE laboratories to participate in the construction and utilization of LHC. The protocol provided a framework to deliver an ‘in kind’ Indian contribution, (valued at 34 million Swiss Francs i.e. US \$25 million at 1994 rates which was later raised to 60 MCHF in 2001/02) in the form of hardware and expert manpower. The DAE lead institute for this collaboration is RRCAT, Indore. A partial list of Indian contribution is given in the table. After successful completion of LHC related contributions, CERN has signed another protocol with DAE that envisions collaboration in projects, like, Super Conducting Proton LINAC (SPL) and Compact Linear Collider Test Facility CTF-3.



Fig.N.1 : Dr. P.Lebrun, CERN gifting a memento to Dr.V.C.Sahni, Director, RRCAT, to mark the successful completion of DAE’s high-tech contributions to LHC.

Recently, Dr. Philip Lebrun presented a memento to Dr. V.C. Sahni with a message from CERN, saying “after signing an agreement in 1991 and a protocol in 1996 for participation in LHC, the work took off in 1997 with a number of approved addenda starting with Addendum A.1 (for liquid nitrogen tanks) ending up with 28 Addenda. This DAE-CERN collaboration agreement was extended in 2001

for ten years making it effective till 2011. Lot of work has been carried out by DAE for LHC with respect to thousands of superconducting magnets, several thousands of PMPS jacks, QHPS electronics etc. marking a success of collaboration since we were able to collaborate on big project like LHC. Thanks to DAE, all of its contributions were very helpful and essential. RRCAT effectively acted as a nodal agency with industry and various institutes and kept the quality assurance on track. This memento is meant to acknowledge DAE and RRCAT.”

Sr.	Indian Contributions to LHC	Qty
1	50000 litres Liquid Nitrogen tanks.	2
2	Superconducting corrector magnets i) Sextupole ii) Decapole and Octupole	1146 616
3	Precision Magnet Positioning System Jacks	7080
4	Quench Heater Protection Systems	5500
5	Integration of QHPS units into racks	6200
6	Control electronics for circuit breakers of energy extraction system	70
7	Local protection units	1435
8	SC Dipole magnet tests/ measurements, expert support in Man years.	100
9	LHC Hardware Commissioning : Cryogenics systems, Power converters, Protection systems, Controls. Man years	20
10.	Software development and design analysis projects: Data management software upgrade, data analysis software / documentation projects, JMT-II software, slow control of industrial systems of LHC, design and calculations for vacuum system for beam dump line, analysis of cryo-line jumper and magnet connections	41 Man years eq.

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