

## RF SOURCES FOR THE ILC

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### Abstract

As currently envisioned, approximately 750 10 MW multiple beam klystrons (MBK) will be used to power the ILC accelerator. The critical role of the MBK to the successful operation of the machine makes it a key ILC component. The large quantity required coupled with its technical sophistication also makes it one of the more expensive individual components. CPI has manufactured a prototype MBK that was delivered to DESY in March 2005 for use on the Tesla Test Facility / European X-FEL projects\*. This klystron uses six low perveance, off-axis electron beams to produce the high powers required by both the ILC and X-FEL with high efficiency and the low cathode current density loading needed for extended operational life. The large scale production and costs for this klystron were examined as part of the US ILC industrialization cost study. Design for Assembly / Design for Manufacture techniques have been considered to make the klystron more easily manufacturable and less expensive. Many of these ideas are being used in the current design effort to produce a second MBK for DESY that will be horizontally oriented and appropriate for use in the actual X-FEL tunnel.

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