

## **KAWASAKI ANNOUNCES NEW CHENG CYCLE MODEL BASED ON IMPROVED GAS TURBINE**

Kawasaki Heavy Industries (KHI) of Kobe, Japan has announced it will begin marketing its new Cheng Cycle system, using KHI's new M1A-13CC gas turbine engine as prime mover. The M1A-13CC is based upon the new, uprated M1A-13 gas turbine. Fully steam injected, the M1A-13CC system is capable of producing 2.4 MW of power (ISO) at a generating efficiency of 32.7%. KHI is the exclusive worldwide licensee of International Power Technology (IPT) for Cheng Cycle products based on gas turbines rated between 500 and 2000 kilowatts. The Cheng Cycle is IPT's patented steam-injected gas turbine technology which improves turbine efficiency and power output. Over 130,000 hours of operation have been accumulated on Cheng Cycle units supplied by IPT.

KHI has been applying the Cheng Cycle concept to its own gas turbine at a demonstration facility which was installed after extensive bench testing had been performed. This demonstration plant has been operating at KHI's Akashi Works since April 1988 and consists of a Kawasaki gas turbine as prime mover, a waste heat recovery boiler with supplementary firing, system controls and balance of plant equipment. The demonstration plant, in addition to supplying the Akashi Works with steam and electricity, provides KHI with a facility for developing and testing product improvements. Kawasaki's experience at this demonstration facility helps to ensure that products sold to end users will be highly reliable and will meet all performance expectations.

The operating regime of the M1A-13CC system, net of inlet and exhaust duct losses, is shown in Figure 1. A heat balance for the

