



HIGH FLOW TEST FACILITY CAPABILITIES

SUMMARY

The High Flow Test Facility is designed to conduct flow testing in oxygen, nitrogen, or hydrogen gases at pressures up to 6000 psig and approximate flow rates up to 5000, 6000, and 23,000 scfm. Additionally, the oxygen and nitrogen test gases can be heated to achieve outlet temperatures of up to 1000 °F.

OXYGEN/NITROGEN TEST SYSTEM

Typical flow rates are from 1.0 to 5.0 lb/s at pressures between 3000 and 4000 psig with outlet temperatures between 400 and 750 °F. A typical flow time for oxygen at 1.0 lb/s from 6000 to 3000 psig is 292 min. A typical flow time for nitrogen at the same conditions is 454 min. Maximum flow rate is approximately 8.0 lb/s at approximately 2500 psig. Gaseous oxygen storage capacity is approximately 500,000 scf at 6300 psig.

HYDROGEN TEST SYSTEM

Typical flow rates are from 0.25 to 1.1 lb/s at pressures from 3000 to 4000 psig and ambient temperature. A typical flow time for hydrogen at 0.25 lb/s from 6000 to 3000 psig is 24 min. Maximum flow rate is approximately 2.0 lb/s at approximately 3000 psig. Gaseous hydrogen storage capacity is approximately 240,000 scf at 6000 psig.

CRYOGENIC TEST SYSTEMS

Flow testing capabilities exist using liquid oxygen, nitrogen, and hydrogen, and the facility storage capacity of each is 9000 gal, 2500 gal, and 15,000 gal respectively.

TEST SYSTEM DATA COLLECTION

A VME bus computer, with two CPUs, provides test system and test article control and data acquisition. Data acquisition rates, for up to 96 channels, typically are 100 ms with 1 ms available. Analog, video, and audio data can also be taken.

CURRENT TEST PROGRAMS

Current test programs are flow testing for space shuttle components and particle impact testing. A wide variety of test setups are possible.

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