

Title	An investigation on the vortex tube
Sub Title	
Author	榎本, 謙二郎(Enomoto, Kenjiro)
Publisher	慶應義塾大学藤原記念工学部
Publication year	1966
Jtitle	Proceedings of the Fujihara Memorial Faculty of Engineering Keio University (慶應義塾大学藤原記念工学部研究報告). Vol.19, No.76 (1966.) ,p.219(1)- 219(1)
JaLC DOI	
Abstract	
Notes	Summaries of Doctor and Master Theses Master of Engineering, 1966
Genre	Departmental Bulletin Paper
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO50001004-00190076-0001

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the Keio Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

An Investigation on the Vortex Tube

Kenjiro ENOMOTO*

The behaviour as well as the characteristics of the vortex tube were examined both experimentally and theoretically. To the end, the present author employed two experimental set arrangements. One set was devoted to the investigations of the performance characteristics of vortex tube. With this apparatus, the number of nozzles, the lengths as well as the divergence or convergence of tube were varied, and the effect of the configurations of vortex tube upon characteristics was examined. The other set was employed for the observation of the flow patterns of the air within the tube. Furthermore, the author conducted theoretical analysis concerning the flow within the tube.

Following conclusions were obtained.

(a) The number of nozzles were varied 1, 3 and 5, and it was found 3 nozzles corresponded optimum.

(b) Optimum performance characteristics were obtained when the vortex tube having divergence $3/100$ and length diameter ratio of around 15 was employed.

(c) The static pressure distributions within the tube were estimated approximately by means of the energy balance of rotating fluid masses with centrifugal force.

(d) The optimum figures of merits for cold air and hot air amounted to 19 % and 17 % respectively.

*榎本 謙二郎