

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

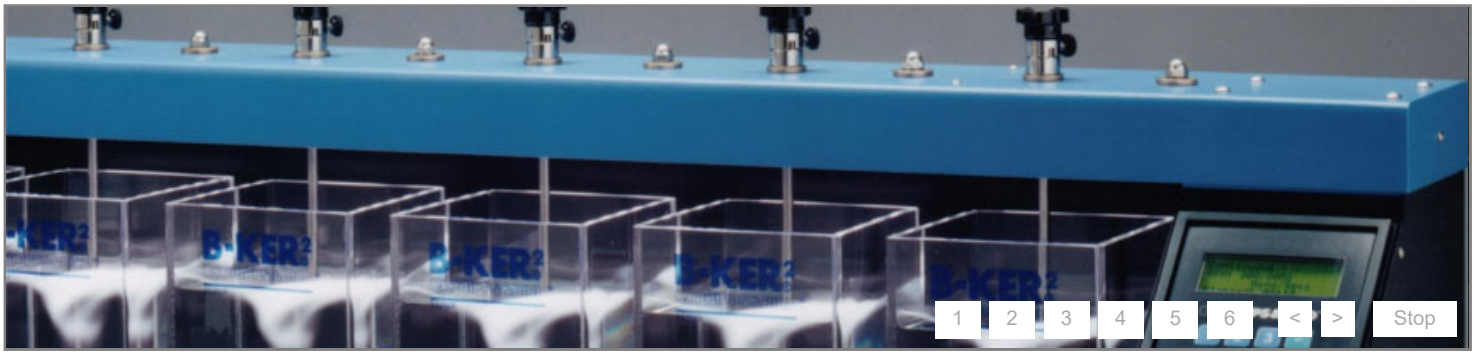
Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*



LINKS

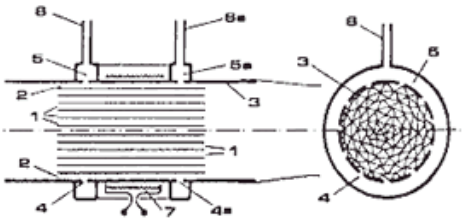
Company & Employees
Company History
Staff
Our Team
Academic Support
Inventor Center
News Releases

FLEISCH PNEUMOTACHOGRAPH



The principle of the Pneumotachograph rests on Poiseuille's Law, which states that, under capillary conditions, in a straight rigid tube, delivery is proportional to pressure loss per unit of length. The continuous measurement of the pressure loss, that is the measurement of the pressure difference between two points on the tube, gives a differential curve whose ordinates represent the velocity of the air current.

To avoid turbulence the air passes through a large number of ducts of 0.8 mm. diameter and 32 mm. in length. The outer ducts (2) are used to measure the pressure. The brass tube (3) has two rows of small holes (4) distributed over its entire circumference and communicating with the annular ducts (5) and (5a). The pressure is then transmitted through the tubes (6) and (6a) to the differential manometer or pressure transducer. If the air current passes through the pneumotachograph from right to left the pressure will be greater in (5) then (5a). Conversely, if the air current passes from left to right the pressure will be greater in (5a) than in (5). The pressures can be best translated into an electronic signal by means of a differential pressure transducer.



1- air channels
2- measurement area
3- main tube
4/4a- points where pressure is measured
5/5a- circular channels
6/6a- transmission of measured pressures
7- heating element

When the velocity of the air current does not exceed a certain value, the air particles move in the pneumotachograph under capillary conditions, thus insuring a strict proportion between the velocity and the deflection of the transducer. Once this limit has been passed, small turbulences appear, as is evidenced by the slight oscillations of the recording.
To prevent water vapor condensation in the duct system, the apparatus is heated for five minutes before and during use, by a small heating element (7) built round the apparatus (6 volts, 1 amp.)

The velocity of the human air current varies considerably according to the rate of respiration. For respiration at rest, the maximum velocities are of the order of 300 to 500 ml./sec; under more strenuous conditions they reach 8000 ml./sec. A single resistance system could not cope with such a wide range of velocities. For this reason eight models are available.
Each model can be used for deliveries exceeding those indicated by 50%; even up to these values there is only a slight discrepancy.
The resistance to respiration offered by the pneumotachograph is very small; it only reaches 15 mm. of water for the largest values measured. This degree of resistance does not affect the respiratory movements and the patient does not notice it.
The rated maximum pressure drop is 10mm. H2O for linear measurement. The differential pressure gauge should be able to discriminate this pressure differential.
Every pneumotachograph is provided with its calibration giving the relationship between the deliveries and the pressure differences between the ducts 5 and 5a. Each apparatus is checked to ensure that it gives equal readings in both directions (inhaling and exhaling). The calibration is independent of the barometric pressure because the differential pressure measured by the pneumotachograph is proportional to the product of delivery and air viscosity, the latter being independent of pressure.

Type	Maximum flow	Advisable flow	Inside diameter	Length	Dead space	Weight
00000	12 ml/s	9 ml/s	1.35 mm	75 mm	0.1 ml	100 g
0000	20	15	6	75	0.8	90
000	60	40	6	75	0.9	90
00	150	100	9	75	2	100
0	350	250	10	60	4	60
1	1.2 l/s	1 l/s	18	60	14	100
2	3	2.5	28	60	35	150
3	8	6.5	43	60	80	250
4	14	11	58	70	172	400
5	25	21	78	100	460	650

Call Toll-Free (800) 955-7621 in Virginia (804) 254-2737
Fax - (804) 254-2955
Email - info@phippsbird.com

Hablamos Español

Disclaimer: The information on this website is presented solely as 'entertainment'. Visitors/viewers must subscribe to and accept all the provisions listed below as a condition to viewing the material on this site: 1) Visitors are granted access to view and use *at their own risk* any materials and information presented herein. No claims are made by Phipps & Bird as to the accuracy, currency, validity, or reliability of any materials or information appearing on this website, to include but not limited to pricing information; laboratory procedures and formulas; implied or express product use or effectiveness; etc. **2)** All information on this website is copyrighted by Phipps & Bird, Inc. Visitors may copy or print off *only for their own use* any of the materials on this website. Images and materials may NOT be copied to other websites, redistributed in any form, or republished in any format whatsoever without the written permission of an authorized representative of Phipps & Bird, Inc. **3)** Nothing presented on this website shall be inferred nor construed to be a contract, agreement, covenant, promise or binding commitment of any kind. **4)** All information, offers, features, pricing, terms, et al, may be changed, withdrawn, discontinued or rescinded at any time without notice. Photographs may or may not be an accurate and current representation of the depicted subject. **5)** Phipps & Bird, Inc. is released of any and all liability resulting from the use, misuse, or misinterpretation of any of the information herein presented. This includes scientific formulas, procedures, charts, graphs, et al., the accuracy of which should be independently verified by the user.
© 2017 Phipps & Bird, Inc.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP