

Internal Use Only

INTERNATIONAL ASSOCIATION OF MECHANICAL AND PLUMBING OFFICIALS

MATERIAL AND PROPERTY STANDARD

FOR

DENTAL VACUUM PUMPS

IAPMO PS 73-93

1. PURPOSE

- 1.1** The purpose of this standard is to establish a generally acceptable standard for dental vacuum pumps. Its purpose is to serve as a guide for producers, distributors, architects, engineers, contractors, installers, inspectors and users; to promote understanding regarding materials, manufacture and installation; and to provide for identifying dental vacuum pumps complying with this standard.
- 1.2** The provisions of this standard are not intended to prevent the use of any alternate material or method of construction provided any such alternate meets the intent of this standard.

2. SCOPE

- 2.1** This standard applies to dental vacuum pumps. It specifies manufacturing, performance, and safety requirements, test methods and details of markings. These pumps shall be installed in accordance with all applicable code requirements.

3. DEFINITIONS

- 3.1 Dental Vacuum Pump.** A rotating-impeller, water sealed vacuum pump designed and manufactured to remove waste fluids from saliva ejectors, and cuspidors (dental) and discharge these wastes thru an approved receptor.
- 3.2 Impeller.** A manufactured device mounted on a motor shaft within the pump housing for the purpose of creating a vacuum by moving air and water through intake and discharge ports by centrifugal force.
- 3.3 Water Strainer.** A device placed at the fresh water inlet supply connection for the purpose of preventing particulate water contaminants from damaging water control components of the pump.
- 3.4 Solenoid Valve.** An electrical device which, when activated by the low-voltage control

Copyright © 1993 by International Association of Plumbing and Mechanical Officials. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in an electronic retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

circuit, will open and allow fresh water from the supply source to flow into the pump. Interruption to the electrical power supply causes the valve to close and prevent flooding.

- 3.5 Flow Control Valve.** A device for the purpose of limiting fresh water supply flow into the pump at a pre-determined rate.
- 3.6 Secondary Inline Filter.** A device installed before the vacuum pump intake for the purpose of preventing solids too large to pass safely through from entering the pump.
- 3.7 Vacuum Gauge.** A gauge device for the purpose of indicating negative pressure (vacuum) during pump operation, and is installed on the intake of the pump.
- 3.8 Vacuum Relief Valve.** A device installed on the intake of the pump for the purpose of adjusting maximum vacuum to the desired level while allowing air flow into the pump to prevent internal damage.

4. GENERAL REQUIREMENTS

- 4.1 Components.** Fittings and other accessories provided with the pump shall be of quality consistent with the intended application. Requirements unique to specific components are as follows:
- (a) Water strainer and inline filters shall be constructed of material and mesh size as specified by the manufacturer and must be accessible for cleaning.
 - (b) Solenoid valve shall operate at twenty-four (24) volts A.C.
 - (c) Flow control valve shall deliver the predetermined flow rate at water supply pressures varying from 30 psi (206.9 Kpa) to 80 psi (551.7 Kpa).
 - (d) Vacuum gauge calibration shall be from 0.0 to 30" (0.0 to 762 mm) of mercury.
 - (e) Vacuum relief valve shall be fitted with an intake muffler to reduce sound levels while drawing relief air.
- 4.2 Instructions.** Instructions for proper assembly, installation and operation shall be provided. Instructions shall include electrical supply requirements and maximum overcurrent protection information and backflow protection for potable water supply. High hazard backflow protection suitable for backsiphonage and backpressure backflow shall be affixed to the unit and installed as per Uniform Plumbing Code and PS 31, Backflow Prevention Devices.
- 4.3 Water Tightness.** The vacuum pump or any of its fittings shall not leak or become damaged when tested in accordance with Section 5.3.
- 4.4 Electrical Integrity.** All electrical components, connections and assemblies shall comply with the construction and testing provisions of UL 544, Electric Medical and Dental Equipment. Electric motors used shall be of standard N.E.M.A. configuration.
- 4.5 Capacity.** The performance capacity of a pump shall be a minimum of 0.425 (15 CFM)