valve values
PHOTO NEWS

Over 203,000 radiographic negatives on valves in service are filed for reference. Skilled technicians qualified by long experience, examine minutely negatives proving material soundness of Edward Valves

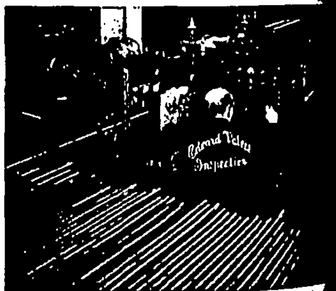
Radioactivity, Magnetism Assure Edward Valve Soundness

The technician above is using Cobalt-60, a radioactive isotope obtained from U. S. and Canadian Atomic Energy Commissions in the radiographic examination of an Edward Fig. 4006Y cast steel valve. Using gamma-rays, the radiographic technique gives photographic evidence of the internal structure of metals, instantly reveals internal voids or weaknesses not capable of detection by any other method.

Radiographic inspection is an old story at Edward. In use since 1928, Edward has built up a file of over 203,000 radiographic negatives attesting to the soundness of valves already in service. And the backlog of experience gained in applying and interpreting radiographic methods over the years assures Edward customers of the greatest possible measure of protection from this technique.

Radiography is only one of many methods, some old, some new, used in thoroughly inspecting all materials that make up Edward Valves. A new testing procedure is illustrated at right—a magnetic-electronic device which tests bar stock entering the Edward plant, assuring 100% soundness and uniformity in the materials used for stems, studs, and other vital valve components. By measuring variations in electrical and magnetic characteristics, this unit reveals any deviations in hardness, chemical analysis, or grade, and any internal cracks or structural differences. It can even tell whether two bars came from the same or different "heats."

Inspection procedures like these illustrate the determination at Edward to quickly adopt every modern technological development which permits further verification of the superiority of our materials, manufacturing methods or designs. These continual checks have helped to build the reputation for dependability in service which is our most valuable asset—and one which we are determined to protect at all costs.



Magnetic-Electronic device checks every inch of bar to left of operator above, detects all cracks or voids, differences in hardness, chemical composition or internal structure.

Edward Valves, Inc. Another Product

HOW TO CUT
INTENANCE COSTS
Proper Valve Packing

the greatest single item of valve maintenance today is the cost or replacement of packing. In good, modern valve designs potential causes of maintenance have been largely eliminated, packing as the major regular maintenance item required. these simple rules will allow the plant operator to drastically time spent on packing maintenance:

CKING SHOULD FIT PERFECTLY. Too much packing valve operation difficult; too little packing soon results in age.

experienced man working carefully with coil packing can get fit in a good percentage of cases. However, the use of preformed die cut to exactly fit the packing chamber, insures a perfect cases, and at a fraction of the time and trouble.

O DIFFERENT TYPES OF PACKING ARE BETTER AN ONE. Packing in a valve chamber is subjected to two opposing requirements. First, it must be soft enough to be squeezed tightly against the valve stem and packing chamber for a perfect seal. Second, it must not be so soft that it is extruded from the ends of the packing chamber when line or gland pressure is applied.

A combination of two different types of packing rings best meets these opposing requirements. The outer rings adjacent to junk ring and gland should be reinforced for additional stiffness, while the center rings should be of a softer variety for maximum sealing effect.

3. PACKINGS SHOULD BE LUBRICATED. For easier valve operation, packing materials should a built-in lubricant—generally Graphite or Mica. Of these graphite is much more satisfactory in providing easier valve eration.

WATCH STEM PITTING. Packing should be specially treated to eliminate electrolytic corrosion of stainless steel valve stems. In addition, if valves are to be subjected to hydrostatic tests or will be stored for a long period before installation, the packing should be waterproofed to prevent absorption of moisture and subsequent corrosion, or packing deterioration.

CHECK DESIGN OF VALVE. Valve design plays a very important part in determining packing life. Designs which provide an effective backseat, and remove the packing from high temperature zones stretch packing life. Correct proportions in the packing chamber are also important—avoid designs that call for extremely wide packing rings, since these tend to reduce packing life.

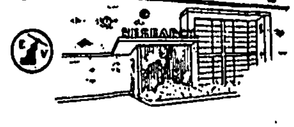
Operators can avoid packing problems by following one rule which insures compliance with all those listed above—to use Edward EVal-rt packing in Edward valves. This specially designed packing is nished in sets designed for each specific Edward valve. Every set nsists of two different types. The center rings are die moulded plastic mposed of long fibre asbestos lubricated with graphite. The outer ngs have the same general composition with, for additional stiffness, woven jacket of asbestos strands reinforced by metal wires. All sets e specially treated to eliminate stem pitting and waterproofed to eliminate corrosion. They can be installed in a minimum of time and ill provide the longest possible service life.

Write for Bulletin 12-R for complete information.

EDWARD VALVES, Inc., Subsidiary of
ROCKWELL MANUFACTURING COMPANY
1220 W. 144th STREET • EAST CHICAGO, INDIANA

GLOBE AND ANGLE STOP • FEED-LINE • BLOW-OFF • NON-RETURN
CHECK • GATE • GAGE AND INSTRUMENT • RELIEF • STRAINERS

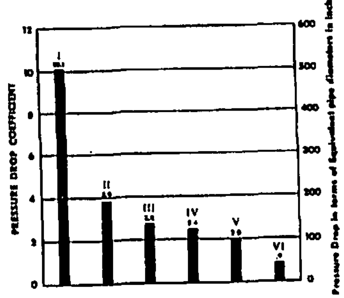
Technical Tips



Pressure Drop in Steel Valves 2 Inches and Smaller

In valves 2 in. and smaller, pressure drop is important for two principal reasons. First, obviously, from the standpoint of head loss—which may be unimportant in some instances, but have a serious economic significance in other applications. Second, pressure loss is due primarily to turbulence within the valve, which is also the principal cause of wear-producing vibration and erosion. Pressure loss in a valve therefore serves as a good index of its service life, other factors being equal.

The chart below, based on tests in the Edward laboratories, shows the pressure drop characteristics of various types of valves, with an elbow fitting included for purposes of comparison. These are given in terms of pressure drop coefficient and pressure drop in equivalent pipe diameters. In calculating these latter values the pressure drop coefficient of f=.02 for standard weight pipe was used.



I. Typical 90° Stem Globe Valve.
II. Inclined stem, screwed in seat globe valve. Edward Fig. 444, 448, 631.
III. Inclined stem, integral seat globe valve. Edward Fig. 2224, 931, 948.
IV. Typical small gate valve. Seat diameter 70 per cent of pipe diameter.
V. Angle stop valve. Edward Fig. 445, 449, 949.
VI. Elbow, screwed or socket welding end.

The user can readily calculate the equivalent length of pipe from the standpoint of pressure drop for certain small valve types with this chart. For example, a 1 in. inclined stem globe valve with integral seat will have a pressure drop equivalent to 120 in. or 10 ft. of 1 in. pipe, and the 2 in. size of the same valve will have a pressure drop equivalent to 240 in. or 20 ft. of 2 in. pipe.

The superiority of inclined stem construction for globe valves in this size range is obvious—note that the integral seat Y-type globe valve has a pressure loss 72% less than the 90° stem type globe valve. The pressure loss characteristics of Y-type globe valves compare quite favorably with gate valves. The tighter shut off obtained, ability to throttle and other advantages realized with these globe valves, make desirable their use in many applications.

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