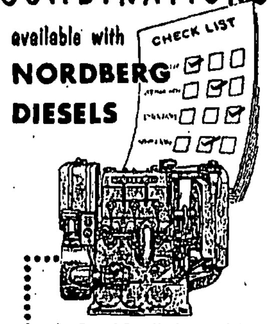
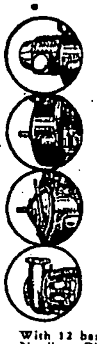
12 POWER COMBINATIONS

available with **NORDBERG DIESELS**



1 - 2 and 3-cylinder models for 4 types of service



1. For MAIN or STANDBY ELECTRIC SERVICE . . . Your choice of 1, 2 and 3-cylinder units, providing from 6 to 30 K.W. (6,000 to 30,000 watts) in Direct and Alternating Current—50 and 60 cycles.
2. For STRAIGHT POWER TAKE-OFF . . . Your choice of 1, 2 and 3-cylinder units, with stub shaft power take-off to meet power needs from 10 to 45 hp.
3. For CLUTCH-POWER TAKE-OFF . . . Your choice of 1, 2 and 3-cylinder units, from 10 to 45 hp, with twin-Disc clutch power take-off.
4. For PUMPING SERVICE . . . In 1, 2 and 3-cylinder units for connecting to pump shafts—for electric pumps—or with close-coupled centrifugal pumps—in capacities from 200 to 3000 gpm at 15 to 240 ft. total head.

With 12 basic power combinations, Nordberg Diesel units offer you an extremely wide selection to help you get exactly the right kind of power to meet your specific requirements.

NORDBERG MFG. CO., Milwaukee, Wis.

NORDBERG

BUILDERS OF AMERICA'S LARGEST LINE OF HEAVY-DUTY DIESELS

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Nordberg Mfg. Co., Milwaukee, Wis.

Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service: PM

. . . .

Your Name . . . .

Company Name . . . .

Address . . . .

City . . . . Zone . . . . State . . . . .

4-453

More TECHNICAL BRIEFS

Begins on page 150

same total solids content as zeolite softening but containing substantially nothing but sodium chloride.

This process of treatment is considered to be particularly adaptable to the small power plant because it provides the advantage of both softening and alkalinity reduction at a lower investment cost than a hot process water softener without the need of maintaining proportional feeding devices, inlet level controls, vent condensers and spray heaters associated with the hot process water softener, without the use of acid or the requirement of blending devices, the need of breaking pressure to deaerate or the need of feeding caustic for pH control, one or more of which are associated with any other method of dealkalization following zeolite softening.

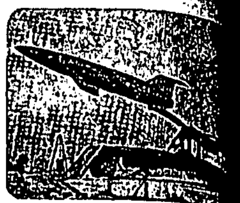
These advantages are weighed against the disadvantage of higher chemical costs and the disadvantage of no solids reduction as compared to hot process and split stream dealkalization methods. *APC Paper, no number.*

Acid Regeneration of Cation Exchangers. *By F K Lindsay, National Aluminate Corp.*

There are two factors that are largely responsible for the choice of acid to be used in any operation: (1) the availability of the acid under consideration and (2) the comparative cost of the acids for the particular installation involved. Sulfuric acid is most commonly used in large installations, for in most parts of the country it is more economical. Hydrochloric acid is generally selected for the smaller installations for its greater ease of application as well as for the higher exchange capacities that can usually be obtained.

In the application of sulfuric acid for the regeneration of high capacity cation exchange resins, the ratio of each individual cation to the total cations in the raw water is very important. If there is a large preponderance of calcium in the influent, there will be the same relative preponderance in the exhausted resin bed. Because of the much greater capacity of the current polystyrene resins as compared to the older, low capacity hydrogen exchangers, the possibility of encountering calcium sulfate precipitation during regeneration is therefore greatly increased. If, on the other hand, there is a high percentage of sodium in the raw water, the sodium will predominate in the exhausted bed and, if not thoroughly eliminated by the regeneration process, will result in sodium leakage during the operating cycle that follows.

(Continued on page 216)



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The Glenn L. Martin Comp... builders of "Matador" bom... "404" transports, and other... mous planes, uses 27 Frick c... pressors for air conditioning... special cooling services in its... plant at Middle River, Mary... These machines have been... stalled over a period of 16 y... by the Paul J. Vincent Co., F... Distributors in Baltimore.

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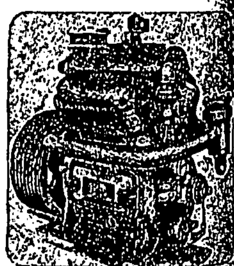

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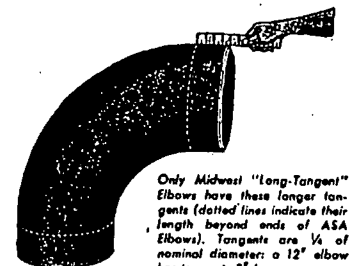

Only Midwest "Long-Tangent" Elbows have these longer tangents (dotted lines indicate their length beyond ends of ASA Elbows). Tangents are ¼ of nominal diameter: a 12" elbow has tangents 3" long.

This young man's dad also saves money. But he does it by specifying Midwest LONG-TANGENT Elbows whenever he needs welded piping. These elbows (see above) can be lined up with pipe more quickly and accurately. Less pipe is required and a short nipple (with its extra circumferential weld) is frequently eliminated. Slip-on welding flanges are easily used with minimum change in either flange or fitting. And then . . . Midwest "Long-Tangent" Elbows cost no more than ASA Elbows. You, too, can save money by specifying them on your next welding fittings order.

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