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AN ADEQUATE SUPPLY OF STRATEGIC MINERALS IS A MUST FOR SURVIVAL

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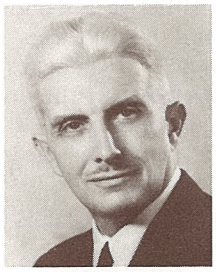
Chairman

The Kraissl Company, Inc.

If the data supplied in the February 8, 1982 issue of U.S. News and World Report is accurate, some agency appears to be falling down on its job.



CONSULTING ENGINEER KRAISSL ASSOCIATES

According to this information we are supposed to have 85 million pounds of cobalt, and we only have 40 million pounds, less than half supposed to be on hand. Likewise, 195,000 tons of titanium, but we have only 32,000 tons, less than one sixth, and so on over the list. Shortly after inauguration President Reagan proposed investing 100 million dollars for rebuilding our strategic mineral stock piles, and the first purchase was 5.2 million pounds of cobalt. This program must be accelerated.

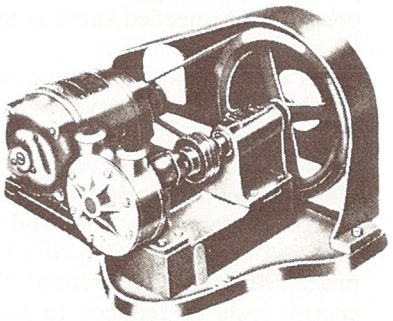
The definition of a strategic mineral is that it is mandatory for our survival, and we have an insufficiency under our control. Whoever determined the extent of our necessary stockpile to preclude running out of supplies, this information should be rechecked, but it is not information that should be hidden. If the figures are found to be accurate, the stockpile should be rebuilt as a priority, then there should be a concerted effort to reduce those minerals on which there is a foreign dependency so that a cut-off due to changing political conditions is reduced to a minimum. Third world suppliers should be used to a maximum as long as they remain reliable. They need cash and this is an economic and precedent-established means for getting it, but like all matters relating to survival, we should have alternate sources of supply under our control.

One such source is mentioned, the abundance of metallic nodules on the ocean floors. These contain manganese and cobalt, two of the six elements that are particularly important, both to the accelerated defense and energy programs. There should be determined the potential available and the time table of supply from this source.

Instead of involving ourselves in increasing numbers of social problems let's give priority to matters of survival first. Let's be sure there is a Chief of Strategic Minerals in the Department of Defense whose responsibility is an adequate supply. Let's be sure we can control what is needed. Then let us turn to successful bidders on Government contracts being sure they can procure the necessary ingredients and make this proof a mandatory part of procurement. Perhaps we have as yet unfound sources of the strategic minerals in the vast areas the ecologists wish to turn over to the lesser animals. Let's find out. It is nice to be thoughtful about animals, but many animals can adjust to human proximity if not molested. We have quite a few non-tax paying and non-rent paying animal residents on the property of the major "stock holders" of this company and these animals even raid our garbage cans in congested areas, many times getting themselves killed by unnecessarily crossing traffic congested highways.

It is my opinion that we must completely explore all areas for strategic minerals before these areas are turned over to animals as I believe humans, particularly our citizens, should have priority for survival. If you agree, write the President in support of his strategic mineral program, and your U.S. Senators and Representatives, asking them to support the President's program. This solicitation is a contribution of this company, and you will note does not ask for a financial donation.

OUR CLASS 60 REDUCTION DRIVE PUMPS SHOULD BE SATISFACTORY FOR NEW FUELS - METHACOAL AND ETHACOAL.



On the theory that if it will flow and iron and steel construction is satisfactory, our Class 60 Series Reduction Drive Pumps should be able to handle these new fuels for industrial fuel burning requirements.

Methacoal has been stabilized by a method of preparation so that settling has been retarded or prevented sufficiently to allow pumping through pipe lines, permitting storage to be effected without the requirement of high intensity agitation or stirring.

Methacoal or ethacoal as prepared by preferable methods is better termed a suspensoid rather than a slurry. It can be coal-alcohol, coal-alcohol-water, and coal-alcohol-oil in composition. It is reported to be of surprisingly low viscosity and less abrasive than coal slurries. Methacoal may be burned as a combustion fuel to replace petroleum derived fuels or natural gas, reducing our dependence on foreign oil. With our large deposits of coal and our ability to produce industrial alcohol, it is hoped it will be found that there is no obstacle to its use as indicated.

It appears that accessory equipment has not been completely standardized, but in analyzing the composition and potential physical properties, our

pumps which have a history of long life with both light and heavy oil, would not be subjected to much more severe operating conditions. In this connection the reduction drive carried on an independently lubricated ball bearing support unit having a relatively large capacity lubricant reservoir , and direct connected to the pump by means of a loose coupling, can be run at the most advantageous speed for each service requirement. All that is necessary to change speed, if required, is changing the belts and pulleys, which can probably be obtained at local hardware stores, as the A belt has been standardized for most applications.

Up to 100 psig, our standard pumps should meet the requirements and up to 150 psig our look-alike Class 60H pumps are suggested. If higher pressures are needed there is the Class 66 Series.

Let's investigate these new fuels that would keep this country free of foreign oil dependency. Estimates indicate that when production is developed the cost over oil can be considerably less. This is most important as the production is reported to be the result of a patented process, and it is essential that our energy costs be reduced to acceptable amounts. Even when we had an adequate supply of domestic crude oil, royalties were paid to property owners of successful wells, so royalties on patented processes should not be a deterrent if negotiated in advance.

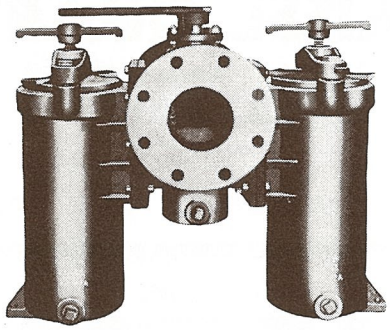
BARRIER SEPARATORS

According to our definitions this includes both strainers and filters. We draw the line for convenience, between strainers and filters at perforated metal screens or the equivalent in coarse mesh. Usually the same housing can accommodate either strainer or filter inserts so that if an incorrect selection is made to meet an application, the insert or basket which is inconsequential in relative expense can be substituted.

Single separators can be selected if the process or application calls for intermittent service or inspection. When the application calls for continuous operation a duplex unit is needed so that one side can be serviced while the other is in operation.

LIQUID FUEL SYSTEMS NEED STRAINERS

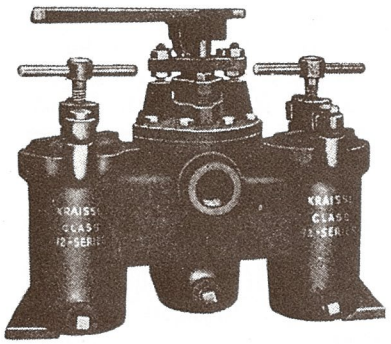
Whether your system burns light oil, heavy oil, methacoal or ethacoal, strainers are needed to minimize operating difficulties.



CLASS 72 INDUSTRIAL DUPLEX STRAINERS

This is not news to installers of oil burning systems, but with the potential advent of these new fuels, it seems reasonable to re-emphasize this need. There are basically two requirements. The first is to minimize damage to the pump. Most pumping mechanisms for the fuel systems must lift the liquid fuel from underground tanks which necessitates a suction lift. There is usually a horizontal run which adds a pressure drop depending on the viscosity of the liquid fuel, the length of the suction line, and its diameter. This requires a positive displacement mechanism with close clearances and the suction line strainer should be ported the same size as a properly specified suction line for the fuel which will be used. The separator baskets or inserts should protect the close clearances of the pump to at least minimize the possibility that large size debris will be kept out. The discharge line can be, and usually is smaller than the suction line, and the objective here is to protect the orifices of the burner tips from being clogged.

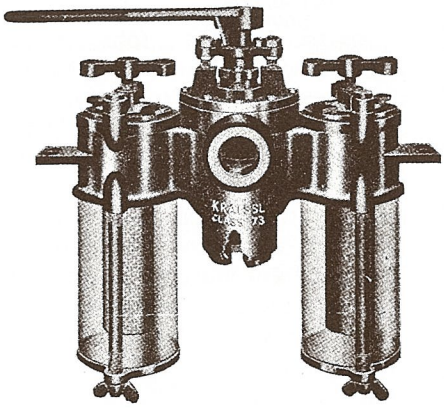
Usually the liquid fuel burner company will want to specify the sizes of all components, and we are here to help them. When our reduction drive pumps are teamed up with our separators, which has been our business for many years, the combination has proven to be to the advantage of the user.



THREE DISTINCT DESIGNS OF KRAISSL SEPARATORS

Our separators come in three distinct designs in the duplex series. The class 72A is the three piece construction designation and was the first of our series on the market. To make it as compact as possible the flanges which match up with the side bodies are rectangular. This design minimizes core shifts and consequently provides very uniform wall thickness. Furthermore the rectangular ports for the side bodies provide reinforcement characteristic of a high pressure autoclave and some of our high pressure models use this construction. This series is of course underwriter listed. As foundries became more experienced in casting our designs, it was possible to bring out our class 72 Integral series, for most of the standard pressure series and some of the high pressure line. These designs must meet Underwriter requirements with a large safety factor and as the sizes go up, there is a trade off between the integral construction and the three piece design. We attempt to suggest the design that seems best for the application. Since there is an overlap, we consider the integral and three piece construction a related series.

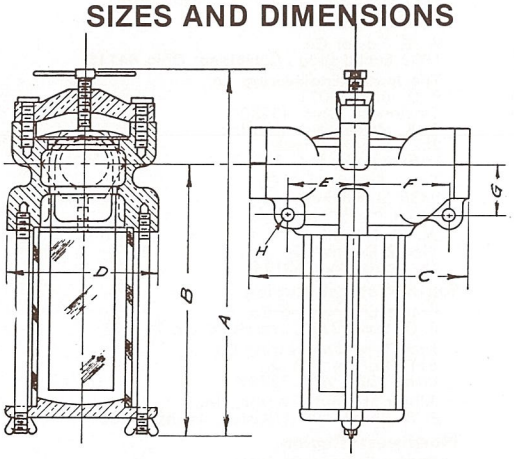
THE VERSATILE CLASS 73 SEPARATORS



Our next design is the Class 73 Series. This was brought into being to meet the needs of the Marine Industry for cooling water of engines. It can be used with internal flow, in which case separated cooling water debris can be lifted out. On external flow, the debris is collected outside the separator basket and the need of cleaning when necessary, is made quite apparent.

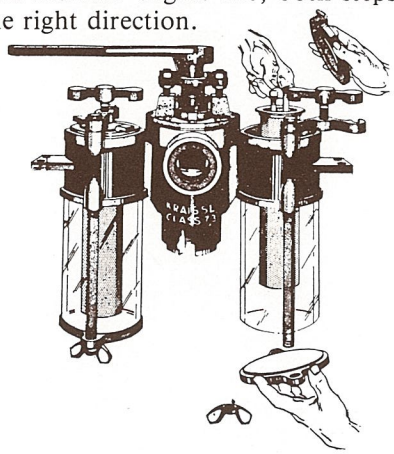
The one thing that seems hard to understand is why the marine field does not specify hot dipped galvanized construction. The price of bronze has escalated out of consideration except for government service and the cost of these units could be brought in line with other items of marine construction.

CLASS 73 SERIES SINGLE SEPARATORS SIZES AND DIMENSIONS

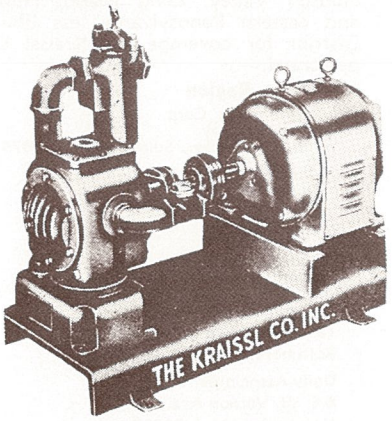


MODEL	NPT	A	B	C	D	E	F	G	H
73-4	1/2	7 3/8	4 7/8	4	3 3/4	1 1/2	2	7/8	9/64
73-6	3/4	9 3/8	6 7/8	5 1/2	3 3/4	1 3/4	2 3/8	1 1/4	11/32
73-8	1	9 3/8	6 7/8	5 1/2	3 3/4	1 3/4	2 3/8	1 1/4	11/32
73-10	1 1/4	11 3/4	7 13/16	7	5	2	3	1 7/8	7/16
73-12	1 1/2	13 5/8	9 11/16	7	5	2	3	1 7/8	7/16
73-14	2	15 5/8	10 7/16	9 3/4	5 7/8	2 5/8	4 1/4	2 1/4	9/16
73-16	2 1/2	18 5/8	13 5/16	9 3/4	5 7/8	2 5/8	4 1/4	2 1/4	9/16

Pressure drop through these units should not be ignored so we have designed the ports and channels to be no less than the area of the nominal pipe size with which they should be used. This makes the units more costly when bronze construction is specified. However, this could be counteracted by specifying galvanized iron. There are other reasons for doing this. Many ships are used in salt water transportation. Practically all engines are iron construction. Galvanic action can be set up beteen anything bronze and iron in a circulating salt water installation and the less noble metal which is, of course, the iron, suffers. It would be difficult to speculate how many engines have a reduced life because of this but it must be substantial. The galvanizing of the iron is in itself a deterrent as zinc is an inhibitor of this action. So the simple action of specifying galvanized construction for our Class 73 separators should lower costs and increase engine life, both steps in the right direction.



WHERE CYCLIC OPERATION CAN BE USED, AIR IS A GOOD PUMPING METHOD FOR FOUL LIQUIDS



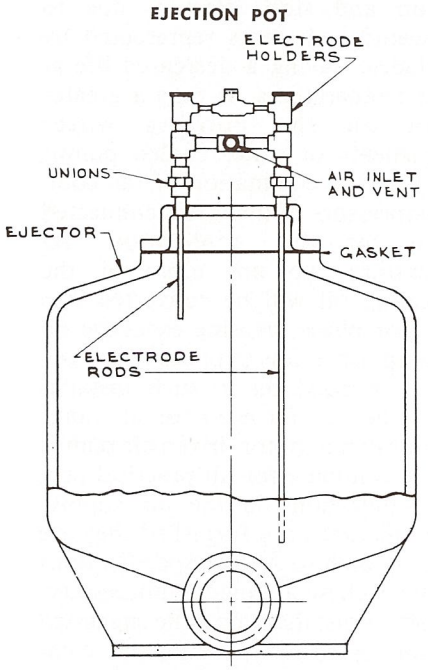
First let us define cyclic operation. This is our term for a pumping operation of, say, thirty seconds on and thirty seconds off. The word intermittant does not define it as intermittant interruption could be anything on a time table basis.

Cyclic operation is usually required where timed flow is mandatory, such as fifty or one hundred gallons per minute for extended periods, but the ejection period must be on a half minute basis so that the other half minute can be devoted to filling the ejector pot.

Our Class 25 series air pumps have been used for long periods of time for this purpose, and we believe our system of force feed lubrication and sealing is responsible for their longevity. The displacement cavity at the base of the blades is used as an integral oil pump that lifts the oil from the oil reservoir and on the return stroke of the blades forces the oil to the positions that must be lubricated and sealed. We call this our force feed lubrication and sealing system. Oil in the discharge air is separated by the air-oil separators and returned to the lubricating system.

Since our pumps are direct connected to motor, discharged air is practically without pulsation, so a reservoir tank is eliminated. Where compressed air tanks are employed they are not inexpensive, as usually ASME specifications are stipulated. The mechanics of flow control can be by float switch or electronic devices. Both have been used for many years. The cyclic interval is very simple. Liquid flows into the ejector pot by gravity until it reaches the upper control point which actuates the air pump. Air pressure is built up in the ejector pot until the control pressure is reached at which time ejection occurs, and when the ejector pot has been emptied, the air pump is stopped by the low level control.

Probably the foulest of foul liquids is sewage. All mechanisms need service at some point. Can anyone imagine a more disgusting job than servicing a sewage pump that has been immersed in sewage for long periods of time? Contrast this with an air pump which should never be in contact with the sewage in a properly designed system.



Electrode Type

We do not approve of an installation with an intermediate air tank, and hope we have explained our reasons to the satisfaction of all concerned but are again stating them for those who wish long and comparatively service free operation, other than regular lubrication, inspection and oil addition to the oil reservoir when required. We are spot lighting these reasons as follows:

1. Tank connected pumps require that a pressure of approximately ten pounds, above operating pressure, is necessary. Many times only ten pounds is required to raise the sewage 23 feet to the sewer and this means double the pressure, which must be paid for in horse power input, which in no way contributes to energy conservation but increases the cost of the motors and controls, with reduced length of life in service. The reason is simple. When an air pump is connected to an air tank, it is almost certain that cut in and cut out controls will be used. Most of these require a differential of about ten pounds to be efficient, which obviously must be above the ejection pressure.

2. One reason for using air tanks is to permit the installation of under sized compressors, so that they are kept running during the filling cycle of the ejector operation. This increases the wear on the compressors, as they can run

continously without shut down which causes the following destructive effects. It has been found with many mechanisms, that as the machine heats up, wear becomes greater when operation is above the designed temperature. Part of this due to reducing the thickness of the lubricating film. Part is due to differences in the co-efficient of expansion of dissimilar metals, such as iron and steel. Part is due to displacement elements represented by the blades, having a decreased life at higher temperatures. It puts a greater strain on the cooling water requirements of water cooled pumps with practical elimination of fan cooled compressors of the direct connected design for this application. As temperatures go up, more of the lubricating oil will be converted into the vapor phase, causing excessive oil consumption as it is impractical to condense vaporized oil in such installations. There is no need for air tanks with our direct motor driven air pumps as they eliminate for all practical purposes, pulsations in the air supply. When air tanks are furnished they are probably built to ASME Specifications and when these are made unnecessary, the cost of installation of the suggested size air pump can usually be competitively accommodated.

3. When air tanks are eliminated, the air pump starts up at zero pressure, and builds up almost instantaneously to ejection pressure, but there is no sharp impact of an air pump starting up against a pressure cushion, and unloaders should be unnecessary. There is also insurance against the air pump running continuously until it seizes up due to an air leak somewhere in the line.

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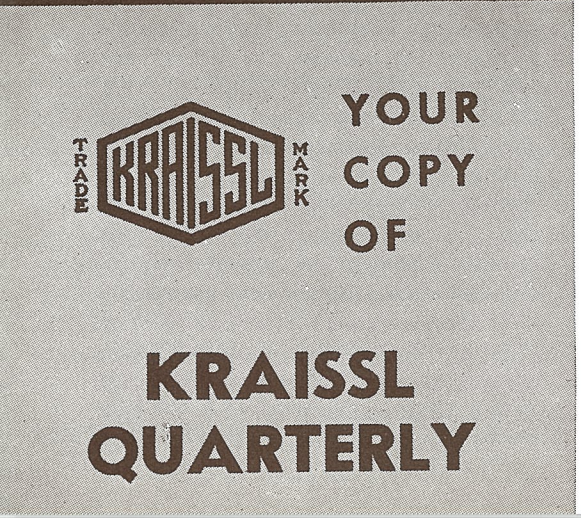
HACKENSACK, NEW JERSEY 07601
RETURN POSTAGE GUARANTEED



SALES REPRESENTATION

HOME OFFICE

We have reserved the areas of Connecticut, Metropolitan New York, including the Hudson Valley, Long Island, New Jersey and eastern Pennsylvania less Philadelphia District for coverage by Kraissl Company personnel.

Northeast Region

Boston-Cooper Corp.
Manor Parkway
Salem Ind. Pkwy., Salem, N. H. 03079

Capt. C. V. Watson
Maiden Cove Lane
Cape Elizabeth, Maine 04107

Eastern Region

Filtration Unlimited
Buffalo & John Streets
Akron, N. Y. 14001

Jobe & Co., Inc.
1815 Edison Hwy.
Baltimore, Md. 21213

Daily Associates
8 E. Mt. Vernon Ave.
Haddonfield, N. J. 08033

R. C. White Co.
3065 Enterprise Blvd.
Bethel Park, Pa. 15102

Southeast Region

Power Equipment Co.
1307 West Main St.
Richmond, Va. 23201

Dillon Supply Company — Main Office
Raleigh, N. C. 27602

Dillon Supply Company
Durham, No. Carolina 27702

Dillon Supply Company
Rocky Mt., No. Carolina 27801

Dillon Supply Company
Goldsboro, No. Carolina 27530

Dillon Supply Company
Charlotte, No. Carolina 28201

Boiler Supply Company, Inc.
490 Craighead Street
Nashville, Tenn. 37204
601 Van St., N. W.
Knoxville, Tenn. 37921

Applied Engineering Co., Inc.
P. O. Box 506, Orangeburg, S. C. 29115

R. A. Litkenhaus & Assoc. Inc.
P. O. Box 16323
7825 Baymeadows Way, Suite 106E
Jacksonville, Florida 32216
Phone: (904) 737-3536

Spotswood Parker & Co.
721 Miami Cir. NE, Atlanta, Ga. 30324

Procter & Co.
Box 26158
Birmingham, Ala. 35226

North Central Region

Comb & Groves, Inc.
336 W. Eight Mile Rd.
Ferndale, Mich. 48220

Hetler Equipment Co.
P. O. Box 1904
Grand Rapids, Mich. 49501

Central Region

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Toledo, Ohio 43613

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1900 Euclid Bldg., Cleveland, Ohio 44115

The Jordan Engineering Co.
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T. A. Heidenreich Co., Inc.
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Chicago, Illinois 60630

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St. Louis, Mo. 63124

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Jack Tyler Engineering Co.
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Baxter-Rutherford Inc.
P. O. Box 24324 Terminal Annex
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Mountain View, Cal. 94043

Power Engineering Co.
364 W. North 600th St.
Salt Lake City, Utah 84110

Killam Gas Burner Co.
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Denver, Colorado 80223

Southwest Region

Wagner Hydraulic Equip. Co.
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Los Angeles, California 90025

Engineered Sales Co.
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Phoenix, Arizona 85016

Canada—Ontario and Quebec Provinces

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P. O. Box 508
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K. C. Hamilton Equip. Ltd. — Marine

Canada—British Columbia Province

Les Hall Filter Service Ltd.
346 E. Esplanade
North Vancouver, B. C. V7L 1A4

Canada—Alberta Province

H. F. Clarke Limited
5220-1A Street S. E.
Calgary, Alberta, Canada

Hawaii

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Honolulu, Hawaii 96803

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