TRADE KRAISSL MARK
INDUSTRIAL

KRAISSL QUARTERLY

Published By
THE KRAISSL COMPANY
INCORPORATED
PUMPS-SEPARATORS-ENGINEERING EQUIPMENT
HACKENSACK, NEW JERSEY

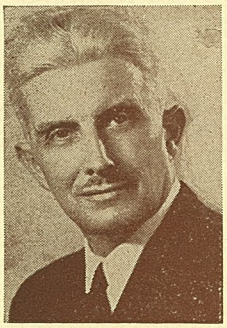
TRADE KRAISSL MARK
MARINE

Volume 4 JANUARY 1961 Number 1

PEOPLE ARE MORE IMPORTANT THAN THINGS

FREDERICK KRAISSL, JR., P. E., *President*
THE KRAISSL COMPANY, INC

As an engineer and I hope a scientist, it is natural that pride should be taken in the almost fantastic achievements of our generation, that must be credited to technological advances which is the province of scientists and engineers.



One of our philosophers has stated that "The only thing one can be sure of is change", but to be somewhat paradoxical, the one entity that is least changeable is human nature. If you doubt this remember that when Moses came down from the mountain with the Ten Commandments he found the Children of Israel dancing around the Golden Calf. Well, in many and too frequent areas the Children of Adam and Eve were still dancing around the golden calf, and this, in my dictionary of allegories can be translated into modern day materialism.

If we really believe that people are more important than things, we view life with different concepts. When we become involved in business transactions, we ask ourselves what will be the impact on those affected in addition to our responsibilities in safe-guarding business assets. If we believe that people are more important than things, we must be prepared for compromises. One of our famous educators has remarked to the effect that the trouble with most technical men is that to them everything is either black or white, whereas we actually live in a world of grays. This should and must be remembered. I have listened for hours to technical arguments on trivialities merely because I did not wish to be guilty of repression and thereby thwart initiative.

A human being is a complex entity. The more primitive he is, the more his behavior pattern is dominated by emotion, the less primitive, the more his behavior pattern is dominated by logic. Added to this we have the introverts who are looking within themselves for answers to most questions and the extroverts who wish to share their world with everybody. And again, few individuals are all introvert or all extrovert.

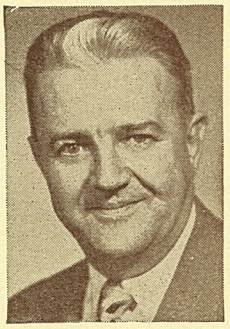
Engineers like to formulate their concepts by the use of equations but I doubt whether we will accomplish much by attempting to develop a human equation. I tried once by breaking down the dominant human controls into heredity, environment and a third factor which I called ego as an independent element. I thought of plotting reactions at various ages in percentages of each as determined by a personnel jury in kindergarten, grammar school, high school, college and possibly first employment. These percentages when plotted on triangular coordinates would establish a curve which if projected might indicate trends in an individual's behavior. If this can be used as a contribution for aptitude tests, I volunteer the idea for what it is worth, but by the time this would do us any good, most of us know just how far our ego will permit either our heredity, or environment, to dominate our plans or our future.

I know that I prefer a working environment without too much confusion and I will never understand how our employees in the plant can stand or even do accurate work under the cacaphony some people call pop music. However, the answer is tolerance, and I like to run a happy ship.

FUNCTIONS OF SMALL BUSINESS

LELAND E. MILLS, *Vice President*

Before we can examine the useful functions of a small business, we must necesarily interpret what we mean by the term. There are many ways in which a small business is identified. Perhaps the most common interpretation to all of us, is that which is given by the Federal Agencies as "A firm employing less than 500 people". Perhaps in these days of giant corporations which get even larger through their continuing search for diversification of products and markets, this could be a justifiable and proper definition.



However, I am here concerned with that vast number of industrial concerns which are by all standards, really small. I have in mind those companies whose total employment in many cases is less than 50 but certainly does not exceed 100. Some of you will say at this point "These are pretty small potatoes". This is undoubtedly true, but before we take that first long look down our noses at these "Small potatoes", let us examine some reasons for their existence.

If you are employed by a relatively large organization, you must know some of the frustrations that result from the necessary organization and departmentalization. While it must sometimes seem that these are deliberately imposed to limit individual initiative, this is, of course, not so. Personal initiative in many cases, is stifled by the overwhelming organizational detail but apparently there are enough hardy souls that overcome this, rise above it and stand out in their organizations like beacons on a hill.

In a small organization, narrow limits of departmentalization are virtually non-existent. Organization is, of necessity, held to a bare minimum. Management personnel are "all things to all people" and thus the small organization becomes a superlative training ground for any assignment.

Everyone is interested in progress but with some approaches it takes a little longer. Here is the principal "reason in being" for the small concern. By its very compact nature it can literally turn on a dime, if it so chooses. There is no necessity for wading through masses of stifling organizational procedures. In many cases the momentous decisions are made by the very personnel charged with the responsibility for their execution.

I know of one highly respected organization with a total employment of 25 whose entire livelihood is predicated on their ability to perform the impossible for the several giants of industry who are their clients. They have done some fantastic things with this seemingly limited personnel pool, which their clients, with their vastly

greater available manpower, should have been able to work out for themselves. However, when speed is of the essence, the man of decision must be the man on the job and this is their advantage because everyone involved knows the goals for which they are striving. Couple this with the economic necessity of being right more often than wrong, to come out on the profit side of the ledger, and it becomes a strong combination which has removed the project from the realm of pure research where "Money is no object" to a fight for existence.

We also have had a pertinent example in our own organization this year when it became necessary for us to decide whether we wanted to maintain our competitive position in a certain field. Examination of our problem showed conclusively that complete product redesign was involved. The decision was made, the design concept was discussed, the design completed, new pattern equipment was built and modified several times to permit use of better foundry production facilities and the product presented in a full line, to industry, in less than six months.

In this case we not only produced a more desirable and saleable product but our customers benefited because it permitted them to meet more stringent standards in a highly specialized technical field.

The point here is that a large industrial manufacturer, in order to justify the investment would have to proceed from market research to determine sales potential and then fight the project through engineering development and design and then through production, plus all the intermediate steps.

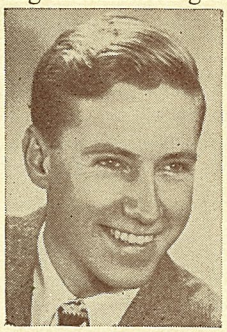
I will not pretend that life in a small concern is a bed of roses. There is much to be said about both sides of this picture. However, this is another story which we will delve into one of these days. My purpose now is to show briefly that the small company is not, as some apparently think, economically obsolete.

The most useful function of a small business is its ability to operate as an integrated research and development unit as well as a small production manufacturing facility unfettered by the normal and natural restrictions imposed by large organization procedures. This can take the form of pure research, or performance of a useful service of supply through the furnishing of products that are not necessarily beyond the capability of the larger organization but more likely are quite foreign to its normal established production.

It has been our experience that large organizations tend to ignore the extreme flexibility of small companies. They will modify other manufacturers' products without asking for the cooperation of the supplier. On the other hand, small companies recognizing kindred spirits have no hesitancy in posing the most difficult problems and in all likelihood, get an unexpected answer to the question of the moment. There are, of course, limitations, usually based on the technical ability of the personnel, but due to their accumulated outside contact experience, members of a small organization very frequently come up with the right answer or they know where to get it.

ESTIMATING PRESSURE LOSS IN PIPES

The successful operation of a pumping installation greatly depends on the proper sizing of pipes, particularly on the suction side of the pump. There are many charts, tables and formulas available for calculating pressure loss but you may find these excerpts from my personal notebook helpful to you for this purpose.



R. C. MICHEL, P.E.
Vice-President

The basis is the Fanning equation:

$$P/\rho = 2fV^2L/g_cD$$

where P—pressure loss, $\frac{\text{lbf}}{\text{ft.}^2}$

ρ—fluid density, $\frac{\text{lbm}}{\text{cu. ft.}}$

f—friction factor, dimensionless

g_c—constant, $\frac{\text{lbm ft.}}{\text{lbf sec.}^2}$

L—length of pipe, ft.
D—Dia. of pipe, ft.
V—fluid velocity, ft./sec.

$$p = .027fSV^2L/D$$

where p—pressure loss, psi
S—specific gravity of fluid, dimensionless

Fluid velocity can be determined from the internal pipe area and flow rate:

$$V = .321Q/A$$

where

Q—flow rate, gpm
A—Internal pipe area, sq. in.

Some commonly used internal pipe areas are:

½ pipe	.304 sq. in.
¾	.533
1	.862
1½	2.04
2	3.36
2½	4.78
3	7.39
4	12.7
5	20.0
6	28.9

The specific gravity (S) of water is 1.0 and that of #6 fuel oil at pumping temperature is about 0.96.

In order to determine the friction factor (f), an intermediate step is required to determine whether flow is laminar or turbulent. Calculate the Reynolds number (N_{RE}):

$$N_{RE} = D\rho V/\mu = 930DV/\eta$$

where μ—absolute viscosity $\frac{(\text{lbm})}{(\text{ft. sec.})}$

η kinematic viscosity, stokes

Knowing the viscosity of the fluid in SSU, determine the kinematic viscosity, η (stokes):

η, Stokes	SSU
.01	Water
.20	100
.54	250
1.1	500
2.2	1000
4.4	2000*
11.	5000
22.	10,000

*(#6 fuel oil at pumping temperature)

If N_{RE} is greater than 2000, then the flow is turbulent and the friction factor (f) can be estimated:

N_{RE}	f
4000	.012
10,000	.0087
50,000	.0062
100,000	.0055
500,000	.0040
1,000,000	.0036

If N_{RE} is less than 1000, then the flow is laminar and the friction factor (f) is:

$$f = \frac{16}{N_{RE}}$$

If N_{RE} is between 1000 and 2000, calculate pressure loss both ways and assume the greater.

This approach is approximate and assumes an average surface roughness of commercial pipe.

Fittings can be taken into account by adding their equivalent lengths of pipe to that of the pipe itself.

Several common fitting equivalent lengths are:

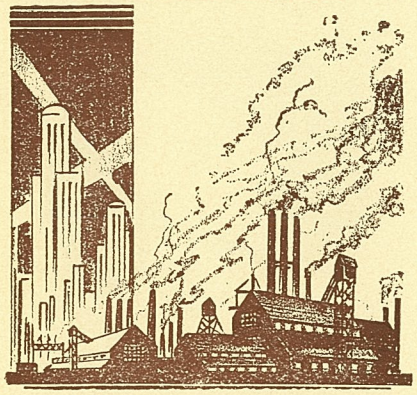
Fitting	Equivalent L/D for Turbulent Flow*
90° el	30
single strainer	150 to 250
duplex strainer	300 to 500

*(less for laminar flow)

Our charts AA-1423, AA-1427A and AA-1416A may also be used directly for estimating pipe friction loss. These charts are based on the above approach and assume L/D of 300.

Because pressure loss is directly proportional to L/D, multiply the chart reading by the total piping system L/D and divide by 300.

INDUSTRIAL FIELD



CLASS 72AA COMPACT TRANSFER VALVES

This is the redesigned line that was made available in less than six months, referred to in Vice President Mills' article.

It should be news as each day brings new uses for this device which many new customers did not know was available. It is the complete answer where it is desired to divert flow from one operating circulatory system to a standby, alternate or duplicate system.

This diversion may be for general servicing, cleaning or process switch over purposes. The application is in general, to continuous fluid flow requirements of such essential importance that the circulatory procedure cannot be interrupted when attention is needed for components and a standby system is made available to which the circulation is transferred by means of a simple swing over lever and even then the diversion of flow is by lessening circulation through one system and increasing through the other until one system is completely shut off and the flow directed completely through the other but at no time is the flow shut off during swing over.

Two applications have acquired for us many new customers:

1. HEAT EXCHANGER APPLICATIONS.

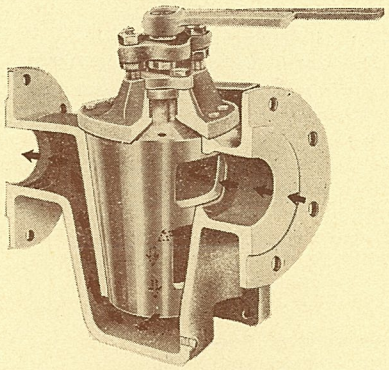
2. CONTINUOUS FILTRATION APPLICATIONS.

There are probably many others and we will appreciate your inquiries.

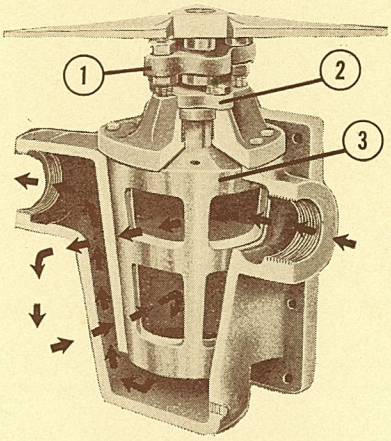
We show in illustration the 72A valve center sections with rectangular ports to clarify the flow diversion. We designed these to produce the most compact assembly with our Class 72A duplex separators.

Excerpts from drawing B-3519B show the 72AA compact series valves with compatible ASA side flanges instead of rectangular flanges.

If you have a flow diversion application, we are sure you will be interested.



FLANGED VALVE
in one position



SCREWED VALVE
in second position

DESIGNED FOR CONTINUOUS FLOW.
PORT INTERCONNECTIONS -
IN POSITION SHOWN - 1 & 2, 3 & 4.
IN OTHER POSITION - 1 & 2', 3' & 4.

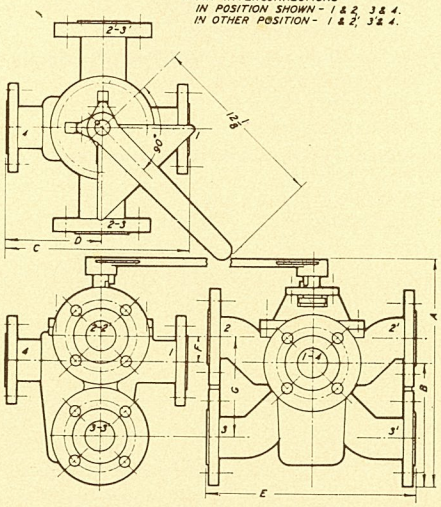


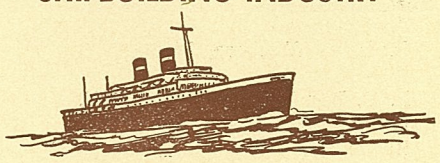
TABLE OF DIMENSIONS - INCHES

MODEL	SIZE	FLG. DIA.	B.C. DIA.	NO. BOLT HOLES	BOLT HOLE DIA.	R.F. DIA.	MIN. APPX. FLG. WGT. IN LBS.	A	B	C ±1/64	D	E ±1/64	F	G
150# ASA FLANGES - 230 PSIG. MAX. W.P.														
72-37 AAFS	1 1/2	5	3 7/8	4	5/8	2 5/8	1/2	70	14 1/2	7 1/8	9 3/8	4 15/16	10	1 6 3/8
72-39 AAFS	2	6	4 3/4	4	3/4	3 5/8	9/16	100	16 3/8	9 5/16	12	6 1/4	12	7/16 6 3/4
72-41 AAFS	2 1/2	7	5 1/2	4	3/4	4 1/8	5/8		17 7/8	10 3/16	12 5/8	6 1/2	13	7/16 7 3/4
72-43 AAFS	3	7 1/2	6	4	3/4	5	11/16		18 7/16	11 3/8	12 1/2	6 7/8	14	1/8 7 3/4
72-47 AAFS	4	9	7 1/2	8	3/4	6 3/16	7/8	305	19 3/4	12 1/16	15 5/8	9	21	2 11/16 10 1/4
300# ASA FLANGES - 600 PSIG. MAX. W.P.														
72-37 AAFHS	1 1/2	6 1/8	4 1/2	4	7/8	2 7/8	3/4	90	15 1/16	8 7/16	9 3/8	4 15/16	10	1 6 3/8
72-39 AAFHS	2	6 1/2	5	8	3/4	3 5/8	13/16	115	16 5/8	9 9/16	12	6 1/4	12	7/16 6 3/4
72-41 AAFHS	2 1/2	7 1/2	5 7/8	8	7/8	4 1/8	15/16		18 1/8	11/16	12 5/8	6 1/2	13	7/16 7 3/4
72-43 AAFHS	3	8 1/4	6 5/8	8	7/8	5	1 1/16	185	17 1/8	10 1/16	12 5/8	6 7/8	18	2 9/16 8 1/2
72-47 AAFHS	4	10	7 7/8	8	7/8	6 3/16	1 3/16	355	20 1/4	12 9/16	15 5/8	9	21	2 11/16 10 1/4
600# ASA FLANGES - 1200 PSIG. MAX. W.P. (300° F. MAX. TEMP.)														
72-33AA FHS-600	1	4 7/8	3 1/2	4	3/4	2	11/16		15 1/8	8 1/2	10 3/8	5 5/8	11	5/16 6 3/8
72-37AA FHS-600	1 1/2	6 1/8	4 1/2	4	7/8	2 7/8	7/8		15 3/8	9 1/8	10 3/8	5 5/8	11	5/16 6 3/8

*PLUS 1/16 R.F. ON 150 # & 300 # FLGS. & 1/4 R.F. ON 600 # FLGS.

MARINE FIELD

SHIPBUILDING INDUSTRY



CLASS 73 DUPLEX SEA VIEW STRAINERS

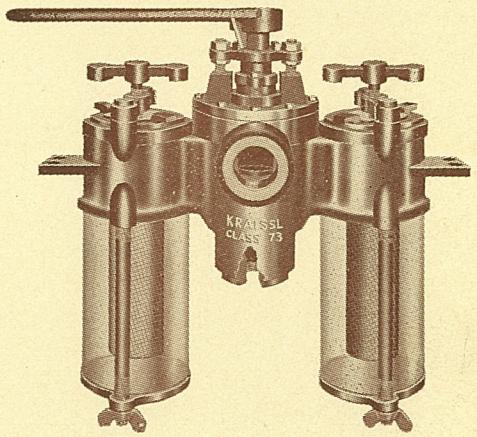
Many of our customers for Class 73 series single Sea View Strainers have told us they were not aware that we had a line of duplex strainers. Why this should be, we do not know as they were on the market before World War II, although recently redesigned to cut costs.

The redesign consisted of changing body dimensions without decreasing straining area or reducing the designed circulatory channels in area as related to the pipe size of each unit.

The essential features of being able to lift out baskets from the top when cleaning is necessary has been retained as contrasted with units that must be completely dismantled to accomplish this. Also tie bolts or studs are exterior to the transparent bodies as contrasted with the tie bolts that are in the liquid circulatory system.

Placing tie bolts exterior to the circulatory system precludes separation of the tie bolt due to corrosion which we understand has happened under the corrosive action of sea water, permitting sea water to rush into the hull when strainers are mounted below the water line.

Please write for our new dimension sheet of the redesigned line of duplex strainers.



SALES REPRESENTATION

HOME OFFICE

We have reserved the areas of Connecticut, Delaware, 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
Robert Bacon Co.
Fruit St., Westboro, Mass.

John S. Stone
P. O. Box 247, Holcomb, N. Y.

Eastern Region
Engineering Associates, Div. Trymac, Inc.
16 West 5th St., Erie, Pa.

Valley Equipment Company
404 Frick Building, Pittsburgh 19, Pa.

Shanklin Company
330 East 25th St., Baltimore, Md.

Southeast Region
L. M. Lee, Jr.
Richmond Federal Bldg., Richmond, Va.

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

Dillon Supply Company
Durham, No. Carolina

Dillon Supply Company
Rocky Mt., No. Carolina

Dillon Supply Company
Goldsboro, North Carolina

Dillon Supply Company
Charlotte, No. Carolina

Boiler Supply Company, Inc.
490 Craighead Street, Nashville, Tenn.
2006 Sutherland Ave., Knoxville, Tenn.

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

Spotswood Parker & Co.
313 Techwood Drive, Atlanta, Ga.

T. W. McCuiston
504 S. W. 69th Ave., Miami, Fla.

North Central Region
Charles R. Davis
2970 W. Grand Blvd., Detroit, Mich.

Hetler Equipment Co.
1904 Clyde Park Ave., S. W.
Grand Rapids, Mich.

Central Region
Wm. G. Taylor
1900 Euclid Bldg., Cleveland, Ohio

Lightfoot Pump & Equipment Co.
1989 Guilford Rd., Columbus, Ohio

The Jordan Engineering Co.
7401 Shewango Way, Cincinnati 43, Ohio

T. A. Heidenreich Co., Inc.
2036 East 46th St., Indianapolis, Ind.

Lowden & Company
3404 N. Harlem St., Chicago, Ill.

A. K. Howell Co.
1001 Bellevue Ave., St. Louis, Mo.

South Central Region
Creole Engineering Co.
2617 Banks Street, New Orleans, La.
3786 Scenic Highway, Baton Rouge, La.

Sterling & Newby Houston Corp
2611 Crocker St.
Houston, Texas

Sterling & Newby—Dallas Corp
4431 Maple Ave.
Dallas 9, Texas

Northwest Region
Bruce P. Rutherford, Inc.
122 First Ave., S. W., Portland, Oregon

Bruce P. Rutherford, Inc.
1954 First Avenue South, Seattle, Wash.

Western Region
A. C. Cope Co.
435 Bryant Street, San Francisco, Cal.

Power Engineering Co.
1806 South State St., Salt Lake City, Utah

Thermo Tech Products Co.—Power Plant
2466 So. Delaware
Denver 23, Colorado

Southwest Region
Walter T. Humes Co.
230 East Anaheim, Wilmington, Cal.

Wagner Hydraulic Equip. Co.
10814 Santa Monica Blvd.
Los Angeles, California

Canada—Ontario and Quebec Provinces
Kirk Equipment Ltd.
1460 Bishop Street
Montreal, Quebec, Canada

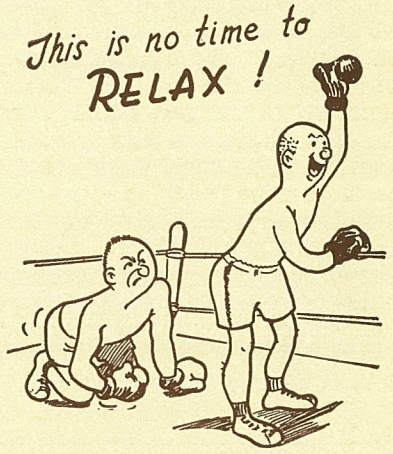
Canada—British Columbia Province
Fred McMeans & Co.
1608 West 5th Avenue
Vancouver, B. C., Canada

The duty officer called a sailor of the watch and said, "Go below and break up that crap game". The sailor appeared to be taking too much time to complete the order so when he returned, duty officer asked, "What took you so long?"

"Well, sir", said the sailor,"I only had two bits to start with".

* * *

Lives of great men oft remind us,
As their histories we learn;
That we often leave behind us,
Letters that we ought to burn.



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