

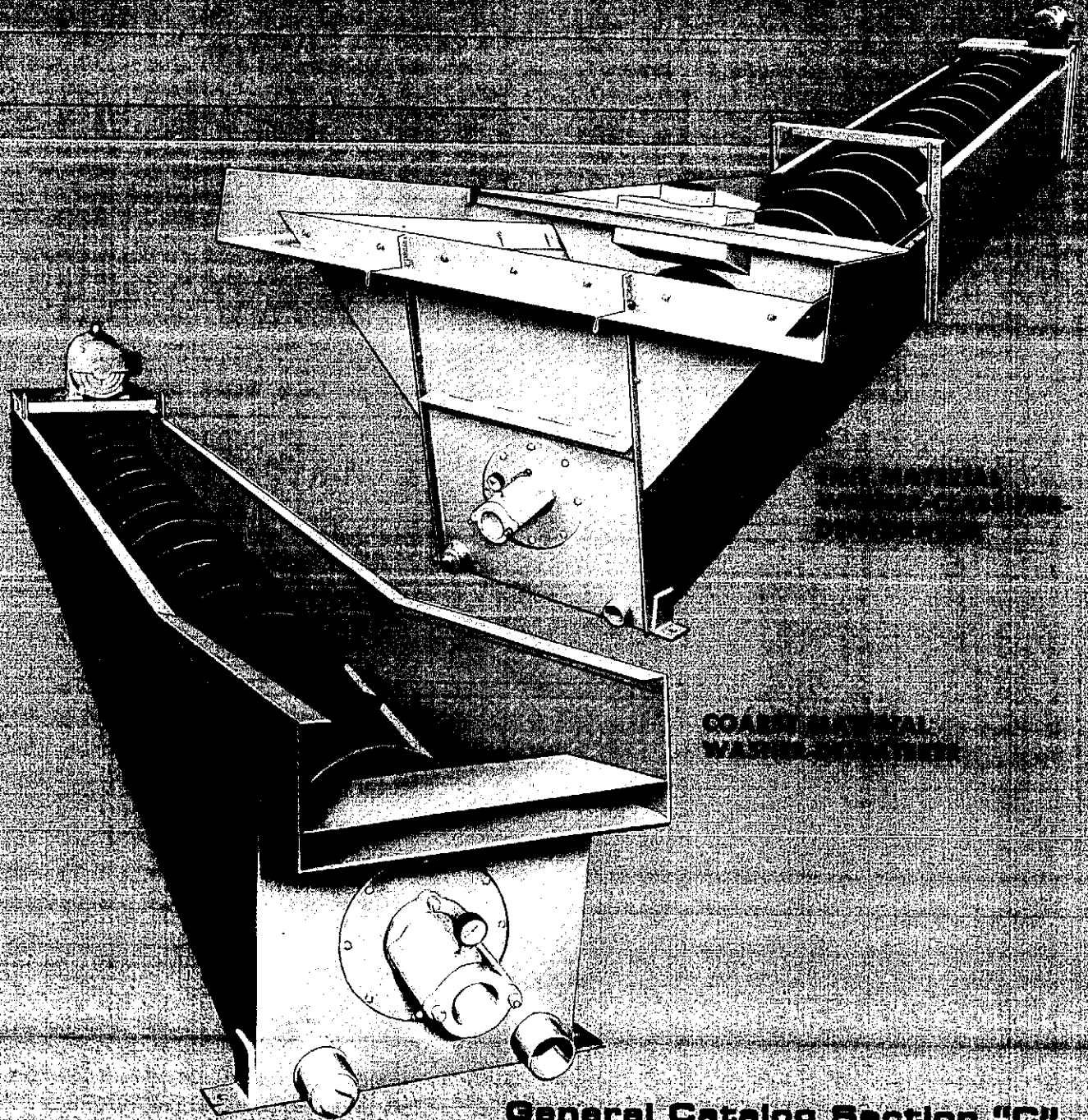
SINCE 1872

EIW

EAGLE IRON
WORKS

EAGLE

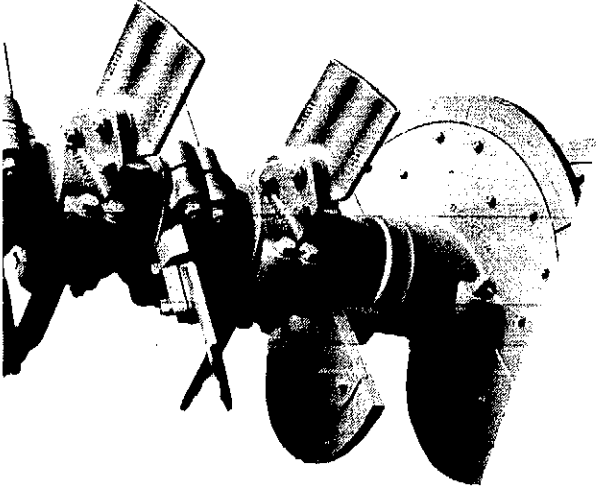
IRON AND STEEL WORK



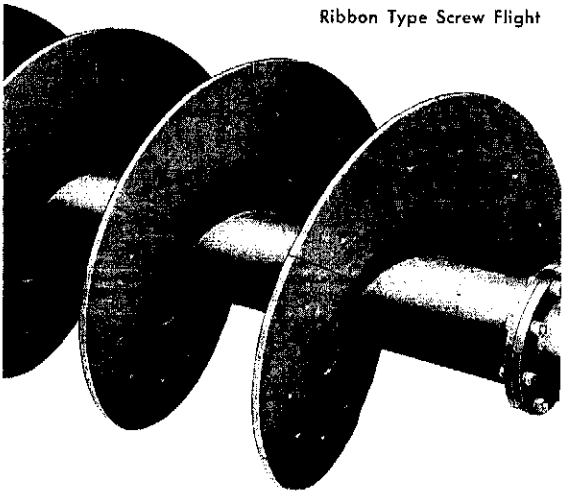
COAL AND MATERIAL
WASHER

General Catalog Section "C"

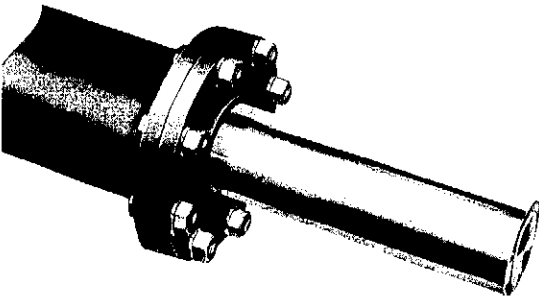
Interchangeable Type Screw Flight



Ribbon Type Screw Flight



Feed End Stub Shaft. Note simple method of connecting to tubular screw shaft by means of flanges.



Two types of screws are furnished on Eagle washers. On 22" to 36" coarse material washer-dewaterers, the sectional, interchangeable flights are furnished. Two screw flights make one complete revolution. The ribbon type screw, as pictured below, is furnished on all sizes of fine material washer-classifier-dehydrators.

36" diameter and smaller coarse material washers have sectional cast iron flights with replaceable ribbon segments cast of Ni-Hard as shown at right side of illustration at left. Sectional screw flights are furnished on coarse material washers because they have been found most suitable for the rugged service requirements. They are mounted on the shaft as shown at left. U-bolt method of securing flights to shaft provides for fast replacement or rapid removal of screw flights to install necessary number of paddle flights when desired. 44" diameter washer has welded spiral of heavy plate and paddle spuds are welded to the shaft.

Paddle flights are placed to encompass shaft and bolted together as shown at left in illustration. Paddles give greater abrading and scrubbing action on tough, hard-to-break-down coarse material. Two hubs with renewable blades make one set of paddle flights and replace one-half revolution screw flight. The corrugated faced paddles are cast of Ni-Hard and both the paddle hubs and screw flights are cast from Eagle's special semi-steel mixture, developed in our own foundry. The semi-steel provides the required strength for grueling service, as well as greatest over-all economy. The Ni-Hard castings have great resistance to abrasion, and are of 600 Brinell hardness throughout, giving great wear-life. The replaceable wear shoes give further economy in lower replacement cost and lower shipping cost.

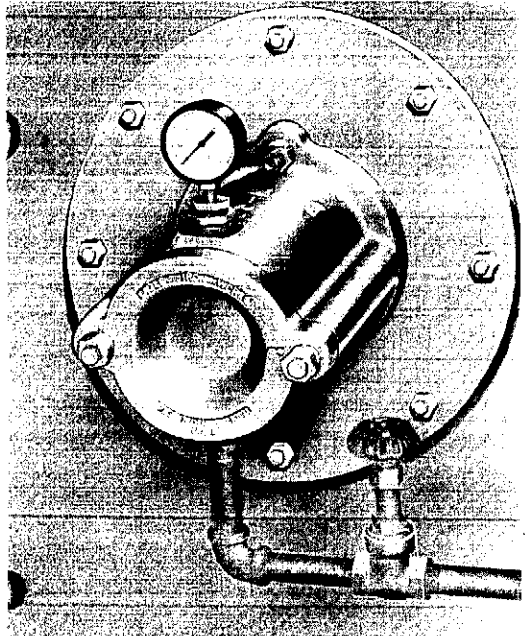
Ribbon type screw is furnished on all single screw and all double screw fine material washer-classifier-dehydrators. Steel segments are welded to form a one-piece screw welded to the tubular steel shaft. The screw is formed by special equipment to insure a uniform spiral.

Surfaces of the ribbon screw that are subjected to wear are protected by segmental Ni-Hard chrome-nickel alloy, wear-resistant shoes which are bolted in place, as shown at left. These shoes are replaceable and are mounted on the up-bound side of the screw. They lap over the edge of the screw to afford full protection.

STUB SHAFT

A feature of all Eagle Washers is the method of supporting the shaft on which the screw flights or paddles are mounted. Flanges at both ends of the flight shaft are bolted to corresponding flanges on the stub shafts—one at the bottom end of tub and one on gear reducer output shaft, for each flight shaft. This method simplifies removal of the shaft on which flights are mounted if it becomes necessary. Stub shaft can be removed through bolt-on plate in tub end. This 3-part shaft lowers replacement costs as any one of the three parts can be replaced separately.

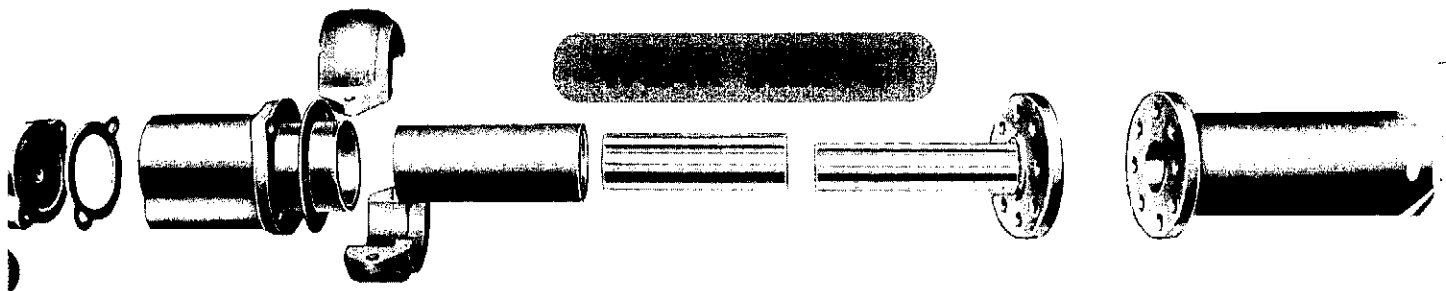
HYDROTEX BEARING



Lower end of shaft, which is beneath the water level, is supported in a special, water-lubricated, Hydrotex marine bearing—all thrust is carried by a spherical roller bearing in gear case at the upper end of tub.

Unequaled for service in this type of work, the Hydrotex marine type bearing, similar to that used on boat propeller shafts, is an exclusive feature in Eagle units—it combines the utmost in durability with simplicity and low cost when replacement is necessary. Unlike ball or roller bearings, the marine type bearing is not subject to immediate failure should bearing surfaces become exposed to abrasive particles. While such particles will accelerate bearing wear, replacements may be made at operator's convenience.

Clean water is used as a lubricant—it is delivered at about 15 gallons per minute to each bearing under a minimum pressure of 25 pounds per square inch. All machines are equipped with pressure gauge, enabling operator to check water pressure to bearing at all times. A bearing protector is clamped to stub shaft inside washer tub, close to bearing housing, in order to maintain water pressure and prevent particles in solution from washing directly into bearing area.

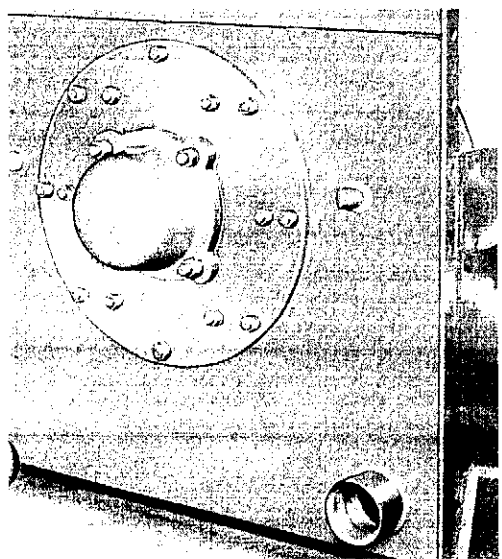


To protect the stub shaft and provide for simple maintenance, a steel wear sleeve is pressed onto the shaft. This wear sleeve is of stainless steel. As the spiral shaft thrust

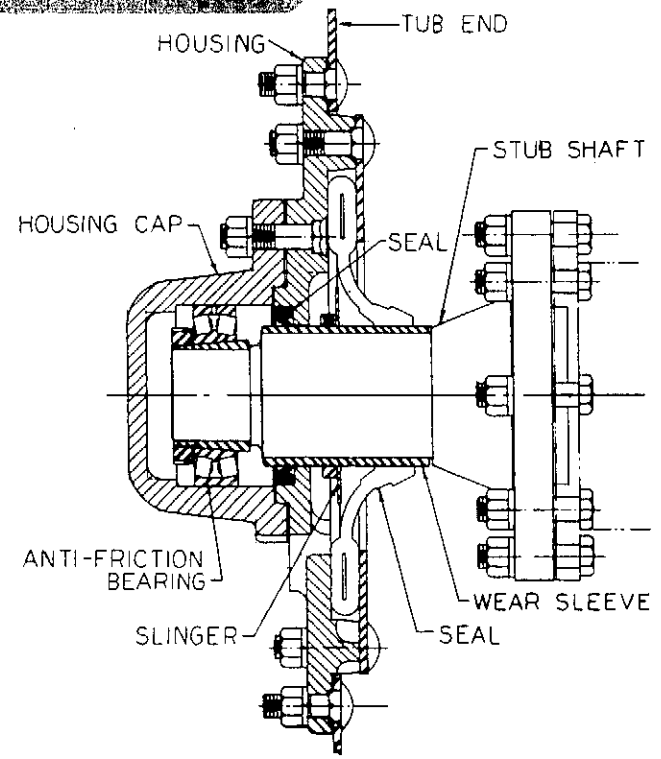
load is carried by the gear reducer output shaft bearings at the upper tub end, there is only a radial load on the lower tub end bearings.

WATER-SEALED OUTBOARD BEARING

In operations where clean water and adequate pressure is not available for Hydrotex bearing operation or where additional water is not desired in the washer, an



alternate lower tub end bearing is available. The assembly shown at left and right, utilizes a stub shaft which is supported by a grease lubricated anti-friction bearing mounted outside the washer tub. A stainless steel wear sleeve on the stub shaft rotates through a pliable rubber seal which is secured to the washer tub. A slinger disk turning with the stub shaft further protects the outboard bearing from possible seal leakage which may occur after extended usage. The special multiple lipped rubber seal, which holds snugly to the wear sleeve by its own configuration and further aided by pressure of fluids within the washer, can be reversed when worn, to provide a new seal surface.



EAGLE COARSE MATERIAL WASHER-DEWATERER

SINGLE SCREW UNIT

Eagle Coarse Material Washer-Dewaterer units are designed to thoroughly scrub and clean gravel or crushed stone up to 2½ inch material size. The cleaning of material is accomplished by the abrading action of the paddles and spiral flights within the tub as the material enters at the lower end. Sufficient water is induced to wash out deleterious material over the trash remover tub end. Dust from crushed stone or soluble clays from gravel are eliminated from the fed material by this abrading and washing action. Deleterious materials of light specific gravity such as twigs, sticks and lignite are trapped by rising current of water within the tub and are overflowed away from the paddle area along with the waste water.

For tougher washing requirements, more paddles can be added to the conveyor shaft to replace the conveyor flights. In this manner, the material being fed into the washer will be retained longer in the scrubbing area for more thorough cleaning. With the addition of more paddles on the conveyor shaft, capacity is reduced and horsepower requirements are increased. With a full set of paddles, capacity is reduced to 50%, as described on page 19.

36" diameter and smaller Coarse Material Screw Washers have sectional flights with replaceable segments cast of

Ni-Hard alloy iron. Each screw flight is one-half revolution. One set of paddles replaces one screw flight. Standard Coarse Material Units are furnished with 4 sets of paddles. Additional paddles furnished in lieu of screw flights if specified by the job recommendation. With more than 6 sets of paddles, horsepower must be increased by one-third.

Gasoline or Diesel Engines for Single Screw Washers quoted upon request. Factory must be consulted on all replacements (of electric motors) by internal combustion engines when furnished either by factory or customer.

Eagle designed and built Washer Front Supports are available at extra cost, and are designed for individual Single Screw Units. Eagle designed motor mounts on drive end of Single Screw Units are standard equipment and are adjustable to facilitate additional height in cases where larger horsepower motors are needed when additional paddles are used on these units.

All Eagle Single Screw Coarse Material Washer-Dewaterers are equipped with flexible resilient couplings on the drive end of the conveyor shafts. Conveyor shafts are driven through the couplings by an Eagle designed and built compound gear reducer drive (see pages 11 and 14).

SPECIFICATIONS—SINGLE SCREW COARSE MATERIAL WASHER-DEWATERER

Screw Dia.....	22"	22"	24"	24"	30"	36"	44"
Tub Length—Feet.....	15	18	15	18	18	18	20
Capacity—Tons per hour.....	45 to 55	45 to 55	60 to 75	60 to 75	100 to 125	150 to 175	200 to 250
Max. Material Size.....	2"	2"	2"	2"	2½"	2½"	3"
*Horse Power Req. (Electric) ..	10	15	15	15	20	30	40
Water Req. (G.P.M. at 25 P.S.I.)	250 to 350	250 to 350	300 to 400	300 to 400	350 to 450	400 to 600	500 to 750
Screw Speed—R.P.M.....	40	40	40	40	35	32	26
Weight of Washer—Pounds	5,250	6,050	6,150	7,100	9,450	12,150	20,600
Loaded Weight—Pounds.....	9,550	10,650	13,850	15,350	22,250	30,350	36,500

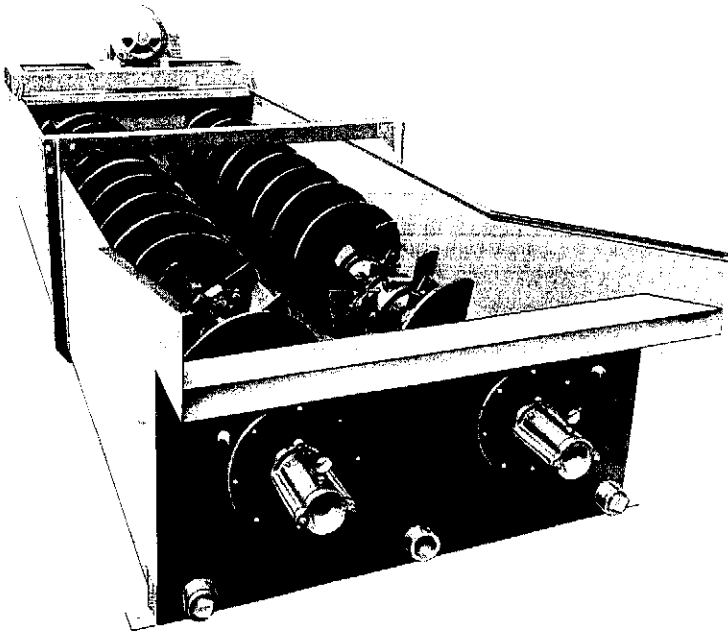
*See footnote below table on page 16.



Single Screw Washer-Dewaterers for coarse material, offered in two lengths, provide drainboard of sufficient length at upper end for effective water removal. Capacities from 45 to 250 tons per hour.

22" to 36" Eagle Coarse Material units are furnished with sectional, interchangeable screw flights because they have established themselves as sufficiently rugged for the application. Additionally, it permits use of one or more sets of paddle flights where conditions often indicate necessity for their use, as shown at top of page 12.

DOUBLE SCREW UNIT



As with Single Screw Coarse Material Units, the Eagle Double Screw Coarse Material Washer-Dewaterers have optional sets of paddles in place of screw flights. One set of paddles replaces one half screw revolution. Standard Coarse Material Units furnished with 8 sets of paddles, 4 sets on each shaft. Additional paddles furnished in lieu of screw flights, if specified by the job recommendation. With more than 12 sets of paddles (6 sets on each shaft) horsepower must be increased by one-third.

Gasoline or Diesel Engines for Double Screw Washers quoted upon request. Factory must be consulted on all replacements (of electric motors) by internal combustion engines when furnished either by factory or customer.

Eagle designed and built Washer Front Supports are available at extra cost, and are designed for individual Double Screw Units. Eagle designed motor mounts on drive end of Double Screw Units are adjustable to facilitate additional height in cases where larger horsepower motors are needed when additional paddles are used on these Units.

All Eagle Double Screw Coarse Material Washer-Dewaterers are equipped with flexible resilient couplings on the drive end of the conveyor shafts. Conveyor shafts are driven through the couplings by an Eagle designed and built compound gear reducer drive (see pages 11 and 14).

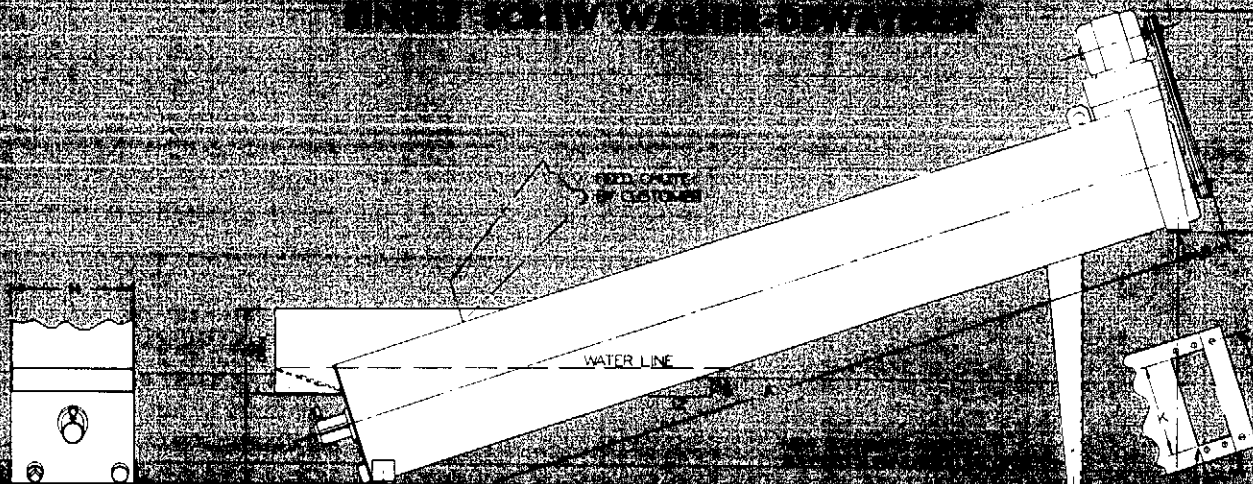
For other specific problems that cannot be handled by Coarse Material Washer-Dewaterers, refer to Section "D" on Sol-Clay Washers and Log Washers.

SPECIFICATIONS - DOUBLE SCREW COARSE MATERIAL WASHER-DEWATERERS			
Screw Diameter.....	30"	36"	44"
Tub Length - Feet.....	18	18	20
Capacity—Tons per hour.....	200 to 250	300 to 350	400 to 500
Maximum Material size.....	2½"	2½"	3"
*Horse Power Req. (Electric).....	40	50	75
Water Req. (G.P.M. at 25 P.S.I.).....	600 to 800	700 to 900	900 to 1100
Screw Speed—R.P.M.....	35	32	26
Weight—Pounds.....	17,150	22,000	34,400
Loaded Weight—Pounds.....	35,350	49,800	69,000

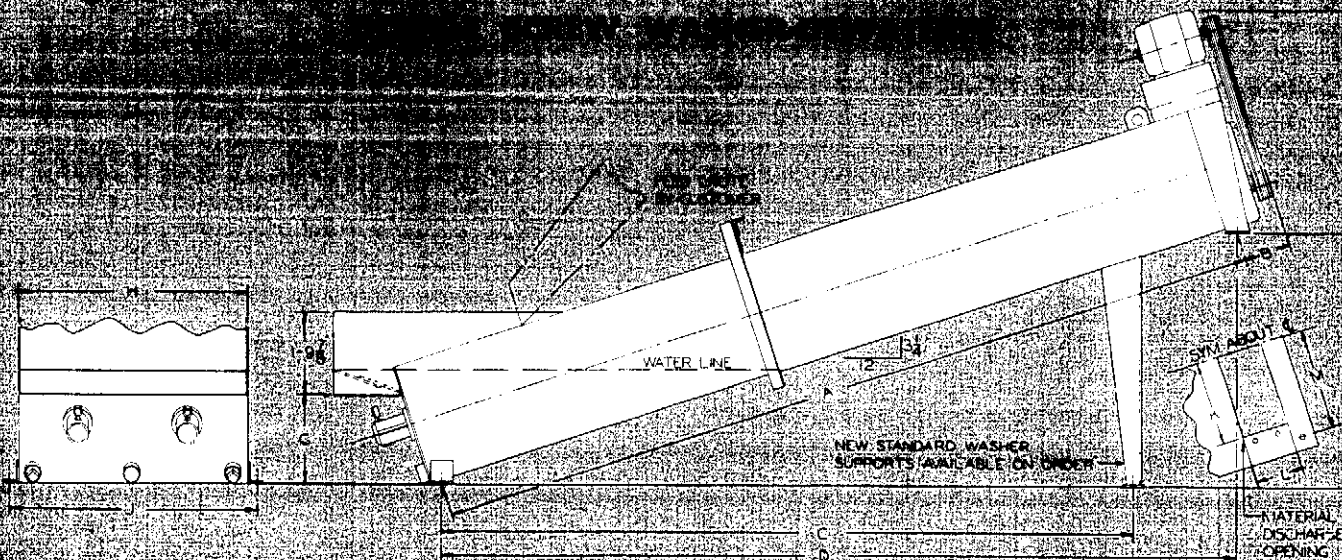
* Power requirements are based on electric motors and on handling gravel. Ample horsepower is provided to handle the maximum sized material set forth in the specifications. If the washer is handling a high percentage of this maximum sized material, or if the washer is handling crushed stone or ore, the capacity of the unit will be reduced from that set forth in specifications. Installation of paddles in place of screw flights will also reduce capacity slightly and if more than six sets of paddles are employed on each conveyor shaft, the larger required electric motors will be employed. When replacing electric motor with gasoline or diesel engine, multiply the electric motor horsepower by 1½ and select an engine with a corresponding continuous horsepower—if continuous horsepower is not given, use 80% of maximum horsepower given for the engine.

INSTALLATION DIMENSIONS

LINE SAW WATER SYSTEM



Flight Dia.	Washer Length	H.P. Req.	A	B	C	D	E	F	G	H	J	K	L	M
22"	15'	10	14'-9"	12 $\frac{1}{8}$ "	13'-0"	14'-3 $\frac{7}{8}$ "	3'-6 $\frac{3}{8}$ "	8'-4 $\frac{1}{4}$ "	1'-10"	2'-6 $\frac{1}{2}$ "	2'-11 $\frac{1}{2}$ "	1'-10"	9"	2'-2 $\frac{1}{2}$ "
22"	18'	15	17'-9"	12 $\frac{1}{8}$ "	13'-0"	17'-2 $\frac{11}{16}$ "	4'-3 $\frac{5}{8}$ "	9'-1 $\frac{7}{8}$ "	1'-10"	2'-6 $\frac{1}{2}$ "	2'-11 $\frac{1}{2}$ "	1'-10"	9"	2'-2 $\frac{1}{2}$ "
24"	15'	15	14'-9"	10 $\frac{1}{2}$ "	13'-0"	14'-3 $\frac{11}{16}$ "	3'-7 $\frac{1}{4}$ "	8'-5 $\frac{3}{8}$ "	1'-11 $\frac{1}{8}$ "	2'-8 $\frac{1}{2}$ "	3'-1 $\frac{1}{2}$ "	2'-0"	9"	2'-2"
24"	18'	15	17'-9"	10 $\frac{1}{2}$ "	13'-0"	17'-2 $\frac{1}{16}$ "	4'-4 $\frac{1}{2}$ "	9'-2 $\frac{5}{8}$ "	1'-11 $\frac{1}{8}$ "	2'-8 $\frac{1}{2}$ "	3'-1 $\frac{1}{2}$ "	2'-0"	9"	2'-2"
30"	18'	20	18'-0"	1'-5 $\frac{3}{8}$ "	13'-0"	17'-6 $\frac{1}{8}$ "	4'-2 $\frac{3}{8}$ "	9'-9 $\frac{5}{8}$ "	2'-6 $\frac{3}{4}$ "	3'-4 $\frac{1}{2}$ "	3'-9 $\frac{1}{2}$ "	2'-6"	12"	2'-6"
36"	18'	30	18'-0"	1'-10 $\frac{1}{8}$ "	13'-0"	17'-6 $\frac{1}{8}$ "	4'-1 $\frac{1}{8}$ "	10'-8 $\frac{1}{2}$ "	3'-0 $\frac{1}{2}$ "	3'-10 $\frac{1}{2}$ "	4'-3 $\frac{1}{2}$ "	3'-0"	12"	3'-6 $\frac{1}{2}$ "
44"	20'	40	19'-9 $\frac{1}{4}$ "	2'-0 $\frac{1}{4}$ "	15'-0"	19'-2 $\frac{7}{8}$ "	4'-7"	12'-0 $\frac{1}{4}$ "	3'-8 $\frac{1}{2}$ "	4'-10 $\frac{3}{4}$ "	5'-3 $\frac{3}{4}$ "	4'-0"	12"	4'-6"



Note: Dimensions not for construction — Request Certified Installation Drawing

Flight Dia.	Washer Length	H.P. Req.	A	B	C	D	E	F	G	H	J	K	L	M
30"	18'	40	18'-0"	1'-6 $\frac{7}{16}$ "	13'-0"	17'-6 $\frac{1}{8}$ "	4'-2 $\frac{1}{4}$ "	10'-2 $\frac{3}{4}$ "	2'-6 $\frac{3}{4}$ "	6'-0 $\frac{1}{2}$ "	6'-5 $\frac{1}{2}$ "	2'-0"	12"	2'-10"
36"	18'	50	18'-0"	2'-2 $\frac{1}{8}$ "	13'-0"	17'-4 $\frac{3}{4}$ "	4'-7 $\frac{1}{16}$ "	11'-7 $\frac{3}{4}$ "	3'-0 $\frac{1}{2}$ "	7'-0 $\frac{1}{2}$ "	7'-5 $\frac{1}{2}$ "	2'-4"	12"	3'-4"
44"	20'	75	19'-9 $\frac{3}{8}$ "	2'-0 $\frac{1}{8}$ "	15'-0"	19'-1"	4'-9 $\frac{1}{2}$ "	11'-1"	3'-8 $\frac{1}{2}$ "	8'-8 $\frac{3}{4}$ "	9'-1 $\frac{3}{4}$ "	3'-0"	16"	4'-0"