KINNEY

AUTOMATIC SELF-CLEANING STRAINERS

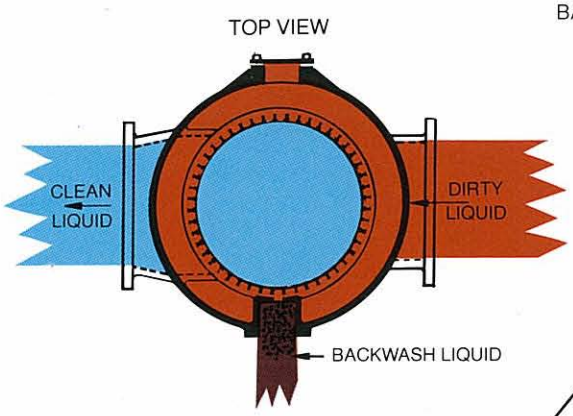
S.P.KINNEY

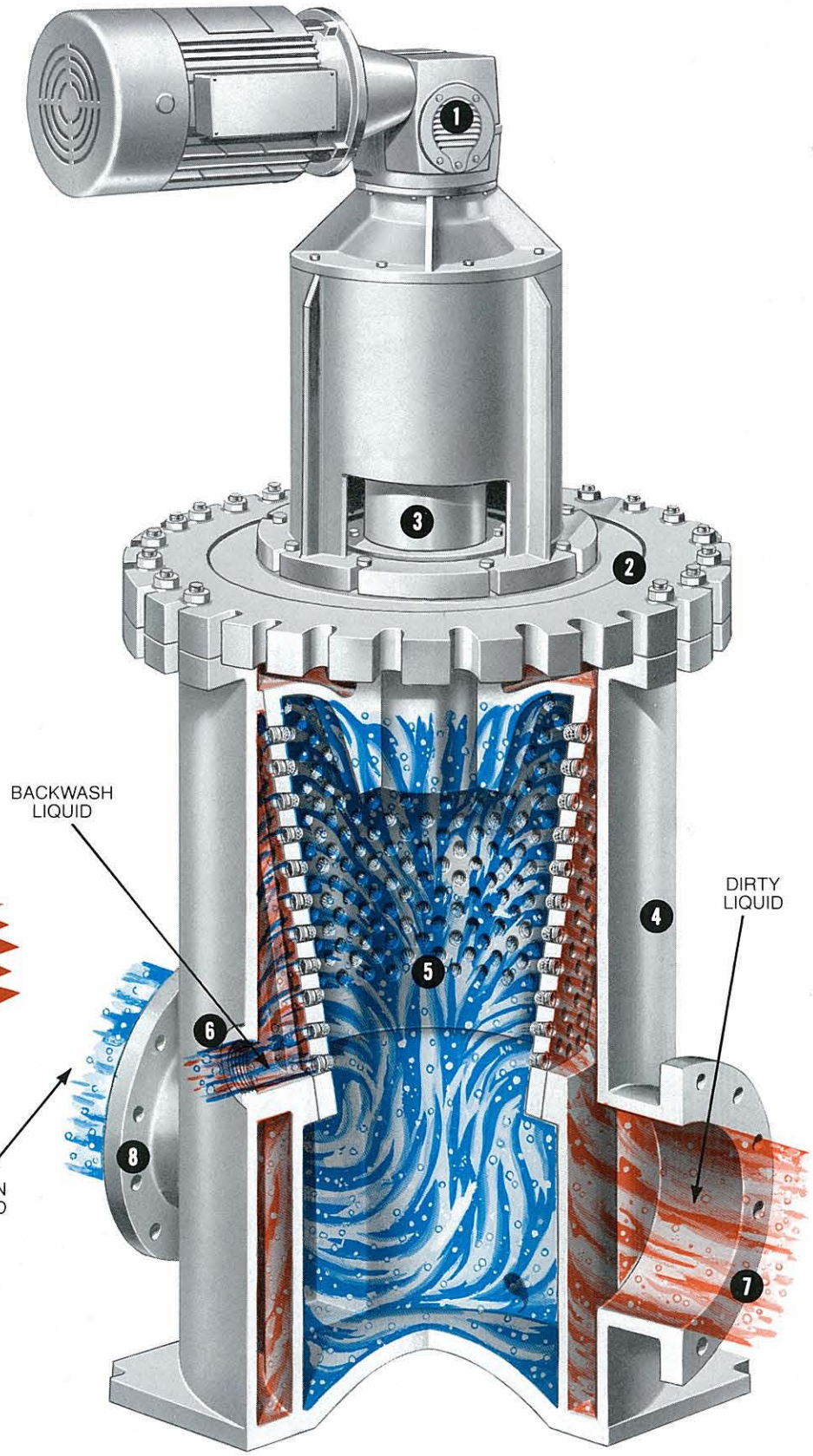
OVER 10,000 SATISFACTORY INSTALLATIONS - WORLDWIDE

MODEL A

for operation under positive pressure

1. strainer drive
2. cover
3. shaft
4. body
5. drum . . . tapered for vertical adjustment—drilled and tapped to receive various types of straining media
6. backwash outlet
7. inlet
8. outlet





APPLICATION

Designed for continuous removal of suspended particles from all types of liquids. Applications are in industrial plants using river, lake, well, or sea water for cooling, descaling, bearing lubrication, spraying, quenching, and similar purposes. Pipeline sizes: 2" - 60" & larger.

Liquids other than water, such as chemicals, acids, white water (paper mills), sewage, and ammonia flushing liquor (coke plants) can also be effectively strained.

INSTALLATION

Installation is made on the discharge side of a pump or in any piping system operating under a positive pressure. The minimum working pressure required to effectively clean the straining media is 20 psi. The strainer is compact with small face-to-face, width, and height dimensions.

DESIGN

The strainer consists of a cylindrical drum with a number of threaded holes containing one of many types of straining media. The drum is supported on a rotating shaft fitted with bearings and is contained in a body having a vertical backwash slot opening adjacent to the drum surface.

OPERATION

The liquid to be strained enters the inlet connection located in the lower portion of the body and flows around the outer surface of the drum. The suspended particles are retained in the media pockets and the clean liquid passes through the media to the inside and bottom opening of the drum—leaving the body at the outlet connection located diametrically opposite the inlet.

BACKWASH

As each row of straining media passes the backwash slot, a reversal of flow occurs, flushing the suspended particles from the media pockets. This reversal of flow is caused by a pressure differential between the interior of the strainer and atmosphere. The backwash flow rate is exceptionally low and will vary, depending on the amount of suspended particles in the liquid. The backwash piping should discharge into an open funnel immediately after the backwash valve.

AUTOMATIC BACKWASH CONTROL

In lieu of a manually operated valve on the backwash outlet line, an automatic control can be furnished to permit intermittent backflushing. This control consists of a motor or pneumatic cylinder operated ball valve, actuated by a timer or a pressure differential switch (or both).

ADJUSTMENT AND SHEARING ACTION

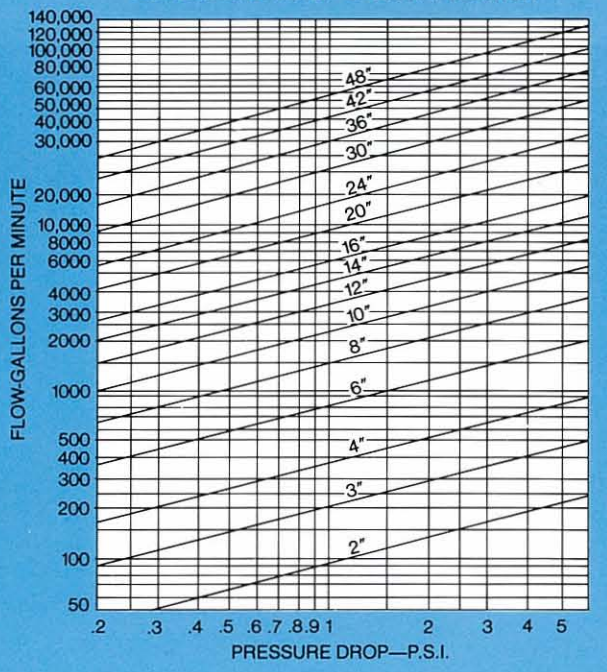
The clearance between the backwash slot and the drum is equal to or smaller than the opening presented in the media—and can be adjusted easily by two locknuts on the threaded part of the top section of the shaft. The backwash slot contains a knife-like edge which enables the strainer to shear debris such as wood, shells, fish, and other suspended materials which may extend beyond the surface of the drum—with no resultant damage to the drum, straining media, or drive unit.

INSPECTION

The straining media can be easily inspected or changed through an opening in the side of the strainer body. The cover of this inspection opening can be furnished with the same material as the body construction - or with a transparent cover to permit visual inspection of the straining media while the strainer is in operation. Or the entire drum assembly can be lifted from the body for inspection or changing of media.

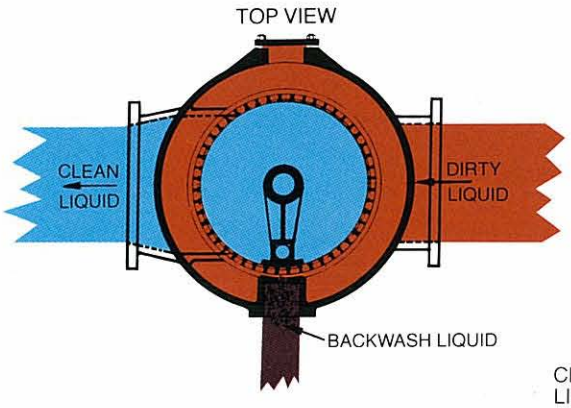
MODEL A

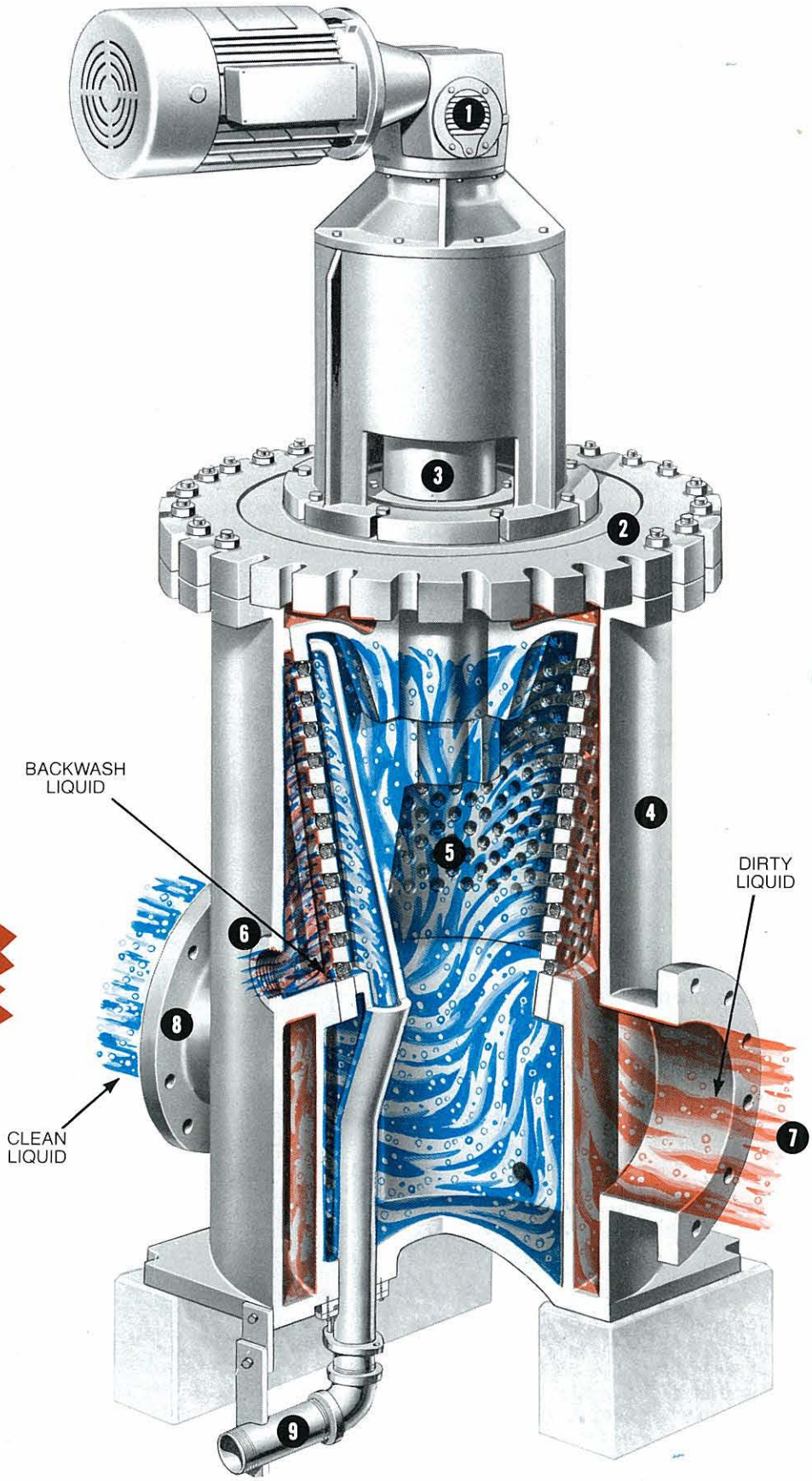
TYPICAL CHART INDICATING FLOW VS. PRESSURE DROP
WITH STRAINING MEDIA IN A CLEAN CONDITION
ACTUAL SIZE VS. DP UPON APPLICATION



MODEL AP
for low working pressures

1. strainer drive
2. cover
3. shaft
4. body
5. drum . . . tapered for vertical adjustment—drilled and tapped to receive various types of straining media
6. backwash outlet
7. inlet
8. outlet
9. backwash shoe inlet





APPLICATIONS

Designed for continuous removal of suspended particles from all types of liquids. Applications are in industrial plants using river, lake, well, or sea water for cooling, descaling, bearing lubrication, spraying, quenching, and similar purposes. Pipeline sizes: 2" - 60" & larger.

Liquids other than water, such as chemicals, acids, white water (paper mills), sewage, and ammonia flushing liquor (coke plants) can also be effectively strained.

INSTALLATION

Used when working pressure is low. The strainer is compact —with small face-to-face, width, and height dimensions.

DESIGN

The strainer consists of a cylindrical drum with a number of threaded holes containing one of many types of straining media. The drum is supported on a rotating shaft fitted with bearings and is contained in a body having a vertical backwash slot opening. A pressure backwash shoe is inserted inside the drum, directly opposite the backwash slot.

OPERATION

The liquid to be strained enters the inlet connection located in the lower portion of the body and flows around the outer surface of the drum. The suspended particles are retained in the media pockets and the clean liquid passes through the media to the inside and bottom opening of the drum—leaving the body at the outlet connection located diametrically opposite the inlet.

BACKWASH

High pressure liquid from the discharge side of the pump or from some other source is diverted to the backwash shoe. As each row of straining media passes between the backwash shoe and the backwash slot, the high pressure liquid flushes the suspended particles from the media. The amount of high pressure liquid needed to effect proper backflushing is low and will vary, depending on the amount of suspended particles in the liquid being strained. The inlet and outlet valves are kept open partially in order to obtain a minimum pressure drop across the strainer with low wastage. Periodically, these valves should be opened all the way to obtain a more thorough cleaning action. The backwash piping should discharge into an open funnel immediately after the backwash outlet valve.

AUTOMATIC BACKWASH CONTROL

In lieu of manually operated backwash valves, an automatic control can be furnished to permit intermittent backflushing. This control consists of motor or pneumatic cylinder operated ball valves (one at the backwash inlet and one at the backwash outlet), actuated by a timer.

ADJUSTMENT AND SHEARING ACTION

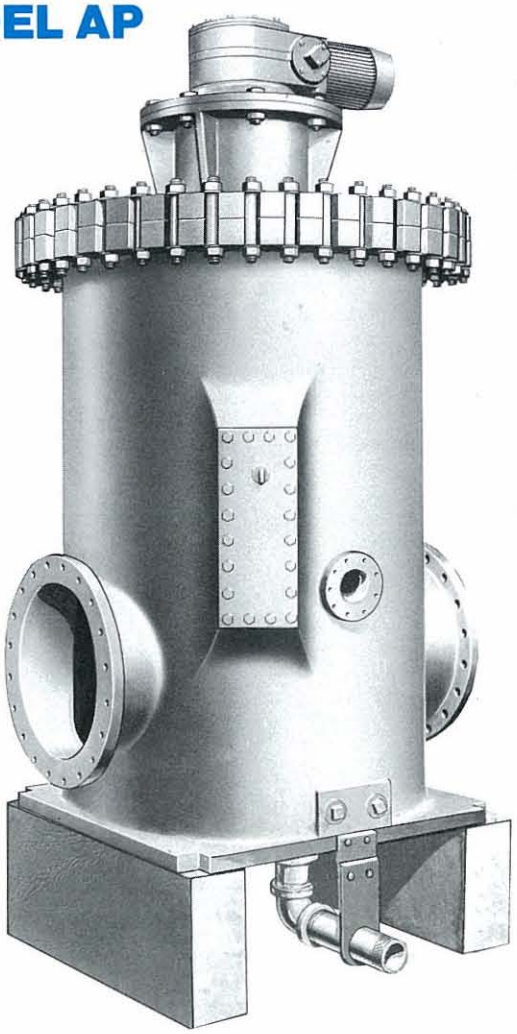
The clearance between the backwash slot and the drum and the clearance between the drum and the backwash shoe is equal to or smaller than the opening presented in the media. Adjustment of the clearance between the backwash slot and the drum is accomplished by two locknuts on the threaded part of the top section of the shaft. The clearance between the drum and the backwash shoe is adjusted at the bottom of the backwash shoe.

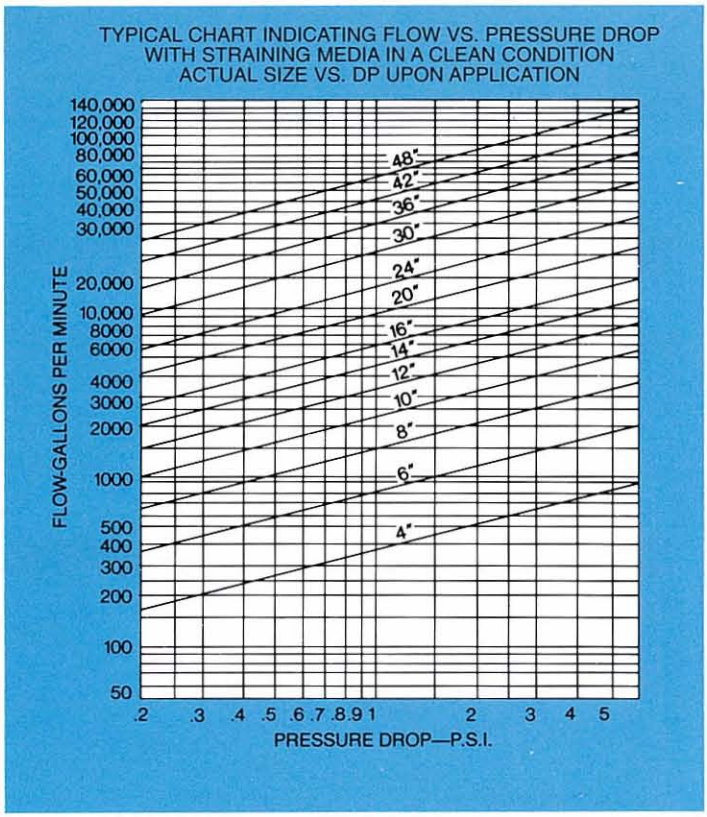
The backwash slot contains a knife-like edge which enables the strainer to shear debris such as wood, shells, fish, and other suspended materials which may extend beyond the surface of the drum—with no resultant damage to the drum, straining media, or drive unit.

INSPECTION

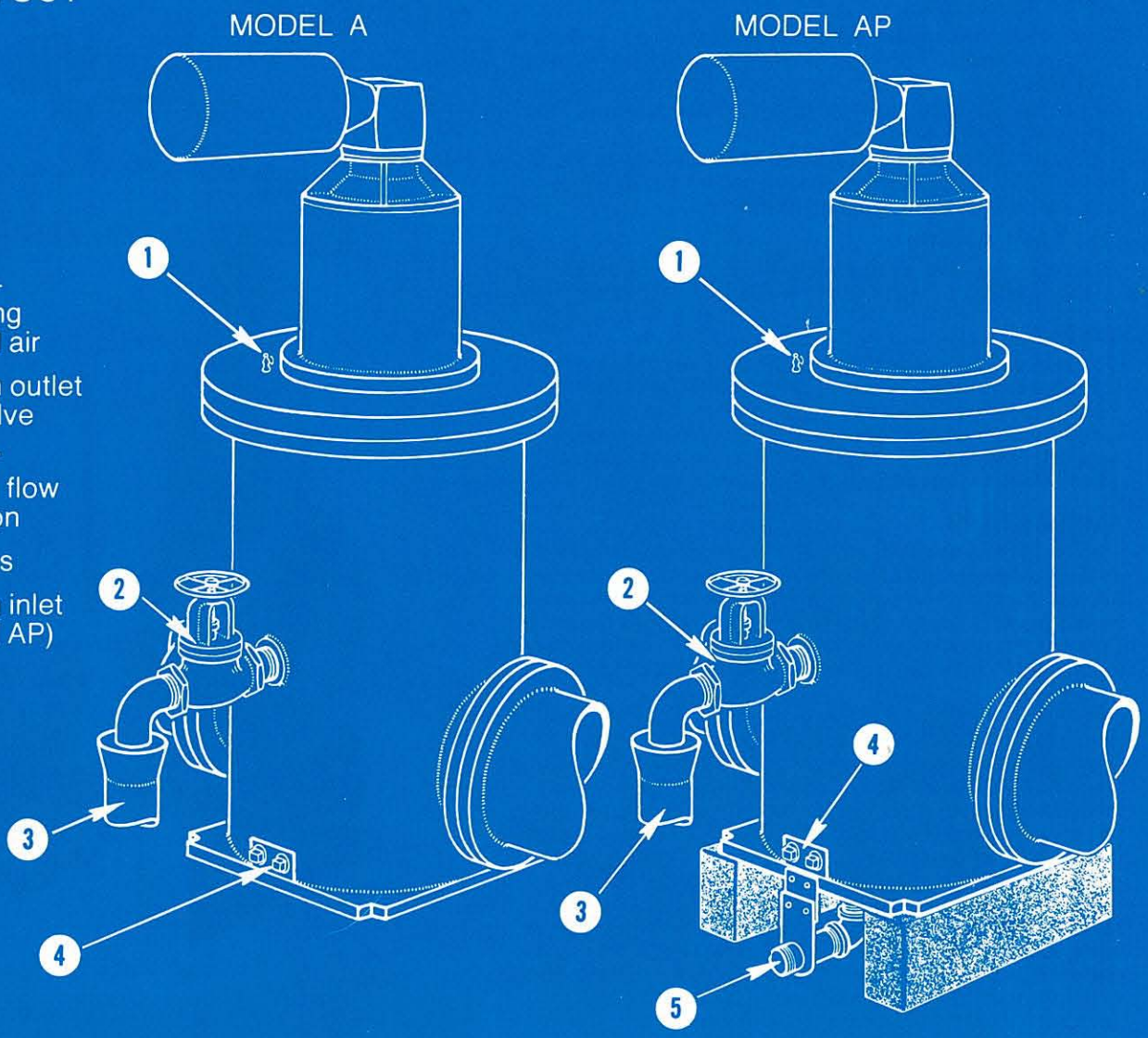
The straining media can be easily inspected or changed through an opening in the side of the strainer body. The cover of this inspection opening can be furnished with the same material as the body construction - or with a transparent cover to permit visual inspection of the straining media while the strainer is in operation. Or the entire drum assembly can be lifted from the body for inspection or changing of media.

MODEL AP





PIPING LAYOUT



CONSTRUCTION

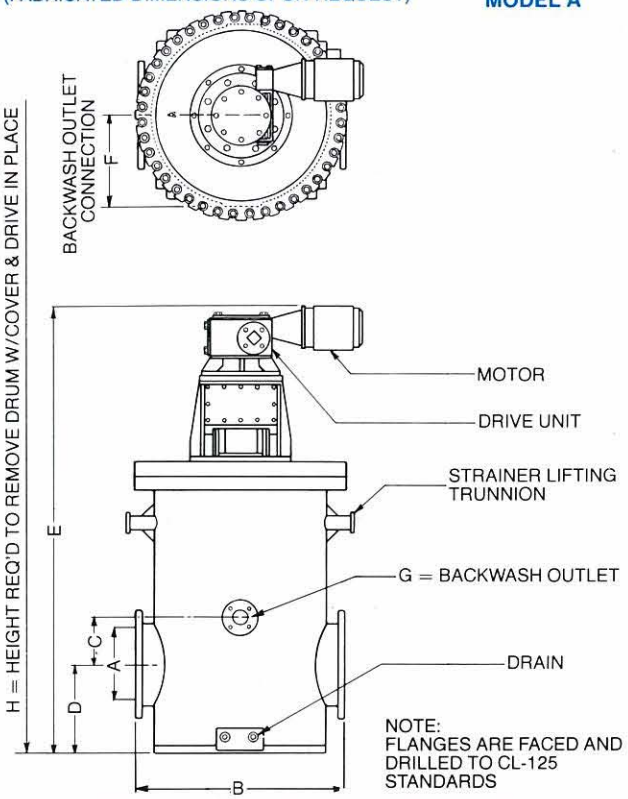
MODEL A				
PART	**STANDARD**	**SEA WATER**	**WHITE WATER**	**AMMONIACAL LIQUOR**
BODY	Cast Iron	Cast Iron	Cast Iron	Cast Iron
DRUM	Cast Iron	Aluminum Bronze	Stainless Steel	Cast Iron
MEDIA	As Specified	As Specified	As Specified	As Specified
MEDIA RETAINERS	Delrin	Delrin	Delrin	Stainless Steel
SHAFT	Steel	Stainless Steel	Stainless Steel	Stainless Steel

MODEL AP				
PART	**STANDARD**	**SEA WATER**	**WHITE WATER**	**AMMONIACAL LIQUOR**
BODY	Cast Iron	Cast Iron	Cast Iron	Cast Iron
DRUM	Cast Iron	Aluminum Bronze	Stainless Steel	Cast Iron
MEDIA	As Specified	As Specified	As Specified	As Specified
MEDIA RETAINERS	Delrin	Delrin	Delrin	Stainless Steel
SHAFT	Steel	Stainless Steel	Stainless Steel	Stainless Steel
BACKWASH SHOE	Cast Iron	Aluminum Bronze	Stainless Steel	Cast Iron

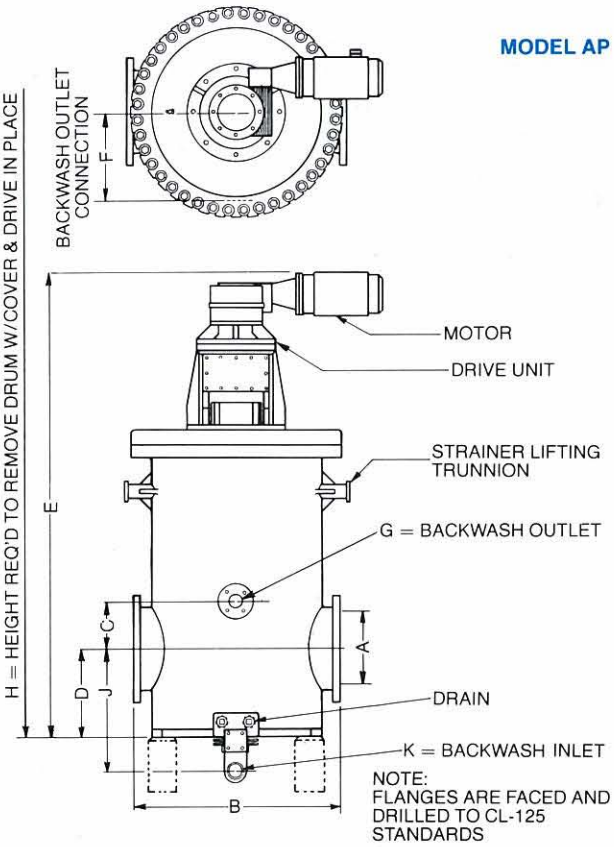
DIMENSIONS (CAST IRON UNITS)

(FABRICATED DIMENSIONS UPON REQUEST)

MODEL A



MODEL AP



MODEL A

STRAINER SIZE-A	DIMENSIONS (INCHES)							MOTOR H.P.	APPROX. SHIP. WT. LBS.
	B	C	D	E	F	G	H		
2▲	18	1	4	36	6¾	1¼ ▲	42	½	460
3▲	18½	1	4½	38½	6¾	1½ ▲	45½	½	525
4	18½	1¼	5	37	6¾	2▲	49	½	625
6	21	5	9	49	8⅝	2▲	60¾	¾	1,100
8	26	6⅛	9½	58½	10½	2▲	80¼	¾	1,800
10	31	8¼	11	65⅛	13	3▲	89⅜	¾	2,500
12	36	9¾	12½	81⅛	14¾	3▲	111⅞	1	4,500
14	41	10½	14½	83⅞	17⅝	3*	115	1	6,100
16	45	10½	19¼	101¾	19⅛	3*	139¾	1½	8,300
20	52	13	20	106½	22⅜	4*	148	1½	11,200
24	62	11⅝	23¾	120¾	26⅝	4*	174¾	3	16,800
30	72	12½	20	115¾	31	6*	169¾	3	23,250
36	86	32½	25	165¼	37½	6*	224¼	5	38,500
42	100	36	27	189¼	39½	6*	259¼	5	46,750
48	120	45	55½	227	52¾	8*	336	7½	58,000

MODEL AP

STRAINER SIZE-A	DIMENSIONS (INCHES)									MOTOR H.P.	APPROX. SHIP. WT. LBS.
	B	C	D	E	F	G	H	J	K		
4	18½	1¼	5	37	6¾	2▲	49	7	1½	½	645
6	21	5	9	49	8⅝	2▲	67⅞	6⅝	1½	¾	1,140
8	26	6⅛	9½	58½	10½	2▲	97¼	15½	1½	¾	1,890
10	31	8¼	11	65⅛	13	3▲	108⅛	16¼	2	¾	2,600
12	36	9¾	12½	81⅜	14¾	3▲	128⅜	18½	2	1	4,625
14	41	10½	14½	83⅞	17⅝	3*	140	21 3/16	2½	1	6,260
16	45	10½	19¼	101¾	19⅛	3*	169¼	26½	3	1½	8,775
20	52	13	20	106½	22⅜	4*	192½	28⅛	4	1½	11,830
24	62	11⅝	23¾	120¾	26⅝	4*	209½	32	4	3	17,400
30	72	12½	20	115¾	31	6*	210 7/16	27½	6	3	24,000
36	86	32½	25	165¼	37½	6*	281¼	39	6	5	39,950
42	100	36	27	189¼	39½	6*	305¼	41	6	5	48,500
48	120	45¼	31¼	202¾	52¾	8*	336	36	4	7½	57,000

*Two backwash openings ▲ Pipe tap Do not use for construction—certified prints will be furnished

KINNEY STRAINING MEDIA

A LARGE VARIETY OF STRAINING MEDIA IS AVAILABLE FOR EVERY CONCEIVABLE APPLICATION. ALL THE FOLLOWING TYPES AND SIZES ARE THE SAME DIAMETER TO PERMIT RAPID INTERCHANGEABILITY SHOULD A DIFFERENT RANGE OF STRAINING BE DESIRED. BOTH OF THESE FEATURES ARE UNIQUE WITH THE KINNEY AUTOMATIC STRAINER.

WIRE MESH CONES (STAINLESS STEEL)

Ideal for removal of granular materials such as dirt, sand, silt, gravel, and stones. Available in meshes of 10 x 10, 20 x 20, 40 x 40, 60 x 60, Micron Ranges 178, 152, 95, 75 and 40. Other sizes available upon request

SLOTTED CONES (DELRIN, STAINLESS STEEL, OR BRONZE)

Suitable for removal of fibrous materials such as grass, roots, twigs, and fibre. There are no sharp edges for entanglement of debris. Size of slots range from .375" to .010".

PERFORATED DISCS (DELRIN)

Also suitable for removal of fibrous materials. Tapered holes and smooth surface repels matting of debris. Sizes: 1/8", 1/16", 1/32" and 1/64".

PERFORATED CONES (STAINLESS STEEL)

An all purpose media for removal of either granular or fibrous materials. Sizes: 1/8", 1/16" and 1/32".

RETAINER RINGS (DELRIN, STAINLESS STEEL, OR BRONZE)

Threaded retainer rings securely hold straining media in place in the drum.

QUALITY CONSTRUCTION ALL STRAINERS ARE DESIGNED, CONSTRUCTED AND HYDROSTATICALLY TESTED - TO ASSURE ABSOLUTE SATISFACTORY PERFORMANCE. OUR SHOPS ARE ALSO CERTIFIED TO FURNISH SPECIAL QUALITY STRAINERS TO SECTION VIII (U STAMP) AND TO SECTION III (N STAMP - NUCLEAR) OF THE ASME BOILER AND PRESSURE VESSEL CODE.

S. P. KINNEY ENGINEERS, INC.

143 FIRST AVE. • P.O. BOX 445 • CARNEGIE, PENNSYLVANIA 15106-0444 USA
PHONE: (412) 276-4600
FAX: (412) 276-6890
http://www.spkinney.com
email: info@spkinney.com

SALES REPRESENTATION THROUGHOUT THE WORLD; ALSO LICENSEES IN GERMANY AND JAPAN.

Rev. 2/05
Printed in USA
100M