



# Automatic Scraper-Strainers



**LARGE  
SOLIDS**



**CUSTOM  
BUILT**



**COOLING &  
INTAKE WATER**  
**BLACK LIQUOR**  
**WASTEWATER**  
PULP&PAPER  
OIL INDUSTRY  
CHEMICALS  
FOOD  
TEXTILES  
**HEAVY  
SLURRIES**



# TECHNICAL SPECIFICATIONS

## SCRAPER-STRAINER AUTOMATIC CONTROL SYSTEMS

### MAJOR COMPONENTS OF THE SYSTEM

**1** Local control and indication for scraper motor, blowdown actuator and differential pressure controller: switches, lights, disconnects, alarms, timers and screens as required.

**2** Circuit breaker protection with magnetic starter & overload for

**3** PLC-based control system with adjustable timers for scraper and blowdown opera-

**4** Differential pressure override protection and monitoring

**5** Blowdown valve actuation: electric or pneumatic

**6** Pre-wired and tested for easy installation

### CONTROL OPTIONS

**A** 120V  
230V  
380V  
400V  
460/480V  
575V  
1 PH or 3 PH,  
50 or 60 Hz

**B** Enclosure construction in FRP or SS / NEMA 4/12, NEMA 4X,

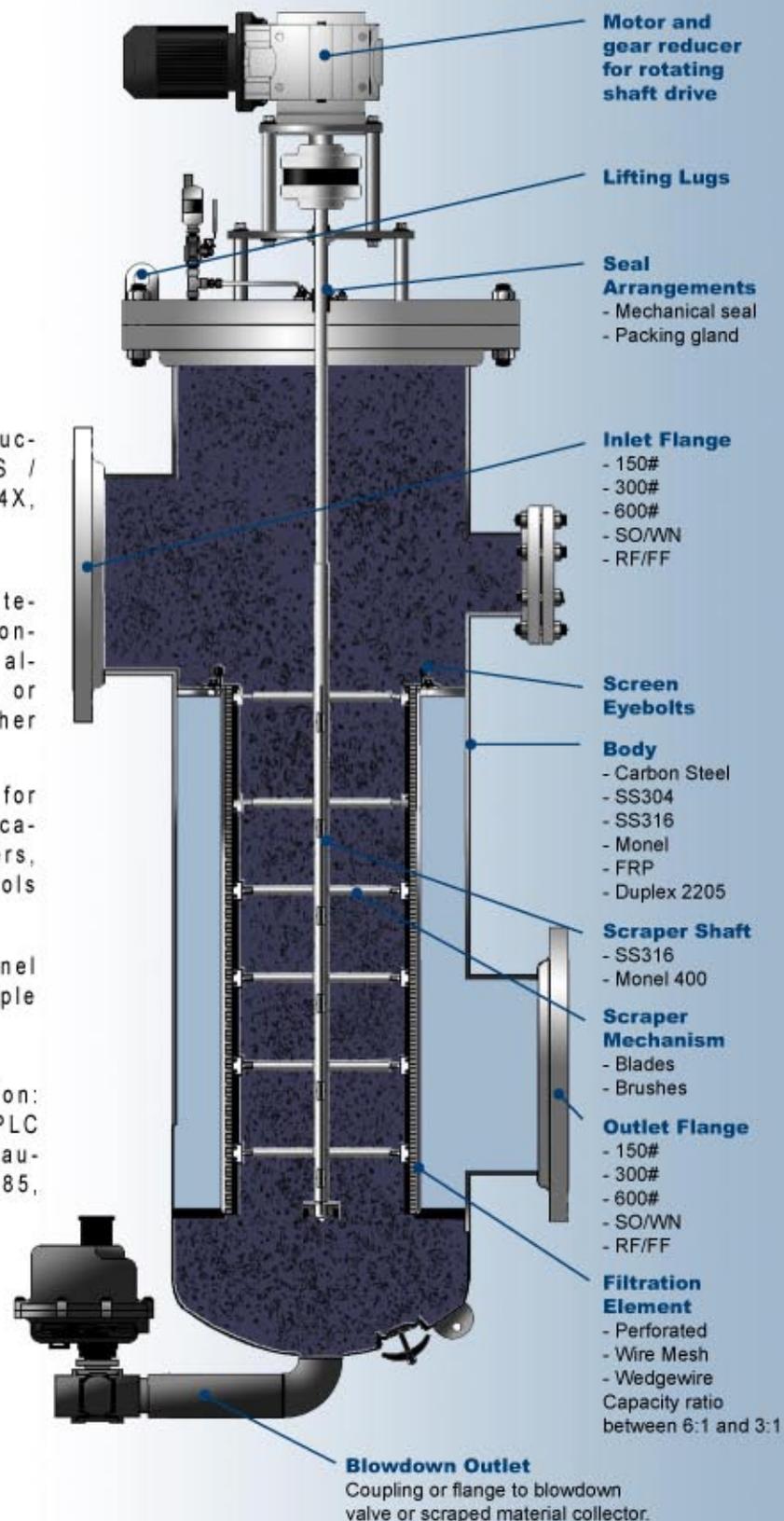
**C** Custom built to integrate into local control center system allowing for control or supervision of other

**D** Several options for local/remote indication, switches, timers, touch screen controls

**E** Common control panel available for multiple strainer units

**F** Remote supervision: dry contacts, PLC based, 4-20mA, audible alarms, DH-485, digital/analog

## MODEL ACRS-OF OFFSET SCRAPER-STRAINER



# GENERAL DESCRIPTION

## HOW IT WORKS

Designed for the continuous removal of suspended solids

Dirty fluid enters through top inlet, clean fluid flows through bottom outlet

Fluid passes uninterrupted through Wedgewire screen; suspended solids are trapped

Cleaning is accomplished by a spring-loaded scraper mechanism

Blowdown line at the bottom of unit ejects suspended solids

Custom built control panel provides local/remote controls and indication

## ADVANTAGES

Ability to remove large/small particles from a variety of industrial applications

Self adjusting scraper action with multiple brush/blade configurations

Custom connection arrangement to suit any application requirements (inline/offset) or current onsite piping

Uninterrupted cleaning cycle (no backwash system) with low system pressure losses

Several control packages available with local/remote indication and controls

World-class support from highly trained technicians and engineers on demand

## OPTIONS

### Design

Offset & Inline models  
150#, 300#, 600#

### Body Construction

CS, SS304/316, FRP  
Monel 400, D2205

### Internals Construction

SS316, Monel 400, D2205

### Scraper Mechanism

FRP/SS/Teflon Blades  
SS Bristles, .003" to .007"

### Wedgewire/Perf Screen

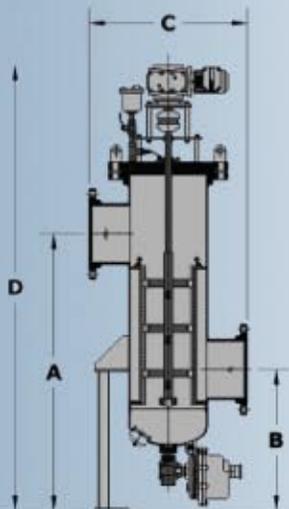
SS316, Monel 400  
75 to 6000 micron slot

### Strainer Controls

PLC Fully Automated  
NEMA 4/12, 4X, 7X

### Additional Options

ASME Sec. VIII, Div. 1  
U-Stamp, CRN, PED



DIMENSIONS FOR - OF - OFFSET UNITS							
Acme Model	Inlet / Outlet	FLOW(GPM)	FLOW(M <sup>3</sup> /H)	A	B	C	D
ACRS-OF-1-150-CS/SS	1" (25)	≤ 60	≤ 14	45 (1143)	30 (762)	20 (508)	69 (1753)
ACRS-OF-2-150-CS/SS	2" (50)	≤ 100	≤ 23	45 (1143)	30 (762)	20 (508)	69 (1753)
ACRS-OF-3-150-CS/SS	3" (75)	≤ 200	≤ 45	45 (1143)	30 (762)	20 (508)	69 (1753)
ACRS-OF-4-150-CS/SS	4" (100)	250 - 400	57-91	48 (1219)	30 (762)	22 (559)	72 (1829)
ACRS-OF-6-150-CS/SS	6" (150)	550-950	125-216	60 (1524)	36 (914)	24 (610)	93 (2362)
ACRS-OF-8-150-CS/SS	8" (200)	950-1500	216-340	66 (1676)	36 (914)	26 (660)	99 (2515)
ACRS-OF-10-150-CS/SS	10" (250)	1500-2000	340-450	55 (1397)	25 (635)	28 (711)	90 (2286)
ACRS-OF-12-150-CS/SS	12" (300)	2000-3500	450-795	58.5 (1486)	28 (711)	34 (864)	95 (2413)
ACRS-OF-14-150-CS/SS	14" (350)	3500-4500	795-1022	69.5 (1765)	33 (838)	36 (914)	106 (2692)
ACRS-OF-16-150-CS/SS	16" (400)	4500-5500	1022-1250	85 (2159)	45 (1143)	40 (1016)	126 (3200)
ACRS-OF-18-150-CS/SS	18" (450)	5500-7000	1250-1590	98.5 (2502)	32.5 (826)	50 (1270)	135 (3429)
ACRS-OF-20-150-CS/SS	20" (500)	7000-8500	1590-1930	98.5 (2502)	32.5 (826)	50 (1270)	135 (3429)
ACRS-OF-24-150-CS/SS	24" (600)	8500-12000	1930-2725	109 (2769)	61 (1549)	60 (1524)	150 (3810)
ACRS-OF-30-150-CS/SS	30" (750)	12000-18000	2725-4090	110 (2794)	50 (1270)	72 (1829)	160 (4064)
ACRS-OF-42-150-CS/SS	42" (1000)	26000-36000	5900-8175	132 (3353)	60 (1524)	96 (2438)	182 (4623)

\*\*These dimensions are for reference only and can be changed to suit needs

## PRESSURE DROP MULTIPLYING FACTORS

Type of Liquid	Viscosity SSU	Temperature - Degrees Fahrenheit															
		70	80	90	100	110	120	130	140	150	160	170	180	200	220	240	
Bunker "C" Fuel Oil	3000 S at 112°F	7.0	6.0	5.4	4.9	4.5	4.0	3.8	3.6	3.3	3.1	2.9	2.8	2.5	2.3	2.1	
Heavy Lube Oil	500 S at 100°F	3.7	3.2	2.9	2.8	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	
Medium Lube Oil	300 S at 100°F	2.9	2.7	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	
Light Lube Oil	150 S at 100°F	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.1	1.1	1.1	

# SELECTION AND ENGINEERING DATA

**PERFORATED METAL SCREENS** are available in brass, stainless steels, monel, etc. For fine perforations a large wire mesh may be used to provide additional rigidity.

**WEDGEWIRE SCREENS** used for fine screening are very rigid and more clog-resistant than wire mesh screens. They have a reinforced construction and wedge shaped profile reducing the possibility of retaining particles smaller than the screen opening.

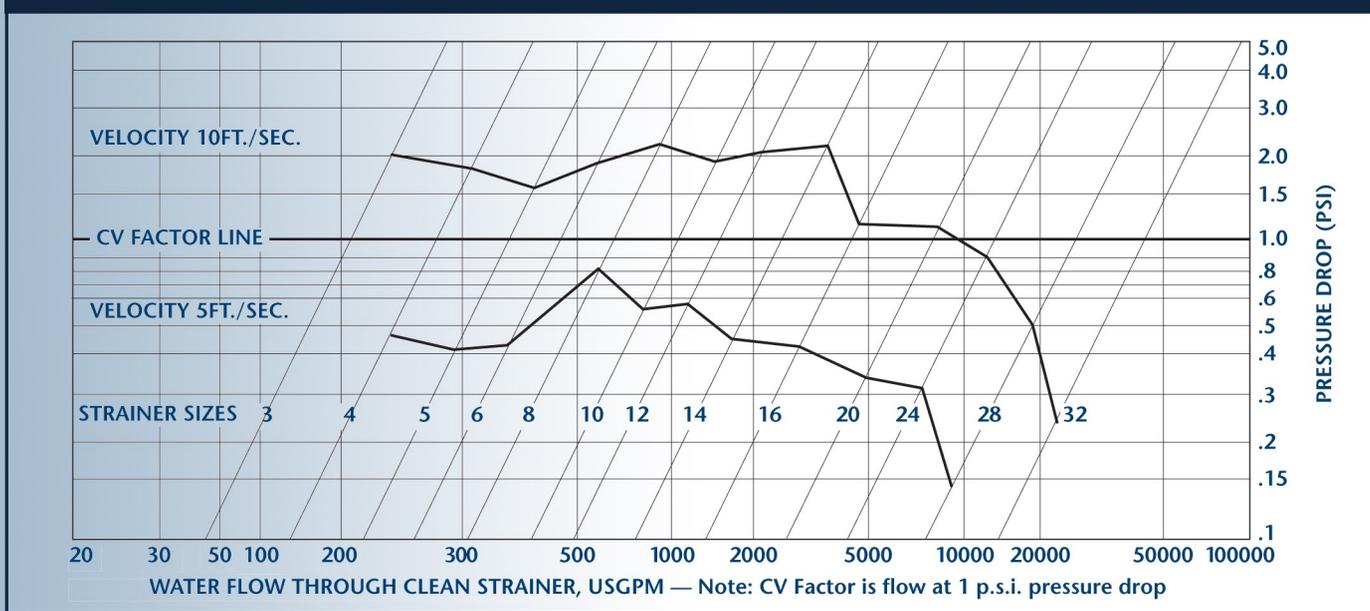
**WIRE MESH SCREENS** are manufactured from woven wire cloth in a variety of metals. They are usually used for fine straining with openings unachievable with perforated metal.

**SCREEN CAPACITY RATIO** is the ratio between the total screen openings area and the area of the inlet pipe opening. For example: if the inlet pipe's cross section is 20 sq. in and the screen's total open area is 80 sq. in, the ratio is "4 to 1". A high ratio results in a lower pressure drop and reduces the scraping system's frequency of operation.

**CLOGGED SCREENS:** These charts represent the results of tests conducted with strainers containing clean screens. With screens 50% clogged pressure drop results are approximately double those shown in charts.

**MULTIPLYING FACTORS:** All results are based upon the use of .033 diam. through 1/4 " diam. perforations. Mesh lined perforated metal screens: multiply pressure loss by 1.25.

**SCRAPER STRAINER CAPACITY CHART – CLEAN WATER – STANDARD SCREENS**



STRAINER ELEMENT / OPENING EQUIVALENTS		
Inches	Millimeters	Mesh
.004	.1016	150
.007	.1778	80
.009	.2286	60
.015	.3810	40
.034	.8636	20
Inches	Millimeters	Perforation
.033	.838	1/32
.045	1.143	3/64
.070	1.778	1/16
.094	2.387	3/32
.125	3.175	1/8
.150	3.810	5/32
.1875	4.762	3/16
.250	6.350	1/4
.375	9.525	3/8
.500	12.70	1/2

CONVERSION FACTORS
Bars x 14.5 = PSI
KPa x .145 = PSI
Kg/cm <sup>2</sup> x 14.2 = PSI
Ft. of water x .433 = PSI
m <sup>3</sup> /HR x 4.4 = GPM
Liter/Min x .265 = GPM
Tons of water/day x .166 = GPM
Barrels (oil) x 42 = Gallons (oil)
GPM x .4085 = Velocity ft./sec
ID <sup>2</sup> in inches
mm x .03937 = inches
Kilograms x 2.2 = pounds
Mg/L = PPM
SSU = Centistoke x 4.6347
Centipoise = Centistoke x specific gravity

**IN THE U.S.A.**  
**ACME ENGINEERING PROD. INC.**  
 Trimex Ind. Bldg., PMB #10  
 2330 State Route 11  
 Mooers, N.Y. 12958  
 Tel. : (518) 236-5659  
 Fax : (518) 236-6941  
 E-mail : [info@acmeprod.com](mailto:info@acmeprod.com) • [www.acmeprod.com](http://www.acmeprod.com)

**IN CANADA**  
**ACME ENGINEERING PROD. LTD.**  
 5706 Royalmount Ave.,  
 Montreal, Quebec  
 H4P 1K5  
 Tel. : (514) 342-5656  
 Fax : (514) 342-3131



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