

# Outrigger Status



Michael Schneider Nov.2003



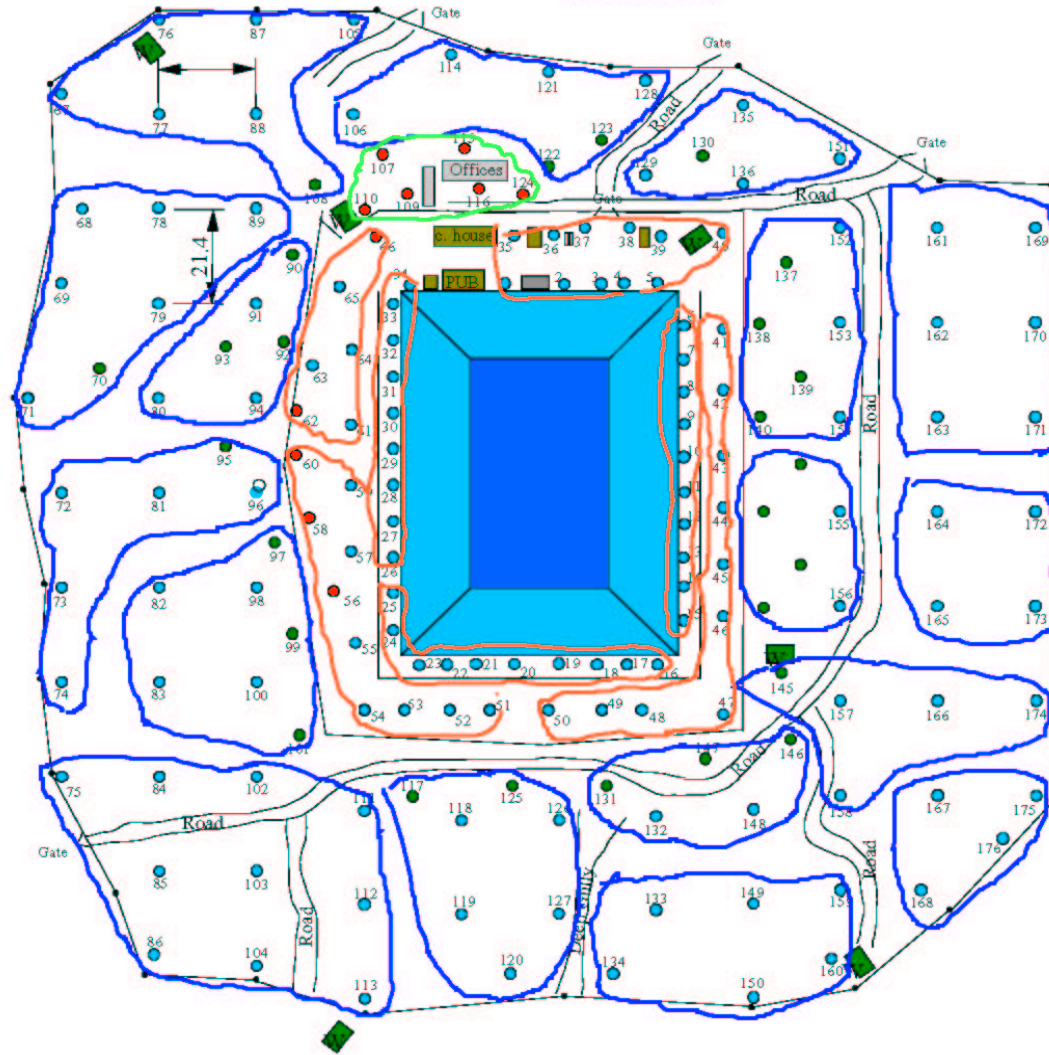
# 175 out of 175 are deployed !

- 175 have their HV connection
- 175 have their fiber optic cable
- 175 are filled with water
- 173 have a photo tube installed
- 170 have their positions surveyed
- Finished outside and inside fiber runs

# What is left to do !

- Find the right photo tubes ( 2)  
we have 9 left, 5 possible working  
none of them has the right voltage!
- Uncover and check the last 4 outriggers  
for light leaks
- Check with a “calibration” that all fibers are  
working and deliver sufficient light
- Do we need a water filtering system?
- Install “shower caps “on 170 outriggers for weather  
protection

November 2003



## Filtration—Industrial

### Housings and Filters

### Cole-Parmer Reusable Water Filtration Elements

► Washable and reusable—saves you time and money!



Permanent, washable filter elements clean even the dirtiest water supplies. A quick wash and rinse restores the filtration elements to their original conditions—saving you the cost of filter replacement and disposal. Ideal for cooling water, spray nozzle protection, and drinking water applications.

Unique filter elements are constructed of several hundred precisely grooved polypropylene discs stacked on a central core. Large internal surface area provides long life between cleanings. Cleaning is easy: Simply remove the element from the housing, wash it for a few minutes under the faucet, and return it to the housing (no tools required). Filter discs open to a stop to permit thorough washing.

Use the 50- $\mu$ m filters as a prefilter to protect finer disposable filters or carbon cartridges. Use the 100- $\mu$ m element to remove visible solids from the liquid. Select the 200- $\mu$ m element when heavy solids loading is expected, or when only relatively coarse filtration is required.

Maximum temperature for elements with styrene acrylonitrile (SAN) housings is 125°F (52°C); maximum pressure is 125 psig at 65°F (18°C). For higher operating temperatures or pressures, use the elements without housings with any 12 $\frac{1}{2}$ "-H double open end single cartridge housing on page 400 or SS multi-cartridge housing on page 401. Maximum temperature for the elements is 180°F (88°C).

Catalog number	Pore size	Element length	Housing length	Port size NPT(F)	Flow rate at 2 psid*	Price
<b>Elements with SAN housings</b>						
U-29650-04	50 $\mu$ m	5"	7 $\frac{1}{2}$ "	$\frac{3}{8}$ "	10 GPM	
U-29650-00	100 $\mu$ m	5"	7 $\frac{1}{2}$ "	$\frac{3}{8}$ "	10 GPM	
U-29650-02	200 $\mu$ m	5"	7 $\frac{1}{2}$ "	$\frac{3}{8}$ "	10 GPM	
U-29650-34	50 $\mu$ m	10"	12 $\frac{1}{2}$ "	$\frac{3}{4}$ "	25 GPM	
U-29650-30	100 $\mu$ m	10"	12 $\frac{1}{2}$ "	$\frac{3}{4}$ "	25 GPM	
U-29650-32	200 $\mu$ m	10"	12 $\frac{1}{2}$ "	$\frac{3}{4}$ "	25 GPM	
U-29650-14	50 $\mu$ m	20"	24"	1"	50 GPM	
U-29650-10	100 $\mu$ m	20"	24"	1"	50 GPM	
U-29650-12	200 $\mu$ m	20"	24"	1"	50 GPM	
U-29650-24	50 $\mu$ m	20"	24"	1 $\frac{1}{2}$ "	70 GPM	
U-29650-20	100 $\mu$ m	20"	24"	1 $\frac{1}{2}$ "	70 GPM	
U-29650-22	200 $\mu$ m	20"	24"	1 $\frac{1}{2}$ "	70 GPM	
<b>Elements without housings</b>						
U-29650-54	50 $\mu$ m	10"	—	—	—	
U-29650-50	100 $\mu$ m	10"	—	—	—	
U-29650-52	200 $\mu$ m	10"	—	—	—	

\*The 20" length is actually two 10" elements securely connected in the SAN housing with a PP double open end cap.

†Psid is pounds per square inch pressure drop through the system.

### Bag Filter Systems

These bag filter systems are ideal for use as an economical and easy-to-use duplex filtering system. A complete system consists of a 10" or 20" 100% polypropylene (PP) bag and PP vessel (sold separately below). Bags are available in seven pore sizes.

#### Bags

Bags are compatible with a broad range of fluids including organic solvents, oils, acids, and alkalies. Seven micron pore sizes from 1 to 200 make bags ideal for a wide range of filtration jobs. These glazed-finished, disposable PP felt bags exhibit a high solid loading capacity in comparison to other mesh fabrics. The glazed finish produces a bond that reduces the possibility of migration. Bags contain a molded PP top with a built-in handle to make replacement quick and easy.

Bags for 10" vessel measure 4" dia x 8 $\frac{1}{2}$ " H, have 0.75 sq ft surface area, and withstand a maximum temperature of 200°F (93°C).

Bags for 20" vessel measure 4" dia x 18 $\frac{1}{2}$ " H, have 1.75 sq ft surface area, and withstand a maximum temperature of 200°F (93°C).

Catalog number	Pore size	Price/ cs of 25
<b>10" filter bags</b>		
U-29803-01	1 $\mu$ m	
U-29803-02	5 $\mu$ m	
U-29803-03	10 $\mu$ m	
U-29803-04	25 $\mu$ m	
U-29803-05	50 $\mu$ m	
U-29803-06	100 $\mu$ m	
U-29803-07	200 $\mu$ m	
<b>20" filter bags</b>		
U-29804-01	1 $\mu$ m	
U-29804-02	5 $\mu$ m	
U-29804-03	10 $\mu$ m	
U-29804-04	25 $\mu$ m	
U-29804-05	50 $\mu$ m	
U-29804-06	100 $\mu$ m	
U-29804-07	200 $\mu$ m	

#### Vessels

Vessels are made of corrosion-resistant PP to give strength without the bulk. Large single-threaded cap ensures quick opening and positive sealing. Recommended flow rate is 35.0 GPM†, maximum flow rate is 50.0 GPM† both at 3 psid†.

Cap, sump, basket, and vent plug are PP. Drain plug, Buna N gaskets, O-ring, and ball-valve seals are high-density polyethylene. Ball valve is PVC. All vessels include a pressure gauge,  $\frac{3}{8}$ " drain valve, and PP spanner wrench. Order stand separately below.

The 10" vessel 29803-00 measures 7 $\frac{1}{4}$ " dia x 13 $\frac{1}{2}$ " H. Cap inlet and outlet have 1" NPT(F) ports. Maximum pressure is 100 psi, maximum temperature is 100°F (37°C).

The 20" vessel 29804-00 measures 7 $\frac{1}{4}$ " dia x 23 $\frac{1}{2}$ " H. Cap inlet and outlet have 1 $\frac{1}{2}$ " NPT(F) ports. Max pressure is 90 psi.

Cat. no.	Size	Price
U-29803-00	10"	
U-29804-00	20"	

†Psid is pounds/square inch pressure drop through the system.  
†Tests performed on vessels with no bags inserted.

#### U-29803-10 Stand



## Pumps Centrifugal

### New Cole-Parmer Pumps with Polypropylene or Stainless Steel Pump Heads

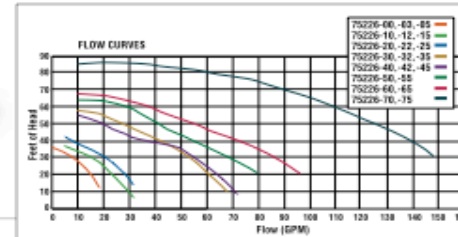


Pump with PP pump head 75226-55

#### Features

- Pumps available with or without 56 C-face motors—install the motor you need!
- Pumps with motor are close-coupled for easy installation and maintenance.
- All motors are rated for 50/60 Hz duty.
- Ideal for fluid transfer or circulation.
- Use pumps for chemical processing plants and water and wastewater treatment centers.

All pumps with motors are set up for hardwiring.



#### Specifications & Ordering Information

##### Wetted parts

PP models: PP pump head, impeller; ceramic shaft; carbon fiber-filled PTFE thrust ring and sleeve bearings; EPDM O-ring

SS models: SS pump head, impeller, shaft, carbon fiber-filled PTFE wear ring and sleeve bearings; Viton® O-ring

Duty cycle: continuous

Catalog number	Max flow (GPM)	Max head (ft)	Max system pressure	Max temp °C (°F)	Connections		hp	Phase	Motor			Dimensions L x W x H	Shpg wt lb (kg)	Price	
					Inlet	Outlet			Type	VAC	Hz				Amps
<b>Pumps with polypropylene (PP) pump heads</b>															
U-75226-00	17	28	110 psi	71 (160)	1" NPT(F)	1/2" NPT(M)	3/4	1	TEFC	115	2.63	11 1/2" x 5 1/2" x 6 1/2"	13 (5.9)		
U-75226-03										230	1.32	11 1/2" x 5 1/2" x 6 1/2"			
U-75226-05										230/460	0.8/0.5	11 1/2" x 4 1/2" x 5 1/2"			
U-75226-10	32	37	110 psi	71 (160)	1" NPT(F)	3/4" NPT(M)	1/2	1	TEFC	115/230	6.4/3.2	6 1/2" x 6 1/2" x 6 1/2"	5 (2.3)		
U-75226-12										230/460	1.0/0.5	15 1/2" x 8 1/2" x 9"			
U-75226-15										230/460	1.0/0.5	14 1/2" x 8 1/2" x 7"			
U-75226-30	68	59	110 psi	71 (160)	1 1/2" NPT(F)	1" NPT(M)	1	1	TEFC	115/230	12.0/6.0	8" x 6 1/2" x 7 1/2"	7 (3.2)		
U-75226-32										230/460	3.2/1.6	17 1/2" x 8 1/2" x 9"			
U-75226-35										230/460	3.2/1.6	16 1/2" x 8 1/2" x 7 1/2"			
U-75226-50	85	59	110 psi	71 (160)	1 1/2" NPT(F)	1 1/4" NPT(M)	1 1/2	3	TEFC	230/460	50/60	4.2/2.1	9 1/2" x 7 1/2" x 8 1/2"	14 (6.4)	
U-75226-55										230/460	50/60	4.2/2.1	19 1/2" x 9 1/2" x 8 1/2"		
U-75226-70										230/460	50/60	4.2/2.1	11" x 7 1/2" x 7 1/2"		
U-75226-75	150	88	110 psi	71 (160)	2" NPT(F)	1 1/2" NPT(M)	3	3	TEFC	230/460	50/60	8.0/4.0	22 1/2" x 13 1/2" x 7 1/2"	24 (10.9)	62 (28.2)
<b>Pumps with stainless steel (SS) pump heads</b>															
U-75226-20	32	42	275 psi	148 (300)	1" NPT(F)	3/4" NPT(M)	3/4	1	TEFC	115/230	10.0/5.0	8 1/2" x 6 1/2" x 6 1/2"	15 (6.8)		
U-75226-22										230/460	50/60	2.4/1.2			17" x 8 1/2" x 7"
U-75226-25										230/460	50/60	2.4/1.2			17" x 8 1/2" x 7"
U-75226-40	70	54	275 psi	148 (300)	1 1/2" NPT(F)	1" NPT(M)	1 1/2	1	TEFC	115/230	17.0/8.5	9" x 6 1/2" x 7 1/2"	19 (8.7)		
U-75226-42										230/460	50/60	4.2/2.1			18 1/2" x 8 1/2" x 9"
U-75226-45										230/460	50/60	4.2/2.1			18 1/2" x 8 1/2" x 7 1/2"
U-75226-60	90	67	275 psi	148 (300)	1 1/2" NPT(F)	1 1/4" NPT(M)	2	3	TEFC	230/460	50/60	5.6/2.8	10 1/2" x 7 1/2" x 8 1/2"	40 (18.2)	
U-75226-65										230/460	50/60	5.6/2.8	20 1/2" x 9 1/2" x 8 1/2"		
U-75226-65										230/460	50/60	5.6/2.8	20 1/2" x 9 1/2" x 8 1/2"		

Viton—Reg TM DuPont Dow Elastomers L.L.C.

#### More info

See "Motors" on pages 1888-1892 for our complete selection of motors, controllers, and mounting hardware.



#### Design of Experiments, A Realistic Approach

By V. Anderson and R. McLean, 1974.

This practical approach explains the general principles of experiment design and helps relate them to any discipline. Apply principles to your own work or use the field-specific examples provided. Covers split plot designs, two- and three-level factors, and more.

U-00563-06 Design of Experiments: A Realistic Approach

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