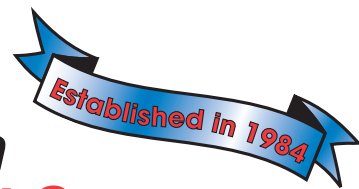




# A Quick Guide To Industrial Products From Process Engineering & Equipment Co.



1-800-245-1961 **PHONE:** (616) 784-7636 **FAX:** (616) 784-5436

**CORPORATE OFFICE:** Process Engineering & Equipment Co., 571 6 Mile Rd. NW, Comstock Park, MI 49321

[www.peco.com](http://www.peco.com)

<p><b>PUMPS</b></p>	<p><b>WARREN RUPP SANDPIPER*</b> Air-operated diaphragm pumps.</p> <p><b>ITT A-C*</b> Largest inventory of 2000 series pumps and parts in USA.</p> <p><b>MP PUMPS INC.</b> Quality centrifugal and self-priming pumps <b>made in Michigan.</b></p> <p><b>PERIFLO</b> Peristaltic hose pumps.</p> <p><b>AQUAVAR</b> Variable speed pumping control by ITT.</p>	<p><b>G &amp; L GOULDS*</b> Stainless steel centrifugal pumps. Waste water and sewage submersible pumps and accessories.</p> <p><b>LOBEE PUMP CO.*</b> Gear pumps tp 26 gpm and liquid ring vacuum pumps.</p> <p><b>CARVER PUMP COMPANY*</b> Horizontal end-suction, vertical and multi-stage high pressure pumps.</p> <p><b>INNOMAG*</b> Innovative mag-drive pumps, superior design and performance.</p> <p><b>LABOUR / TABOR</b> ANSI chemical and self-priming pumps.</p>	<p><b>WARRENDER / CASTER</b> Mag drive and seal-less process pumps.</p> <p><b>SEQUENCE 1000*</b> Chemical duty pumps constructed of Noryl® and polypropylene.</p> <p><b>MTH PUMPS</b> Regenerative turbine pumps.</p> <p><b>PRICE PUMP CO.</b> Horizontal and vertical, seal-less and mechanically sealed industrial pumps.</p> <p><b>PACER</b> Thermoplastic self-priming vertical and horizontal centrifugal pumps.</p>	<ul style="list-style-type: none"> <li>• <b>GOULDS TURBINE PUMPS</b></li> <li>• <b>VIKING PUMP INC.</b></li> <li>• <b>LMI</b></li> <li>• <b>EBARA</b></li> <li>• <b>PULSAFEEDER</b></li> <li>• <b>HAYNES</b></li> <li>• <b>GUSHER/RUTHMAN</b></li> </ul> <p><b>PUMP REPAIR</b> Service and parts for most brands.</p>
<p><b>COOLING TOWERS, HEAT EXCHANGERS, &amp; MAKE-UP AIR</b></p>	<p><b>BALTIMORE AIRCOIL COMPANY</b> Cooling towers, evaporative condensers, industrial fluid coolers, and thermal storage systems.</p>	<p><b>WCR</b> Complete plate and frame heat exchanger service, cleaning and aftermarket plates/gaskets.</p> <p><b>ITT</b> Shell and tube heat exchangers.</p>	<p><b>COLMAC COIL</b> Heating &amp; cooling coils, air-cooled condensers &amp; fluid coolers.</p> <p><b>PAUL MUELLER COMPANY</b> Accu-Therm plate and frame heat exchangers, template coils.</p>	<p><b>ABSOLUTAIRE, INC.</b> Direct fired make-up air units, <b>made in Michigan.</b></p> <p><b>CARBONE LORRAINE</b> Graphite block and shell and tube heat exchangers for highly corrosive duty.</p>
<p><b>FILTERS &amp; MIXERS</b></p>	<p><b>ROSEDALE*</b> Liquid filtration products, <b>made in Michigan.</b></p>	<p><b>EATON FILTRATION</b> Formerly Ronningen-Petter filters.</p> <p><b>FUSION FLUID MIXERS</b> Quality mixers of all types, <b>made in Michigan.</b></p>	<p><b>PEP / ARKAL</b> Sand Filters and auto-cleaning strainers.</p>	<p><b>CLEVELAND-EASTERN MIXERS (EMI)</b> Industrial mixers and agitators.</p>
<p><b>CHILLERS &amp; BOILERS</b></p>	<p><b>YORK</b> Refrigeration technology: packaged centrifugal and screw liquid chillers; condensers; and heating and cooling coils.</p>	<p><b>CRANE ENVIRONMENTAL</b> Cochrane deaerators, degasifiers and heat recovery equipment.</p> <p><b>THERMAL CARE</b> Specialty chillers and cooling towers.</p>	<p><b>FULTON BOILER</b> Pulse combustion boilers up to 96% efficiency. Power burner vertical boilers and thermal fluid heaters. Factory packaged "Boiler room on a Skid" assemblies.</p>	<p><b>PARKER BOILER</b> Packaged steel water tube boilers, high-pressure steam and hot water.</p> <p><b>WARE INC.</b> Rental boilers and chillers</p>
<p><b>RELATED PRODUCTS, ACCESSORIES &amp; SERVICES</b></p>	<p><b>SPENCE*</b> Steam traps, pressure reducing valves, control valves.</p> <p><b>WARREN CONTROLS</b> Control valves for industry, HVAC and general service.</p>	<p><b>TRIAD*</b> Butterfly valves, sanitary and general service ball valves with or without actuation.</p> <p><b>CRANE ENVIRONMENTAL</b> RO Systems starting at 10 GPM.</p>	<p><b>IN-STOCK PARTS</b> An extensive selection of pump parts is in stock and ready for immediate delivery.</p> <p><b>FLOWMETERS</b> Blancett, Dynasonics, Flowtech, Hedland and Racine</p>	<p><b>SERVICES</b> Repair service is available for all makes of pumps, as well as heat exchanger plate cleaning and gasketing.</p>
<p><b>HVAC PRODUCTS</b></p>	<p><b>The HVAC division of Process Engineering &amp; Equipment Co.</b> also carries a complete line of HVAC systems and components</p>	<p>including chillers, air handling units, cooling towers, heat exchangers, boilers and accessories. Companies represented include:</p>	<ul style="list-style-type: none"> <li>• <b>YORK</b></li> <li>• <b>BALTIMORE AIRCOIL COMPANY</b></li> <li>• <b>PAUL MUELLER COMPANY</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>SPENCE</b></li> <li>• <b>FULTON BOILER</b></li> <li>• <b>COLMAC COIL</b></li> <li>• <b>WATERFURNACE</b></li> </ul>
<p><b>PACKAGED COOLING SYSTEMS</b></p>	<p>Complete packaged cooling water systems, chilled water systems, and pump tank assemblies. All packages include CAD installation drawings. Packages can be delivered preassembled on skids or as individual components.</p>			

**Note: \* Items are in stock for immediate delivery.**

**For more information on these quality products and services, contact your  
Process Engineering & Equipment Co. Sales Representative toll-free at 1-800-245-1961**



# PROCESS ENGINEERING & EQUIPMENT CO.

1-800-245-1961

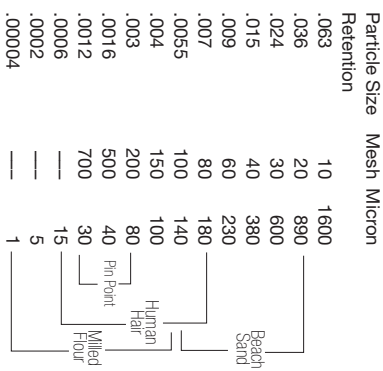
CORPORATE OFFICE: Process Engineering & Equipment Co., 571 6 Mile Rd. NW, Cornstock Park, MI 49321

PHONE: (616) 784-7636

FAX: (616) 784-5436

www.pecopage.com

### Relative Filtration Size Information



### "Rule of Thumb" Formulas

- Hydraulic Cooling . . . . . 1/10 Tower Ton per HP
- Air Compressor Cooling . . . . . 1/10 Tower Ton per HP
- After Cooler Cooling . . . . . 1/10 Tower Ton per HP
- Chiller Condenser Cooling . . . . . 1 Tower Ton per Chiller T
- Injection Mold Cooling
  - PVC . . . . . 75lb/HR = 1 Ton (Chiller)
  - Polypropylene . . . . . 35lb/HR = 1 Ton (Chiller)
  - Polystyrene . . . . . 50lb/HR = 1 Ton (Chiller)
- Aluminum Mold Cooling . . . . . 25lb/HR = 1 Ton (Tower)
- Zinc Mold Cooling . . . . . 100lb/HR = 1 Ton (Tower)
- Welder Cooling . . . . . 1/4 Ton per Tip
- Rectifier Cooling . . . . . 100 KVA/Ton

### Commonly-used Heat Transfer Formulas

- 1 Boiler Horsepower = 33,475 BTU/HR
- 1000 BTU/HR = 1 lb/HR
- lbs/HR Condensate = GPM
- 500
- 500 x ΔT x GPM(water) = BTU/HR
- 1 Ton of Refrigeration = 12,000 BTU/HR
- 1 Cooling Tower Ton = 15,000 BTU/HR
- 1 KW = 3413 BTU
- Temp (°F) - 32 x 5/9 = Temp (°C)
- Temp (°C) + 1.7/8 x 1.8 = Temp (°F)
- 1 HP = 2545 BTU/HR

### Commonly-used Pumping Formulas

- 1 PSI = 2.31 Ft of Head (water)
- Specific Gravity (S.G.) of Water = 1.0
- PSI x 2.31 = Head in Feet S.G.
- Pump BHP =  $\frac{GPM \times Head (ft) \times S.G.}{3960 \times Pump \text{ Eff.}}$

Pump capacity varies directly with impeller speed or impeller diameter:  
 $GPM (1) = RPM (1)$        $GPM (2) = DIA (1)$   
 $GPM (2) = RPM (2)$        $GPM (2) = DIA (2)$

Pump head varies as the square of the speed or impeller diameter:  
 $HEAD (1) = \left(\frac{RPM (1)}{RPM (2)}\right)^2$        $HEAD (1) = \left(\frac{DIA (1)}{DIA (2)}\right)^2$

BHP varies as the cube of the speed or impeller diameter:  
 $BMP (1) = \left(\frac{RPM (1)}{RPM (2)}\right)^3$        $BHP (1) = \left(\frac{DIA (1)}{DIA (2)}\right)^3$   
 $BHP (2) = \left(\frac{RPM (1)}{RPM (2)}\right)^3$        $BHP (2) = \left(\frac{DIA (1)}{DIA (2)}\right)^3$

Aluminum	_____	.22	Steel	_____	.12	Lead	_____	.03	Alcohol	_____	.58
25% Ethylene Glycol	_____	.92	Paper	_____	.40	Water	_____	1.0	Ice	_____	.49
35% Ethylene Glycol	_____	.86	Paraffin	_____	.70	Zinc	_____	.09	Glass	_____	.20
45% Ethylene Glycol	_____	.79	Rubber	_____	.45	Copper	_____	.09			

### VISCOSITY CONVERSION TABLE

SAVBOLT UNIVERSAL SSU	STOKES	CENTI STOKES	POISES*	CENTI* POISES	ENGLER SECONDS	REDWOOD NO. 1 SECONDS	TYPICAL LIQUIDS AT 70°F
31	.010	1.00	.088	.8	54	29	WATER
35	.025	2.56	.020	2.05	59	32.1	KEROSENE
50	.074	7.40	.059	5.92	80	44.3	NO. 2 FUEL OIL
80	.157	15.7	.126	12.6	125	69.2	NO. 4 FUEL OIL
100	.202	20.2	.162	16.2	150	86.6	TRANSFORMER OIL
200	.432	43.2	.346	34.6	295	170	HYDRAULIC OIL
300	.654	65.4	.522	52.2	470	254	SAE 10W OIL
500	1.10	110	.88	88.0	760	423	SAE 10 PIL
1,000	2.16	220	1.73	173	1,500	896	SAE 20 OIL
2,000	4.40	440	3.52	352	3,000	1,690	SAE 30 OIL
5,000	10.8	1,080	8.80	880	7,500	4,230	SAE 50 OIL
10,000	21.6	2,160	17.0	1,760	15,000	8,460	SAE 60-70 OIL
50,000	108	10,800	88	8,800	75,000	43,660	MOGLASSES B
100,000	216	21,600	173	17,300	150,000	88,160	MOGLASSES C

\*Poises and centipoises are given for oil of .8 spec. Gravity. Relationship: centistokes X specific gravity = centipoises.

### 60 Hertz Pump On 50 Hertz Power

50 Hertz	60 Hertz	Factor
GPM =	GPM X	.829
Head =	Head X	.687
B.H.P. =	HP X	.569

### To Size A 60 Hertz Pump Using 50 Hertz

60 Hertz	50 Hertz	Factor
GPM =	GPM X	1.2
Head =	Head X	1.45

### C — SPECIFIC HEAT VALUES (BTU/LB °F)