

MANAGING  
**CONCENTRATION**

MANAGING  
**TRAMP OIL**

FLUID  
**MANAGEMENT**

COOLANT  
**AUTOMATION**





**W**e've been serving metalworking for twenty years, starting in a garage with one product. Today we provide the a range of cost-saving preventive maintenance products along with world-class technical expertise.

Our focus has always been on one of the most unappreciated tools, metalworking fluids. Our central mission is assisting you in making it last. Like endmills and other hard tooling, it works best when kept sharp.

We don't solve coolant problems by ourselves. Our most important partner is you. You live and breathe your problem, and without your assistance we are not able to suggest the perfect solution. We have other partners as well: our dedicated distributors, their in-house coolant specialists, and our valuable employees. Without them we wouldn't be as strong, and you wouldn't get answers as quickly.

Delivering quality products and service has been our number one priority and we thank our customers for their trust in us for over twenty years. American-Made, American-Quality.

*Sincerely, Zebra® Skimmers Corp.*

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# COOLANT AUTOMATION SYSTEMS

Zebra™ Skimmers delivers on the promise of fully automated sump fluid management with our Dazzle™ Systems solutions. The Zebra® Dazzle™ Systems provide customers with effective solutions to managing coolant concentration on production floors. These systems are available in two configurations, the entry-level Dazzle™ 1 and the more robust Dazzle™ 2.



## Dazzle™ 2 Automated Sump Concentration and Level Management

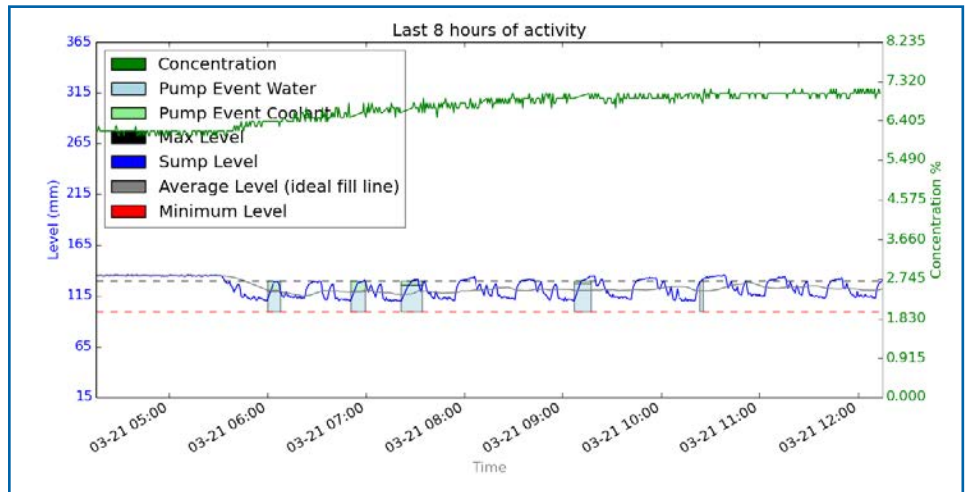
**Dazzle™ 2** is our proven, industry 4.0 automated sump concentration and level management system that maintains both sump levels and coolant concentrations within preset limits. **Dazzle™ 2** is flexible and configurable to manage the changing needs in a manufacturing environment.

### FEATURES:

- **INDUSTRY 4.0 UNLEASHED:** View and manage sump concentrations and levels from anywhere, on any screen, using the intuitive web interface.
- **Manage multiple sumps:** The system allows for managing of coolant concentrations and fluid levels of up to 20 sumps.
- **MEASURING COOLANT CONCENTRATION:** Uses a process refractometer to continuously monitor the coolant concentration in sumps under management, while optimally mixing water and coolant to bring individual sumps to target concentrations.
- **LEVEL SENSING:** Dazzle's level sensing capabilities are based on robust capacitive technology which is not affected by a sump's surface foam or particles in the fluid, unlike floats or other mechanical devices.
- **DATA COLLECTION AND ANALYTICS**  
Monitor the system using our web interface. Collect data and analyse the system performance across a number of key metrics.



REVIEW COMPARISON DATA ON THE INSIDE BACK COVER. Automating your coolant fluids and concentration mixes is a breeze with the **Dazzle™ Systems**. **LEARN MORE BY CALLING 440.528.0695.**





# COOLANT AUTOMATION SYSTEMS



## Dazzle™ 1 Automated Sump Level Management

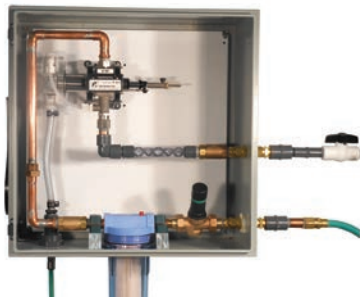
The entry-level Dazzle system comprises a Dazzle™ Pump Panel and probes for both coolant concentrate containers and sumps. It is easily expandable to as many machines in your plant as a single pump can handle.

### FEATURES:

- Reduces coolant usage and waste disposal
- Helps extend tool life and efficiency
- Increases productivity
- Optimizes environmental and OSHA safety margins
- Improves confidence in a lights-out operation
- Cost-effective

## Dazzle™ 1 System Components

### The Dazzle™ Pump Panel



- 7 or 25 gpm Proportioning pump to dial-in optimal coolant/water concentration
- Lockable mounting cabinet
- Mixing/turbulence chamber
- 2 backflow check valves
- Mounting cabinet with observation window

### The Dazzle™ Coolant Dipstick



- Microprocessor controller with LED indicator lights and audible alarm
- Low profile level sensor
- 12 Vdc solenoid valve
- Electrical and control cables
- Bung fitting for drum or tote
- Coolant suction line

### The Dazzle™ Sump



- Microprocessor controller with LED indicator lights and audible alarm
- Low profile level sensor
- 24Vdc solenoid valve
- Electrical and control cables

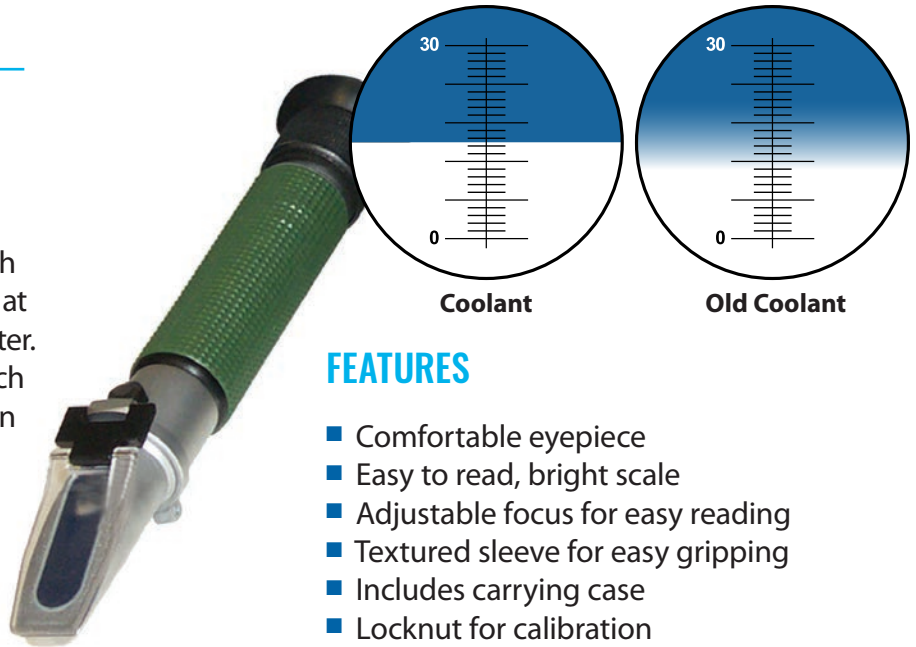
Review comparison data on the inside back cover. Automating your coolant fluids and concentration mixes is a breeze with the **Dazzle™ Systems**. **LEARN MORE BY CALLING 440.528.0695.**

# MANAGING CONCENTRATION

## BRIX REFRACTOMETERS

### MEASURE CONCENTRATION

Coolant's primary purpose is to lubricate and cool the work surface and tooling. Each coolant works best for a given application at a recommended concentration of it to water. Monitor the initial coolant charge, then each day, as evaporation increases concentration at the sump level. Maintaining the recommended concentration is essential to prevent problems.



### FEATURES

- Comfortable eyepiece
- Easy to read, bright scale
- Adjustable focus for easy reading
- Textured sleeve for easy gripping
- Includes carrying case
- Locknut for calibration

Part Number	Brix Scale	Accuracy	Graduation	Dimensions
OPT10	0-10	±0.1%	Tenths	1.5" dia, 8" long
OPT32	0-32	±0.2%	Fifths	1.5" dia, 7" long
OPTX10	Replacement prism cover with pin for OPT10, OPT32			
OPTXED	Refractometer Sample Dropper			

## PROPORTIONING PUMP

### FOR LONG DISTANCE MIX DELIVERY

#### FEATURES

- Perfectly mixed fluid at EVERY use
- Delivers mix through hose or conduit right to your machine
- No need to verify concentration once initially determined
- Compact with few moving parts
- Can be permanently mounted to wall
- Maximum viscosity of 700 SUS
- 800' lateral max delivery
- 20' vertical max delivery
- Works for concentrates in pails, barrels, or totes (6' intake hose included)
- 6-month warranty



Model	Part Number	GPM	Mix Range %	Mixing Ratios	
				Low	High
Proportioner for Coolant	MIXPP58	7	0.6-5.8	160:1	16:1
	MIXPP518	7	1.4-12.3	70:1	7:1
	MIXPP520	7	1.6-13.5	60:1	6:1
	MIXPP532	7	2.4-20.0	40:1	4:1
	MIXPP585	7	10.0-40.0	10:1	1.5:1
	MIXPP547	9.5	3.2-26.8	30:1	3:1
	MIXPP510-M	12	0.8-7.5	125:1	13:1
	MIXPP562-M	12	1.6-13.5	60:1	6:1
	MIXPP58.5-M	12	2.4-20.0	40:1	4:1
	MIXPP565-M	12	4.7-33.0	20:1	2:1
	MIXPP58-V	25	0.6-5.8	160:1	16:1
	MIXPP520-V	25	1.6-13.5	60:1	6:1
Proportioner for Caustic Concentrates	MIXPP585-W	7	10.0-40.0	10:1	2.5:1
	MIXPP565-M-W	12	3.0-30.0	1:33	3.3:1
	MIXPP520-V-W	25	3.2-26.8	1:31	1:3.7
Accessories	MIXPPX75	Prepump filter for proportioning pumps, 20µ			
	MIXXWL.1	Water Limiter, 15-150 adjustable PSI range			
	MIXXPRV.1	Backflow checkvalve			

For wall mount units, please add "(VM)" to the end of the part number.

# MANAGING CONCENTRATION

## MACHINIST VENTURI MIXERS

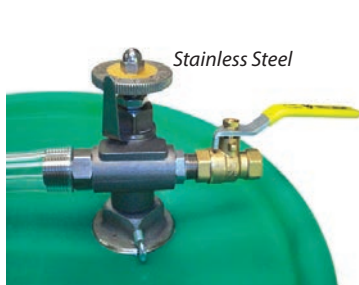
### FOR MIXING OF METALWORKING FLUIDS

Proper fluid mixing provides superior emulsions resulting in consistent concentration values. Maintaining consistent concentration values extends sump and tool life while improving machined surfaces. It also provides a savings for raw material usage.



Part Number	GPM	Low	High	Max Mix Ratio	Range PSI	In	Out
MIX0327	3	0	7	14:1	25-75	3/8"	1/2"
MIX03725	3	0	25	4:1	25-75	3/8"	1/2"
MIX1027*	10	0	7	15:1	25-75	1/2"	3/4"
MIX10725*	10	0	25	4:1	25-75	1/2"	3/4"
STAINLESS STEEL							
MIX03725SS	3	0	25	4:1	25-75	3/8"	1/2"
MIX10725SS	10	0	25	4:1	25-75	1/2"	3/4"

\*Special order items please inquire for details.



Stainless Steel



Mixer Lockout  
#MIXXLOCK

## ACCESSORIES

Part Number	Description
MIXXLOCK	Lockout for Machinist Mixer to prevent tampering
MIXF3	Swivel Fitting for inlet garden hose for 3 gpm machinist mixer
MIXSF10	Swivel Fitting for inlet garden hose for 3 gpm machinist mixer

## FEATURES

- Separate water shut-off valve
- Machined from solid bronze casting with treated steel stand pipe
- Maximum viscosity of 500 SUS
- 40" discharge tube included (max length for delivery)
- Fits drums, pails, or totes

## HOW IT WORKS

Venturi pumps are commonly used for coolant mixers. The moving water across the orifice creates a vacuum, drawing coolant into the water stream. The combination of the two laminar flows creates a turbulent zone thoroughly mixing the two fluids. Since there are no moving parts, the pump has a high degree of reliability. The needle valve allows for great precision in setting the proportion of coolant mixed with water.



## 3 POINT ACCURACY USING FORCE-FLO™ TECHNOLOGY

- Machined needle valve
- Locknut below dial holds mixing reference
- Standpipe check valve keeps mixing chamber loaded

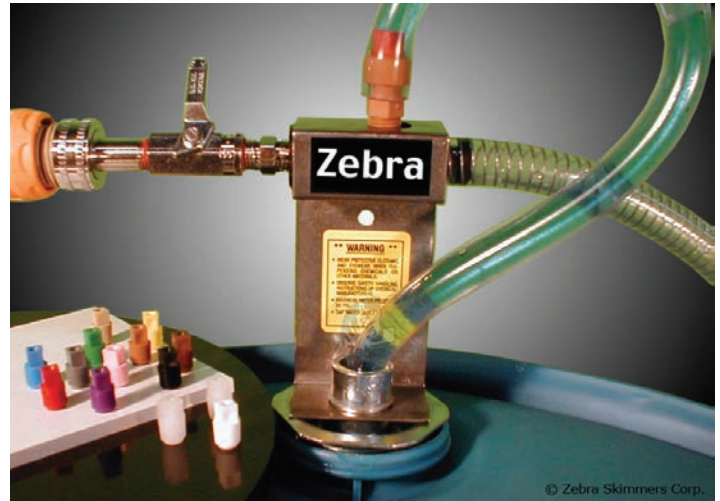
# MANAGING CONCENTRATION

## ECONOMY MIXER

FOR MIXING AND DELIVERING METALWORKING FLUIDS

### FEATURES

- 14 metering tips for specific ratios
- Maximum viscosity of 500 SUS
- 30-day warranty
- 48" discharge tube included (max length for delivery)



### HOW TO SAVE MONEY NOW

We can teach you how to refill your sump with the EXACT amount of concentrate and water. Contact us today for more information at **888.249.4855**.

Part Number	GPM	Mix Range		Max. Delivery	Range PSI	Fittings	
		Low	High			In	Out
MIX05120	4.8	.25%	22.2%	48"	25-75	3/4" GHT	1/2" NPT
MIX05XMTK	Set of 14 metering tips ranging from 0.2 to 22.2%. Color coded.						

# FLUID MANAGEMENT - pH ISSUES

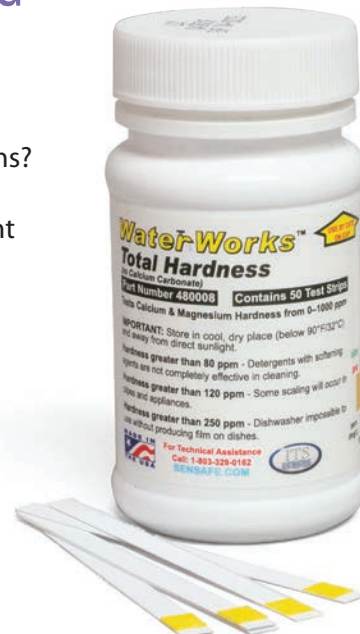
## HARDNESS TESTING STRIPS FOR MONITORING COOLANT CHEMICAL CONDITION

Why rely on your coolant guy to keep your coolant in its top chemical condition when it is so easy to do yourself, and prevent coolant problems?

Minerals in tap water adversely affect the chemical nature of the coolant emulsion. Each coolant works within a specific range of hardness so it is important to check the initial water supply for its hardness level. Then monitor each sump weekly, as evaporation leads to a build up of minerals – like scale on plumbing, which can cause problems.

### FEATURES

- Easy-to-use: Dip into fluid and compare your color reading to hardness (ppm) value color chart bottle label
- Results in 3 seconds
- Range of 0-1000 ppm calcium and magnesium
- 50 sticks per bottle
- One bottle lasts a year per sump



Part Number Shown: XWT50



# FLUID MANAGEMENT - pH ISSUES

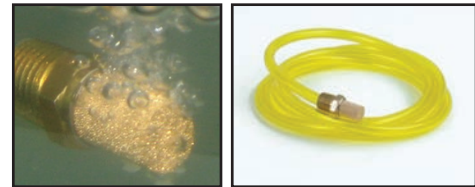
## OXYGENATOR™

REDUCES COOLANT RANCIDITY



### FEATURES

- Extends coolant life by maintaining high oxygen levels
- Prevents foul odors
- Fuel-grade tubing
- Industrial-grade diffuser
- 30-day warranty



Part Number	Description	Application	Capacity	Electrical	Dimensions (L,W,H)
XBUB5000	Medium Oxygenator	26-50 gal sump	3000 cc/min	110v	5" x 3" x 2.5" (127 x 76 x 64 mm)
XBUB8000	Large Oxygenator	51-100 gal sump	5000 cc/min	110v	7" x 4" x 3" (178 x 102 x 76 mm)

## CIRCULATING PUMPS

AERATE LARGE TANKS



### FEATURES

- Cost-effective method to circulate large fluid volumes
- Ideal for sumps or tanks over 100 gallons
- Directs coolant above fluid level to create waterfall/aeration pattern
- Includes pump, hose, and hose magnet
- 30-day warranty

Part Number	Description	Application	Capacity	Electrical	Dimensions (L,W,H)
FXP11.1	Centrifugal Pump	101-250 gal sump	5 gpm	110v	4" x 3" x 4" (100 x 76 x 100 mm)
FXP3.1E	Centrifugal Pump	101-250 gal sump	3 gpm	220v	4" x 3" x 4" (100 x 76 x 76 mm)



# FLUID MANAGEMENT - pH ISSUES

## ODOR CONTROL TABLETS

### CURES SUMP HANGOVER

Even with preventative coolant maintenance, some sumps still smell, especially after the weekend. The best short term solution is the Odor Control Tablet, which safely re-balances the coolant's pH-thus reducing the foul smell. Should your tank configuration not lend itself to proper aeration or the coolant batch is rather old, the Odor Control Tablet may also be your best long term solution.



15% more active ingredient than other brands

## PH STRIPS MONITOR COOLANT CHEMICAL CONDITION

Why rely on your coolant guy to keep your metal-working fluid in its top chemical condition when it is so easy to do yourself, and prevent coolant problems? Each coolant has its own chemical range, but all are between 8-10 pH. By monitoring each sump at least weekly, you can address other maintenance issues.

### FEATURES

- Easy to use: Dip into fluid and compare your color reading to pH value color chart
- Results in less than a minute
- Range of 6.5-10.0 (for coolant)
- Accuracy  $\pm 0.2$  pH (for coolant)
- 100 sticks per package

### FEATURES

- Eliminates sump odors caused by bacterial emissions (hydrogen sulfide)
- Safe for most coolants when used as directed Recommended dosage is 1 tablet per 25 gallons every 2 weeks
- Safer and more economical than biocides (contains no formaldehyde or other harmful chemicals)
- Works best when used with Oxygenator™
- 15 tablets per tube
- Each tablet measures 2" diameter

Part Number	Description
XOCT25	Odor control tablet, tube of 15
XOCT25-8	Odor control tablet case, 8-Pack of tubes
XOCT25-30	Odor control tablet case, 30-Pack of tubes



Part Number Shown: XPHPS09

Q. Why is it important to check the pH of my coolant (and what is pH anyway)?  
A. In basic terms, pH is an indication of the acidity or alkalinity of a fluid. Water has a pH of 7, which is neutral. An acidic fluid will range from 0-7 pH, and an alkaline fluid will have a range of 7-14 pH. pH levels in your coolant drop due to bacterial emissions. Since coolants have an operating range of 8-10 pH, even a .2 drop in pH level can cause a host of problems, ranging from rusty machines and parts to sump odor and skin irritations. With consistent pH monitoring and bacterial control methods, these problems can be prevented.

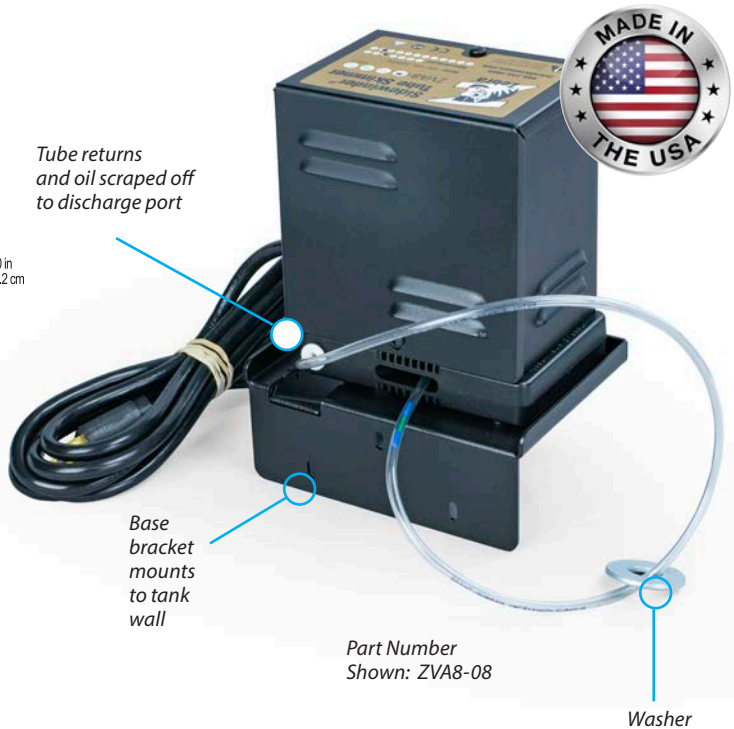
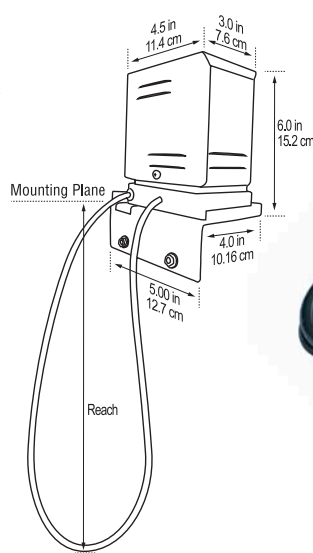
# MANAGING TRAMP OIL

## SIDEWINDER® TUBE SKIMMER

### THE SIDEWAYS SKIMMER™ SKIMS FROM ANYWHERE

Sidewinder removes oil from the tightest places, even off the floor. It can snake around corners, enter through narrow slits, and be moved from machine to machine in a minute. Combined with our 90-day warranty it's the best solution for your tramp oil problems.

- Lifetime warranty on wipers



## OPTIONAL ACCESSORIES



Diverter™ (#BGST4)



Magnetic base option (#ZXB8-MAG)  
Not for use with Diverter™



Integrated timer for mechanical skimmers (#XETIMER-GSBZ)



Sidewinder base plate (#ZVA8)

## FEATURES

- Compact and versatile design
- Installs in seconds
- Skims hard-to-access or enclosed sumps
- Rated at 1 liter per hour
- Skims underneath conveyors
- Skims across elongated surface areas
- Skims oil spills
- Industrial-grade oil pick up tubing
- Ceramic scraper wipes tube clean
- Ceramic scraper lasts forever
- Weighted tube keeps from walking
- Reach from 8 inches to 8 feet
- Large discharge port eliminates clogging
- Continuous-duty, fan-cooled motor

## NOTATIONS

- When ordering ZVA units the -\* (\* represents the reach in inches). See next page for all available lengths. ZVA requires access of 1/2 inch by 3 inches either horizontally or vertically. Maximum temperature for the tubing is ambient (no more than 90°F or 30°C).
- 220v, 50 Hz models available by adding "E" to the end of the part number.

# MANAGING TRAMP OIL

Part Number	Reach
Rated Capacity: 1 liter / hour Motor: 100-120v, 60Hz, 28 rpm	
ZVA8-08	8"
ZVA8-11	11"
ZVA8-14	14"
ZVA8-17	17"
ZVA8-20	20"
ZVA8-23	23"
ZVA8-26	26"
ZVA8-29	29"
ZVA8-32	32"
ZVA8-35	35"
ZVA8-38	38"
ZVA8-41	41"
ZVA8-44	44"
ZVA8-47	47"
ZVA8-50	50"
ZVA8-53	53"
ZVA8-56	56"
ZVA8-59	59"
ZVA8-62	62"
ZVA8-65	65"
ZVA8-68	68"
ZVA8-71	71"
ZVA8-74	74"
ZVA8-77	77"
ZVA8-80	80"
ZVA8-83	83"
ZVA8-86	86"
ZVA8-89	89"
ZVA8-92	92"
ZVA8-95	95"
ZVA8-101	101"

220v models available by adding "E" to the end of part number

## REPLACEMENT MOTORS



Part Number	Description
MZ07A1	Motor, 100-120v, 7rpm, Assembly, w/fan
MZ28E1	Motor, 240v, 23/28rpm, Assembly, w/fan
MZ28E2	Motor, short shaft 240v 23/28rpm RAW w/fan
MZ28J7	Motor, 100-120v, 28rpm, Assembly, w/fan
MZ28J8	Motor, short shaft 115v 28rpm RAW w/fan

Part Number	Reach
Tube & Gear Cartridge for Sidewinder	
ZXCART8-08	8"
ZXCART8-11	11"
ZXCART8-14	14"
ZXCART8-17	17"
ZXCART8-20	20"
ZXCART8-23	23"
ZXCART8-26	26"
ZXCART8-29	29"
ZXCART8-32	32"
ZXCART8-35	35"
ZXCART8-38	38"
ZXCART8-41	41"
ZXCART8-44	44"
ZXCART8-47	47"
ZXCART8-50	50"
ZXCART8-53	53"
ZXCART8-56	56"
ZXCART8-59	59"
ZXCART8-62	62"
ZXCART8-65	65"
ZXCART8-68	68"
ZXCART8-71	71"
ZXCART8-74	74"
ZXCART8-77	77"
ZXCART8-80	80"
ZXCART8-83	83"
ZXCART8-86	86"
ZXCART8-89	89"
ZXCART8-92	92"
ZXCART8-95	95"

Part Number	Reach
Tube assembly only for Sidewinder	
ZT8-08	8"
ZT8-11	11"
ZT8-14	14"
ZT8-17	17"
ZT8-20	20"
ZT8-23	23"
ZT8-26	26"
ZT8-29	29"
ZT8-32	32"
ZT8-35	35"
ZT8-38	38"
ZT8-41	41"
ZT8-44	44"
ZT8-47	47"
ZT8-50	50"
ZT8-53	53"
ZT8-56	56"
ZT8-59	59"
ZT8-62	62"
ZT8-65	65"
ZT8-68	68"
ZT8-71	71"
ZT8-74	74"
ZT8-77	77"
ZT8-80	80"
ZT8-83	83"
ZT8-86	86"
ZT8-89	89"
ZT8-92	92"
ZT8-95	95"
ZT8-116	116"
ZT8-165	165"
ZT8-216	216"



# MANAGING TRAMP OIL

## BELT OIL SKIMMER

### WITH POLY BELT

- Simple, easy vertical access, rugged, and reliable.
- Longer reach and wider belt skimmers are available, please call for quote.
- Warranties: 90-days on polyvinyl belts, 30-days on stainless belts
- **115v Standard Model**
- 220v, 50 Hz models available by adding "E" to the end of the part number
- Also available in 12/24 VDC versions by special request. These models can be directly powered and controlled by the backplane of your machining center.



BPF1-12 shown here  
(1" wide belt)

Long reach  
model with  
hanging  
lower pulley

## OPTIONAL ACCESSORIES



Diverter™ (#BGST4)



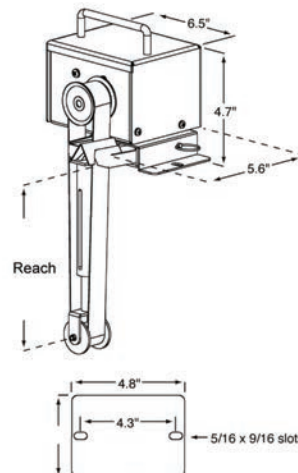
Lockjaw makes it easy to mount or transport between tanks (#BGX2)



Integrated timer for mechanical skimmers (#XETIMER-GSBZ)

## FEATURES

- Heavy-duty, steel construction
- Removable collection tray
- 1" and 2" wide models
- Fixed lower pulley (on reaches to 24")
- Hanging lower pulley (on reaches 36" and up)
- Continuous-duty, fan-cooled motor
- Dual wiper set with lifetime warranty
- 90-day product and components (steel belts 30 days)



# MANAGING TRAMP OIL

Part Number	Belt Dimensions (Width x Length)
BPF1-08	1x8"
BPF1-12	1x12"
BPF1-18	1x18"
BPF1-20	1x20"
BPF1-24	1x24"
BPF1-36	1x36"
BPF1-48	1x48"
BPF1-60	1x60"
BPF1-72	1x72"
BPF1-84	1x84"
BPF1-96	1x96"
BPF1-144	1x144"
BPF1-180	1x180"
BPF1.4-08	1x8" with integrated timer
BPF1.4-12	1x12" with integrated timer
BPF1.4-24	1x24" with integrated timer
BPF2-08	2x8"
BPF2-12	2x12"
BPF2-18	2x18"
BPF2-24	2x24"
BPF2-36	2x36"
BPF2-48	2x48"
BPF2-60	2x60"
BPF2-72	2x72"
BPF2-84	2x84"
BPF2-96	2x96"
BPF2-132	2x132"

BPF2-180 2x180"  
220v models available by adding "E" to the end of part number



## REPLACEMENT MOTORS

Part Number	Description
MB23E2	Motor, 220v, 28rpm, RAW w/fan
MB28A2	Motor, long shaft 115v, 28rpm RAW w/fan

## ACCESSORIES

Zebra offers flat polyurethane for coolant applications or flat stainless steel for harsher environments. Most are available in any width, and to your required circumference. Call **888.249.4855** for a quote.



Part Number	Size
Standard replacement poly belt	
BP-08	8" reach, 1" x 24.75" OAL
BP-12	12" reach, 1" x 32.75" OAL
BP-18	18" reach, 1" x 44.75" OAL
BP-24	24" reach, 1" x 56.75" OAL
BP-36	36" reach, 1" x 80.75" OAL
BP-48	48" reach, 1" x 104.75" OAL
BP-60	60" reach, 1" x 128.75" OAL
BP-72	72" reach, 1" x 152.75" OAL
BP-84	84" reach, 1" x 176.75" OAL
BP-96	96" reach, 1" x 200.75" OAL
BP2-08	8" reach, 2" x 24.75" OAL
BP2-12	12" reach, 2" x 32" OAL
BP2-18	18" reach, 2" x 44.75" OAL
BP2-24	24" reach, 2" x 56.75" OAL
BP2-36	36" reach, 2" x 80.75" OAL
BP2-48	48" reach, 2" x 104.75" OAL
BP2-60	60" reach, 2" x 128.75" OAL
BP2-72	72" reach, 2" x 152.75" OAL
BP2-84	84" reach, 2" x 176.75" OAL
BP2-96	96" reach, 2" x 200.75" OAL

Part Number	Description
Options for belt skimmer	
BGST4	Diverter for Sidewinder and Belt Skimmers
XETIMER	Timer, 24 hour, 48 settings per day, 110v
XETimer-GSBZ	Integrated Timer for GS, B, and ZVA, 120v
BGX2	Lockjaw Mounting Clamp, gen. 2
BXWIP	Wiper Set for Zebra Belt Skimmer, 1"
BXWIP-2	Wiper Set for Zebra Belt Skimmer, 2"
BXLP-12	12" x 1" Foot Assembly for Belt skimmer

# MANAGING TRAMP OIL

## BELT OIL SKIMMER

### WITH STAINLESS BELT

- Simple, easy vertical access, rugged, and reliable.
- Longer reach and wider belt skimmers are available, please call for quote.
- Warranties: 90-days on polyvinyl belts, 30-days or stainless belts
- 115v Standard Model
- 220v, 50 Hz models available by adding "E" to the end of the part number
- Also available in 12/24 VDC versions by special request. These models can be directly powered and controlled by the backplane of your machining center.



## OPTIONAL ACCESSORIES



Diverter™ (#BGST4)



Lockjaw makes it easy to mount or transport between tanks (#BGX2)



Integrated timer for mechanical skimmers (#XETIMER-GSBZ)

## FEATURES

- Steel, heavy-duty, rugged construction
- Removable, easy-to-clean collection tray
- Self-tensioning belt on fixed lower pulley for short reaches. Hanging pulley for long reaches
- Dual wiper set with lifetime warranty
- Continuous-duty, fan-cooled motor
- Outboard motor bearing available to maximize motor and belt life (BZ Option)
- Requires 2" diameter for access
- Capacities: 1" wide belt at 1 gallon per hour, 2" wide belt at 2 gallons per hour
- Maximum operating temperature is 212°F (100°C)
- Belt material is stainless steel
- Standard motor is 115v, 60 Hz
- **90-day warranty (Except on steel belts)**



# MANAGING TRAMP OIL

Part Number	Belt Dimensions (Width x Length)
BSF1-08	1x8" steel belt
BSF1-12	1x12" steel belt
BSF1-120	1x120" steel belt
BSF1-18	1x18" steel belt
BSF1-24	1x24" steel belt
BSF1-36	1x36" steel belt
BSF1-48	1x48" steel belt
BSF1-60	1x60" steel belt
BSF1-72	1x72" steel belt
BSF1-84	1x84" steel belt
BSF1-96	1x96" steel belt
BSF2-08	2x8" steel belt
BSF2-12	2x12" steel belt
BSF2-18	2x18" steel belt
BSF2-24	2x24" steel belt
BSF2-36	2x36" steel belt
BSF2-48	2x48" steel belt
BSF2-60	2x60" steel belt
BSF2-72	2x72" steel belt
BSF2-84	2x84" steel belt
BSF2-96	2x96" steel belt

220v models available by adding "E" to the end of part number



## REPLACEMENT MOTORS

Part Number	Description
MB23E2	Motor, 220v, 28rpm, RAW w/fan
MB28A2	Motor, long shaft 115v, 28rpm RAW w/fan

## ACCESSORIES

Zebra offers flat polyurethane for coolant applications or flat stainless steel for harsher environments. Most are available in any width, and to your required circumference. Call **888.249.4855** for a quote.



2" SS Belts shown in various lengths.

Part Number	Size
<b>Standard replacement stainless belt</b>	
BS-08	8" reach, 1" x 24.75" OAL
BS-12	12" reach, 1" x 32" OAL
BS-18	18" reach, 1" x 44.75" OAL
BS-36	36" reach, 1" x 80.75" OAL
BS-48	48" reach, 1" x 104.75" OAL
BS-60	60" reach, 1" x 128.75" OAL
BS-96	96" reach, 1" x 200.75" OAL
BS2-08	8" reach, 2" x 24.75" OAL
BS2-12	12" reach, 2" x 32" OAL
BS2-18	18" reach, 2" x 44.75" OAL
BS2-24	24" reach, 2" x 56.75" OAL
BS2-36	36" reach, 2" x 80.75" OAL
BS-24	24" reach, 1" x 56.75" OAL
BS2-60	60" reach, 2" x 128.75" OAL

Part Number	Description
<b>Options for belt skimmer</b>	
BGST4	Diverter for Sidewinder and Belt Skimmers
XETIMER	Timer, 24 hour, 48 settings per day, 110v
XETimer-GSBZ	Integrated Timer for GS, B, and ZVA, 120v
BGX2	Lockjaw Mounting Clamp, gen. 2
BXWIP	Wiper Set for Zebra Belt Skimmer, 1"
BXWIP-2	Wiper Set for Zebra Belt Skimmer, 2"
BXLPA-12	12" x 1" Foot Assembly for Belt Skimmer

# MANAGING TRAMP OIL

## SMART DISK SKIMMER REDUCES COOLANT WASTE



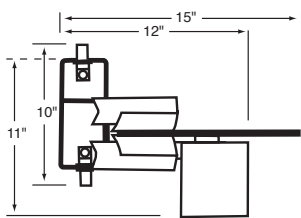
CE

GS4H300

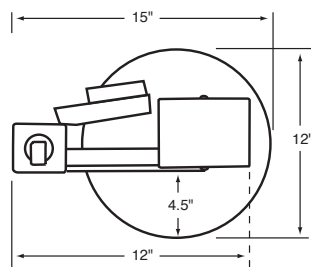


Integrated timer for mechanical skimmers (#XETIMER-GSBZ)

Top view of GS, 12" model



Side view of GS, 12" model



### FEATURES

- Most economical disk skimmer available for coolant use
- Integrated Diverter™ knows the difference between tramp oil and oil in coolant
- Saves nearly \$300 versus other disk skimmers
- Heavy-duty steel construction
- Continuous-duty, fan-cooled motor
- Lifetime warranty on wipers
- 90-day warranty on all other parts

Part Number	Description
<b>Smart Disk Skimmers</b>	
GS4H300	12" dia disk 115v 7rpm
GS4H300.4	12" disk, 115v, w/timer
GS4H460	18" dia disk 115v 7rpm
GS4H460.2	18" dia 115v 2rpm
GS4W300	12" HT disk, 115v, 7rpm
GS4W460	18" HT disk, 115v, 7rpm

220v models available by adding "E" to the end of part number

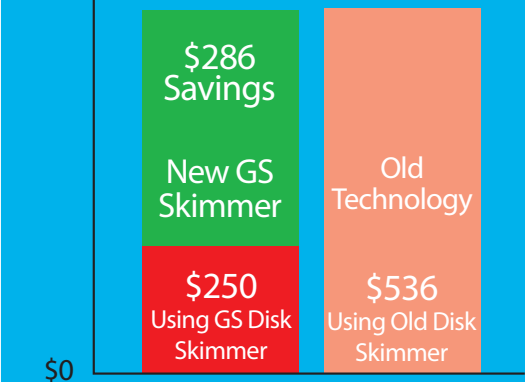
### ACCESSORIES

Part Number	Description
DISK-A300	Acrylic Disk, 12" dia., 3/16" thick
DISK-H300	High-Impact Disk, 12" dia, 1/4" thick
DISK-H460	High-Impact Disk, 18" dia, 1/4" thick
DISK-H610	High-Impact Disk, 24" dia, 1/4" thick
DISK-S300	High-Temp Disk, 12" dia, 14 gage, 304 SS
DISK-W300	High-Temp Disk, 12" dia, 1/2" thick
DISK-W460	High-Temp Disk, 18" dia, 1/2" thick
DISK-W610	High-Temp Disk, 24" dia, 1/2" thick
LXWIP	Wiper Set for Disk Skimmers, 2 per set

### Replacement Motors

MG02A1	Motor, 115v, 2rpm, Assembly w/fan
MG02A2	Motor, 115v, 2rpm, RAW w/fan
MG06E1	Motor, 220v, 6rpm, Assembly w/fan
MG06E2	Motor, 220v, 6rpm, RAW w/fan
MG07A1	Motor, 115v, 7rpm, Assembly w/fan
MG07A2	Motor, 115v, 7rpm, RAW w/fan

### Operating Costs Per Sump Per Year



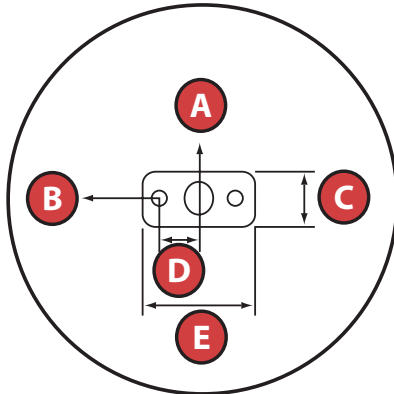
# MANAGING TRAMP OIL

## ORIGINAL DISK SKIMMER



### Mounting Pattern

- A. 21/64" (8.3mm)
- B. 3/16" (4.8mm)
- C. 23/32" (18.25mm)
- D. 1/2" (12.7mm)
- E. 5/32" (3.96mm)
- 9/64" (3.57mm) deep



Part Number	Description
<b>Original Disk Skimmers</b>	
LH300	12" disk 115v 7rpm
LH300.2	12" disk, 2rpm w/fan
LH460	18" disk 115v 7rpm
LH460.2	18" disk, 2rpm w/fan
LH460.4	18" disk 115v,w/timer
LW300	Extra High Heat - 12" HT disk, 115v, 7rpm
LW460	Extra High Heat - 18" HT disk, 115v, 7rpm
LW460.4	Extra High Heat - 18" HT disk, 115v, 7rpm w/ Timer

## ACCESSORIES

Part Number	Description
DISK-A300	Acrylic Disk, 12" dia., 3/16" thick
DISK-H300	High-Impact Disk, 12" dia, 1/4" thick
DISK-H460	High-Impact Disk, 18" dia, 1/4" thick
DISK-H610	High-Impact Disk, 24" dia, 1/4" thick
DISK-W300	High-Temp Disk, 12" dia, 1/2" thick
DISK-W460	High-Temp Disk, 18" dia, 1/2" thick
DISK-W610	High-Temp Disk, 24" dia, 1/2" thick
LXWIP	Wiper Set for disk skimmers, 2 per set

### Replacement Motors

MG02A1	Motor, 115v, 2rpm, Assembly w/fan
MG02A2	Motor, 115v, 2rpm, RAW w/fan
MG06E1	Motor, 220v, 6rpm, Assembly w/fan
MG06E2	Motor, 220v, 6rpm, RAW w/fan
MG07A1	Motor, 115v, 7rpm, Assembly w/fan
MG07A2	Motor, 115v, 7rpm, RAW w/fan

## FEATURES

- Handles heavy oil loads
- Heavy-duty steel construction
- Continuous-duty fan-cooled motor
- Does not retrofit for use with Diverter
- Lifetime warranty on wipers
- 90-day warranty on all other parts



# MANAGING TRAMP OIL

## Z17 COALESCER

### TRAMP OIL SEPARATOR FOR WATER BASED FLUIDS

The Z17 Coalescer and tramp oil separator is recommended for use on individual sumps, operating day and night. Tramp oil is removed and the sump circulates even if the machine's pump is off.

Sump circulation is key to preventing excessive bacterial growth. Bacteria will break down your coolant and create problems like those shown in the Coolant Troubleshooting Guide on page 25.

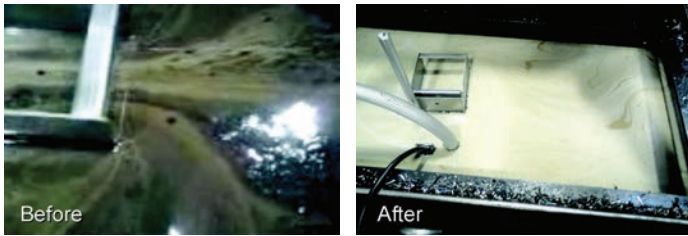


## FEATURES

- New, stronger coalescing tank
- Patent-pending Flexor, the first ever internal surface skimmer
- Concentrates late-separating oil
- Reduces surface-to-surface contact
- Forms column of oil allowing for better oil-only discharge
- Automatically aerates
- Prevents bacterial growth
- Cleaner fluid surface allows for chemical monitoring right from coalescing tank
- Choose from four passive skimmers or intake attachments
- IMPROVED-FLOW submersible, centrifugal pump
- NEW adjustable oil weir
- NEW external solids filtration allows for easier maintenance:
- 1 pint capacity, 177 $\mu$  stainless steel standard
- Three flow restrictors included to balance the Z17
- Coalescer to sump conditions
- Permanent coalescing media accelerates oil collection
- 10 minute hold time
- Heavier-duty, spin-welded fittings prevent cracking and leaks
- Crush resistant hoses can be customized
- Clean coolant returned back to sump via gravity
- Built-in siphon makes the coalescer easy to empty
- Drum dolly allows easy movement between machine sumps (Ordered separately)

# MANAGING TRAMP OIL

Tramp oil separation is further advanced with patent pending Flexor technology, the most advanced on the market today. In this Muscle model, a venturi at the fluid surface creates a turbulent zone to draw in perimeter oil and concentrates it within the central coalescing cartridge.



Flexor in action, with Sumpster, removing tramp oil (and a glob of biofilm), cleaning a neglected sump in under two hours.



## FEATURES

- Z17 – Next generation technology active coalescer
- Automatically freshens and aerates Featuring the first ever
- Internal surface skimmer (pat. pending) and more powerful pump
- Liberating 90% of the surface – giving you: Visual confirmation that it's working
- Easy access to the fluid for monitoring concentration

## HOW IT WORKS

1. Dirty coolant is pulled from your sump surface (using an intake attachment) into the coalescing tank.
2. The external filter captures recirculating fines. Larger capacity filter options available.
3. The oleophilic (oil-attracting) coalescing media gathers tiny oil droplets that are too tiny to rise to the surface on their own. The surface area of our media collects enough of them together, until they become large enough to float. Muscle will remove all oils that float our within 10 minutes.
4. The Flexor surface skimmer concentrates late-separating oils, containing them within the central coalescing cylinder. The formed column of oil allows for best oil-only discharge via the external spigot. Flexor provides a cleaner fluid surface, and automatically aerates to further prevent bacterial growth.
5. Clean coolant is returned from the bottom of the tank back to your sump via gravity.
6. Optional drum dolly.

Part Number	Description
FZ17.F1	Z17 Coalescer, Floating Sumpster, 115V
FZ17.F2	Z17 Coalescer, Floating Sumps
FZ17.H1	Z17 Coalescer, Hammerhead, 115v
FZ17.H2	Z17 Coalescer, Hammerhead, 2
FZ17.R1	Z17 Coalescer, Receipt, 115v
FZ17.R2	Z17 Coalescer, Receipt, 220V
FZ17.S1	Z17 Coalescer, Sumpster, 115v
FZ17.S2	Z17 Coalescer, Sumpster, 220V
FZ17MAIN	FZ17 Barrel complete, no attach
FXDD15	Drum dolly for F17 Series

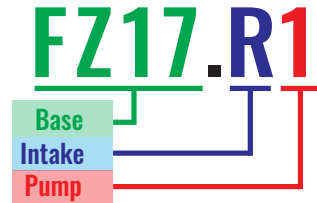
# MANAGING TRAMP OIL

## ATTACHMENTS FOR COALESCER

Zebra offers a wide range of intake attachments meeting the needs of any sump. We have something to meet your needs, whether you're dealing with limited access, large flux, or heavy chip loads.

### How to Specify Your Coalescer

Base	Intake	Pump
FZ17	R = Recept S = Sumpster H = Hammerhead F = Floating Sumpster	1 = 110v 2 = 220v



## BUILD YOUR MACHINE

### 1) Select intake attachments

#### Recept (R):

- Fits moderately tight areas
- Handles large fluid flux
- Moderate chip load

#### Sumpster (S):

- Fits moderately tight areas
- Handles low fluid flux
- Moderate chip load

#### Hammerhead (H):

- Fits tight areas
- Handles large fluid flux
- Low chip load

#### Floating Sumpster (F):

- Fits open access areas

- Handles large flux/turbulence

- Moderate chip load

### 2) Power the system

#### Centrifugal, 115v (1):

- Centrifugal, 115v

- Circulate coolant 24/7

#### Centrifugal, 220v (2):

- Centrifugal, 220v

- Circulate coolant 24/7



## ACCESSORIES

Part Number	Description
FMXPF001	FZ17 External Filter Option
FMXTSF915	Optional T-Strainer filter. 20 Mesh (915µ). Stainless Steel, 3.750" long. (1 Pint)
FXDD15	Drum Dolly for Muscle, F17 Series
SK02D	Hammerhead, head portion only
SK03D12F	Hammerhead with hoses for Coalescer
SK02D12F-HF	Hose & Fittings for Hamm/Recept w/FXP3 or 11
SK07R1.2	Recept II for Muscle Series
SK10A7	Sumpster II for Muscle Series
SK10A7-HF.1	Hose & Fittings for Sumpster for use w/ FXP11
SK10A8-HF	Hose & Fittings for Sumpster, for FM60
SK10B2.3P	Floating Sumpster III for Coalescer, plastic
SK10B2.3S	Floating Sumpster III for Coalescer, steel
SK10B3.3P	Floating Sumpster III for Oasis, plastic
SK10B3.3S	Floating Sumpster III for Oasis, steel
FXP11	Pump with hoses, 115v, Muscle Series
FXP11.1	Circulation Pump Kit, 115v, 5 gpm
FXP11.3	Pump only, 115v, FZ17Submersible, no fittings
FXP3.1E	Circulation Pump Kit, 3 gpm, 220v
FMXSF150	Optional Stainless Steel Mesh Filter Cartridge only for use with all Zebra Coalescers 10" long filter housings, 150 micron. Reusable.
SKF17-C01121	8' Coolant return hose for Coalescer
SKF17-H020417	10' Pump Discharge Hose for Coalescer

	Hammerhead™	Recept™	Sumpster™	Floating Sumpster™
<b>Dimensions:</b>	<b>4.5 x 3.25 x 1.75"</b>	<b>3 x 4 x 4.5"</b>	<b>5 x 4.25 x 4.63"</b>	<b>13 x 11 x 7"</b>
Flux in inches with submersible pump (external pump)	12 (24)	12 (24)	3 (3)	24 (36)
Floats on Surface:	Yes	Yes	No	Yes
Chip Screen:	No	Yes	Yes	Yes
Fluid Flow Specifications:	.5 – 1 gpm	.5 – 1 gpm	1 – 3 gpm	1 – 3 gpm
Construction:	PVC	HDPE	Galvanized Steel	Steel body. Aluminum backbone. Plastic floats (standard). Stainless steel optional.
Fluid Temp Range:	40°-90°F	40°-90°F	40°-90°F	40°-90°F
Recommendations:	Very tight access areas. Large fluid flux. Not for straight water. Not for chip loads. Not for fluids tending to foam.	Moderately tight access. Large fluid flux. Not for straight water.	Moderately open access. Minimal fluid flux. Harsh environments.	Very open access. Maximum fluid flux. Can handle turbulence. Harsh environments.
Order for Use with...				
Sub./Centrifugal Pump:	# SK02D12F	# SK07R1.2	# SK10A7	# SK10B2.3S (SS floats) # SK10B2.3.3P (Plastic floats)
Ext./Diaphragm Pump:	# SK02D24S	# SK07R1.2	# SK10A7	# SK10B3.3S (SS floats) # SK10B3.3P (Plastic floats)

# MANAGING TRAMP OIL

## RECEPT™

Recept™ is the newest member of our intake attachment family. It's capable of handling large flux with a greater capacity for suspended chips, and preventing the introduction of air into the pump. It fits into moderately tight areas, but is not recommended for large surface areas or in heated solutions.



SK07R1.2

## HAMMERHEAD™

Hammerhead™ removes tramp oils in hard-to-reach areas. The head floats on the surface allowing oil to flow into the openings. It fits into the tightest areas and can handle a very large flux. Not recommended for large fluid surface areas, heavy suspended chip loads, or with fluids where the introduction of air can be an issue.



SK03D12F

## SUMPSTER™

Sumpster handles heavier suspended chip loads and harsher fluid environments, such as heat or chemicals.

Sumpster can be positioned on its rod or attached to the tank wall. It also minimizes the amount of air introduced into the suction line. Disadvantages are that its flux handling capability is roughly 3 inches. Recommended when there is good sump or tank access and low flux.



SK10A7

## FLOATING SUMPSTER™

Floating Sumpster handles large fluid surface areas, large fluid flux, and even turbulence. This device has all the benefits of Sumpster technology, plus the ability to handle more extreme environments. Floating Sumpster can be configured to carry a submersible pump, reducing the need for an external pump, when fluid lift is not an issue. It can also be attached to an external air pump when greater power is essential.



SK10B2.3P (plastic floats)  
SK10B2.3S (steel floats)

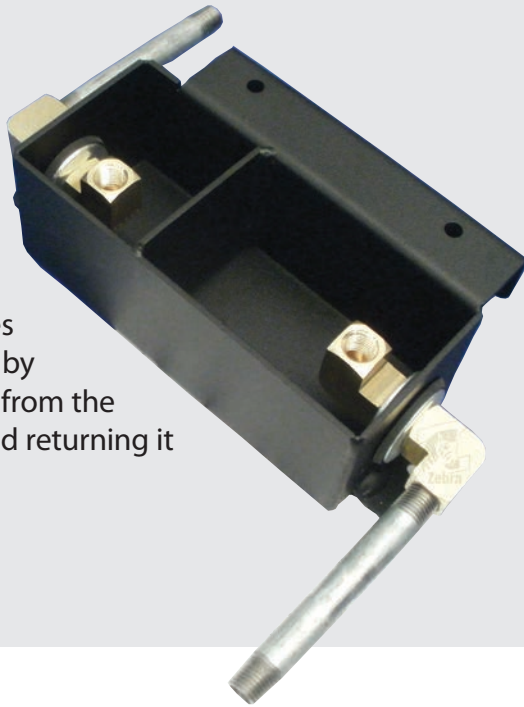


# MANAGING TRAMP OIL

## DIVERTER™ #BGST4

### SEPARATE TRAMP OIL WASTE FROM GOOD COOLANT

Good coolants can act like oil, which means a mechanical skimmer draws up some coolant along with the tramp oils. The Diverter saves your coolant by separating it from the tramp oils and returning it to the sump.

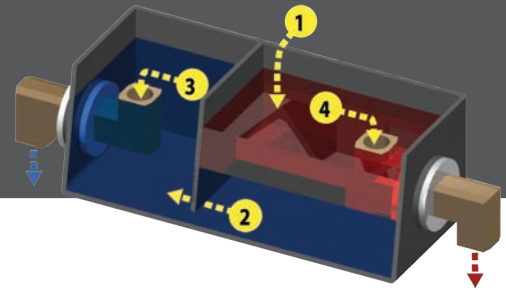


### FEATURES

- Heavy-duty steel construction
- Brass outlet ports with discharge pipes
- Mounting hardware included
- Works with Sidewinder and Belt Skimmer and many other brand skimmers
- For oil volumes to 2 quarts per hour
- 90-day warranty
- Dimensions: 7"x3"x2.5"

### HOW THE DIVERTER WORKS

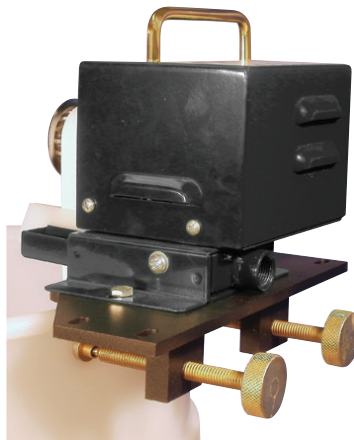
1. Oils (tramp and coolant) enter here
2. Coolant sinks and passes under this weir
3. Clean coolant returns to your sump here
4. Tramp oils discharge to waste container here



## LOCKJAW™ #BGX2

### MAKES INSTALLATION A SNAP

Hard-mounting a skimmer may be impractical for your operations due to machine maintenance. You may just want it to be portable. The Lockjaw mounts below the skimmer, allowing it to mount and be removed easily.



### FEATURES

- Heavy-duty steel construction
- Fits open drums or pails and tank walls to 1/4" thick
- Mounts below Zebra Belt Skimmer with or without Diverter
- Mounts below Sidewinder Tube Skimmer using Diverter only
- Lockjaw™ cannot work with disk skimmers
- 90-Day warranty

# MANAGING TRAMP OIL

## F16AC AIR COMPRESSOR CONDENSATE OIL REMOVAL SYSTEM

### THE MUSCLE COMPRESSOR COALESER THAT REDUCES WASTE BY 95%

Robust, yet simple, the Muscle Compressor Coalescer fits any budget, and almost any size compressor system. Do not be fooled by expensive systems with filter elements that require frequent replacement. Although the elements capture dirt, rust, or scale, these are not commonly regulated contaminants or in abundance to pose environmental concern.

- Durable, translucent barrel
- Spin-welded fittings to prevent leaks
- Coalescing media increases surface area for oils to readily collect and separate
- No consumable components
- Manual oil drain spigot
- Automatic air release vent
- Automatic de-oiled water drain port
- Will not overflow
- 90-day warranty



Part Number	Description	Dimensions	Inlet Pressure, Max.
F16AC	Muscle Coalescer for Air Compressor Condensate	12" Width x 20" High	150 psi

Accessory	
FXDD15	Drum dolly (Sold separately)

### HOW IT WORKS

1. Condensate inlet
2. Clean water discharge
3. Waste oil discharge
4. Coalescing media



# COOLANT QUALITY LOG

Machine Name/#: \_\_\_\_\_

Content Name: \_\_\_\_\_

Questions? Contact: \_\_\_\_\_

Refractometer Factor: \_\_\_\_\_

Fresh Charge Date: \_\_\_\_\_

## COOLANT MAINTENANCE PROTOCOLS:

- Manage Hardness (ppm)                      1x / week
- Manage Concentration (%)                      1x / day
- Manage pH    1x/ week
- Manage Tramp Oil (T/O)                      1x / day
- Manage Chips (Ch)                                      1x / day

## TARGET OPERATING PARAMETERS:

(Refer to your coolant product data sheet for these parameters)

ppm: \_\_\_\_\_ ± \_\_\_\_\_

% \_\_\_\_\_ ± \_\_\_\_\_  
(Refractometer reading x factor above = %)

pH \_\_\_\_\_ ± \_\_\_\_\_

Date	ppm	%	ph	T/O	Ch	Initial
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____

Date	ppm	%	ph	T/O	Ch	Initial
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____

Date	ppm	%	ph	T/O	Ch	Initial
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
























Date	ppm	%	ph	T/O	Ch	Initial
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____
_____	_____	_____	_____	Y/N _____	Y/N _____	_____

# TECHNICAL INFORMATION

## COOLANT TROUBLESHOOTING GUIDE

This chart will assist you in troubleshooting coolant failures and was designed to provide a visual reference to indicate these failures and how they may be traced to one or multiple sources for correction. You may also reference what other failures may arise if one or more of the preventative maintenance issues are mismanaged or entirely neglected.

For instance, your coolant emits a foul odor. This failure is traced to poor management of Tramp Oil and pH. You may need to skim tramp oil more frequently (every day is recommended), aerate the fluid (when not in use), and monitor pH levels (once a week) to prevent recurrence. You may also be experiencing other problems that are caused by the same neglect, such as split emulsions, rust, and skin sensitivity.

Hardness (ppm)	Concentration (%)	pH (pH)	Tramp Oil (T/O)	Chips (Ch)
 Split Emulsions		 Split Emulsions	 Split Emulsions	 Split Emulsions
 Gummy Residues	 Gummy Residues		 Emulsified Oils	 Emulsified Oils
 Rust	 Poor Finishes	 Rust	 Rust	 Poor Finishes
 Foam	 Premature Tool Wear	 Foul Odor	 Foul Odor	 Premature Tool Wear
 Grease Formations	 Skin Sensitivity	 Skin Sensitivity	 Skin Sensitivity	 Grease Formations

**H = HIGH VALUE**

**L = LOW VALUE**

### DETERMINING COOLANT REFILL PERCENTAGE

Let's say you want to maintain a 5% concentration in your sump. You currently measure 8%, and the 50 gallon sump is only half full. This means you have to add another 25 gallons. But if you add 25 gallons at 5%, your entire sump will then have a concentration of 6.5% - not 5. What do you do? The calculations are shown below. Please feel free to give us or one of our many knowledgeable distributors a call if you have any questions.

1. What's the real amount of concentrate in your ideal 5% sump? = 2.5 gallons
2. How much refill concentrate do you need? = 0.5 gallons
3. What is the concentration for the 25 gallons of refill? = 0.5 gal of concentrate ÷ 25 gallons of fluid required = .02, or 2% concentration.



### COOLANT MAINTENANCE COURSES

Learn valuable information with our intensive set of **FREE**, self-paced courses on the latest coolant maintenance technologies. **Ask about it today by calling 888.249.4855.**





NATURAL + HONEST + STRONG

25% of the Metal working employees have Skin Issues. Uncle Earls Soap is the only 100% All Natural ingredient Soap that can do the cleaning and also put the moisture back in your hands.

## STRONGEST NATURAL SOAP ON THE MARKET

### HOW WE MAKE IT

We make our soap using old-fashioned techniques and modern technology. Most importantly, we start with natural ingredients like soy and castor oils - things you could eat because they come from plants. None of our ingredients come from industrial chemical factories, and none have names you can't pronounce. None of them come from China. Our fragrances are real essential oils from lemon, orange and lavender flowers. Compare our ingredients to the competition's; we're PROUD of our ingredients, so we write them large.

### TWO-PART FORMULA

Our secret two-part formula creates lather that's rich and luxurious, and also contains strong cleaning agents for the toughest natural stains, like grass, clays and oils.

## HEALS DAMAGED SKIN AS IT CLEANS

## MADE FOR MACHINIST

Originally developed as a hand soap for machinist, whose hands are ripped apart by solvents and chips. Conventional soap dries out their skin so that they crack and bleed. Using Uncle Earl's allows their skin to protect itself and heal the damage unlike any other product.



### DO THE MATH!

A gallon of cheap stuff goes for \$10.

Each stroke of the plunger gives you about a half to a full ounce, depending on the brand.

1 Gallon = 128 ounces  
If ONLY one stroke per wash is used (which they DON'T) then there is 128 washes in one gallon.  
3 gallons = \$30 = 374 washes

### Uncle Earles

HALF gallon of Uncle Earl's is extremely concentrated

You only need one stroke, but lets say two strokes is used.  
2 strokes = .07 ounces  
1 container = 67.6 ounces  
1/2 Gallon = \$42.00 = 500 washes



# DAZZLE™ FLUID MANAGEMENT SYSTEMS

Affordably Automate Coolant Mixing, Delivery, and Sump Level Maintenance

Free your maintenance team and operators from unproductive work. The Zebra® Dazzle™ Fluid Management Systems take the guesswork out of coolant delivery and concentration management. Automatic sump level monitoring and delivery ensures that machines will not run out of coolant, compromising production runs, tool life, and quality.

Available in two configurations, the entry level **Dazzle™ 1** and the Industry 4.0 **Dazzle™ 2**.

## COMPARISON OF BENEFITS

DAZZLE™ BENEFITS	DAZZLE™ 1 AUTOMATED SUMP LEVEL MANAGEMENT	DAZZLE™ 2 AUTOMATED COOLANT CONCENTRATION MANAGEMENT
Reduce coolant usage	■	■
Precision coolant mixing	■	■
Sump level management	■	■
Manages pit sumps	■	■
Manages machine center sumps	■	■
Refractometer based coolant concentration management		■
Modular	■	
Remote management		■
Data capture & analytics		■
Compatible with lights out operations		■



### Benefits of the Dazzle™ Systems:

- Reduces waste in valuable work pieces and tooling
- Reduces labor, no more bucket brigades
- Reduces coolant usage up to 50%
- Increases productivity of operators, maintenance, and other personnel
- Increases your environmental and OSHA safety margins
- Improves your confidence in lights-out operations
- Improves your bottom line



# Zebra<sup>®</sup> Skimmers

YOUR SOURCE FOR COOLANT MAINTENANCE  
EQUIPMENT, TECHNICAL SUPPORT, AND EXPERTISE.

Access a technical library on  
metalworking fluid issues and  
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For a distributor near you call **888.249.4855**  
Or this local distributor below: