

BONDERITE®

Metal Pretreatment, Cleaners and Specialty Coatings

Functional Coatings Equipment

Volume 3



Henkel

Henkel.

Improving your designs, understanding your challenges.

PROVEN SOLUTIONS FOR ALL YOUR NEEDS – TODAY AND TOMORROW

Manufacturers face daily challenges – reducing costs, improving efficiency and increasing innovation, to name just a few. While there are many suppliers to choose from, they're not all created equal. You need a supplier with a broad product portfolio, a global footprint, and the engineering and application know-how to solve your challenges. A supplier who can help you maintain your high quality while developing advanced new products, including state-of-the-art equipment solutions.

Henkel, **the leading solution provider for adhesives, sealants and functional coatings worldwide**, offers much more than quality Functional Coatings. With our history and experience in the industry, our experts can help you find ways to optimize your manufacturing processes and drive down costs. We can help you increase your process efficiency and we're continually developing innovations to help you succeed in the future.

Let us show you the value Henkel offers.

Functional Coatings and Metal Pretreatment Solutions

Functional Coating Equipment Solutions

Over the past 30 years, Henkel has designed, built and integrated advanced equipment solutions to optimize the application of metal pretreatment products, providing trusted, high quality services to our customers. We offer a complete line of application equipment, process controls, pretreatment support equipment and other specialty systems that can be easily integrated into your existing manufacturing processes.



INNOVATION

More than 30%
of our sales come from products
launched in the past five years.



GLOBAL SUPPLY CHAIN

and chemical management services
to maintain a **reliable supply**
of products to our customers.



CUSTOMIZED SOLUTIONS

We will create the formula and equipment
that meets your **exact** requirements.



BROAD PRODUCT PORTFOLIO

to provide the optimum
solution for your challenges.



GLOBAL SUPPORT

no matter where in the
world you're **located**.



COMPLETE EQUIPMENT LINE

that can be **easily**
integrated into your
manufacturing process.



COMPREHENSIVE TESTING

and teardown analysis to
back up our product and
process solutions.



ENGINEERING SERVICES

10 R&D centers
around the world staffed by 3,000 design,
application and manufacturing reliability
professionals.

WHY HENKEL?

Henkel will work with you to optimize
your manufacturing process, identify
improvements, and solve
your toughest challenges.

**We're your partner
every step of the way.**

WORLDWIDE FUNCTIONAL COATINGS RESEARCH AND DEVELOPMENT

Madison Heights, USA
Rocky Hill, USA

Dusseldorf, Germany

Bologna,
Italy

Shanghai, China

Ecatepec,
Mexico

Pune, India

ENGINEERING SOLUTIONS

Henkel's global network of engineering and R&D centers is staffed by 3,000 design and application professionals. We offer complete engineering services from application and design support to process optimization and a full array of analytical and testing services.





PROCESS CONTROL SYSTEMS | 7

Lineguard® 47	8
Lineguard® 97	9
Parts & Accessories	12



PRETREATMENT SUPPORT EQUIPMENT | 13

Chemical Metering Pumps	14
HST 2, 5, 8, 25, 60	14
Chemical Metering Pumps Replacement Parts & Accessories	16
Lineguard® Flow Totalizer	17
Air Diaphragm Pumps	18
Air Diaphragm Pumps Replacement Parts & Accessories	18
Level Controls	19
Level Control Assemblies	19
Level Control Assemblies Replacement Parts & Accessories	20
Coalescing Oil Separators	21
Lineguard® Ion Exchange 872 System	22
Spray Nozzles	23



TEST EQUIPMENT & DATA MANAGEMENT SYSTEMS | 34

Lineguard® 101D Meter & Options	35
---------------------------------------	----



FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS | 36

The Henkel Portfolio	36
----------------------------	----

PROCESS CONTROL SYSTEMS





PROCESS CONTROL SYSTEMS

Henkel Total Solutions: Products, Technical Expertise and Equipment

Henkel has maintained a tradition of supplying state-of-the-art process control systems to manage our customers' pretreatment operations.

PROCESS CONTROL SYSTEMS

Lineguard® Solid State Systems

Our Lineguard® control systems have been able to streamline process steps, increase efficiencies, and improve overall quality. We have been able to demonstrate washer chemical savings of up to 10% to 25%, water usage savings of up to 5% to 30%, and quality improvements (reduced paint line rejections) of up to 10% after Lineguard® system installations. Henkel process control systems promote sustainability, chemical safety, lower water use, and can help reduce the burden on waste treatment facilities.

Our Lineguard® product line is entirely customizable and can be incorporated to monitor or control a single stage or more complex multi-stage pretreatment configurations. Whether a customer wishes to upgrade an existing pretreatment line or build a completely new process, Henkel's functional coatings experts will typically visit each plant to discuss, with all levels of plant personnel, their end-product quality requirements. Once we clearly understand the customer's goals and level of investment, we work with the customer to design a system to meet the company's quality and budgetary needs, and ultimately recommend the most appropriate process system for their plant.

In addition to working closely with our customers during the initial design phase, Henkel maintains high quality standards by involving our customers during the phases of final design and system build. All of our customers are offered the opportunity to have our trained functional coatings specialists visit the facility before the installation of equipment. During the commissioning phase of each system, Henkel can also conduct in-plant training, for all required personnel, on the system's proper use and maintenance.

In the competitive world of metal pretreatment, in which quality is of the utmost importance, Henkel's Lineguard® systems can document and archive production data, provide Statistical Process Control (SPC) analysis of any set of data, and assist our customers in meeting the ISO/ QS quality requirements that their customers demand. The stringent requirements of data and quality management investigated during external audits of Henkel customers are often satisfied once it is discovered that a Henkel process management system is in control of the pretreatment and paint line.

Whether your production line is large or small, or if you want to build a new line or merely upgrade an existing process, contact a Henkel sales representative about an in-plant survey to assess your facility's requirements today.

Lineguard® Solid State Systems

If it's a simple, inexpensive chemical feed system that's required, Henkel has a complete line of solid state automatic chemical dosing systems to offer. Both our Lineguard® 47 and Lineguard® 97 systems can be configured with a variety of sensing systems to control most cleaning and/or phosphating chemical replenishment requirements, as well as manage rinse water quality.

Henkel has designed these systems to be easily installed, at most customer plants, and to contain an easy-to-read operator interface. Changes in set points and alarm settings are made with the touch keypad on the faceplate of both the Lineguard® 47 and Lineguard® 97 units. With the use of our cable extension kits for conductivity probes, these units can be mounted up to 100 feet away from the on-line pretreatment tanks.

All instructions, manuals and easy-to-read installation guides are provided to our customers with each Lineguard® 47 and Lineguard® 97 unit, and can usually be installed and commissioned without in-plant assistance. Our equipment experts are always available to assist our customers with any questions they may have during installation and startup, and our field service team is prepared to provide on-site training to all levels of plant personnel.



Lineguard® 47



Lineguard® 97

ITEM #	2250045	2246819
TYPICAL CONTROL SYSTEM	Alkaline cleaner bath or phosphating bath	Both alkaline cleaner bath and phosphating bath
INPUT DEVICE TYPE	Electrodeless/contact conductivity, pH, or ORP	Electrodeless/contact conductivity, pH, or ORP
CABLE EXTENSION KIT	Yes, optional 100' electrodeless conductivity	Yes, optional 100' electrodeless conductivity
INPUT/OUTPUT CHANNELS	1/1	3/3

PROCESS CONTROL SYSTEMS

Lineguard® 47, Item 2250045

Henkel's Lineguard® 47 is a single channel controller designed to control or monitor a single bath parameter, such as conductivity, pH or ORP (redox). This unit provides high quality, cost-effective concentration control for most pretreatment solutions. The unit is built to endure rigorous factory conditions, utilizing a NEMA 12 chemical resistant enclosure. Installation is easy, maintenance requirements are minimal, and it is easy to learn how to make changes to process set points.

The Lineguard® 47 controller features alarm relays that can be used to activate visual or audio alarming devices, such as a light beacon or a horn. The alarm will be activated when the process is outside the controller set points. Process set points and alarm limits are easily adjusted on the faceplate of the panel and can be viewed on the LCD display.

While the Lineguard® 47 system can be used as a stand-alone process controller for smaller lines, it can also be part of a Henkel distributed process control system, utilizing more than one unit. Special modules are available to control rinse bath contamination and dual chemical feed pump control.



Lineguard® 47 FEATURES AND SPECIFICATIONS

ENCLOSURE	<ul style="list-style-type: none"> • Chemical Resistant NEMA 12 rated
DIMENSIONS	<ul style="list-style-type: none"> • 11.4" H x 8.8" W x 3.8" D
OPERATING RANGE	<ul style="list-style-type: none"> • 32° to 122°F (0 to 50°C) • 0 to 90% relative humidity (non-condensing)
POWER REQUIREMENTS	<ul style="list-style-type: none"> • 120 VAC 50/60 Hz 5 amp minimum
SENSOR: Note: Only one sensor can be used	<ul style="list-style-type: none"> • Electrodeless conductivity • pH • ORP • Temperature • Contact Conductivity
MEASURING RANGE	<ul style="list-style-type: none"> • Electrodeless conductivity – 0 to 2, 0 to 20, or 0 to 200, mS/cm • Contact conductivity – 0 to 2, 0 to 20, or 0 to 200 uS/cm • pH - 0-14 pH, 2-12 pH, 3-8 pH • ORP - 0-1,000 mV, -500 to +500 mV
INPUTS	<p>One control input can be used for:</p> <ul style="list-style-type: none"> • Electrodeless Conductivity • Contact Conductivity • pH • ORP (redox) • Each module has external interlock option
OUTPUTS	<ul style="list-style-type: none"> • All 120 VAC 50/60 Hz, 2 amps, non-fused relays • One control output to activate a device • One output for general system alarm
OPERATION	<ul style="list-style-type: none"> • Manual / off / auto • Bath temperature compensation ambient to 185°F (85°C) • One set point for chemical concentration control • One set point for concentration alarm, low or high

Lineguard® 97, Item 2246819

The Henkel Lineguard® 97 control system has three individual sensing and control loops that can be configured for any combination of electrodeless conductivity, contact conductivity, oxidation/reduction potential (ORP), pH or temperature control. The unit provides high quality, cost-effective control for most small to mid-size pretreatment lines. It is built to endure rigorous factory conditions, utilizing a NEMA 12 chemical resistant enclosure. Installation is easy, maintenance requirements are minimal, and it is easy to learn how to make changes to process set points.

The Lineguard® 97 system features several types of outputs to notify plant personnel of changes in operating conditions: Each channel offers a chemical feed output, an alarm output, and a 4-20 mA DC analog output. Process set points and alarm limits are easily adjusted on the faceplate of the panel and can be viewed on the LCD display. Also included are spray pump interlock relays with each channel (module) to limit chemical additions to only when the bath's spray pump is in operation.

While the Lineguard® 97 system can be used as a stand-alone process controller for smaller lines, it can also be part of a Henkel distributed process control system, utilizing more than one unit. Special modules are available to control rinse bath contamination, auto-draining (contamination control) of alkaline cleaner baths, and dual chemical feed pump control.



Lineguard® 97 FEATURES AND SPECIFICATIONS

ENCLOSURE	<ul style="list-style-type: none"> • Chemical Resistant NEMA 12 rated
DIMENSIONS	<ul style="list-style-type: none"> • 11.4" H x 8.8" W x 3.8" D
OPERATING RANGE	<ul style="list-style-type: none"> • 32° to 113°F (0 to 45°C) • 0 to 90% relative humidity (non-condensing)
POWER REQUIREMENTS	<ul style="list-style-type: none"> • 120 VAC, 50/60 Hz 5 amp minimum
SENSOR: NOTE: up to 3 sensors can be used	<ul style="list-style-type: none"> • Electrodeless conductivity • pH • ORP • Temperature • Contact Conductivity
MEASURING RANGE	<ul style="list-style-type: none"> • Electrodeless conductivity – 0 to 2, 0 to 20, or 0 to 200, mS/cm • Contact conductivity – 0 to 2, 0 to 20, or 0 to 200 uS/cm • pH - 0-14 pH, 2-12 pH, 3-8 pH • ORP - 0-1,000 mV, -500 to +500 mV
INPUTS	<ul style="list-style-type: none"> • Module dependent, up to three modules • Electrodeless Conductivity • Contact Conductivity • pH • ORP (redox) • Each module has external interlock option
OUTPUTS	<ul style="list-style-type: none"> • All 120 VAC 50/60 Hz, 2 amps, non-fused relays • Max.3 digital outputs • 1 analog (4-20 mA) • RS232 interface
OPERATION	<ul style="list-style-type: none"> • Manual / off / auto • Bath temperature compensation ambient to 185°F (85°C) • One set point for each chemical concentration control • Set points for each concentration alarm, low and high • Dead band adjustment on each module, low and high

PROCESS CONTROL SYSTEMS

Replacement Parts & Accessories: Lineguard® 97

Item #	Category	Description
1739319	Module	LG97 Relay Output Module
1598683	Module	LG97 EC Control Module
1598685	Module	LG97 CC Module
2028846	Module	LG97 ORP (redox) Module
1598684	Module	LG97 pH Input Module
2250042	Accessory	LG97 Pump Relay Ctrl Panel
2251450	Accessory	LG Sensor Mounting Disc, 316L SS
2251449	Accessory	LG97 Calibration Kit - Loop Resistors
2282381	Accessory	LG97 COND CABLE EXT
2282380	Accessory	LG97 COND JUNCTION BOX
2251349	Sensor	LG97 pH Sensor, Gel Filled, Flat Glass
2251813	Sensor	LG97 ORP Electrode, BNC
2251814	Sensor	LG97 Sensor Immersion Kit
2251815	Sensor	LG97 ORP Sensor (FL Resistant)
2252171	Sensor	LG97 Contact Conductivity Sensor
2246821	Sensor	LG97 EC Sensor Immersion

FOR MORE INFORMATION

Our Lineguard® control systems are easy to design and lay out to meet your particular process management needs. For most applications, we can develop a system proposal after discussing your specific requirements.

When contacting a Henkel equipment specialist, having the following information available to review with your Henkel sales representative will greatly facilitate this process:

- 1) Pretreatment line layout, stage-by-stage
- 2) Henkel chemical process name for each stage
- 3) Operating concentration of each process
- 4) Operating temperature of each process
- 5) Needs you have for data management

Call a Henkel equipment specialist at 1-800-562-8483 with your information and have a system layout and equipment proposal sent directly to you.

PRETREATMENT SUPPORT EQUIPMENT

PRETREATMENT SUPPORT EQUIPMENT




A major part of any effective process control system is the ancillary or “Support Equipment” chosen to maximize process efficiencies. Support Equipment can be used to maintain tighter control limits to the process, recycle processing solutions for longer bath life, reduce fresh water requirements, or to minimize waste loading to a general waste collection system. Henkel offers a wide range of both standard and custom Pretreatment Support Equipment, all created around Henkel pretreatment processes and designed to ensure those processes run optimally.

SUPPORT EQUIPMENT

Chemical Metering Pumps

Henkel's HST pumps are versatile, high quality, chemical metering pumps. Designed and manufactured by Henkel specifically for our chemical processes, the HST pumps deliver accurate feed rates from less than 1 GPH up to 60 GPH. Henkel offers five models: HST 2, HST 5, HST 8, HST 25 and HST 60. All pumps are compatible with most Henkel chemicals and are built to the high quality and reliability standards that are a trademark of Henkel.

When used in combination with our Chemical Metering Pumps, Henkel's flow totalizer system provides an accurate means of measuring chemical usage over any period of time. Our flow totalizer system can act as either a stand-alone system or can be integrated into our process control systems.

	HST 2	HST 5	HST 8	HST 25	HST 60
					
Item #	2246816	2246808	2246805	2246813	Special order - call for quote
Voltage	120 VAC/60 Hz	120 VAC/ 60 Hz	120 VAC/ 60 Hz	120 VAC/60 Hz	120 VAC/ 60 Hz
Delivery Rate	0-2 GPH	1-5 GPH	1-8 GPH	3-25 GPH	3-60 GPH



HST 2 Item 2246816

The HST 2 pump provides the high accuracy and repeatability required for lower volume applications.

FEATURES AND SPECIFICATIONS

- Both stroke and pulse (frequency) adjustment for fine control of delivery rate
- Digital display
- Dual check valve assemblies to ensure better self-priming and consistent delivery rates
- Indicator lights, power on, stroke indicator, and fault
- High reliability
- Voltage is 120 VAC, 60 Hz
- Materials compatible with most of Henkel's liquid products
- Pulse control
- Pulse multiplication and division
- Pulse storage



HST 5 - Item 2246808

HST 8 - Item 2246805

HST 25 - Item 2246813

HST 60 - Special Order

The HST 5, HST 8, HST 25 and HST 60 pumps provide the superior operation and longer life for the higher demand of a larger pump.

FEATURES AND SPECIFICATIONS

- Manual stroke adjustment for control of delivery rate
- On/off switch
- Dual check valve assemblies to ensure better self-priming and consistent delivery rates
- "Power on" indicator light
- High reliability
- Voltage is 120 VAC, 60 Hz (220 VAC available upon request)

SUPPORT EQUIPMENT

Replacement Parts & Accessories: Chemical Metering Pumps

Item #	Category	Description
2251334	Accessory	Pump Polypro Foot Valve
2251333	Accessory	Pump Universal Foot Valve Assy
2252169	Accessory	Pump Tubing - 3/8" OD 50 FT PP
2252168	Accessory	Pump Tubing - 1/2" OD 50 FT PP
2246825	Spare Part	Pump HST 1&2 Coupling & Ferrule
2246824	Spare Part	Pump HST 1&2 Suction Valve 3/8" (OD)
2246827	Spare Part	Pump HST 1&2 Discharge Valve 3/8"
2246426	Spare Part	Pump HST2 Diaphragm
2246822	Spare Part	Pump HST 5&8 coupling with SS ferule
2246809	Spare Part	Pump HST-5 & 8 Suction Valve
2246810	Spare Part	Pump HST-5 & 8 Discharge Valve
2246806	Spare Part	Pump HST-5 Diaphragm
2246803	Spare Part	Pump HST-8 Diaphragm
2246817	Spare Part	Pump HST 25 Coupling w Ferrule
2246814	Spare Part	Pump HST-25 & 60 Suction and Discharge Valve
2246811	Spare Part	Pump HST-25 Diaphragm

FOR MORE INFORMATION

Please contact your local Henkel sales rep, or contact the equipment support team at 1-800-562-8483.

Lineguard® Flow Totalizer

Henkel's Lineguard® flow totalizer system is the combination of a digital flow monitor with our paddle-wheel design flow sensor to measure the amount of chemical dosages to various processes. Our Lineguard® flow totalizer system has been developed to fit the entire line of Henkel Chemical Metering Pumps. The flow monitor will display the total gallons of chemical used and, if desired, may be switched to display the current flow rate in GPH (average rate only). The reading may be re-set by the operator.

The Lineguard® flow totalizer system is accurate, easy to install and compatible with most of Henkel pretreatment products. It is an effective tool for customers who need to track their chemical costs or usage rates to the various stages of their washers. The Lineguard® flow totalizer system can either act as stand-alone devices on a processing line, or can be integrated into most of our Lineguard® process control systems as part of a complete process management program. A DC pulse output is available on the flow display unit for this purpose.

Enclosed in a NEMA 4X, IP67 panel, the flow totalizer display is easy to read and easy to install. Just mount the display panel near the pump, install the flow sensor on the input of the pump, and plug the unit into a 110 VAC outlet. The unit is prewired with easy, plug-in cables. Perform a simple calibration procedure and the Lineguard® flow totalizer system is ready for operation.



Flow Computer



Flow Sensor

FEATURES AND SPECIFICATIONS

Input Power	<ul style="list-style-type: none"> • Flow Computer: 110 VAC, 50/60 Hz 4-20mA Loop Powered (option) • Flow Sensor: 6-36 VDC, 2mA min.
Max Temperature Rating	<ul style="list-style-type: none"> • Flow Computer: 130°F • Flow Sensor: 160°F
Flow Rate	<ul style="list-style-type: none"> • 3/8" NPT 0.07 to 5 GPM • 1/2" NPT 0.1-10 GPM • 3/4" NPT 0.2-20 GPM • 1" NPT 0.5-40 GPM
Pipe Sizes	<ul style="list-style-type: none"> • 3/8" NPT • 1/2" NPT • 3/4" NPT • 1" NPT

Special Order - Call for Quote

SUPPORT EQUIPMENT

Air Diaphragm Pumps



The Air Diaphragm Pumps offered by Henkel are manufactured for general and special applications found in the chemical industry. All of Henkel's air-operated pumps are capable of pumping a wide variety of materials from chemical slurries to high viscosity materials.

Our Air Diaphragm Pumps are actuated by plant air that has been regulated by filter-regulator assemblies, available from Henkel, to provide the desired delivery rate. When used in conjunction with an air solenoid valve, also available from Henkel, our Air Diaphragm Pumps can be used with our Lineguard® process control systems to manage appropriate feed of the chemical slurry or high viscosity product to the desired processing tank.

The pumps are constructed of materials ranging from cast iron, polypropylene and stainless steel. All pumps have PTFE diaphragms and seals with the exception of the cast iron pump, which has Buna-N diaphragm and seals. Pump sizes range from ½" NPT to 1" NPT.

Common Uses

- Feeding chemical slurries to a process tank
- Transferring products from a bulk tank to a day tank
- Moving process solutions to, and/or from, a coalescing oil separator
- Metering chemical slurries or high viscosity products with a Lineguard® process control system
- Transferring waste streams from waste collection sumps

	1/2" Air Diaphragm Pump	1" Air Diaphragm Pump
		
Item #	2251338	2251811
Connections	½" NPT	1" NPT
Head	Polypropylene	Polypropylene
Diaphragms & Elastomers	PTFE	PTFE
Operation	Air operated	Air operated
Capacity	6 gal/min @ 40 psi	20 gal/min @ 40 psi

The air-operated ½" NPT pump has a polypropylene head with PTFE diaphragm and elastomers. Capacity is 6 gal/min at 40 psi.

The air-operated 1" NPT pump has a polypropylene head with PTFE diaphragm and Viton® elastomers. Capacity is 20 gal/min at 40 psi.

Replacement Parts & Accessories: Air Diaphragm Pumps

ITEM #	CATEGORY	DESCRIPTION
2282383	Accessory	Air Filter Regulator
2282383	Accessory	Needle Valve

Level Controls

Henkel's level control assemblies have set the industry standard for problem-free solution level control. These level controls provide proven reliability and are used in a wide range of applications. Many installations have been operating, virtually maintenance-free, for over 20 years and are still in use today.

The level control assemblies are a robust Henkel design and not available anywhere else. These units can stand alone to regulate all solution levels, or can be integrated into our Lineguard® distributed process control systems as a key component of process management. For recommendations on your Henkel level control configuration, please contact your Henkel sales representative.

Level Control Assemblies

Henkel level control assemblies are used to maintain liquid levels in your chemical process and rinse tanks. They can also be used to control liquid levels in almost any vessel containing a liquid solution, including highly alkaline and/or highly acidic solutions.

Operating on factory air and 115 VAC electrical supply, Henkel Level Controls offer a reliable method of solution level control within ¼". No ball floats or hazardous electrodes are involved. The system is not affected by agitation, foam in the tanks or by the corrosive action of the contents. Only the chemically resistant air probe is in direct contact with the process solution. Each level controller can be supplied in single or multi-point configurations for customized applications.

A typical Henkel level control system would consist of a master level control panel and then a standard level control panel on each subsequent tank. All tanks will require a solenoid valve assembly to control the addition of fresh water or to control a "push" and/or "pull" counter flow from various stages in the process. The level is maintained by detecting slight variations in air pressure due to changes in the liquid level surrounding an immersed air probe.

Clean, dry plant air must be supplied to the master pressure regulator of the system. A shutdown or loss of sufficient plant air will cause an automatic shutdown of the Henkel level control system electrical circuit. Each level control panel includes air flow controls to minimize the amount of air consumed and a micro-switch to sense the set point and operate the solenoid valve circuit.

► BENEFITS

- Provides reliable, corrosion-resistant and simple liquid level control.
- Prevents dangerous and costly low level or overflow tank conditions.
- Provides water savings and direct labor expense, allowing operators to perform other duties
- Can be used for stage-to-stage counter flow arrangements.
- Can be integrated as part of a Henkel distributed process control system.

Common Uses

- Chemical Tank Solution Level
- Rinse Tank Solution
- Sump Pump Operation
- Emergency High Level Shutoff or Alarm
- Emergency Low Level shutoff or Alarm
- E-Coat Paint Tank Level
- Chemical Bulk Tank and Day Tanks



SUPPORT EQUIPMENT

ITEM #	DESCRIPTION	DISCRETE POINTS	POWER	ENCLOSURE	LIQUID LEVEL RANGE
2251341	Master One Point Level Control Assembly	1	115 VAC, 1 amp	NEMA 4	Point 1", 2" min., 10" max
2250048	Standard One Point Level Control Assembly	1	115 VAC, 1 amp	NEMA 4	Point 1", 2" min., 10" max
2251340	Master Two Point Level Control Assembly	2	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 2" min, 10" max
2251339	Standard Two Point Level Control Assembly	2	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 2" min, 10" max
Call for quote	Master Three Point Level Control Assembly	3	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 5" min., 44" max Point 3, 5" min., 44" max
Call for quote	Standard Three Point Level Control Assembly	3	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 5" min., 44" max Point 3, 5" min., 44" max
Call for quote	Master Four Point Level Control Assembly	4	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 5" min., 44" max Point 3, 5" min., 44" max Point 4, 5" min., 44" max
Call for quote	Standard Four Point Level Control Assembly	4	115 VAC, 1 amp	NEMA 4	Point 1, 2" min., 10" max Point 2, 5" min., 44" max Point 3, 5" min., 44" max Point 4, 5" min., 44" max

Replacement Parts & Accessories: Level Control Assemblies

Item #	Description
599179	Solenoid valve assembly - 3/4" brass with Y-strainer and manual shutoff
599180	Solenoid valve assembly - 3/4" stainless steel with Y-Strainer and manual shutoff

Coalescing Oil Separators

The Henkel Coalescing Oil Separators provide an effective means of reducing the oil content in process cleaners. The design, coupled with the coalescing media, provides for the settling of suspended particles as well as separation and removal of a high percentage of dispersed oil contained in typical process cleaners.

The process cleaner is typically fed to the system via an air-operated pump. As it passes through the unit, oil accumulates on the media to a point where it breaks loose and floats to the surface, and is skimmed off to a waste container (provided by others). The process cleaner is then returned to the main tank. The only operating adjustments required are the initial adjustment of the skim level and pump rate for flow adjustment. Aside from the pump(s), there are no moving parts in the Coalescing Oil Separator.

The maintenance requirement is limited to the removal and cleaning of the coalescing media and removal of accumulated sediment from the settling area. The frequency required is dependent on the amount of product and type of oil being processed.

The size varies depending on the installation requirements. The Coalescing Oil Separators are easy and inexpensive to install and the units may be mounted on a stand or located on any flat surface.

Note: These units are intended to improve the operating efficiency of process cleaner baths and not as a waste treatment device.

Specifications

Approximate liquid capacity	105 gal.
Weight	850 lbs.
Chamber dimensions	49" x 18" x 27" (LL)
Plant air needed	30 psi min., 100 psi max
Max throughput rate	Process dependent (pump size 3-20 GPM)

Coalescing Oil Separator

The Coalescing Oil Separator includes a tank, filter regulator, ½" diaphragm pump, coalescing media and a floating skimmer with 20' of tubing. Customer tank sizes are available depending on application requirements.



SUPPORT EQUIPMENT

Lineguard® Ion Exchange 872 System

The Henkel Lineguard® Ion Exchange System provides an effective means to reduce the need for BONDERITE® M-PP Series Coatings bath stabilization (decant bath) as a method of controlling contaminant levels. This IEX equipment is an integral part for controlling the BONDERITE® M-PP Series Coating bath portion of a BONDERITE® M-PP Series Coating process.

The system is built with industrial-rated components to provide low maintenance and ease of serviceability. The Lineguard® IEX System is PLC-based and includes all racks, modules, cables, power supplies, and a utility outlet with a ground fault interrupt. These units also feature operator interface screens that add troubleshooting capability on status of the unit, yet prevent corruption of the internal operating program. Remote access to the unit is capable by an Ethernet line. A simplified planar design is preferred for equipment manufacturing, installation and customer field service.



FEATURES & SPECIFICATIONS

• Dimensions	7' 3" H X 3' 4" D X 5' 5" W
• Electrical specs	120 VAC, 60 Hz, 15 amps

BENEFITS

- The Lineguard® IEX will significantly reduce specific liquid/solid waste treatment concerns.
- The system provides variable load capacity and incorporates a means for operator adjustment of regeneration, due to changes in the effectiveness of resin capacity and production loading of the autodeposition process via the number of ion exchange process cycles run per day.
- The system is designed to provide reliability and consistency in the bath with the latest in programmable equipment to control pump and valve sequencing, and alarm features with event codes to troubleshoot system malfunction.

Spray Nozzles

Henkel offers a broad range of spray nozzles specifically designed for applications in the metal treatment industry. These nozzles are easily adapted to most installations and are easy to install. Constructed from glass reinforced polypropylene, they have an integral stainless steel spring clamp to fit 1", 1 ¼", 1 ½" and 2" metal or plastic pipe, and are available with either a 21/32" or 9/16" diameter spigot. The nozzle bodies and tips are color-coded for easy identification by size and type. Henkel spray nozzles are available in standard flat spray, hollow cone, and full cone patterns. They are designed to work at pressures up to 60 psi and temperatures up to 180°F. (Up to 125 psi is available with a dual spring clamp.) The nozzle tip can be adjusted within the body to easily optimize spray patterns.

Features and Specifications

- Nozzle assemblies are manufactured with a combination of glass and polypropylene to optimize chemical and temperature resistance while extending service life without deforming.
- The clip-on design allows for easy removal and replacement.
- The 316 stainless steel "Spring Clamp" provides increased chemical resistance and secure mounting.
- The tip is specially machined to resist clogging and buildup, extending the nozzle life.
- Henkel nozzles are fitted with oversized O-rings to provide better sealing and service life.
- The clamping ring provides a secure locking of the tip in the socket to ensure that the spray pattern does not change accidentally.
- The large spigot of the nozzle body significantly extends the time between clean-out or replacement.
- Tips are available and can be exchanged without replacing the entire nozzle body, providing significant cost savings.
- For more information and pricing, please contact 1-800-562-8483.



SUPPORT EQUIPMENT

Nozzle Performance: Spray Nozzles

Nozzle Tip	Type of Spray Pattern	GPM at PSI						Spray Angle		
		10	15	20	25	30	40	10 psi	20 psi	30 psi
4050	40° FLAT	2.5	3.1	3.5	4.0	4.3	5.0	34°	36°	41°
5070	50° FLAT	3.5	4.3	4.9	5.5	6.1	7.0	44°	49°	50°
5060	50° FLAT	3.0	3.7	4.2	4.7	5.2	6.0	43°	48°	50°
5050	50° FLAT	2.5	3.1	3.5	4.0	4.3	5.0	44°	48°	51°
6520	65° FLAT	1.0	1.2	1.4	1.6	1.7	2.0	57°	62°	67°
6540	65° FLAT	2.0	2.4	2.8	3.2	3.5	4.0	54°	61°	65°
8070	80° FLAT	3.5	4.3	5.0	5.5	6.1	7.0	72°	78°	82°
8010	80° FLAT	0.5	0.6	0.7	0.8	0.9	1.0	52°	70°	82°
9560	95° FLAT	3.0	3.7	4.2	4.7	5.2	6.0	86°	96°	99°
29	HOLLOW CONE	2.9	3.5	4.1	4.6	5.0	6.1	50°	50°	50°
50	HOLLOW CONE	5.0	6.1	7.1	7.9	8.7	10.4	65°	65°	65°

Spray Coverage Information: Spray Nozzles

Spray Angle	Distance From Nozzle Orifice (in inches)									
	8"	10"	12"	15"	18"	24"	30"	36"	42"	48"
40°	5.8	7.3	8.7	10.9	13.1	17.5	21.8	26.2	30.6	34.9
50°	7.5	9.3	11.2	14.0	16.8	22.4	28.0	33.6	39.2	44.8
65°	10.2	12.7	15.3	19.2	22.9	30.5	38.2	45.8	53.5	61.2
80°	13.4	16.8	20.2	25.2	30.3	40.3	50.4	60.4	70.5	80.6
95°	17.5	21.8	26.2	32.8	39.3	52.4	65.5	78.6	91.7	105

FOR MORE INFORMATION

Please contact your local Henkel sales rep, or contact the equipment sales team at 1-800-562-8483

Flat Spray Assemblies: Spray Nozzle

ITEM #	SPIGOT HOLE SIZE	PIPE SIZE	NOZZLE ASSEMBLY
772765	21/32"	1"	HST 4050 Assembly
611342	21/32"	1 1/4"	HST 4050 Assembly
599499	21/32"	1 1/2"	HST 4050 Assembly
599461	21/32"	2"	HST 4050 Assembly
599672	21/32"	1"	HST 5070 Assembly
599113	21/32"	1 1/4"	HST 5070 Assembly
599097	21/32"	1 1/2"	HST 5070 Assembly
599605	21/32"	2"	HST 5070 Assembly
772766	21/32"	1"	HST 5060 Assembly
599381	21/32"	1 1/4"	HST 5060 Assembly
599332	21/32"	1 1/2"	HST 5060 Assembly
599267	21/32"	2"	HST 5060 Assembly
772767	21/32"	1"	HST 5050 Assembly
599200	21/32"	1 1/4"	HST 5050 Assembly
599623	21/32"	1 1/2"	HST 5050 Assembly
772768	21/32"	2"	HST 5050 Assembly
599319	9/16"	1 1/4"	HST 5070 Assembly
599662	9/16"	1 1/4"	HST 4050 Assembly
599326	9/16"	1 1/4"	HST 5070 Assembly
772814	9/16"	1 1/2"	HST 4050 Assembly
772815	9/16"	2"	HST 5070 Assembly

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.

SUPPORT EQUIPMENT

Flat Spray Assemblies: Spray Nozzles

ITEM #	SPIGOT HOLE SIZE	PIPE SIZE	NOZZLE ASSEMBLY
599410	9/16"	1 1/2"	HST 5060 Assembly
599541	9/16"	1 1/4"	HST 5060 Assembly
599245	9/16"	1 1/4"	HST 5050 Assembly
772769	21/32"	1"	HST 6560 Assembly
599189	21/32"	1 1/4"	HST 6560 Assembly
599532	21/32"	1 1/2"	HST 6560 Assembly
599616	21/32"	2"	HST 6560 Assembly
772770	21/32"	1"	HST 6550 Assembly
599106	21/32"	1 1/4"	HST 6550 Assembly
599426	21/32"	1 1/2"	HST 6550 Assembly
599635	21/32"	2"	HST 6550 Assembly
635788	21/32"	1"	HST 6540 Assembly
599508	21/32"	1 1/4"	HST 6540 Assembly
599437	21/32"	1 1/2"	HST 6540 Assembly
772771	21/32"	2"	HST 6540 Assembly
772772	21/32"	1"	HST 6530 Assembly
772773	21/32"	1 1/4"	HST 6530 Assembly
599438	21/32"	1 1/2"	HST 6530 Assembly
772774	21/32"	2"	HST 6530 Assembly
599292	21/32"	1"	HST 6520 Assembly
599140	21/32"	1 1/4"	HST 6520 Assembly
599293	21/32"	1 1/2"	HST 6520 Assembly

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.

Flat Spray Assemblies: Spray Nozzles

ITEM #	SPIGOT HOLE SIZE	PIPE SIZE	NOZZLE ASSEMBLY
772775	21/32"	2"	HST 6520 Assembly
599305	9/16"	1 1/4"	HST 6550 Assembly
599379	9/16"	1 1/2"	HST 6550 Assembly
599606	9/16"	2"	HST 6560 Assembly
599205	9/16"	2"	HST 6540 Assembly
599607	9/16"	1 1/4"	HST 6520 Assembly
599536	9/16"	1 1/2"	HST 6560 Assembly
599622	9/16"	1 1/2"	HST 6540 Assembly
599627	9/16"	2"	HST 6520 Assembly
599654	9/16"	1 1/4"	HST 6540 Assembly
611327	9/16"	1 1/2"	HST 6520 Assembly
772776	21/32"	1"	HST 8070 Assembly
772777	21/32"	1 1/4"	HST 8070 Assembly
772778	21/32"	1 1/2"	HST 8070 Assembly
772779	21/32"	2"	HST 8070 Assembly
599652	21/32"	1"	HST 8010 Assembly
599232	21/32"	1 1/4"	HST 8010 Assembly
599347	21/32"	1 1/2"	HST 8010 Assembly
599583	21/32"	2"	HST 8010 Assembly
599673	21/32"	1"	HST 9560 Assembly
599114	21/32"	1 1/4"	HST 9560 Assembly
599468	21/32"	1 1/4"	HST 9560 Assembly

NOTE:

1. All items listed are available only in lots of 25.
2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
3. Consult Henkel for availability and lead time.

SUPPORT EQUIPMENT

Flat Spray Assemblies: Spray Nozzles

ITEM #	SPIGOT HOLE SIZE	PIPE SIZE	NOZZLE ASSEMBLY
772780	21/32"	2"	HST 9560 Assembly
772805	21/32"	1"	HST 8060 Assembly
772806	21/32"	1 1/4"	HST 8060 Assembly
772807	21/32"	2"	HST 8060 Assembly
772808	21/32"	1 1/2"	HST 8060 Assembly
772809	21/32"	1 1/4"	HST 8040 Assembly
772811	21/32"	1 1/4"	HST 8050 Assembly
599586	21/32"	1 1/2"	HST 8040 Assembly
599603	9/16"	1 1/4"	HST 8010 Assembly
772812	9/16"	1 1/4"	HST 9560 Assembly
772813	9/16"	1 1/4"	HST 8040 Assembly
599394	9/16"	1 1/2"	HST 8010 Assembly
599589	9/16"	1 1/2"	HST 9560 Assembly
772816	9/16"	2"	HST 8010 Assembly
599585	9/16"	2"	HST 8040 Assembly
599290	9/16"	2"	HST 8070 Assembly
599626	9/16"	2"	HST 9560 Assembly
772819	9/16"	1 1/4"	HST 8060 Assembly
635786	21/32"	1 1/4"	HST 12010 Assembly

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.

Plug Assemblies: Spray Nozzle Assemblies

ITEM #	SPIGOT HOLE SIZE	PIPE SIZE	NOZZLE ASSEMBLY
772810	21/32"	1 1/4"	HST Plug Assembly
599227	9/16"	2"	HST Plug Assembly

Hollow Cone Assemblies: Spray Nozzles

Item #	Spigot Hole Size	Pipe Size	Nozzle Assembly
772784	21/32"	1"	HST 29 Assembly
599099	21/32"	1 1/4"	HST 29 Assembly
599390	21/32"	1 1/2"	HST 29 Assembly
599727	21/32"	2"	HST 29 Assembly
772785	21/32"	1"	HST 50 Assembly
599279	21/32"	1 1/4"	HST 50 Assembly
599286	21/32"	1 1/2"	HST 50 Assembly
599439	9/16"	1 1/4"	HST 50 Assembly
599277	9/16"	1 1/4"	HST 29 Assembly
599660	9/16"	1 1/2"	HST 50 Assembly
599348	9/16"	1 1/2"	HST 29 Assembly
599549	9/16"	2"	HST 29 Assembly
599550	9/16"	2"	HST 50 Assembly

SUPPORT EQUIPMENT

Threaded Ball Assemblies: Spray Nozzles

Item #	Spigot Hole Size	Pipe Size	Nozzle Assembly
772787	21/32"	1 1/4"	HST 1/4" NPT
772788	21/32"	1 1/2"	HST 1/4" NPT
772791	21/32"	1 1/4"	HST 3/8" NPT
772792	21/32"	1 1/2"	HST 3/8" NPT
599628	9/16"	2"	HST 3/8" NPT
599713	9/16"	1 1/4"	HST 3/8" NPT

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.

Flat Spray Assemblies: Spray Nozzle Tips

Item #	Type	Nozzle Assembly
599185	Nozzle	HST 4050 Tip
599125	Nozzle	HST 5070 Tip
599207	Nozzle	HST 5060 Tip
599262	Nozzle	HST 5050 Tip
599504	Nozzle	HST 6560 Tip
599464	Nozzle	HST 6550 Tip
599165	Nozzle	HST 6540 Tip
599375	Nozzle	HST 6530 Tip
599280	Nozzle	HST 6520 Tip
599602	Nozzle	HST 8006 Tip
599202	Nozzle	HST 8010 Tip
599303	Nozzle	HST 8040 Tip
599247	Nozzle	HST 9560 Tip
599104	Nozzle	HST 9560 Tip
599600	Nozzle	HST 8070 Tip
599219	Nozzle	HST 8060 Tip

Hollow Cone Tips:

Item #	Type	Nozzle Assembly
773007	Nozzle	HST 29 Tip
599214	Nozzle	HST 50 Tip

Threaded Ball Tips:

Item #	Type	Nozzle Assembly
599355	Nozzle	HST 1/4" NPT
599533	Nozzle	HST 3/8" NPT

Plug Tip:

Item #	Type	Nozzle Assembly
599216	Nozzle	HST Plug Tip

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.

Dry in Place: Nozzle Body Assembly

Dry in Place Applications

Item #	Pipe Size	Description
772786	1"	Clip on Nozzle Body Assembly, 1/4" NPT, 1", 21/32" spigot



Tank Mixing Eductor

Dry in Place Nozzle Tips

Tank Mixing Eductors

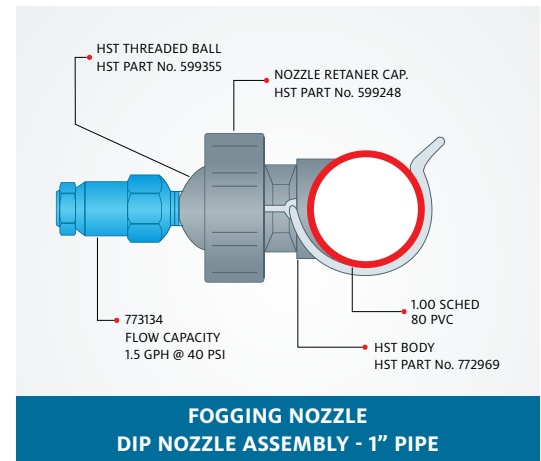
Item #	Nozzle tips
773131	Twinjet Nozzle Tip
773134	Fogging Nozzle Tip

Tank Mixing Eductors:

Glass-Reinforced Polypropylene

Item #	Description
599714	3/8" Tank Mixing Eductor
599173	3/4" Tank Mixing Eductor
731369	1 1/2" Tank Mixing Eductor

- NOTE:
1. All items listed are available only in lots of 25.
 2. Nozzle Body with 21/32" Spigot Hole is the size recommended by Henkel.
 3. Consult Henkel for availability and lead time.



TEST EQUIPMENT & DATA MANAGEMENT SYSTEMS

TEST EQUIPMENT & DATA MANAGEMENT SYSTEMS

Henkel offers digital meters to accurately read solution samples.

Lineguard® 101D Lead-Free Meter

The Lineguard® 101D Lead-Free Meter is a digital meter that measures the active fluoride ion concentration in certain acidic solutions used in the treatment of aluminum, carbon steel and stainless steel. The instrument measures the magnitude (microamperes, DC) of the electrical current through a fluoride-sensitive electrode system.



This current is proportional to the concentration of active fluoride ions present in the sample. The instrument is capable of the direct measurement of solution samples containing a maximum equivalent fluoride ion content of 4 grams per liter.

FEATURES AND BENEFITS

- Digital display for easy reading and accuracy
- Automatic measurement cycle so that the operator does not have to remain with the meter to complete an accurate reading. The operator puts the sample in the sample cup and simply presses the start button. When the six-minute measurement time cycle is completed, the reading will lock-on and the indicator light will illuminate
- Chemical-resistant enclosure
- 110 VAC for bench-top use
- One meter for all required ranges

ITEM #	DESCRIPTION
1160452	Lineguard® 101D Lead-Free Meter (complete system)
1160454	101D (LF) cable assembly (3-prong) (replacement part)
1161162	101D (LF) sample cup assembly (3-prong)

DID YOU KNOW?

Henkel offers both unit rentals for all our Lineguard® 101D meters. Contact the Henkel equipment support team at 1-800-562-8483

FUNCTIONAL COATINGS AND METAL PRETREATMENT SOLUTIONS

THE HENKEL PORTFOLIO

CLEANERS

- ▶ Maintenance
- ▶ Process
- ▶ Industrial
- ▶ Specialty
- ▶ Pickles
- ▶ Strippers
- ▶ Alkaline
- ▶ Neutral
- ▶ Conditioners

BONDERITE® cleaners help increase efficiency, lower operating costs, and simplify your daily processes.

METAL PRETREATMENT AND CONVERSION COATINGS

- ▶ Iron phosphate, zinc phosphate, manganese phosphate
- ▶ New generation coatings (nanoceramics)
- ▶ Light metal finishing (chrome, non-chrome technologies, anodizing)

BONDERITE® metal pretreatments and conversion coatings set a high standard for corrosion protection and paint adhesion. These high performance, sustainable products can help improve your process reliability and are available in multiple options for immersion or spray applications.



Henkel Process Services

Process selection

Henkel's experts consult with customers to match their individual requirements to the right Henkel process.

Analytic and process validation

Henkel analyzes the complete production process for customers, reducing production cycle times and rejection rates.

Startup of application and lab testing

Henkel tests applications of your process in our labs and ensures that Henkel products can be smoothly integrated into your plant.

COATINGS

- ▶ Electroceramic coating
- ▶ Autophoretic coating
- ▶ Water-based primer

BONDERITE® coating processes deliver anti-corrosion, friction reduction, and improved heat resistance benefits while offering a number of environmental benefits.

Key Henkel Processes

Henkel's focus on innovation has led to the development of new, more efficient surface treatment processes that offer environmental benefits and reduced energy and CO₂.

- **Henkel Nanoceramic Process:**
Our BONDERITE® Nanotechnology conversion coating provides a phosphate-free alternative to traditional iron phosphate.
- **Henkel Autodeposition Process:**
Our BONDERITE® M-PP autodeposition process combines metal pretreatment and finishing in one process, increasing efficiency along with energy and cost savings.

Process optimization

Henkel works with customers to design simpler and more efficient production processes, with a focus on meeting environmental and safety criteria.

Customer training

Henkel offers comprehensive training to help our customers understand our products in detail and learn correct application methods.

BONDERITE®

NORTH AMERICA

Henkel Corporation
One Henkel Way
Rocky Hill, CT 06067
Tel: 1.800.562.8483
Tel: 860.571.5100

Henkel Corporation
32100 Stephenson Highway
Madison Heights, MI 48071
Tel: 866.332.7024

na.henkel-adhesives.com/surfacetreatments
equipment.loctite.com/bonderite