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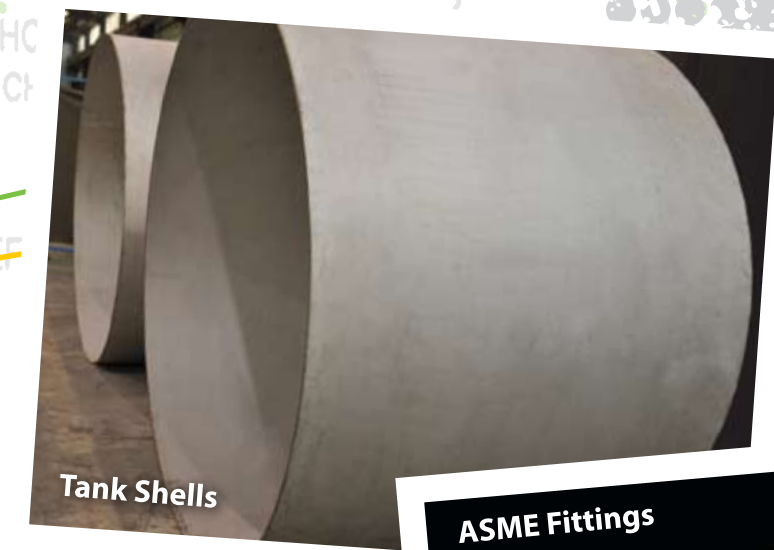
Every component counts.

It only makes sense: your equipment is *only as reliable as the quality of its parts*. To make sure that every part of your tanks and pressure vessels meet *your* tough quality specs, we personally design, engineer, and fabricate the key engineered components you require:

- Tank Heads
- Manways
- Tank Shells & Cylinders
- Dimple Heat Transfer Surfaces
- ASME Ferrules & Fittings
- Mounting Adapters
- Sightglasses
- Pad Flanges
- Sprayballs
- Special SureDrain™ Agitator/Valve Machined Pads

And when our standard items aren't exactly what you need, we can create and machine any custom part you require. *Any* custom part.

When Parts Are The Problem, ***Our*** Parts Are The Solution.



TANK HEADS

Conical & Toriconical

- Minimum diameter: 9" I.D.
- Maximum diameter: 120" I.D.
- Thickness: 14 gauge to 1/2"
- Can be ASME-code stamped
- Material finishes available from 2B/HRAP to 320 grit
- Electropolishing available
- Welds can be ground smooth & flush on both sides



MANWAYS

H-Series

The H-Series Manway (sometimes referred to as the K-Series Manway) has been the standard in the Pharmaceutical industry since the early 1990's and has a proven track record of reliability and cleanability. Designed and developed by

Precision Stainless/HOLLOWAY AMERICA staff

members, there are over 10,000 of these manways in service today.

- Sanitary pharmaceutical design
- Achieves higher pressure with fewer lugs
- Standardized clamp / lug assemblies
- 1/4" thick cover & collar on sizes 8" - 26"
- 5/16" thick cover on sizes 28" - 48"
- 6" standard collar length (collars up to 72" are available)
- Proven riboflavin test acceptance



- Provided with standard hinge and handle
- Optional enclosed stainless steel spring-assist available
- O-ring available in either collar ring or cover ring (dovetail groove)

MATERIALS OF CONSTRUCTION & FINISHES

- Type 316L (Standard), Type 304L, C-276, C-22, AL-6XN™, others available
- All interior welds ground smooth & flush; all exterior welds ground smooth & flush (if exterior is polished)
- Finishes available from Mill Finish to 5 Ra (electropolish)

GASKET MATERIALS

- Platinum cured white silicone (FDA & Class VI)
- Red silicone (FDA & Class VI)
- Viton® (FDA & Class VI)
- Teflon-encapsulated black EPDM (Class VI)
- Teflon-encapsulated red silicone (Class VI)
- Teflon-encapsulated black Viton® (Class VI)
- Other materials are available



H-SERIES MANWAY PRESSURE CHART

H-SERIES SIZE	# OF LUGS	316L		WEIGHT 6" COLLAR
		100° F	400° F	
16" I.D. Manway	4	60	56	120 Lbs.
16" I.D. Manway	6	91	85	132 Lbs.
16" I.D. Manway	8	120	112	144 Lbs.
16" I.D. Manway	10	150	140	156 Lbs.
18" I.D. Manway	5	60	56	138 Lbs.
18" I.D. Manway	6	73	68	144 Lbs.
18" I.D. Manway	8	97	90	156 Lbs.
18" I.D. Manway	10	120	112	168 Lbs.
18" I.D. Manway	12	146	136	180 Lbs.
20" I.D. Manway	5	50	46	151 Lbs.
20" I.D. Manway	6	60	56	157 Lbs.
20" I.D. Manway	8	80	74	169 Lbs.
20" I.D. Manway	10	100	93	181 Lbs.
24" I.D. Manway	6	42	39	187 Lbs.
24" I.D. Manway	8	56	52	199 Lbs.
24" I.D. Manway	10	70	65	211 Lbs.
24" I.D. Manway	12	84	78	223 Lbs.
30" I.D. Manway	8	36	33	239 Lbs.
30" I.D. Manway	10	46	42	251 Lbs.
30" I.D. Manway	12	55	51	263 Lbs.
30" I.D. Manway	14	64	60	275 Lbs.

- Available sizes: 8" - 48"
- Odd sized diameters are available

Cross Arm Manway

- Atmospheric design for top head use only
- Provides economical quick access
- Hinged lid for easy opening
- Single eye bolt and wing nut closure
- 12 gauge cover & 7 gauge collar



MATERIALS OF CONSTRUCTION & FINISHES

- Product contact surfaces: Type 304L and Type 316L (standard)
- Externals: Type 304L
- All interior welds ground smooth & flush; all exterior welds ground smooth & flush (if polished exterior)
- Finishes available from a mill finish to 320 grit (electropolish)

GASKET MATERIALS

- Unique teardrop gasket style for better fit
- White silicone material (FDA)
- Black EPDM material (FDA)
- Black Viton® (FDA)

CROSS ARM MANWAY WEIGHTS*	
SIZE	WEIGHT (Lbs.)
12"	24
14"	27
16"	30
18"	34
20"	38
22"	42
24"	46

*weights are approximate



MANWAYS (continued)
Spring-Assist Assembly

- All stainless steel material
- Enclosed, compact design
- Autoclavable
- Adjustable for variable tension
- Adaptable to other manway manufacturers

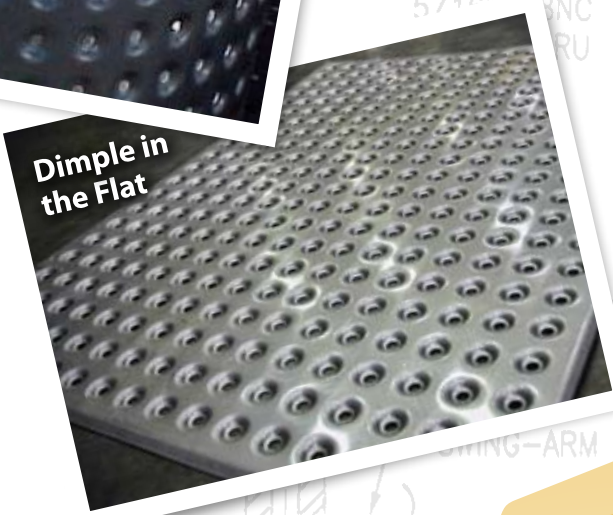
TANK SHELLS & CYLINDERS

- Maximum diameter: 144" I.D.
- Maximum length: 96" long
- Thickness: 14 gauge to 5/8"
- Cylinders can be ASME-code stamped
- Finishes from 2B/HRAP to 320 grit and electropolished
- Welds ground smooth & flush



Notes:

- We can provide cylinders/rings thicker than 5/8" plate, up to 96" in height
- Cylinders can also be supplied with a dimple heat transfer surface



DIMPLE HEAT TRANSFER SURFACES

- Provided with 1/2" hole & 1/4" pillow height
- Provided in 2" x 2", 2-1/2" x 2-1/2", 3" x 3", 4" x 4" spot spacing
- Provided "in-the-flat" or "rolled"
- Edges can be crimped down for easier fit-up & welding
- We can provide you with dimple surfaces welded to cylinder and ASME-code stamped

MATERIALS OF CONSTRUCTION

- Type 304L, Type 316L, others available
- Provided in 14 gauge & 12 gauge thicknesses

PRESSURE RATINGS CHART						
Dimpled Material	Backing Material	Maximum Allowable Working Pressure				
		100° F	200° F	300° F	400° F	500° F
14 Ga / 316/316L	12 Ga & Greater/304L	260	260	260	246	229
14 Ga 316/316L	12 Ga & Greater/316L	260	260	260	244	230

The pressure ratings shown above reflect 2" x 2" spot spacing

FITTINGS
ASME-Code Heavy Wall Ferrules

- Ferrules are provided with a 25-35 Ra internal finish and a 35-45 Ra external finish; the finish is a machine finish
- Additional polishing services are available upon request
- All ferrules supplied with MTRs (Material Test Reports)
- Materials of Construction: stocked in Type 316L
- Can be provided in all other materials including exotic alloys
- Dimensions listed to the right are in "inches"

ASME-CODE HEAVY-WALL FERRULES SIZES AVAILABLE (in inches)		
1/2 x 1-3/4	1-1/2 x 7-1/2	4 x 3-1/2
1/2 x 3-1/4	2 x 2-1/2	4 x 4-1/2
3/4 x 1-3/4	2 x 4	6 x 4-1/2
3/4 x 3-1/4	2-1/2 x 3	8 x 4-1/4
1 x 2-1/8	3 x 3-1/2	10 x 6
1 x 4	3 x 4-1/2	12 x 6
1-1/2 x 2-1/2	3 x 6-1/2	
1-1/2 x 4	4 x 2-1/2	



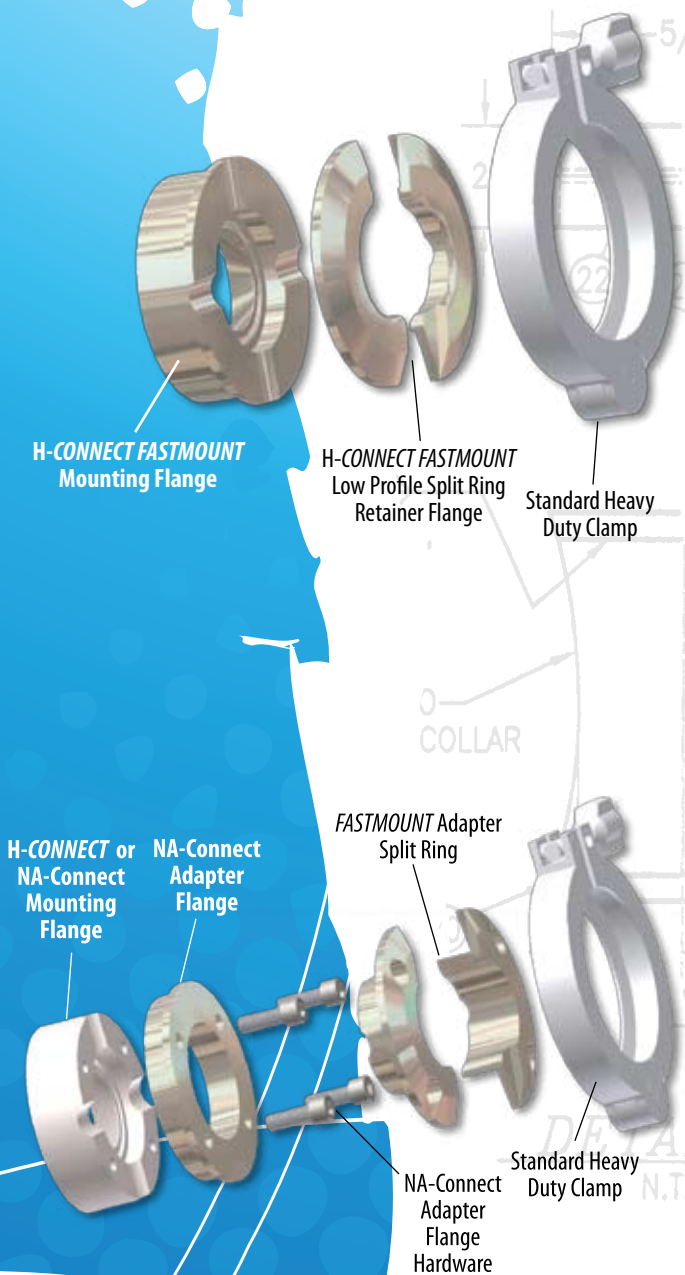
The HOLLOWAY AMERICA Proprietary H-CONNECT™ Mounting System* (Patents Pending)

ASME-Code H-CONNECT™ FASTMOUNT™ System With Low-Profile Split-Ring Retainer Flange*

- Quickly connect TriClamp®-type piping or instruments
- Allows easy access to tank/vessel contents
- Thinner, low-profile design means less physical interference with valves, instruments, sensors, etc.
- Fewer “dead legs” speeds CIP/SIP and makes validation easier
- ASME-code components allow certified operating pressures and temperatures
- Proprietary H-CONNECT™ low-profile split-ring retainer is thin and strong – allows close-coupled connections
- Sizes up through 6”
- Type 316L (stocked), AL-6XN™, C-22 HASTELLOY®, and other alloys

H-CONNECT™ FASTMOUNT™ Adapter*

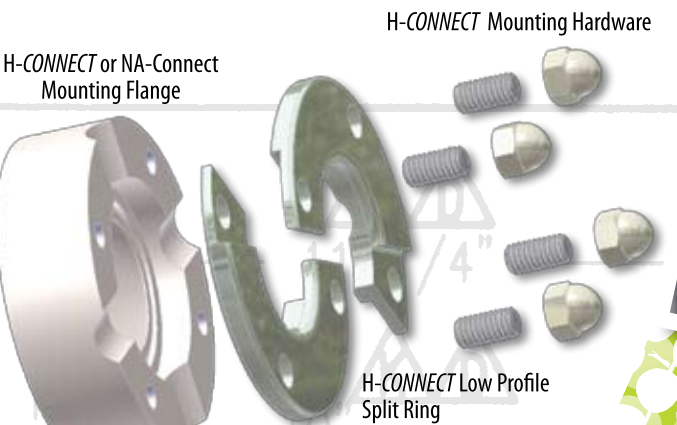
- The first and only ASME-code certified adapter that lets you quickly connect TriClamp®-type equipment to existing NA-Connect® or H-CONNECT™ mounting flanges
- Converts your existing NA-Connect® or H-CONNECT™ sanitary mounting flange to a quick-clamp-type design
- Bolt it once and it’s done; simple no-weld, no-retrofit installation
- Allows easy access to tank/vessel contents
- Clamp & go connection



*Proprietary design; patents pending

H-CONNECT™ LOW-PROFILE SPLIT-RING RETAINER*

- The *first* and *only* ASME-code low-profile split-ring retainer for all NA-Connects® and H-CONNECTS™; allows certified operating pressure and temperatures
- Converts existing non-asme NA-Connect® split-ring retainers to a thinner, lower-profile ASME-code split-ring-retainer design
- Thinner, low-profile design means less physical interference with valves, instruments, sensors, etc.
- Fits all existing NA-Connect® and H-CONNECT™ mounting flanges; no need for modifications or retrofits
- Sizes up through 6”
- Type 316L (stocked), AL-6XN™, C-22 HASTELLOY®, and other alloys



Mounting Adapters & Plugs

- Adapters & plugs are provided with a 25-35 Ra internal finish and a 35-45 Ra external finish; finish is a machine finish
- Additional polishing services available upon request
- Dimensions listed below are in “inches”
- All adapters & plugs are supplied with MTRs (Material Test Reports)

MOUNTING ADAPTERS			
PART NUMBER	DESCRIPTION & SIZE	MATERIAL TYPE	LENGTH
MA25-40S	Mounting Adapter: 40mm Straight	SA479-316/316L	1.575"
MA25-50S	Mounting Adapter: 50mm Straight	SA479-316/316L	1.969"
MA25-60S	Mounting Adapter: 60mm Straight	SA479-316/316L	2.362"
MA25-40A	Mounting Adapter: 40mm Angled	SA479-316/316L	1.575"
MA25-48A	Mounting Adapter: 48mm Angled	SA479-316/316L	1.890"
MA25-55A	Mounting Adapter: 55mm Angled	SA479-316/316L	2.165"

*Proprietary design; patents pending

MOUNTING ADAPTER PLUGS			
PART NUMBER	DESCRIPTION & SIZE	MATERIAL TYPE	LENGTH
PA25-40S	Adapter Plug: 40mm Straight	SA479-316/316L	1.574"
PA25-48S	Adapter Plug: 48mm Straight	SA479-316/316L	1.889"
PA25-55S	Adapter Plug: 55mm Straight	SA479-316/316L	2.165"
PA25-60S	Adapter Plug: 60mm Straight	SA479-316/316L	2.362"
PA25-40A	Adapter Plug: 40mm Angled	SA479-316/316L	1.480"
PA25-48A	Adapter Plug: 48mm Angled	SA479-316/316L	1.795"
PA25-55A	Adapter Plug: 55mm Angled	SA479-316/316L	2.071"
PA25-60A	Adapter Plug: 60mm Angled	SA479-316/316L	2.268"



Mounting Adapters & Plugs (continued)

- Stocked in Type 316L, other materials are available
- Can be provided as a clamp connection to adapt to our H-CONNECT™ FASTMOUNT™

Notes:

- The inside diameter of the weld port MUST be reamed after welding to 0.984" - 0.985" to ensure proper sealing on the weld-in design. Our H-CONNECT™ design requires no welding and is furnished properly sized from our factory
- All dimensions which are given to the left represent the distance from the tip of the plug or adapter to the furthest distance which is considered a product contact surface



Access Ports

- Available in 4", 6", 8", 10" and 12"
- Convenient hinged cover
- Handle provides easy access
- Clamp-type closure allows quick opening
- Clamp-type sanitary ferrule design
- Stocked in Type 316L; available in a wide range of other stainless steel and alloy materials
- All standard gasket materials available

Sightglasses

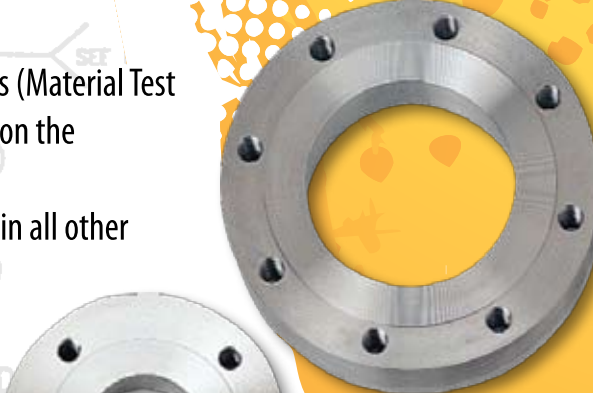
- Sightglasses are provided with a 25-35 Ra internal finish and a 35-45 Ra external finish; finish is a machine finish
- Provided with one (1) each of the following: ferrule, retaining ferrule, sightglass,



- sightglass O-ring, ferrule gasket, ferrule clamp (can be provided without the ferrule in order to use an existing fitting on a vessel)
- Provided in 2", 3" and 4" sizes
- All sightglasses are supplied with MTRs (Material Test Reports) and certificate of compliance on the elastomers
- Stocked in Type 316L; can be provided in all other materials including exotic alloys

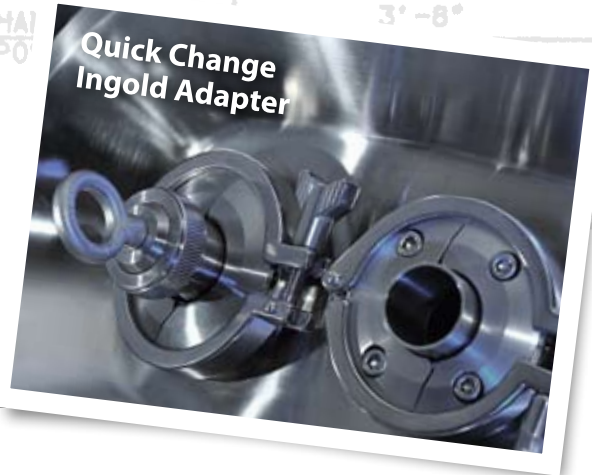
Pad Flanges

- Provided with a 25-35 Ra internal finish and a 35-45 Ra external finish; finish is a machine finish; additional polishing services available upon request
- Can be supplied with a flat face or raised face
- Can be supplied with a straight I.D. hole or with a tapered hole
- All pad flanges are supplied with MTRs (Material Test Reports)
- Stocked in Type 316L; can be provided in all other materials including exotic alloys
- Dimensions listed on chart on page 12 are in "inches"



MOUNTING ADAPTER ACCESSORIES		
PART NUMBER	DESCRIPTION	MATERIAL TYPE
TC25.710	Threaded Cap: 25mm*	SA479-316/316L
EB25-1	Forged Eyebolt: 25mm*	18-8 S/S
OR25-EPDM	O-Ring: EPDM	EPDM
OR25-Viton®	O-Ring: Viton®	Viton®
OR25-Silicone	O-Ring: Platinum Cured Silicone	PCWS

*plug diameter



FLANGE SIZE	O.D. PAD	I.D. PAD	FINISHED THICKNESS	# OF HOLES
1"	4-1/4"	1.05"	1-1/8"	4
1-1/2"	5"	1.61"	1-1/8"	4
2"	6"	2.07"	1-3/8"	4
2-1/2"	7"	2.47"	1-3/8"	4
3"	7-1/2"	3.07"	1-3/8"	4
4"	9"	4.03"	1-3/8"	8
5"	10"	5.05"	2-11/16"	8
6"	11"	6.07"	1-5/8"	8
8"	13-1/2"	7.98"	1-5/8"	8
10"	16"	10.02"	1-3/4"	12
12"	19"	12.00"	1-3/4"	12

Notes:

- Pad flanges up to 24" are available

PRECISION STAINLESS/ITT INDUSTRIES
TANK & PRESSURE VESSEL SPARE PARTS

- Massive inventory of OEM tank & vessel parts purchased from the original manufacturer when manufacturing ceased
- All parts either in stock or made-to-order
- The former Precision Stainless, Inc. team has re-grouped as HOLLOWAY AMERICA, to provide

you the same Precision service and quality, but with greater diversification

- Some of the OEM Precision Stainless items we can provide:
 - O-rings & gaskets, ASME ferrule clamps, ASME ferrule solid end caps, mounting flanges, plugs, ports, eyebolts & O-rings, replacement manway components, sightglasses & components, replacement sprayballs, replacement no-foam inlets, liquid level alarm systems, light assemblies



SPRAYBALLS

All sprayballs and spray devices are fabricated and custom-drilled at HOLLOWAY. Simply provide us with your vessel drawing and we will custom drill for your sprayball needs. "We've got you covered."



ELECTROPOLISHING

- Premium ultra-smooth finish
- Provides passivation and maximum corrosion resistance
- Extreme high gloss enhances release of impurities – easier to clean and sanitize
- Finish polishes available to 10 Ra and lower



CUSTOM MACHINING

- One-of-a-kind parts – you supply the drawings, we'll create the parts
- Design assistance available
- Vessel machining of any kind
- Custom machining of large rings



The Proprietary
HOLLOWAY AMERICA
SureDrain™ Offset
Agitator/Valve Pad*

- Custom-machined offset agitator/valve pad for vessels having center bottom agitators and requiring full-drain capability
- Achieves full drainage of tank or vessel
- Eliminates stress fractures in bottom heads caused by re-forming metal to achieve proper drainage

*Proprietary design; patents pending



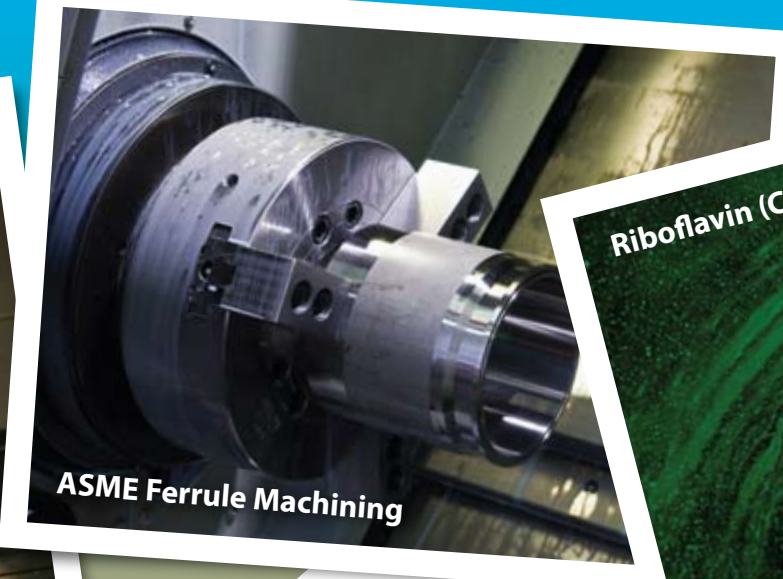
WISDOM IS CALLING. SO CALL NOW.

Don't wait. Make a point to find a permanent solution to your parts problems. Excellent components, built upon rigid quality specifications – that's the HOLLOWAY AMERICA way.

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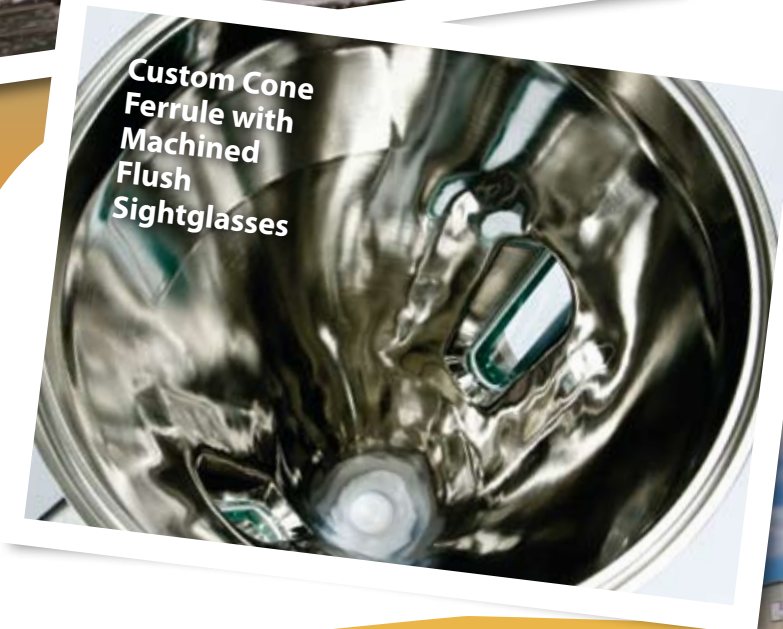
**SureDrain™ Offset
Agitator/Valve
Machined Pad**



ASME Ferrule Machining



Riboflavin (CIP) Testing



**Custom Cone
Ferrule with
Machined
Flush
Sightglasses**



HOLLOWAY AMERICA Manufacturing Facility

*AL-6XN™ is a trademark of Allegheny Ludlum®; Viton® is a registered trademark of DuPont Performance Elastomers; HASTELLOV® is a trademark of Hanes International, Inc.; Precision Stainless™ is a trademark of ITT Industries