

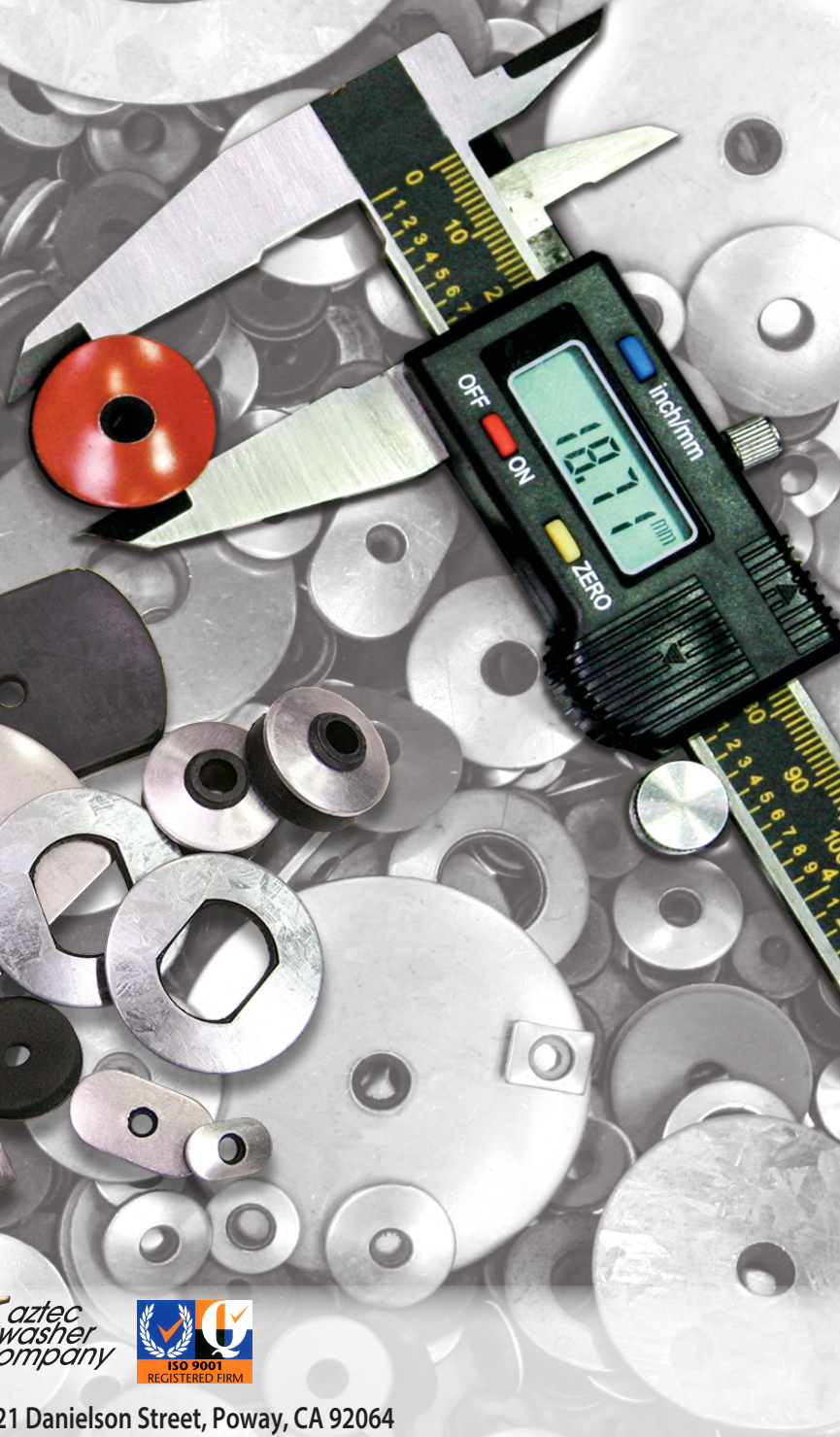
Master Seal®

Bonded Washers

Quality and Service **Worldwide**

Since 1968

2/2016



when reliability counts



Aztec Washer Company 13821 Danielson Street, Poway, CA 92064

1(800) WASHER 5 (927-4375) • Ph: (858) 513-4350 • Fax: (858) 513-4305 • info@aztecwasher.com • www.aztecwasher.com



Quality and Service Worldwide Since 1968

Aztec Washer Company is a family owned and operated corporation located in Poway, California that started in 1968. When its founder and current C.E.O., Henry DeGraan, became one of the first bonded washer manufacturers in the world. With his knowledge in the fastener industry, a few local distributors and several orders to fill, **Aztec** quickly grew to a prominent position in the market place.

With 40 years of experience, knowledge, service and loyalty to our customers, **Aztec** remains a leader in the industry around the globe with additional operations in the United Kingdom, Germany, Poland, Australia, and Mexico. The close working relationship established with

our distributor networking ensures that the right parts, in the right quantities are available to meet customer needs and satisfaction.

Our extensive tooling and production capabilities provide us with advantage to meet standard, large volume demands as well as custom specialties in the widest range of metals, polymers, and thicknesses allowing endless possibilities.

Henry DeGraan



Aztec Washer Company
Poway, California





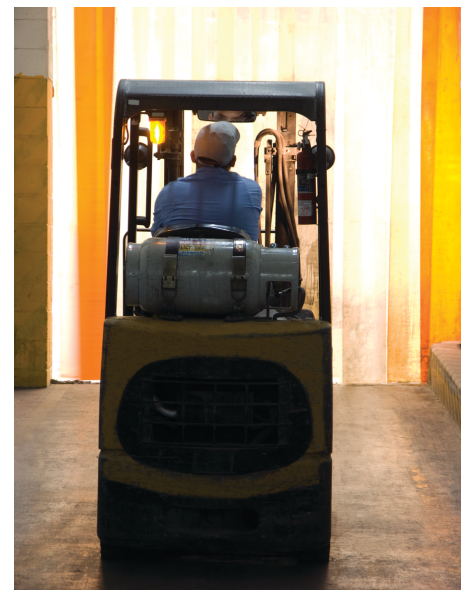
Meeting the Need... Volume with Quality

A major factor in **Aztec's** rise to a leadership position in this industry lies in our tooling resources and 40 years of experience. Our capabilities enable us to produce both "standards" and "specials" in a range of sizes to accommodate fasteners ranging from #4 diameter up to 1-1/2" diameter bolts, with outside diameters from 1/4" to 3" and the corresponding metric range.

Aztec's vast tooling capabilities coupled with numerous elastomers, metal and alloy options enable us to offer our customers a variety of choices to fill virtually every need. This exceptional tooling capability permits us to begin with almost any application concept and develop a viable product within time constraints.

Our production department, equipped with state-of-the-art high-speed and variable-speed presses, surface finishing machines and inspection equipment, manufactures your exact part.

Aztec meets the needs of customers with daily requirements in the hundreds to millions - we can meet your volume and quality needs too!



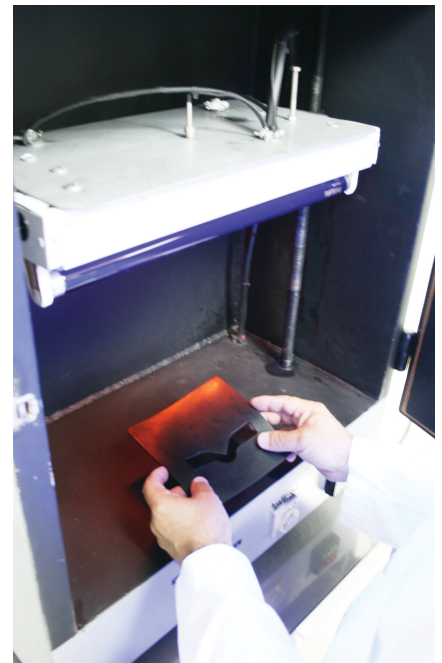


Quality that Meets the Challenge

At **Aztec** we control all phases of the manufacturing process. From purchasing raw materials, our unique bonding process, to production of the finished product. Aztec professionals work hands on to oversee the entire operation.



Aztec is a Certified ISO 9001 company who prides itself on product quality and customer satisfaction. With an on-site rubber chemist and state of the art inspection equipment, We perform constant monitoring to ensure both the customer's and **Aztec's** standards are met.





Master Seal® Bonded Washers are More than just Washers

Because of an unique bonding process, which bonds a strong backing material to a resilient facing material, **Aztec's Master Seal®** bonded washers will perform a function that neither material could perform alone. Where sealing challenges are presented, the conical design directs the flow of the elastomeric portion toward problem areas. When problems call for cushioning or vibration control, the facing material will also provide the solution.

Features Include:

- Quality elastomerics, meeting the need for elasticity, memory, temperature extremes, chemical, ozone and sunlight-resistance.
- Conical design directs flow of facing materials to form a seal conforming to both fastener and sealing surface.
- Full-face design cushions fragile surfaces and minimizes vibration.
- Inside diameter sizes from -1/4" to 3" and corresponding metric range.
- Choice of many backing materials.
- Choice of various colors and finishes
- Choice of various facing materials.



INSUFFICIENT TIGHTENING

Likely to cause leakage under seal and around fastener.



CORRECT INSTALLATION

Tight against surface. Seal flows inward to seal minor fastener diameter and surface voids



EXCESSIVE TORQUE

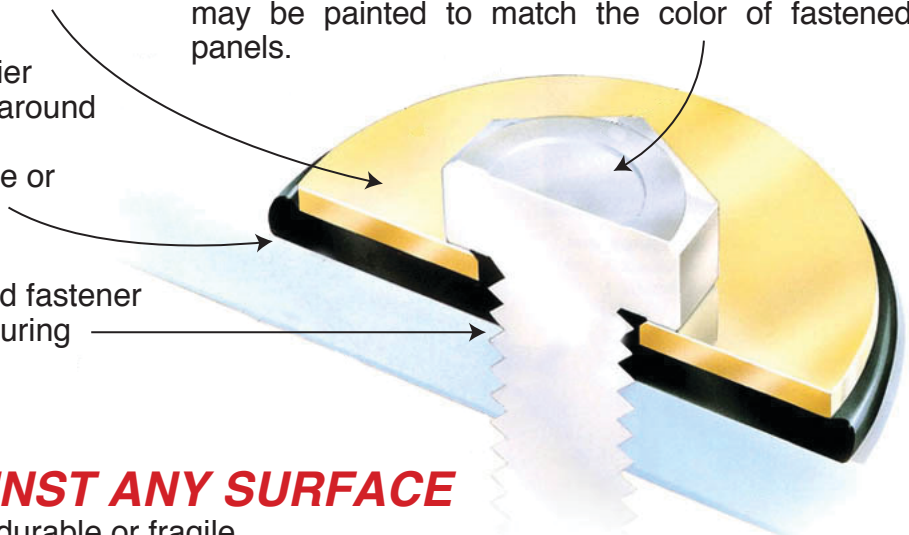
Causes reverse dishing. Leakage under seal possible

- Strength of backing provides load bearing, compresses the seal vertically and protects it against turning fastener head.

- Facing element provides barrier against leakage at surface and around fastener. Protects surface from damage. Helps in reducing noise or vibration

- Effective seal develops around fastener when sealant is forced inward during tightening.

- Fastener may be pre-assembled to **Master Seal®** bonded washer and installed as a unit. Effective with virtually all fastener types and sizes. and assemblies may be painted to match the color of fastened panels.



SEALS AGAINST ANY SURFACE

Smooth or irregular, durable or fragile.



Cushioning and Vibration Control

40 Years of proven experience in testing and retesting compounded formulas have led to the perfection of **Aztec's Master Seal®** bonded washers. Our bonded washers possess extraordinary elasticity and memory when cushioning and vibration control are needed.

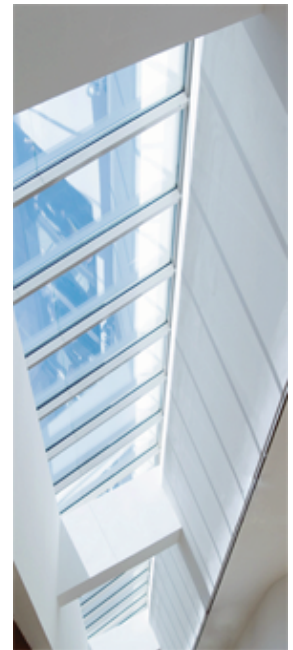
As the bonded washer is compressed and fastened against a substrate, the facing material serves as a permanent cushion. This feature protects the substrate from installation damage (spinning fastener and/or torque) and from vibration damage.

When used for cushioning, **Master Seal®** bonded washers are especially effective on glass, plastic, fiberglass, porcelain and painted surfaces.

The cushioning effect eliminates scratching, crazing, chipping and other surface damage.

Master Seal® bonded washers solve a variety of problems in numerous applications including:

- Archery - Protects sensitive bow sights
- Motorcycles - Protects fairings and components
- Noise Control - Electromechanical automotive devices and motor mounts for compressors and other equipment
- Fragile surfaces - Where crazing, cracking and chipping are problems



Other applications Include:

Metal construction buildings • Automotive Aircraft • Glass and mirror installations
Architectural panels



SEAL IN OR SEAL OUT...



ALL WEATHER RESISTANT

Aztec's unique **Master Seal®** bonded washer products are designed to provide a permanent seal in a wide variety of applications.

Including:

- Metal roofs and siding where the expansion and contraction of metal require a permanent resilient seal
- Dishwashers - To avoid leaks
- Marine - Structural and electronic
- Automotive - Air cleaner assemblies, engine blocks, heaters, emission control equipment, body sealing
- Air filters - Dust control

Other useful applications include:

- Small and large appliances, vacuum cleaners and refrigerators
 - Heating ventilation/air conditioning (HVAC) equipment
 - Silos, tanks, bins and other vessels for liquids and solids
 - Exhaust systems • Panel and enclosures • Environmentally controlled areas
- When installed for sealing, the materials in **Aztec's Master Seal®** bonded washers against either a flexible or inflexible surface to permanently seal in or seal out any environment, natural or industrial. Facing materials are engineered to provide optimal resistance to weathering from ozone, ultraviolet light and chemical agents.



P36 Saddle Washers

Our new "Polymer 36" is a result of industry demand and available technology. The unsuitable memory and wear characteristics of sponge and foam have been eliminated. The unsuitability of powder painting the part after the sponge has been glued on has been **eliminated**. **Polymer 36** has been developed to withstand the temperatures required to fully cure powder paint and still retain a full and complete bond between the polymer and its aluminum substrate. Memory characteristics very similar to solid polymers have been achieved through experimentation in chemical technologies and our own expertise in vulcanizing.





Backing Materials

Our selection of backing material involves three primary considerations: strength, corrosion resistance and cost.

GALVANIZED STEEL

Provides good strength characteristics and possesses corrosion resistance similar to that found in common commercial zinc-plated fasteners - all at the lowest possible cost.

ALUMINUM

Aztec's special alloys provide good performance when moderate strength and deflection requirements exist. For higher stress applications, improved strength and corrosion resistance may be attained by a selection of specialty alloys and tempers such as 5052-H38. Use of an aluminum Master Seal[®] also minimizes concerns of galvanic corrosion in certain installations.

STAINLESS STEEL

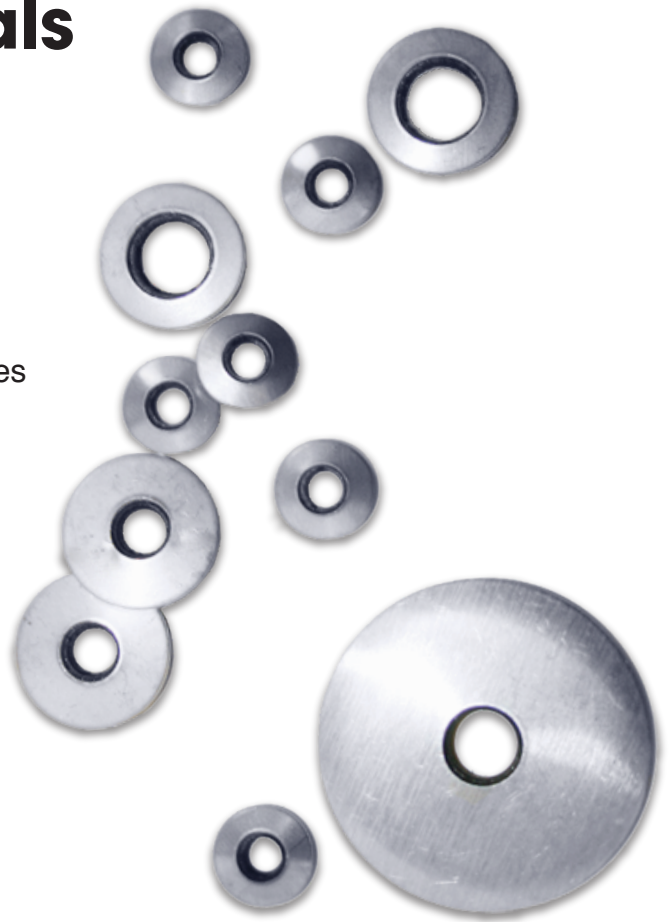
Austenitic 300 Series or 18-8/A2 combines the optimum corrosion resistance and lowest available cost in a premium material. Its use is indicated wherever stainless fasteners are used or when a corrosive environment might attack lesser materials.

316 STAINLESS STEEL

Austenitic 300 Series with Molybdenum/A4 provides the highest corrosion resistance available in standard production materials. Due to higher cost, it is specified only in the harshest marine or industrial environments.

SILICONE-BRONZE, COPPER, COR-TEN[®]

And other special property metals are available for use in specific applications and for Architectural aesthetics.





Facing Materials

Aztec

Offers a variety of facing materials to address the distinctly different operating environments to which **Master Seal®** bonded washer is exposed.

EPDM

(Ethylene Propylene Diene Monomer) is an excellent, low-cost, ozone and weather resistant elastomer, possessing superior aging characteristics. It is also extremely effective when applications require heat resistance up to 350° F. Although use of EPDM in direct contact with petrochemicals is not recommended, in construction applications where the primary hazards are ozone, ultraviolet light and temperature extremes, EPDM is the elastomer of choice.

NEOPRENE

(Polychloroprene) One of the earliest, and perhaps best known, of the man-made rubbers, is still one of the most versatile facing materials for sealing and cushioning washers. When properly formulated, it is highly resistant to sunlight, ozone, weathering and aging, while enjoying good memory and elasticity. Although its primary strength lies in its resistance to petrochemicals and certain other chemical families, Neoprene is a generalist, performing well in a myriad of applications. When in contact with petrochemicals is of greater concern than U.V. attack, Neoprene will do the job.

SILICONE

Addresses the next tier of sealing washer applications. Temperature extremes from - 115° F to + 480° F, exposure to certain chemical environments, or repeated sterilization cycles make silicone the most economical, high performance choice.

FLUORO SILICONES, VITONS, etc

Aztec works with the most current elastomeric compounds for today's most demanding sealing applications. These higher cost materials are available to address the most demanding and specific challenges.

NON-ELASTOMERIC

Facings include asbestos-substitutes, cork fiber and soft metals, each useful in select applications. Because new applications demand specific combinations of performance and cost considerations, we can not list specifications for all uses. Our applications engineers and chemists are prepared to discuss your requirements and to deliver years of experience just for the asking!



SCREW & BOLT SIZE mm / "		INNER DIAMETER mm / "		OUTER DIAMETER													
					9.5mm	11mm	12mm		14mm		15mm	16mm		19mm	20mm		
				1/4"	3/8"	7/16"		1/2"		9/16		5/8"	23/32"	3/4"	25/32"		
2.9	#4	3.3	.120	▲	●												
3.5	#6	3.8	.150	●	▲	●	●										
4.2	#8	4.6	.180		▲	★	★	▲	●	●	●	●	★	●		★	
4.8	#10	5.1	.200		▲	▲	▲	▲	★	●	●	●	★	●		★	
5.5	#12	6.1	.230		▲	●	●	●	★	★	★	★	★	★	★	★	★
			.240					▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
6.3	#14	7.0	.260					●	▲	●	▲	▲	▲	▲	▲	▲	▲
			.275						▲	●	▲	▲	▲	▲	▲	▲	▲
7.0	#17	7.7	.305							●	▲	★	★				
8.0	5/16"	8.4	.330									●	★	▲	★	★	★
			.360										▲	▲	▲	▲	▲
9.5	3/8"	11.0	.410										▲	★	★	★	★
			.434										★	▲	▲	▲	▲
11.1	7/16"	12.1	.475											▲		★	
12.7	1/2"	13.5	.532														
14.0	9/16"	15.2	.600														
15.9	5/8"	16.5	.650														
			.687														
17.5	11/16"	18.8	.710														
19.0	3/4"	20.6	.810														
22.2	7/8"	23.1	.910														
25.4	1"	26.4	1.040														
27.0	1-1/16"	28.0	1.100														
28.6	1-1/8"	29.6	1.150														
30.0	1-3/16"	31.0	1.21														
31.8	1-1/4"	32.8	1.290														
40.0	1-9/16"	40.6	1.6														

- ▲ Popular Outside Diameters
- Optional Outside Diameters
- ★ Subject to minimum quantity and/or tooling fee

OUTER DIAMETER

22mm	25mm	28mm	30mm	32mm	35mm	38mm										Millimeters
7/8"	1"	1-1/8"	1-3/16"	1-1/4"	1 3/8"	1-1/2"	1-5/8"	1-3/4"	1 7/8"	2"	2-1/4"	2-1/2"	2-3/4"	3"	Inches	
★	★	★	★	★	★	★										
●	●	●	★	★	★	★										
△	△	△	△	△	△	△										
△	△	△	△	△	△	△										
●	●	●	●	●	★	★										
●	●	●	●	●	★	●								★		
★	★	★	★	★	★	●				★						
▲	▲	●	●	●	●	●										
▲	▲	▲	●	●	●	●				★				★		
	★	★	★	★	★	★										
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										▲	▲	▲	★	★		
										▲	▲	▲	★	★		
										▲	▲	▲	★	★		
											★		★	★		

We suggest popular sizes for economy and availability
If your application requires a size or configuration not listed our sales engineers will draw upon 40 years of experience and in-house toolmaking capabilities to manufacture a part that fits your application criteria.

Other Quality Aztec products



International Headquarters



13821 Danielson Street, Poway, CA 92064 • 1-800-WASHER 5 (927-4375) • Tel: 1-858-513-4350
 Fax: 1-858-513-4305 • e-mail: sales@aztecwasher.com • web-site: www.aztecwasher.com

- **Aztec (UK) LTD.:** Unit 55, Enterprise Trading Estate Hurst Lane, Pedmore Brierley Hill, West Midlands DY5 1TX, United Kingdom • Tel: (+44) 1384 573444 • Fax: (+44) 1384 572029
 e-mail: sales@aztec-midlands.co.uk • web-site: www.aztec-midlands.co.uk
- **Aztec International S.A. :** ul. Bulgarska 63/65 60-320 Poznan, Poland
 Tel: (+48) 61 867 60 84 • Fax: (+48) 61 867 34 44 • e-mail: aztec@aztec-international.eu
 web-site: www.aztec-international.eu
- **Aztec Dichtscheiben GmbH** Lindenstrasse 11 D-57334 Bad Laasphe Germany
 Tel: (+49) 2752 1353 • Fax: (+49) 2752 1728
- **Aztec Mexico:** Serv.y Maqs.Intls.SAdCV. tel: (+52) 665 6542571 Fax: (+52) 665 6550796
 e-mail: soto@smimx.net • web-site: www.aztecwasher.mx
- **Aztec Australasia** Unit 21, 111 Lewis Rd Wantirna South, VIC 3152 Tel: (+03)9801 1000
 Fax: (+03) 9801 1055 • e-mail: info@aztecau.com.au • web-site: www.aztecau.com.au

To see our complete product line go to www.aztecwasher.com



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 For Technical Support Call: 1-800-WASHER 5 (927-4375) (Outside California Only), California Callers: (858) 513-4350