



AEROSPACE STANDARD	AS8791	REV. C
	Issued	1997-10
	Revised	2014-10
Superseding AS8791B		
Hydraulic and Pneumatic Retainers (Back-Up Rings), Polytetrafluoroethylene (PTFE) Resin		

RATIONALE

As a result of the 5 year review, this document has been revised to update the references and the prohibition of use of these parts in glands other than MIL-G-5514 has been further clarified.

1. SCOPE

This specification and part standard covers polytetrafluoroethylene (PTFE) resin material and the dimensional requirements for scarf-cut retainers (back-up rings) previously covered by MIL-R-8791 and MIL-R-8791/1. The retainers are intended for use in hydraulic and pneumatic system components as anti-extrusion devices in conjunction with seals and O-rings.

1.1 Use

Retainers to the dimensions in this specification are for use in glands to MIL-G-5514 (not for new designs) They shall not be used in glands to AS4716 or AS5857, please refer to the Caution Note below.

CAUTION: Parts standard AS5781 for use in AS4716 glands and parts standard AS5860 for use in AS5857 glands have been published. Backup rings to AS8791 shall not be used in AS4716 or AS5857 glands.

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), Website Address www.sae.org.

AMS3678 Polytetrafluoroethylene (PTFE) Moldings and Extrusions Unfilled, Pigmented, and Filled Compounds

AMS3678/1 Type 1 Virgin Polytetrafluoroethylene (PTFE) Moldings and Extrusions

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AS4716	Gland Design, O-ring and Other Elastomeric Seals
AS5781	Retainers (Backup Rings), Hydraulic and Pneumatic, Polytetrafluoroethylene Resin, Single Turn, Scarf-Cut, For Use in AS4716 Glands
AS5857	Gland Design, O-Ring and Other Elastomeric Seals, Static Applications
AS5860	Retainers, (Back-Up Rings), Hydraulic and Pneumatic, Polytetrafluoroethylene Resin, Single Turn, Static Gland

2.2 U.S. Government Publications

Available from DLA Document Services, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111-5094, Tel: 215-697-6396, <http://quicksearch.dla.mil/>.

MIL-G-5514	Gland Design, Packings, Hydraulic, General Requirements for (Inactive for New Design)
MIL-R-8791	Retainer, Packing, Hydraulic and Pneumatic, Polytetrafluoroethylene Resin (Single Turn) (Cancelled)
MIL-R-8791/1	Retainer, Packing, Hydraulic and Pneumatic, Polytetrafluoroethylene, Single Turn (Cancelled)
MS27595	Retainer, Packing Backup, Continuous Ring, Tetrafluoroethylene (Inactive for New Design)
MS28773	Retainer, Packing Backup, Tetrafluoroethylene, Straight Thread Tube Fitting Boss (Inactive for New Design)
MS28774	Retainer, Packing Backup, Single Turn, Tetrafluoroethylene (Inactive for New Design)
MS28782	Retainer, Packing Backup, Teflon (Inactive for New Design)
MS28783	Ring, Gasket, Backup, Teflon (Inactive for New Design)

3. TECHNICAL REQUIREMENTS

3.1 Material

The material for parts to this specification shall be virgin polytetrafluoroethylene (PTFE) conforming to AMS3678 Type 1, Grade B, Virgin Polytetrafluoroethylene (PTFE) Moldings and Extrusions.

3.2 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

3.3 Dimensional Requirements

The shape and dimensions of PTFE retainers shall conform to Figure 1 and Tables 1A and 1B.

3.3.1 Surfaces and Edges

Surfaces shall be smooth and free from irregularities. Edges shall be clean and sharp.

3.3.2 Scarf-cut

When measuring diameter $M \pm 0.001$ inches (0.03 mm) over a mandrel (see Tables 1A and 1B) the scarf-cut shall not exceed dimension 'G' and shall exhibit no overlap. These measurements are to be made at stabilized temperature of $73 \text{ }^\circ\text{F} \pm 2 \text{ }^\circ\text{F}$ ($23 \text{ }^\circ\text{C} \pm 1 \text{ }^\circ\text{C}$).

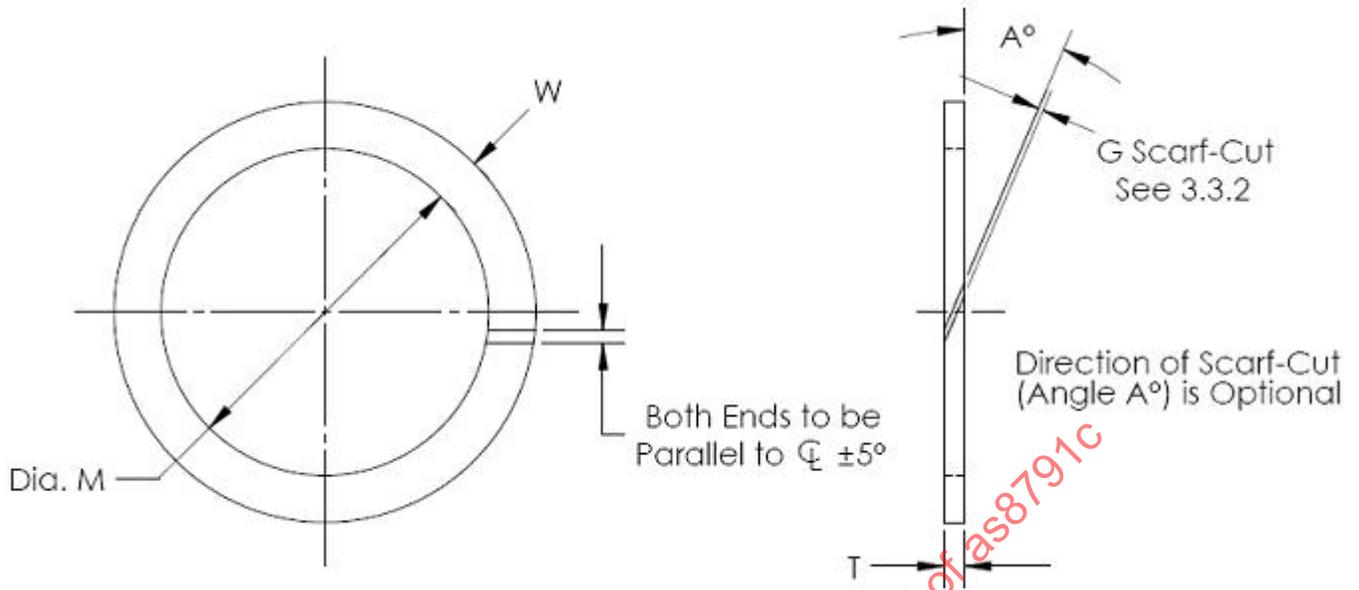


FIGURE 1 - RETAINER, PACKING, HYDRAULIC AND PNEUMATIC, POLYTETRAFLUOROETHYLENE, SINGLE TURN

TABLE 1A - PART NUMBERS AND DIMENSIONS IN INCHES

Part No.	M Dia. Gage ± 0.001	T ± 0.002	W ± 0.001	G Max See 3.3.2	A Degrees Range
M8791/1-004	0.076	0.050	0.053	0.005	45-42
M8791/1-005	0.108	0.050	0.053	0.005	36-33
M8791/1-006	0.123	0.050	0.053	0.005	33-30
M8791/1-007	0.154	0.050	0.053	0.005	27-24
M8791/1-008	0.185	0.050	0.053	0.005	22-19
M8791/1-009	0.217	0.050	0.053	0.005	22-19
M8791/1-010	0.248	0.050	0.053	0.005	22-19
M8791/1-011	0.310	0.050	0.053	0.005	22-19
M8791/1-012	0.373	0.050	0.053	0.005	22-19
M8791/1-013	0.438	0.050	0.053	0.005	22-19
M8791/1-014	0.501	0.050	0.053	0.005	22-19
M8791/1-015	0.563	0.050	0.053	0.005	22-19
M8791/1-016	0.626	0.050	0.053	0.005	22-19
M8791/1-017	0.688	0.050	0.053	0.005	22-19
M8791/1-018	0.751	0.050	0.053	0.005	22-19
M8791/1-019	0.813	0.050	0.053	0.005	22-19
M8791/1-020	0.881	0.050	0.053	0.005	22-19
M8791/1-021	0.943	0.050	0.053	0.005	22-19
M8791/1-022	1.006	0.050	0.053	0.005	22-19
M8791/1-023	1.068	0.050	0.053	0.005	22-19
M8791/1-024	1.131	0.050	0.053	0.005	22-19
M8791/1-025	1.193	0.050	0.053	0.005	22-19
M8791/1-026	1.256	0.050	0.053	0.005	22-19
M8791/1-027	1.318	0.050	0.053	0.005	22-19
M8791/1-028	1.381	0.050	0.053	0.005	22-19
M8791/1-110	0.373	0.054	0.086	0.006	22-19
M8791/1-111	0.435	0.054	0.086	0.006	22-19
M8791/1-112	0.498	0.054	0.086	0.006	22-19
M8791/1-113	0.560	0.054	0.086	0.006	22-19
M8791/1-114	0.623	0.054	0.086	0.006	22-19
M8791/1-115	0.685	0.054	0.086	0.006	22-19
M8791/1-116	0.748	0.054	0.086	0.006	22-19
M8791/1-117	0.815	0.054	0.086	0.006	22-19
M8791/1-118	0.878	0.054	0.086	0.006	22-19
M8791/1-119	0.940	0.054	0.086	0.006	22-19
M8791/1-120	1.003	0.054	0.086	0.006	22-19
M8791/1-121	1.065	0.054	0.086	0.006	22-19
M8791/1-122	1.128	0.054	0.086	0.006	22-19
M8791/1-123	1.190	0.054	0.086	0.006	22-19
M8791/1-124	1.253	0.054	0.086	0.006	22-19
M8791/1-125	1.315	0.054	0.086	0.006	22-19

TABLE 1A - PART NUMBERS AND DIMENSIONS IN INCHES (CONTINUED)

Part No.	M Dia. Gage ±0.001	T ±0.002	W ±0.001	G Max See 3.3.2	A Degrees Range
M8791/1-126	1.380	0.054	0.086	0.006	22-19
M8791/1-127	1.442	0.054	0.086	0.006	22-19
M8791/1-128	1.505	0.054	0.086	0.006	22-19
M8791/1-129	1.564	0.054	0.086	0.006	22-19
M8791/1-130	1.627	0.054	0.086	0.006	22-19
M8791/1-131	1.689	0.054	0.086	0.006	22-19
M8791/1-132	1.752	0.054	0.086	0.006	22-19
M8791/1-133	1.814	0.054	0.086	0.006	22-19
M8791/1-134	1.877	0.054	0.086	0.006	22-19
M8791/1-135	1.940	0.054	0.086	0.006	22-19
M8791/1-136	2.002	0.054	0.086	0.006	22-19
M8791/1-137	2.065	0.054	0.086	0.006	22-19
M8791/1-138	2.127	0.054	0.086	0.006	22-19
M8791/1-139 ¹	2.190	0.054	0.086	0.006	22-19
M8791/1-210	0.748	0.062	0.119	0.006	22-19
M8791/1-211	0.810	0.062	0.119	0.006	22-19
M8791/1-212	0.873	0.062	0.119	0.006	22-19
M8791/1-213	0.935	0.062	0.119	0.006	22-19
M8791/1-214	0.998	0.062	0.119	0.006	22-19
M8791/1-215	1.060	0.062	0.119	0.006	22-19
M8791/1-216	1.123	0.062	0.119	0.006	22-19
M8791/1-217	1.185	0.062	0.119	0.006	22-19
M8791/1-218	1.248	0.062	0.119	0.006	22-19
M8791/1-219	1.310	0.062	0.119	0.006	22-19
M8791/1-220	1.373	0.062	0.119	0.006	22-19
M8791/1-221	1.435	0.062	0.119	0.006	22-19
M8791/1-222	1.498	0.062	0.119	0.006	22-19
M8791/1-223	1.625	0.062	0.119	0.006	22-19
M8791/1-224	1.750	0.062	0.119	0.006	22-19
M8791/1-225	1.875	0.062	0.119	0.006	22-19
M8791/1-226	2.000	0.062	0.119	0.006	22-19
M8791/1-227	2.125	0.062	0.119	0.006	22-19
M8791/1-228	2.250	0.062	0.119	0.006	22-19
M8791/1-229	2.375	0.062	0.119	0.006	22-19
M8791/1-230 ¹	2.500	0.062	0.119	0.006	22-19
M8791/1-325	1.498	0.088	0.183	0.007	22-19
M8791/1-326	1.623	0.088	0.183	0.007	22-19
M8791/1-327	1.748	0.088	0.183	0.007	22-19
M8791/1-328	1.873	0.088	0.183	0.007	22-19
M8791/1-329	1.998	0.088	0.183	0.007	22-19
M8791/1-330	2.123	0.088	0.183	0.007	22-19
M8791/1-331	2.248	0.088	0.183	0.007	22-19

TABLE 1A - PART NUMBERS AND DIMENSIONS IN INCHES (CONTINUED)

Part No.	M Dia. Gage ± 0.001	T ± 0.002	W ± 0.001	G Max See 3.3.2	A Degrees Range
M8791/1-332	2.373	0.088	0.183	0.007	22-19
M8791/1-333	2.498	0.088	0.183	0.007	22-19
M8791/1-334	2.623	0.088	0.183	0.007	22-19
M8791/1-335	2.748	0.088	0.183	0.007	22-19
M8791/1-336	2.873	0.088	0.183	0.007	22-19
M8791/1-337	2.997	0.088	0.183	0.007	22-19
M8791/1-338	3.122	0.088	0.183	0.007	22-19
M8791/1-339	3.247	0.088	0.183	0.007	22-19
M8791/1-340	3.372	0.088	0.183	0.007	22-19
M8791/1-341	3.497	0.088	0.183	0.007	22-19
M8791/1-342	3.622	0.088	0.183	0.007	22-19
M8791/1-343	3.747	0.088	0.183	0.007	22-19
M8791/1-344	3.872	0.088	0.183	0.007	22-19
M8791/1-345	3.997	0.088	0.183	0.007	22-19
M8791/1-346	4.122	0.088	0.183	0.007	22-19
M8791/1-347	4.247	0.088	0.183	0.007	22-19
M8791/1-348	4.372	0.088	0.183	0.007	22-19
M8791/1-349	4.497	0.088	0.183	0.007	22-19
M8791/1-425	4.497	0.120	0.236	0.008	22-19
M8791/1-426	4.622	0.120	0.236	0.008	22-19
M8791/1-427	4.747	0.120	0.236	0.008	22-19
M8791/1-428	4.872	0.120	0.236	0.008	22-19
M8791/1-429	4.997	0.120	0.236	0.008	22-19
M8791/1-430	5.122	0.120	0.236	0.008	22-19
M8791/1-431	5.247	0.120	0.236	0.008	22-19
M8791/1-432	5.372	0.120	0.236	0.008	22-19
M8791/1-433	5.497	0.120	0.236	0.008	22-19
M8791/1-434	5.622	0.120	0.236	0.008	22-19
M8791/1-435	5.747	0.120	0.236	0.008	22-19
M8791/1-436	5.872	0.120	0.236	0.008	22-19
M8791/1-437 ¹	5.997	0.120	0.236	0.008	22-19

*1 For Larger packing retainers (back-up rings) in this series, uncut packing retainers MS27595 are recommended.

TABLE 1B - PART NUMBERS AND DIMENSIONS IN MILLIMETERS

Part No.	M Dia. Gage ± 0.025	T ± 0.051	W ± 0.025	G Max See 3.3.2	A Degrees Range
M8791/1-006	3.124	1.270	1.346	0.127	33-30
M8791/1-007	3.912	1.270	1.346	0.127	27-24
M8791/1-008	4.699	1.270	1.346	0.127	22-19
M8791/1-009	5.512	1.270	1.346	0.127	22-19
M8791/1-010	6.299	1.270	1.346	0.127	22-19
M8791/1-011	7.874	1.270	1.346	0.127	22-19
M8791/1-012	9.474	1.270	1.346	0.127	22-19
M8791/1-013	11.125	1.270	1.346	0.127	22-19
M8791/1-014	12.725	1.270	1.346	0.127	22-19
M8791/1-015	14.300	1.270	1.346	0.127	22-19
M8791/1-016	15.900	1.270	1.346	0.127	22-19
M8791/1-017	17.475	1.270	1.346	0.127	22-19
M8791/1-018	19.075	1.270	1.346	0.127	22-19
M8791/1-019	20.650	1.270	1.346	0.127	22-19
M8791/1-020	22.377	1.270	1.346	0.127	22-19
M8791/1-021	23.952	1.270	1.346	0.127	22-19
M8791/1-022	25.552	1.270	1.346	0.127	22-19
M8791/1-023	27.127	1.270	1.346	0.127	22-19
M8791/1-024	28.727	1.270	1.346	0.127	22-19
M8791/1-025	30.302	1.270	1.346	0.127	22-19
M8791/1-026	31.902	1.270	1.346	0.127	22-19
M8791/1-027	33.477	1.270	1.346	0.127	22-19
M8791/1-028	35.077	1.270	1.346	0.127	22-19
M8791/1-110	9.474	1.372	2.184	0.152	22-19
M8791/1-111	11.049	1.372	2.184	0.152	22-19
M8791/1-112	12.649	1.372	2.184	0.152	22-19
M8791/1-113	14.224	1.372	2.184	0.152	22-19
M8791/1-114	15.824	1.372	2.184	0.152	22-19
M8791/1-115	17.399	1.372	2.184	0.152	22-19
M8791/1-116	18.999	1.372	2.184	0.152	22-19
M8791/1-117	20.701	1.372	2.184	0.152	22-19
M8791/1-118	22.301	1.372	2.184	0.152	22-19
M8791/1-119	23.876	1.372	2.184	0.152	22-19
M8791/1-120	25.476	1.372	2.184	0.152	22-19
M8791/1-121	27.051	1.372	2.184	0.152	22-19
M8791/1-122	28.651	1.372	2.184	0.152	22-19
M8791/1-123	30.226	1.372	2.184	0.152	22-19
M8791/1-124	31.826	1.372	2.184	0.152	22-19
M8791/1-125	33.401	1.372	2.184	0.152	22-19

TABLE 1B - PART NUMBERS AND DIMENSIONS IN MILLIMETERS (CONTINUED)

Part No.	M Dia. Gage ±0.025	T ±0.051	W ±0.025	G Max See 3.3.2	A Degrees Range
M8791/1-126	35.052	1.372	2.184	0.152	22-19
M8791/1-127	36.627	1.372	2.184	0.152	22-19
M8791/1-128	38.227	1.372	2.184	0.152	22-19
M8791/1-129	39.726	1.372	2.184	0.152	22-19
M8791/1-130	41.326	1.372	2.184	0.152	22-19
M8791/1-131	42.901	1.372	2.184	0.152	22-19
M8791/1-132	44.501	1.372	2.184	0.152	22-19
M8791/1-133	46.076	1.372	2.184	0.152	22-19
M8791/1-134	47.676	1.372	2.184	0.152	22-19
M8791/1-135	49.276	1.372	2.184	0.152	22-19
M8791/1-136	50.851	1.372	2.184	0.152	22-19
M8791/1-137	52.451	1.372	2.184	0.152	22-19
M8791/1-138	54.026	1.372	2.184	0.152	22-19
M8791/1-139 ¹	55.626	1.372	2.184	0.152	22-19
M8791/1-210	18.999	1.575	3.023	0.152	22-19
M8791/1-211	20.574	1.575	3.023	0.152	22-19
M8791/1-212	22.174	1.575	3.023	0.152	22-19
M8791/1-213	23.749	1.575	3.023	0.152	22-19
M8791/1-214	25.349	1.575	3.023	0.152	22-19
M8791/1-215	26.924	1.575	3.023	0.152	22-19
M8791/1-216	28.524	1.575	3.023	0.152	22-19
M8791/1-217	30.099	1.575	3.023	0.152	22-19
M8791/1-218	31.699	1.575	3.023	0.152	22-19
M8791/1-219	33.274	1.575	3.023	0.152	22-19
M8791/1-220	34.874	1.575	3.023	0.152	22-19
M8791/1-221	36.449	1.575	3.023	0.152	22-19
M8791/1-222	38.049	1.575	3.023	0.152	22-19
M8791/1-223	41.275	1.575	3.023	0.152	22-19
M8791/1-224	44.450	1.575	3.023	0.152	22-19
M8791/1-225	47.625	1.575	3.023	0.152	22-19
M8791/1-226	50.800	1.575	3.023	0.152	22-19
M8791/1-227	53.975	1.575	3.023	0.152	22-19
M8791/1-228	57.150	1.575	3.023	0.152	22-19
M8791/1-229	60.325	1.575	3.023	0.152	22-19
M8791/1-230 ¹	63.500	1.575	3.023	0.152	22-19
M8791/1-325	38.049	2.235	4.648	0.178	22-19
M8791/1-326	41.224	2.235	4.648	0.178	22-19
M8791/1-327	44.399	2.235	4.648	0.178	22-19
M8791/1-328	47.574	2.235	4.648	0.178	22-19
M8791/1-329	50.749	2.235	4.648	0.178	22-19
M8791/1-330	53.924	2.235	4.648	0.178	22-19
M8791/1-331	57.099	2.235	4.648	0.178	22-19

TABLE 1B - PART NUMBERS AND DIMENSIONS IN MILLIMETERS (CONTINUED)

Part No.	M Dia. Gage ±0.025	T ±0.051	W ±0.025	G Max See 3.3.2	A Degrees Range
M8791/1-332	60.274	2.235	4.648	0.178	22-19
M8791/1-333	63.449	2.235	4.648	0.178	22-19
M8791/1-334	66.624	2.235	4.648	0.178	22-19
M8791/1-335	69.799	2.235	4.648	0.178	22-19
M8791/1-336	72.974	2.235	4.648	0.178	22-19
M8791/1-337	76.124	2.235	4.648	0.178	22-19
M8791/1-338	79.299	2.235	4.648	0.178	22-19
M8791/1-339	82.474	2.235	4.648	0.178	22-19
M8791/1-340	85.649	2.235	4.648	0.178	22-19
M8791/1-341	88.824	2.235	4.648	0.178	22-19
M8791/1-342	91.999	2.235	4.648	0.178	22-19
M8791/1-343	95.174	2.235	4.648	0.178	22-19
M8791/1-344	98.349	2.235	4.648	0.178	22-19
M8791/1-345	101.524	2.235	4.648	0.178	22-19
M8791/1-346	104.699	2.235	4.648	0.178	22-19
M8791/1-347	107.874	2.235	4.648	0.178	22-19
M8791/1-348	111.049	2.235	4.648	0.178	22-19
M8791/1-349	114.224	2.235	4.648	0.178	22-19
M8791/1-425	114.224	3.048	5.994	0.203	22-19
M8791/1-426	117.399	3.048	5.994	0.203	22-19
M8791/1-427	120.574	3.048	5.994	0.203	22-19
M8791/1-428	123.749	3.048	5.994	0.203	22-19
M8791/1-429	126.924	3.048	5.994	0.203	22-19
M8791/1-430	130.099	3.048	5.994	0.203	22-19
M8791/1-431	133.274	3.048	5.994	0.203	22-19
M8791/1-432	136.449	3.048	5.994	0.203	22-19
M8791/1-433	139.624	3.048	5.994	0.203	22-19
M8791/1-434	142.799	3.048	5.994	0.203	22-19
M8791/1-435	145.974	3.048	5.994	0.203	22-19
M8791/1-436	149.149	3.048	5.994	0.203	22-19
M8791/1-437 ¹	152.324	3.048	5.994	0.203	22-19

*1 For Larger retainers (backup rings) in this series, uncut retainers MS27595 are recommended