

Scrapers/Wipers

Fits MS33675



4186 Scraper



2280 Scraper



2145 Scraper

Customized Designs

Greene Tweed offers a variety of scrapers and wipers to match any application challenge. From harsh media to extreme environmental conditions, Greene Tweed provides the most reliable materials and scraper designs available for customization in any application.

Avalon® Scrapers/Wipers

Versatile scraper design

There are several Avalon® scrapers available to meet each application's unique challenge:

- **4186 Scraper:** A rubber-spring energized scraper with an endless PTFE jacket (ring). The elastomeric energizer is situated on the centerline, reducing the tendency to roll out if the primary seal leaks. These designs can be a direct replacement for M28776 scrapers.
- **2280 Scraper:** A bidirectional wiper utilizing an O-ring energizer. These designs fit the same grooves as the BACS34A (Boeing) scraper.
- **2145 Scraper:** A metal garter-spring energized scraper with a scarf-cut PTFE ring. These designs can be a direct replacement for M28776 scrapers.

Features and Benefits

- Excellent wear resistance resulting in extended service life
- Maximum exclusion capabilities for elimination of contamination ingress
- Virtually eliminates scrapers' rolling and twisting, resulting in extended service life
- Offered in a variety of configurations to meet most of the standard glands used in today's existing aircraft applications

Contact Us

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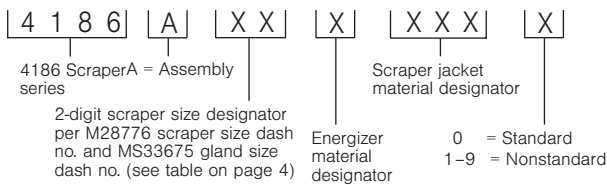
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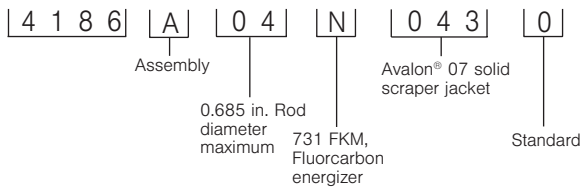
4186 Series Part Numbering System

The part numbering system requires the use of the material designator tables found below. For nonstandard designs contact GT engineering.

Rubber-spring energized scraper with endless PTFE ring



Part Numbering Example



Material Designator Tables—4186 Series

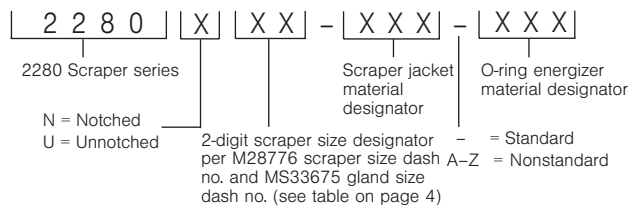
Code	Scraper Jacket
301	Avalon® 01
043	Avalon® 07
019	Avalon® 09
344	Avalon® 44
357	Avalon® 57
379	Avalon® 69
389	Avalon® 89

Code	Elastomeric Energizer
N	731 FKM, Fluorocarbon
R	772 FKM, Fluorocarbon
E	952 EPM, Ethylene Propylene
J	954 EPDM, Ethylene Propylene
H	964 NBR, Nitrile
G	987 NBR, Nitrile

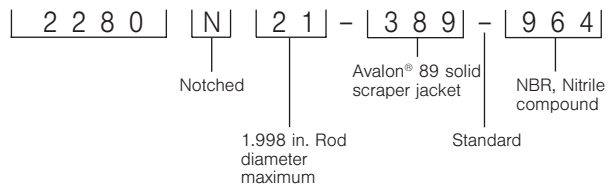
2280 Series Part Numbering System

The part numbering system requires the use of the material designator tables found below. For nonstandard designs contact GT engineering.

Bi-directional wiper



Part Numbering Example



Material Designator Tables—2280 Series

Code	Scraper Jacket
301	Avalon® 01
043	Avalon® 07
019	Avalon® 09
344	Avalon® 44
357	Avalon® 57
379	Avalon® 69
389	Avalon® 89

Code	O-Ring Energizer
155	NBR, Nitrile
196	NBR, Nitrile
735	FKM, Fluorocarbon
757	FKM, Fluorocarbon
940	EPM, Ethylene Propylene
963	EPDM, Ethylene Propylene

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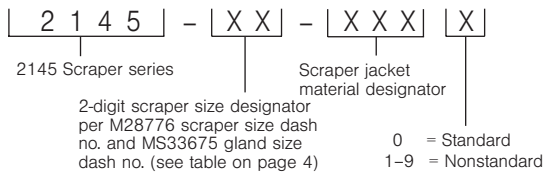
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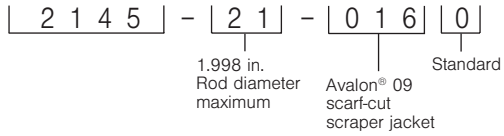
2145 Series Part Numbering System

The part numbering system requires the use of the material designator tables found below. For nonstandard designs contact GT engineering.

Metal (302 SST) garter-spring energized scraper with scarf cut TFE ring, equivalent to BACS34A (Boeing) scrapers



Part Numbering Example



Material Designator Tables—2145 Series

Code	Scraper Jacket
042	Avalon® 07
016	Avalon® 09
044	Avalon® 44

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Dimensional Information—MS33675 (in Inches)

MS33675 Scraper Gland Dash No.	Ø B (4)		Scraper Recess		
	Rod Diameter		Ø D (1)	J	Ø K (2)
	Nominal	+0.000 -0.002	Major Dia. +0.004 -0.000	Depth +0.005 -0.000	Minor Dia. +0.005 -0.000
01	1/2	0.498	0.760	0.104	0.647
02	9/16	0.560	0.823		0.710
03	5/8	0.623	0.885		0.772
04	11/16	0.685	0.948		0.834
05	3/4	0.748	1.010		0.897
06	13/16	0.810	1.086		0.949
07	7/8	0.873	1.148		1.012
08	15/16	0.935	1.210		1.074
09	1	0.998	1.273		1.136
10	1-1/16	1.060	1.335		1.199
11	1-1/8	1.123	1.398		1.262
12	1-3/16	1.185	1.460		1.324
13	1-1/4	1.248	1.523		1.386
14	1-5/16	1.310	1.614		1.480
15	1-3/8	1.373	1.677		1.542
16	1-7/16	1.435	1.739		1.605
17	1-1/2	1.498	1.802		1.668
18	1-5/8	1.623	1.927		1.793
19	1-3/4	1.748	2.052		1.918
20	1-7/8	1.873	2.177		2.043
21	2	1.998	2.302		2.178
22	2-1/8	2.123	2.427		2.303
23	2-1/4	2.248	2.552		2.428
24	2-3/8	2.373	2.677		2.553
25	2-1/2	2.498	2.802		2.678
26	2-5/8	2.623	2.989	0.119	2.834
27	2-3/4	2.748	3.114		2.959
28	2-7/8	2.873	3.239		3.084
29	3	2.997	3.364		3.209
30	3-1/8	3.122	3.489		3.334
31	3-1/4	3.247	3.614		3.479
32	3-3/8	3.372	3.729		3.584
33	3-1/2	3.497	3.864		3.709
34	3-5/8	3.622	3.989		3.834
35	3-3/4	3.747	4.114		3.959
36	3-7/8	3.872	4.239		4.084
37	4	3.997	4.427	0.135	4.240
38	4-1/8	4.122	4.552		4.365
39	4-1/4	4.247	4.677		4.490
40	4-3/8	4.372	4.802		4.615

MS33675 Scraper Gland Dash No.	Ø B (4)		Scraper Recess		
	Rod Diameter		Ø D (1)	J	Ø K (2)
	Nominal	+0.000 -0.003	Major Dia. +0.005 -0.000	Depth +0.005 -0.000	Minor Dia. +0.005 -0.000
41	4-1/2	4.497	4.927	0.135	4.740
42	4-5/8	4.622	5.052		4.865
43	4-3/4	4.747	5.177		4.990
44	4-7/8	4.872	5.302		5.115
45	5	4.997	5.427		5.240
46	5-1/8	5.122	5.552		5.365
47	5-1/4	5.247	5.677		5.490
48	5-3/8	5.372	5.802		5.615
49	5-1/2	5.497	5.927		5.740
50	5-5/8	5.622	6.114	0.151	5.896
51	5-3/4	5.747	6.239		6.022
52	5-7/8	5.872	6.364		6.146
53	6	5.997	6.489		6.272
54	6-1/4	6.247	6.739		6.522
55	6-1/2	6.497	6.989		6.772
56	6-3/4	6.747	7.239		7.022
57	7	6.997	7.489		7.272
58	7-1/4	7.247	7.739		7.522
59	7-1/2	7.497	7.989		7.772
60	7-3/4	7.747	8.239		8.022
61	8	7.997	8.489		8.272
62	8-1/2	8.497	8.989		8.772
63	9	8.997	9.489		9.272
64	9-1/2	9.497	9.989		9.772
65	10	9.997	10.489		10.272
66	10-1/2	10.497	10.989		10.772
67	11	10.997	11.489		11.272
68	11-1/2	11.497	11.989	0.166	11.772
69	12	11.997	12.489		12.272
70	12-1/2	12.497	12.989		12.772
71	13	12.997	13.489		13.272

Notes:

- 1) Major diameter (D) to be concentric with rod bushing bore within 0.005 T.I.R.
- 2) Minor diameter (K) to be concentric with rod bushing bore within 0.010 T.I.R.
- 3) Retention and safetying by means of any approved device.
- 4) Rod diameter from MIL-G-5514/AS4716.
- 5) Rod clearance in accordance with MIL-G-5514/AS4716.

GT recommends a two-piece gland housing for ease of installation.

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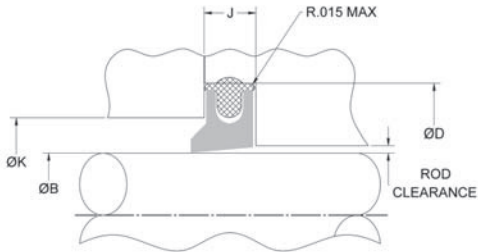
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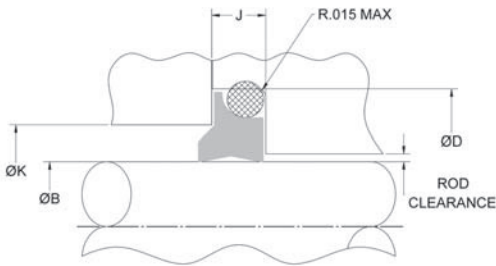
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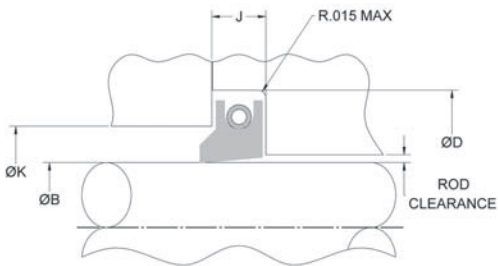
For Reference: 4186 Series



For Reference: 2280 Series



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