

SCRAPERS/WIPERS

Fits MS33675

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

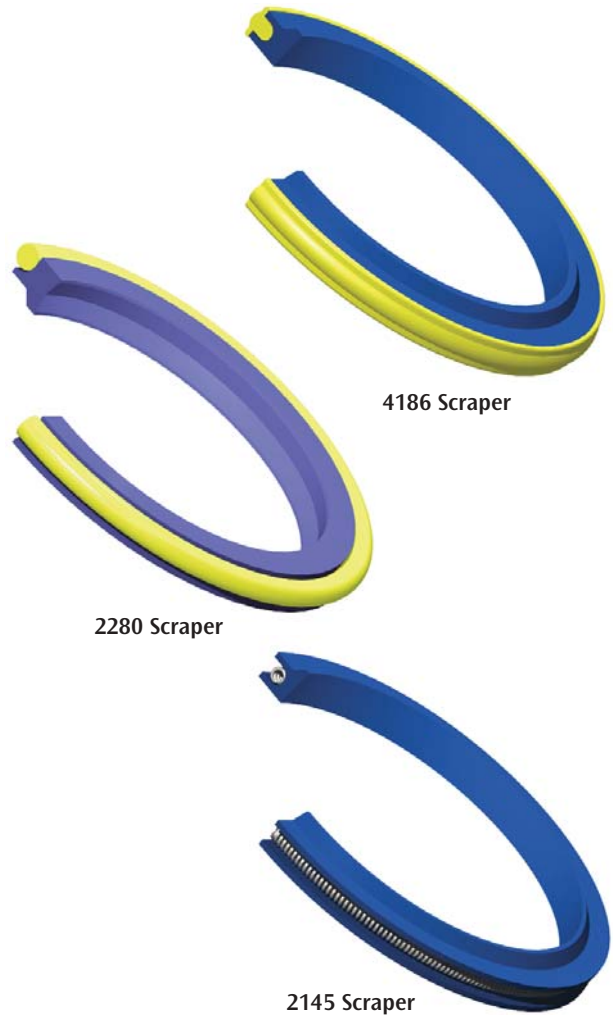
Versatile scraper design

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 & BENEFITS

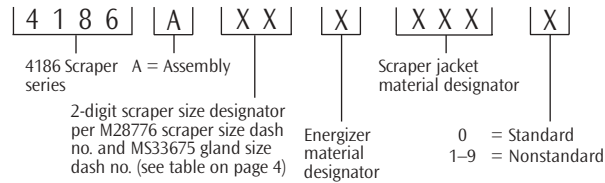
- Excellent wear resistance resulting in extended service life
- Maximum exclusion capabilities for elimination of contamination ingress
- Virtually eliminates scrapers' rolling and twisting, resulting in extended service life
- Offered in a variety of configurations to meet most of the standard glands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



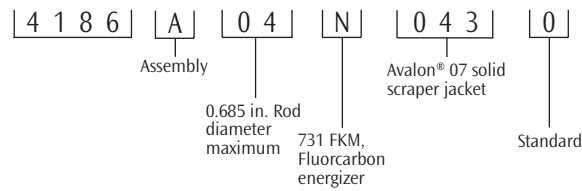
4186 SERIES PART NUMBERING SYSTEM

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

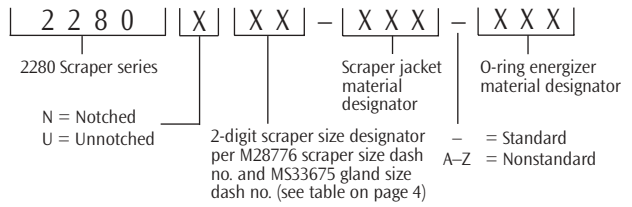
CODE	SCRAPER JACKET
301	Avalon 01
043	Avalon 07
019	Avalon 09
344	Avalon 44
357	Avalon 57
379	Avalon 69
389	Avalon 89

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

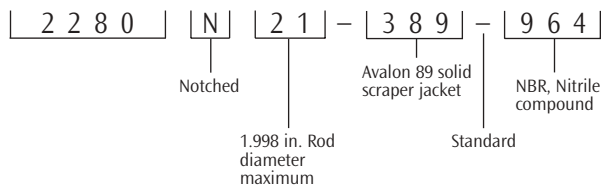
2280 SERIES PART NUMBERING SYSTEM

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

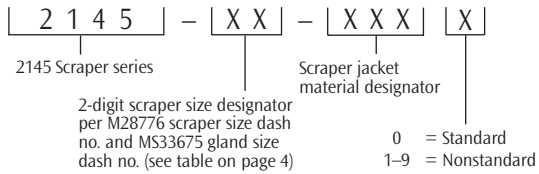
CODE	SCRAPER JACKET
301	Avalon 01
043	Avalon 07
019	Avalon 09
344	Avalon 44
357	Avalon 57
379	Avalon 69
389	Avalon 89

CODE	O-RING ENERGIZER
155	NBR, Nitrile
196	NBR, Nitrile
735	FKM, Fluorocarbon
757	FKM, Fluorocarbon
940	EPM, Ethylene Propylene
963	EPDM, Ethylene Propylene

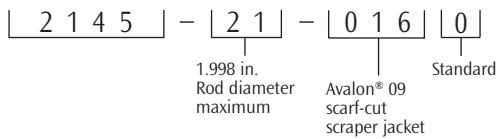
2145 SERIES PART NUMBERING SYSTEM

The part numbering system requires the use of the material designator table 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

DIMENSIONAL INFORMATION—MS33675 (IN INCHES)

MS33675 SCRAPER GLAND DASH NO.	Ø B (4)		SCRAPER RECESS		
	ROD DIAMETER		Ø D (1) MAJOR DIA. +0.004 -0.000	J DEPTH +0.005 -0.000	Ø K (2) MINOR DIA. +0.005 -0.000
	NOMINAL	+0.000 -0.002			
01	1/2	0.498	0.760	0.104	0.647
02	9/16	0.560	0.823	0.104	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	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	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	

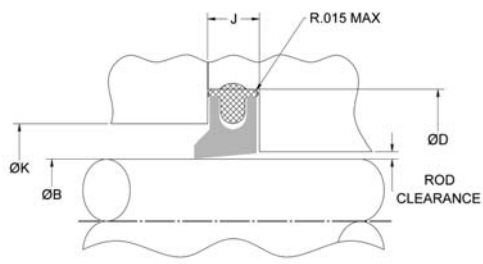
MS33675 SCRAPER GLAND DASH NO.	Ø B (4)		SCRAPER RECESS			
	ROD DIAMETER		Ø D (1) MAJOR DIA. +0.005 -0.000	J DEPTH +0.005 -0.000	Ø K (2) MINOR DIA. +0.005 -0.000	
	NOMINAL	+0.000 -0.003				
41	4-1/2	4.497	4.927	0.135	4.740	
42	4-5/8	4.622	5.052	0.135	4.865	
43	4-3/4	4.747	5.177		4.990	
44	4-7/8	4.872	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		0.151	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	0.166	12.272	
70	12-1/2	12.497	12.989		12.772	
71	13	12.997	13.489		13.272	

Notes:

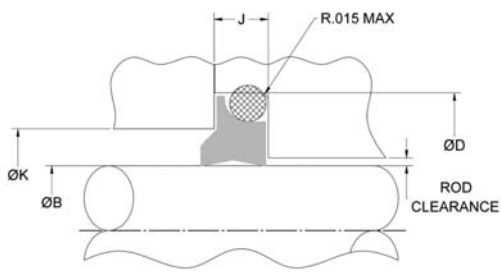
- 1) Major diameter (D) to be concentric with rod bushing bore within 0.005 T.I.R.
- 2) Minor diameter (K) to be concentric with rod bushing bore within 0.010 T.I.R.
- 3) Retention and safetying by means of any approved device.
- 4) Rod diameter from MIL-G-5514/AS4716.
- 5) Rod clearance in accordance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

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

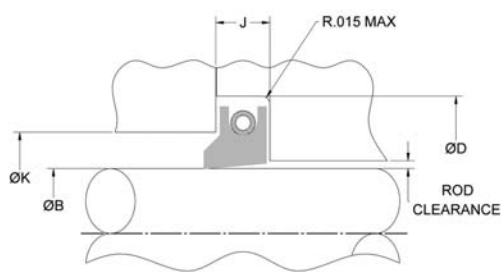
For Reference: 4186 Series



For Reference: 2280 Series



For Reference: 2145 Series



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