

AEROSPACE PART AND MATERIAL CROSS-REFERENCE



FREUDENBERG
SEALING TECHNOLOGIES

 **FREUDENBERG**
INNOVATING TOGETHER



AEROSPACE SEALING

Safety, performance, and innovation in the aerospace industry rely on quality, dependable seals in a variety of applications. That's why aerospace leaders count on Freudenberg Sealing Technologies for reliable solutions in nearly every application, everywhere in the world.

Freudenberg Sealing Technologies has a broad product range and a global support network of experts to be your single-source sealing and service provider, offering:

- Simmerring® shaft seals
- O-rings
- Fluid power seals
- Silicone products
- Hydraulic accumulators
- Special sealing products

The continuous quest for faster, safer, more efficient air travel demands ongoing innovation. The industry continues to strive for improved performance, operational efficiency, reductions in weight and cost, and improved environmental impact. Aircraft are being designed to fly higher in the atmosphere at colder temperatures, and aircraft engines will operate with leaner and environmentally friendly fuel mixes at higher temperatures.

Freudenberg Sealing Technologies brings our customers the benefits of thorough expertise in aerospace sealing materials and applications, global product availability and solutions customized to nearly any application. We drive innovation with research, development and production teams integrated

across our global operations to meet the demands of worldwide and local markets. Those are matched with our Service Centers, offering personalized support to more than 100,000 customers everywhere they operate, around the clock. Our comprehensive lifetime support package covers material development, finite element analysis (FEA), product design and testing as well as on-site technical and logistical support anywhere in the world.

MATERIALS EXPERTISE AND INDUSTRY-SPECIFIC TESTING

Count on Freudenberg Sealing Technologies' expertise in aerospace materials and rigorous test procedures to deliver sealing solutions precisely tailored to your application. We are the only brand that can offer expertise with more than 200 aerospace-specific compounds, plus state-of-the-art finite element simulations and a variety of test rigs. That means we can accurately assess and verify product behavior during the development phase—providing you with the economic advantages of decreased time-to-market cycles, as well as outstanding functional reliability and quality.

Our expertise and testing procedures support our entire range of sealing products for key aerospace applications, including:

- Airframe and windows
- Engines and transmissions
- Landing gears, wheels and brakes
- Primary and secondary flight controls

AEROSPACE PART NUMBER CROSS-REFERENCE

Industry Standard Part Number	Freudenberg Sealing Technologies Part Number	Material	Specification
NAS1523	See Fas-N-Seal List	Various	Various
NAS1593-XXX	AS568-XXX V75	V75	MIL-R-83248 Type 1 Class 1 (replaces MIL-R-25987 Type 1 Class 1)
NAS1594-XXX	AS568-XXX V90	V90	MIL-R-83248 Type 1 Class 2 (replaces MIL-R-25987 Type 1 Class 2)
NAS1595-9XX	AS568-9XX V75	V75	MIL-R-83248 Type 1 Class 1 (replaces MIL-R-25987 Type 1 Class 1)
NAS1596-9XX	AS568-9XX V90	V90	MIL-R-83248 Type 1 Class 2 (replaces MIL-R-25987 Type 1 Class 2)
NAS1598	See Fas-N-Seal List	Various	Various (superseded by NAS1523)
NAS1601-XXX	AS568-XXX E454	E454	NAS1613 Rev 6
NAS1602-YY	AS568-9YY E454	E454	NAS1613 Rev 6
NAS1611-XXXA*	Inquire, parts over 0.500" ID are tight tolerance	E454	NAS1613 Rev 6
NAS1612-YYA*	Inquire, parts over 0.500" ID are tight tolerance	E454	NAS1613 Rev 6
NAS1611-XXX*	Inquire, parts over 0.500" ID are tight tolerance	E458	NAS1613 Rev 2
NAS1612-YY*	Inquire, parts over 0.500" ID are tight tolerance	E458	NAS1613 Rev 2
AS3084-YY	AS568-9YY V75	V75	AMS7276 (replaces AMS7280)
AS3085-XXX	AS568-XXX V75	V75	AMS7276 (replaces AMS7280)
AS3208-YY	AS568-9YY V75	V75	AMS7276
AS3209-XXX	AS568-XXX V75	V75	AMS7276
MA3352	Contact us for metric/unique sizes	V75	AMS7276
MA3442	Contact us for metric/unique sizes	S315	AMS7267
MA3445	Contact us for metric/unique sizes	V199	AMS-R-83485 or MIL-R-83485
AS3581-XXX	AS568-XXX V90	V90	AMS7259
AS3582-XXX	AS568-XXX S70	S70	AMS3304
AS5729-XXX	AS568-XXX V127	V127	AMS7379
AS6058-XXX	AS568-XXX VG708	VG708	AMS7254
AN6227	Contact us for metric/unique sizes	N888	AMS-P-25732 or MIL-P-25732 (superseded by MS28775)
AN6230	Contact us for metric/unique sizes	N888	AMS-P-25732 or MIL-P-25732 (superseded by MS28775)
AN6231	Contact us for metric/unique sizes	N459	AMS-P-5510 or MIL-P-5510 (superseded by MS28778)
AN6290	Contact us for metric/unique sizes	N459	AMS-P-5510 or MIL-P-5510 (superseded by MS28778)
AMS7257-XXX	AS568-XXX Z7257 or SZ501	Z7257/SZ501	AMS7257
MS9068-XXX*	Inquire, parts over 0.500" ID are tight tolerance	S70	AMS3304
AS9385-YY*	Inquire, parts over 0.500" ID are tight tolerance	S315	AMS7267
MS9385-YY*	Inquire, parts over 0.500" ID are tight tolerance	S315	AMS7267
AS9386-XXX*	Inquire, parts over 0.500" ID are tight tolerance	S315	AMS7267
MS9386-XXX*	Inquire, parts over 0.500" ID are tight tolerance	S315	AMS7267

* NOTE: Many part numbers over 0.500" ID are tighter tolerance and NOT standard AS568 tolerances. These tighter tolerance parts are not Master Price List items.

NOTE: Specifications shown do not indicate current revision status; parts are produced to current revision level.

AEROSPACE PART NUMBER CROSS-REFERENCE

Industry Standard Part Number	Freudenberg Sealing Technologies Part Number	Material	Specification
MS9387-YY	Inquire, some parts are tight tolerance	V75	AMS-R-83248, MIL-R-83248, or M83248/1 (superseded by AS83248/1)
AS9966-YY*	Inquire, parts over 0.500" ID are tight tolerance	F273	AMS7273
MS9966-YY*	Inquire, parts over 0.500" ID are tight tolerance	F273	AMS7273
AS9967-XXX*	Inquire, parts over 0.500" ID are tight tolerance	F273	AMS7273
MS9967-XXX*	Inquire, parts over 0.500" ID are tight tolerance	F273	AMS7273
MS9968-XXX	AS568-XXX V75	V75	AMS7276 (replaces AMS7280)
MS9970-XXX	AS568-XXX V90	V90	AMS7259
AS17413-XXX	AS568-XXX V75	V75	AMS-R-83248, MIL-R-83248, or M83248/1 (superseded by AS83248/1)
MS17413-XXX	AS568-XXX V75	V75	AMS-R-83248, MIL-R-83248, or M83248/1 (superseded by AS83248/1)
M25988/1-XXX	AS568-XXX F70	F70	MIL-DTL-25988 or AMS-R-25988 or MIL-R-25988
M25988/2-XXX	AS568-XXX F75	F75	MIL-DTL-25988 or AMS-R-25988 or MIL-R-25988
M25988/3-XXX	AS568-XXX F60	F60	MIL-DTL-25988 or AMS-R-25988 or MIL-R-25988
M25988/4-XXX	AS568-XXX F80	F80	MIL-DTL-25988 or AMS-R-25988 or MIL-R-25988
MS26577	Contact us for metric/unique sizes	S60	AMS3303
MS27290	Contact us for metric/unique sizes	S50	AMS3302
AS28775-XXX	AS568-XXX N888	N888	AMS-P-25732 or MIL-P-25732
MS28775-XXX	AS568-XXX N888	N888	AMS-P-25732 or MIL-P-25732
AS28778-YY	Inquire, some parts are tight tolerance	N459	AMS-P-5510 or MIL-P-5510
MS28778-YY	Inquire, some parts are tight tolerance	N459	AMS-P-5510 or MIL-P-5510
MS28784-XXX	AS568-XXX N888	N888	AMS-P-25732 or MIL-P-25732
AS29512-YY*	Inquire, parts over 0.500" ID are tight tolerance	N400A	AMS-P-5315 or MIL-P-5315
MS29512-YY*	Inquire, parts over 0.500" ID are tight tolerance	N400A	AMS-P-5315 or MIL-P-5315
AS29513-XXX*	Inquire, parts over 0.500" ID are tight tolerance	N400A	AMS-P-5315 or MIL-P-5315
MS29513-XXX*	Inquire, parts over 0.500" ID are tight tolerance	N400A	AMS-P-5315 or MIL-P-5315
AS43003-9YY**	AS568-9YY V75	V75	AMS7276
AS43013-XXX**	AS568-XXX V75	V75	AMS7276
M83248/1-XXX	AS568-XXX V75	V75	AMS-R-83248, MIL-R-83248 (superseded by AS83248/1)
M83248/2-XXX	AS568-XXX V90	V90	AMS-R-83248, MIL-R-83248 (superseded by AS83248/2)
M83285/1-XXX	AS568-XXX E480	E480	AMS-R-83285 or MIL-R-83285
AMS-P-83461/1-XXX	AS568-XXX N456	N456	AMS-P-83461 or MIL-P-83461
M83461/1-XXX	AS568-XXX N456	N456	AMS-P-83461 or MIL-P-83461
AMS-P-83461/2-YY	AS568-9YY N456	N456	AMS-P-83461 or MIL-P-83461
M83461/2-YY	AS568-9YY N456	N456	AMS-P-83461 or MIL-P-83461
M83485/1-XXX	AS568-XXX V199	V199	AMS7287 (previously AMS-R-83485 or MIL-R-83485)
MS90064	Contact us for metric/unique sizes	S50	AMS3302

* NOTE: Many part numbers over 0.500" ID are tighter tolerance and NOT standard AS568 tolerances. These tighter tolerance parts are not Master Price List items.

** NOTE: Additional testing requirements apply. These part series are not Master Price List items.

NOTE: Specifications shown do not indicate current revision status; parts are produced to current revision level.

AEROSPACE MATERIAL CROSS-REFERENCE

Compound	Material Type	Hardness	Color	Specification
E454	EPDM	80	Black	NAS1613 Revision 6, NF L 17-241 Grade 41B8
E458	EPDM	80	Black	NAS1613 Revision 2
E480	EPDM	80	Black	AMS-R-83285 Grade 80, MIL-G-22050 Grade 2
E481	EPDM	80	Black	Low temperature EPDM Tg -76° F (-60° C) AMS7XXX (specification under draft)
N400A	NBR (Nitrile)	70	Black	AMS-P-5315
N888	NBR (Nitrile)	75	Black	AMS-P-25732
N456	NBR (Nitrile)	75	Black	AMS-P-83461
N459	NBR (Nitrile)	90	Black	AMS-P-5510
N477	NBR (Nitrile)	70	Black	AMS-R-7362 (for plate seal applications)
S40	VMQ (Silicone)	40	Red	AMS3301, A-A-59588 (ZZ-R-765) Class 2A 2B Grade 40
S50	VMQ (Silicone)	50	Red	AMS3302, A-A-59588 (ZZ-R-765) Class 2A 2B Grade 50
S60	VMQ (Silicone)	60	Red	AMS3303, A-A-59588 (ZZ-R-765) Class 2A 2B Grade 60
S70	VMQ (Silicone)	70	Red	AMS3304, A-A-59588 (ZZ-R-765) Class 2A 2B Grade 70, AMS3357, NF EN 2261 Grade 50D7, NF L 17-154 Grade 54D7, L17-250-4 50D7
S80	VMQ (Silicone)	80	Red	AMS3305, A-A-59588 (ZZ-R-765) Class 2A 2B Grade 80, NF L 17-250-5 Grade 50D8
S315	VMQ (Silicone)	75	Red	AMS7267
F60	FVMQ (Fluorosilicone)	60	Blue	MIL-DTL-25988 Type 1 Class 1 Grade 60, AMS-R-25988/3, NF L 17-261 Grade 61D6, DMD5019
F70	FVMQ (Fluorosilicone)	70	Blue	MIL-DTL-25988 Type 1 Class 1 Grade 70, AMS-R-25988/1, NF L 17-261 Grade 61D7
F170	FVMQ (Fluorosilicone)	70	Blue	MIL-DTL-25988 Type 1 Class 1 Grade 70, AMS-R-25988/1 (High Tensile Strength)
F75	FVMQ (Fluorosilicone)	75	Blue	MIL-DTL-25988 Type 1 Class 3 Grade 75, AMS-R-25988/2
F80	FVMQ (Fluorosilicone)	80	Blue	MIL-DTL-25988 Type 1 Class 1 Grade 80, AMS-R-25988/4, NF L 17-261 Grade 61D8, DMD5013
F215	FVMQ (Fluorosilicone)	75	Blue	AMS3327
F229	FVMQ (Fluorosilicone)	80	Red	AMS3383
F273	FVMQ (Fluorosilicone)	75	Blue	AMS7273
V75	FKM	75	Black	AMS3216, AMS7276, MIL-R-83248 Type 1 Class 1, NF L 17-164 Grade 64C8, SBAC DTD5613 Grade 80, DMD5014
V90	FKM	90	Black	AMS7259, MIL-R-83248 Type 1 Class 2, NF L 17-260 Grade 60C9
V199	FKM	75	Black	AMS-R-83485, AMS7287
V127	FKM	75	Black	AMS7379
V175	FEPM	75	Black	AMS7255
SZ498	Simriz® FFKM	75	Black	DMD5072
SZ501	Simriz® FFKM	75	Black	AMS7257 (Higher Temperature Resistance. Up to 320° C)
Z7257	Simriz® FFKM	75	Black	AMS7257
VG708	FFO (Perfluoroether)	70	Green	AMS7254

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