YAMAWA U.S.A. TODAY

YAMAWA *HIGH PERFORMANCE IN THE AEROSPACE INDUSTRY*

Edited by Glynn Simmons

NEWSLETTER FROM YAMAWA MFG. CO., LTD. Vol. #11 JULY 2016

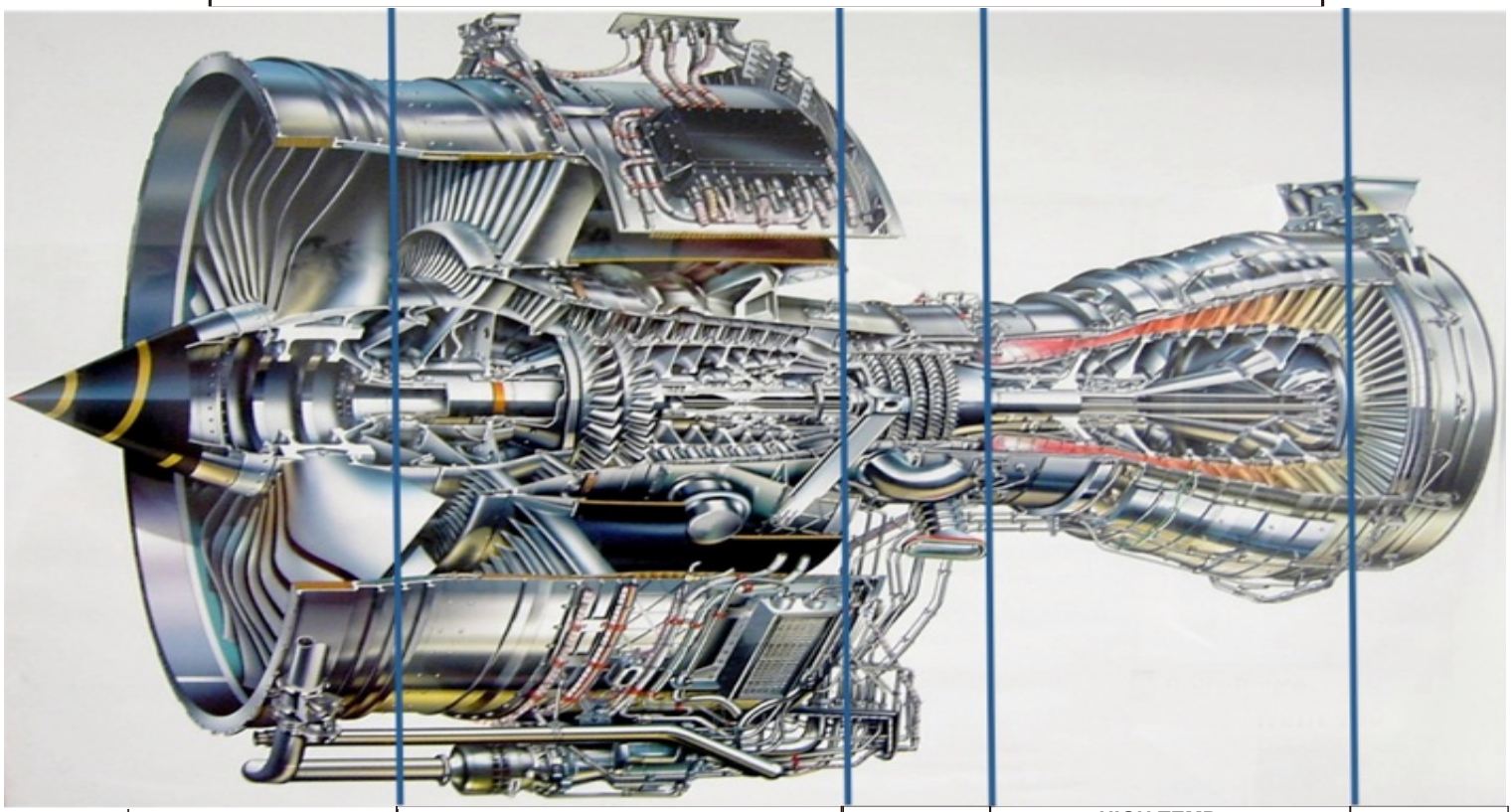
WHOLESALERS:

DISTRIBUTOR:

YAMAWA HAS ENGINEERED AND IS OFFERS MATERIAL SPECIFIC TAPS FOR THE DIFFICULT TO MACHINE METALS IN THE AEROSPACE INDUSTRY.

YAMAWA MAKES TAPS FOR TOUGH AND WORK HARDENABLE MATERIALS LIKE STAINLESS STEELS, NICKEL, IRON, AND COBALT BASED ALLOYS, TITANIUM, MAGNESIUM AND ALUMINUM.

YAMAWA HIGH PERFORMANCE TAPS FOR JET ENGINES COMPONENT MANUFACTURING



Ti64 TITANIUM CASING	Ti6246 TITANIUM COMPRESSOR	ALLOY STEEL SHAFT	HIGH TEMP ALLOYS COMBUSTOR	TITANIUM ALUMININDE TURBINE
				
YAMAWA ZELX TI TAPS	YAMAWA ZELX TI TAPS	YAMAWA ZELX SS TAPS	YAMAWA ZELX NI TAPS	YAMAWA ZELX TI TAPS

Think threads with YAMAWA

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YAMAWA HIGH PERFORMANCE TAPS FOR THE AEROSPACE FASTENER INDUSTRY

The demands for tapping heat resistant alloys and stainless steels are constantly increasing in the Aerospace Industry.

The most commonly used heat resistant alloys in the aerospace industry are Nickle base alloys like A286, Inconel, Hastelloy and Waspalloy. Yamawa makes these Nickel alloys easier to tap. Yamawa also makes Titanium easier to tap with the NEW TI64SP tap designed for 6AL4V Titanium.

Tapping these materials can be extremely difficult due to the material heat resistance and tough wearability features. There is a great need for these features in the aerospace industry but they can easily cause severe damage to standard taps.

YAMAWA has solved this problem with an excellent offering of taps for such severe tapping conditions.

ZELX®SS taps for Stainless steels

- Features fo Zelx SS Taps:
- Custom blended vanadium high speed steel for high wear resistance
- Ideal cutting edge design to prevent welding
- Suitable surface treatment to prevent welding

ZELX®NI taps for Nickel base alloys, A286, Inconel, Hastelloy, Waspalloy

ZELX®TI taps for Titanium alloys

- Features of Zelx NI and Zelx T Taps;
- Premium PM high speed steel for high heat and wear resistance
- Ideal cutting edge design and thread relief for high heat resistance
- Optimum flute design to evacuate chips smoothly for each work material
- Suitable surface treatment to prevent welding and enhance wear resistance

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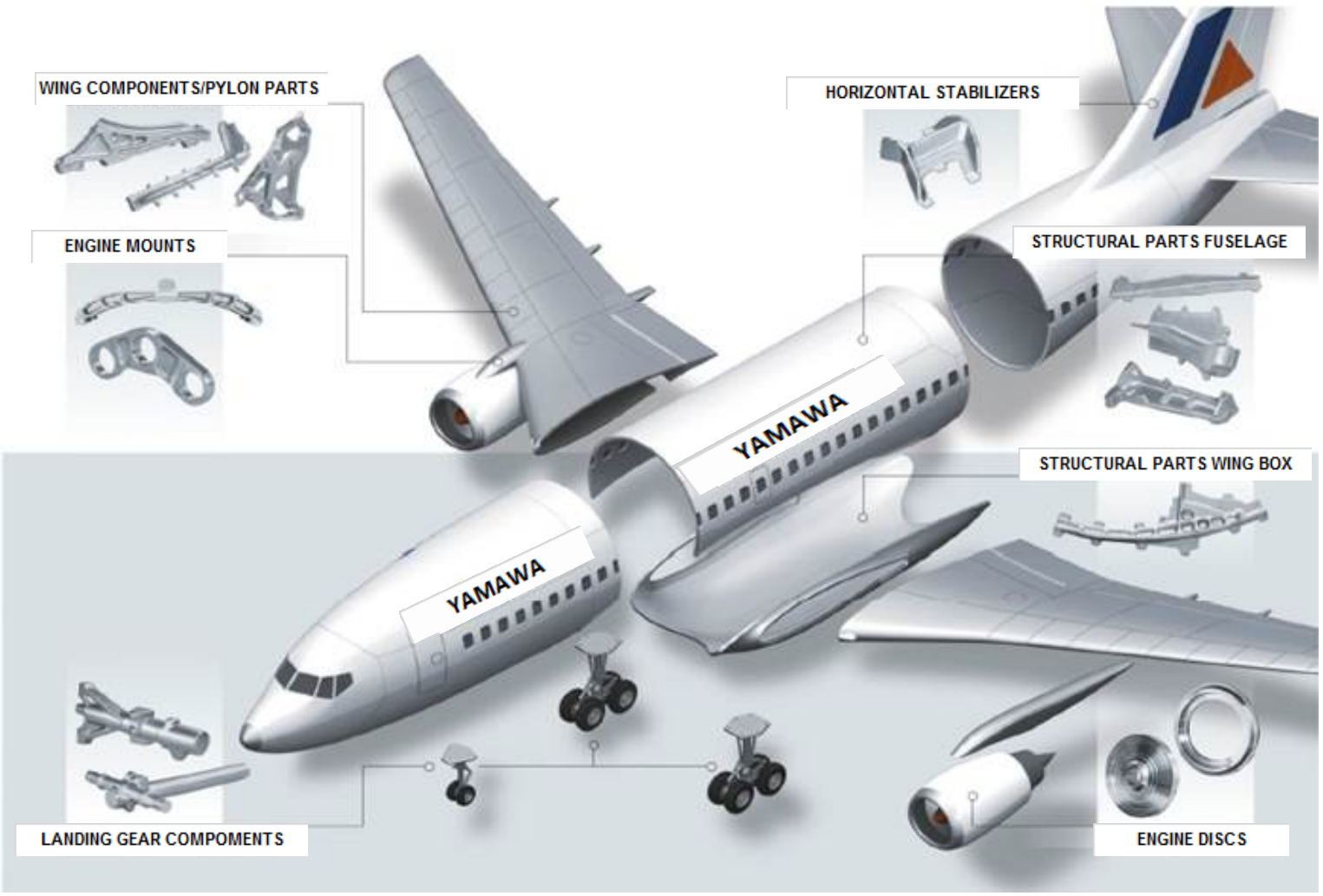
YAMAWA HIGH PERFORMANCE ZELX TI TAPS FOR TITANIUM AEROSPACE COMPONENT MANUFACTURING



FOR TITANIUM ALLOYS

YAMAWA ZELX TI

HSS-P | NI | L15° | 5 | 3 | Synchronized

5 — Left Hand Spiral Fluted Taps for through holes in Titanium Alloys

3 — Right Hand Spiral Fluted Taps for blind holes in Titanium Alloys

FEATURES OF PRODUCT

- RECOMMENDED FOR TAPPING OF TITANIUM ALLOYS.
- MADE OF PM HIGH SPEED STEEL FOR HIGH HEAT AND WEAR RESISTANCE TAPPING.
- IDEAL FLUTE DESIGN FOR SMOOTH CHIP EJECTION DURING TAPPING.
- HIGH THREAD RELIEF TO REDUCE TAPPING TORQUE.

- RECOMMENDED TAPPING CONDITIONS:
- TAPPING SPEED: 15 TO 25 SFM (4.5 TO 7.6M/MIN.)
- TAPPING LENGTH: UP TO X 2 1/2D.

Think threads with YAMAWA

YMW TAPS U.S.A. 855-YMW-USA1 855-969-8721 www.ymwtapsusa.com

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Aerospace Taps Series

Vol. #11 JULY 2016

YAMAWA offers the material specific "ZELX series" taps for threading stainless steel, titanium alloys and nickel, cobalt or iron based alloys that are used in many aircraft and aerospace components.

◇ FOR THORUGH HOLES ◇

Spiral Pointed Taps for Stainless Steel, Chrome Steels and Molybdenum Steels

ZELX® SS

Size Ranges
UNJC・・・No.4 to 1"
UNJF・・・No.4 to 1"

List No.

3218	Machine Screw sizes with oxide surface treatment.
3228	Fractional sizes with oxide surface treatment.
3218T	Machine Screw sizes with TiN（Titanium Nitride）
3228T	Fractional sizes with TiN（Titanium Nitride）

Suitable work materials
303 STAINLESS STEEL
304 STAINLESS STEEL
410 STAINLESS STEEL
8740 (SNCM240)

Spiral Pointed Taps for Nickel, Cobalt or Iron Base Alloys and PH Stainless Steel

ZELX® NI

Size Ranges
UNJC・・・No.4 to 3/4
UNJF・・・No.6 to 3/4

List No.

3612	Machine Screw sizes
3622	Fractional sizes

Suitable work materials
INCONEL718, 750
Waspalloy
Hastelloy
A286
15-5P H
17-4PH (SUS630)
316 STAINLESS STEEL

Left Hand Spiral Fluted Taps for Titanium Alloys

ZELX® TI

Size Ranges
UNJC・・・No.4 to 1/2
UNJF・・・No.10 to 1/2

List No.

3613	Machine Screw sizes
3623	Fractional sizes

Suitable work materials
Titanium alloys (Ti-6Al-4V)

◇ FOR BLIND HOLES ◇

Spiral Pointed Taps for Stainless Steel, Chrome Steels and Molybdenum Steels

ZELX® SS

Size Ranges
UNJC・・・No.4 to 1"
UNJF・・・No.4 to 1"

List No.

3613	Machine Screw sizes with ox surface treatment
3623	Fractional sizes with ox surface treatment
3318T	Machine Screw sizes with TiN （Titanium Nitride）
3328T	Fractional sizes with TiN （Titanium Nitride）

Suitable work materials
303 STAINLESS STEEL
304 STAINLESS STEEL
410 STAINLESS STEEL
8740 (SNCM240)

Spiral Fluted Taps for Nickel Base Alloys

ZELX® NI

Size Ranges
UNJC・・・No.4 to 3/4
UNJF・・・No.4 to 5/8

List No.

3615	Machine Screw sizes
3625	Fractional sizes

Suitable work materials
INCONEL718, 750
Waspalloy
Hastelloy
A286
15-5P H
17-4PH (SUS630)
316 STAINLESS STEEL

Spiral Fluted Taps for Titanium Alloys

ZELX® TI

Size Ranges
UNJC・・・No.4 to 1/2
UNJF・・・No.10 to 1/2

List No.

3613	Machine Screw sizes
3623	Fractional sizes

Suitable work materials
Titanium alloys (Ti 6Al4V)

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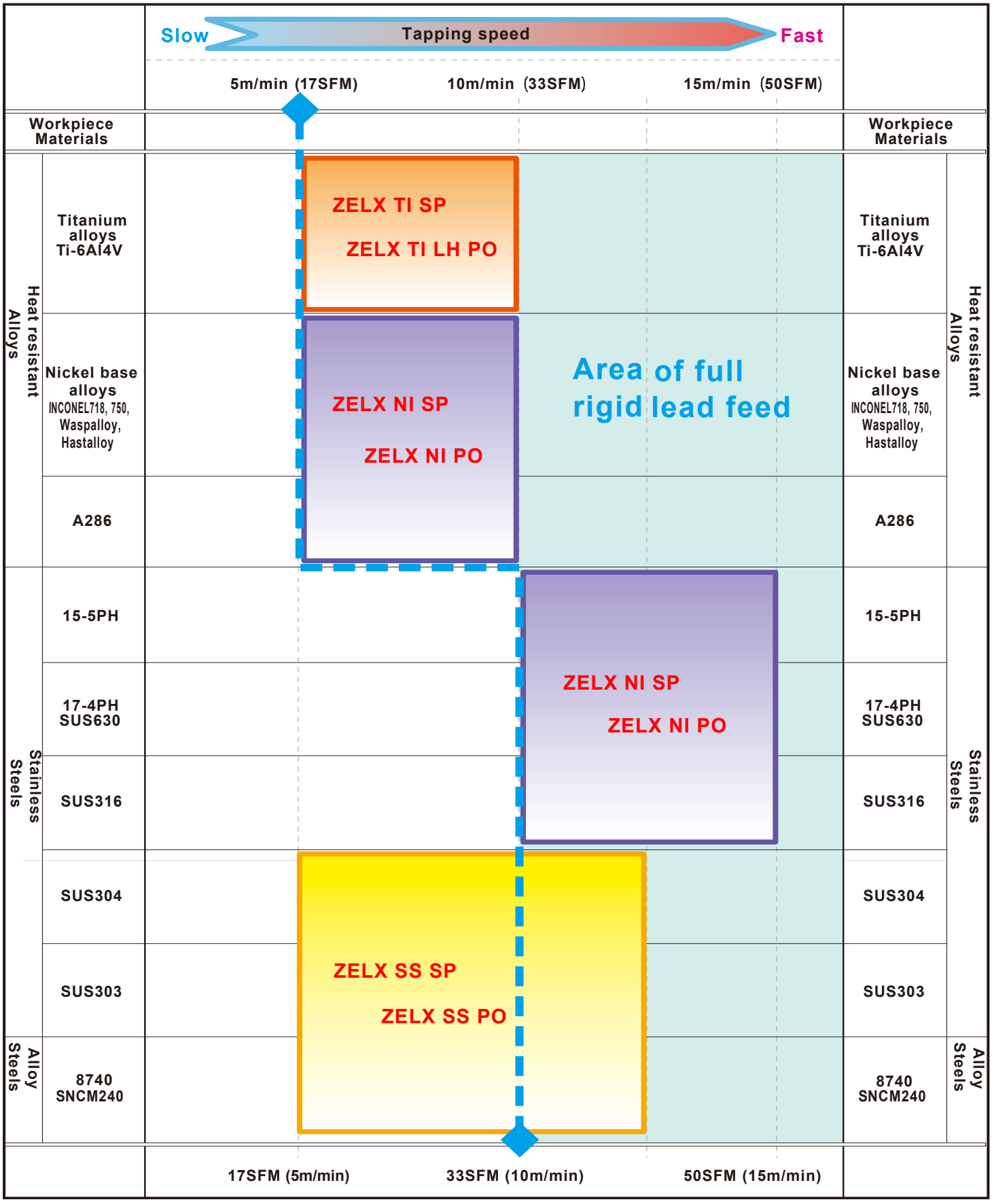
YAMAWA Product Chart for AEROSPACE INDUSTRY



An image telling possible applications

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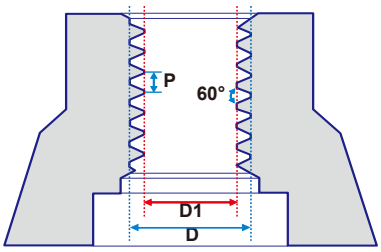
Threads for the aerospace industry



Recommended Drill Sizes for Tapping Internal UNJ Threads

UNJC Unified coarse thread SAE AS8879D

Nominal size inch D		P [T.P.I.]	Minor dia. of the internal thread D1		Recommended drill size	
			min inch	max inch	Drill size	Decimal inch
No.4	(0.112)	40	0.0877	0.0942	2.30mm	0.0906
No.5	(0.125)	40	0.1007	0.1072	2.60mm	0.1024
No.6	(0.138)	32	0.1076	0.1157	#33	0.1130
No.8	(0.164)	32	0.1336	0.1417	3.50mm	0.1378
No.10	(0.190)	24	0.1494	0.1600	3.90mm	0.1535
No.12	(0.216)	24	0.1754	0.1852	4.60mm	0.1811
1/4	(0.250)	20	0.2013	0.2121	5.30mm	0.2087
5/16	(0.313)	18	0.2584	0.2690	6.70mm	0.2638
3/8	(0.375)	16	0.3141	0.3250	8.10mm	0.3189
7/16	(0.438)	14	0.3680	0.3795	9.50mm	0.3740
1/2	(0.500)	13	0.4251	0.4368	10.90mm	0.4291
9/16	(0.563)	12	0.4814	0.4914	31/64"	0.4844
5/8	(0.625)	11	0.5365	0.5474	13.80mm	0.5433
3/4	(0.750)	10	0.6526	0.6646	16.75mm	0.6594
7/8	(0.875)	9	0.7668	0.7801	19.60mm	0.7717
1	(1.000)	8	0.8783	0.8933	22.50mm	0.8858

UNJF Unified fine thread SAE AS8879D

Nominal size inch D		P T.P.I.	Minor dia. of the internal thread D1		Recommended drill size	
			min. inch	max. inch	Drill size	Decimal inch
No.4	(0.112)	48	0.0917	0.0971	2.40mm	0.0945
No.5	(0.125)	44	0.1029	0.1088	2.70mm	0.1063
No.6	(0.138)	40	0.1137	0.1202	3.00mm	0.1181
No.8	(0.164)	36	0.1370	0.1442	#28	0.1405
No.10	(0.190)	32	0.1596	0.1675	4.20mm	0.1654
No.12	(0.216)	28	0.1812	0.1896	#13	0.1850
1/4	(0.250)	28	0.2152	0.2229	7/32"	0.2188
5/16	(0.313)	24	0.2719	0.2799	7.00mm	0.2756
3/8	(0.375)	24	0.3344	0.3417	8.60mm	0.3386
7/16	(0.438)	20	0.3888	0.3970	10.00mm	0.3937
1/2	(0.500)	20	0.4513	0.4591	11.60mm	0.4567
9/16	(0.563)	18	0.5084	0.5166	13.00mm	0.5118
5/8	(0.625)	18	0.5709	0.5788	14.60mm	0.5748
3/4	(0.750)	16	0.6892	0.6977	17.60mm	0.6929
7/8	(0.875)	14	0.8055	0.8152	13/16"	0.8125
1	(1.000)	12	0.9189	0.9289	59/64"	0.9219

Think threads with YAMAWA