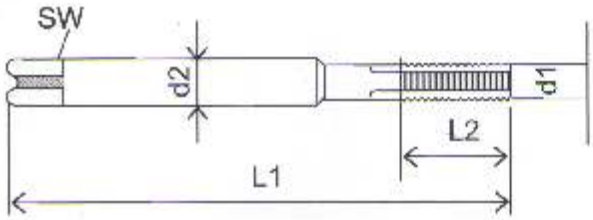
BRIGHT
India Tools

High Durable Taps

Internal Threading Solution

STRAIGHT FLUTED TAPS FOR CAST IRON & ALUMINUM

DIN Std

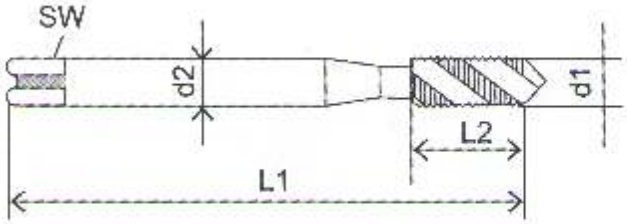


Code	Size (d1)	d2 mm 371/376	L1 mm 371/376	L2 mm	Square (SW) Size mm 371/376
TA6A7321	M4 X0.7	4.5	63	13	3.4
TA6A7174	M5 X 0.8	6.0	70	15	4.9
TA6A7072	M6 X 1.0	6.0	80	16	4.9
TA6A7004	M8 X 1.25	8.0	90	18	6.2
TA6A7073	M10 X 1.5	10.0	100	20	8.0
TA6A7074	M12 X 1.75	9.0	110	24	7.0
TA6A7322	M14 X 2.0	11.0	110	26	9.0
TA6A7323	M16 X 2.0	12.0	110	27	9.0
TA6A7324	M20 X 2.5	16.0	140	32	12.0

Taps Material	HSS-E
Standard	DIN
Chamfer	FORM C
Coating	TiAlN
Cutting Direction	RIGHT HAND
Tolerance	M 6H

SPIRAL FLUTED TAPS FOR BLIND HOLE APPLICATION

DIN Std

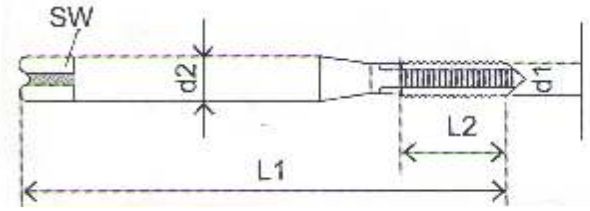


Code	Size (d1)	d2 mm 371/376	L1 mm 371/376	L2 mm	Square (SW) Size mm 371/376
TA8A 8043	M4 X0.7	4.5	63	8	3.4
TA8A 8044	M5 X 0.8	6.0	70	10	4.9
TA8A 8045	M6 X 1.0	6.0	80	11	4.9
TA8A 8046	M8 X 1.25	8.0	90	13	6.2
TA8A 8047	M10 X 1.5	10.0	100	15	8.0
TA8A 8048	M12 X 1.75	9.0	110	18	7.0
TA8A 8325	M14 X 2.0	11.0	110	20	9.0
TA8A 8326	M16 X 2.0	12.0	110	20	9.0
TA8A 8327	M20 X 2.5	16.0	140	25	12.0

Taps Material	HSS-E
Standard	DIN
Chamfer	FORM C
Coating	TiCN
Cutting Direction	RIGHT HAND
Tolerance	M 6H

SPIRAL POINT TAPS FOR THROUGH HOLES APPLICATION

DIN Std



Code	Size (d1)	d2 mm 371/376	L1 mm 371/376	L2 mm	Square (SW) Size mm 371/376
TA7A 8312	M4 X0.7	4.5	63	13	3.4
TA7A 8313	M5 X 0.8	6.0	70	15	4.9
TA7A 8314	M6 X 1.0	6.0	80	16	4.9
TA7A 8315	M8 X 1.25	8.0	90	18	6.2
TA7A 8316	M10 X 1.5	10.0	100	20	8.0
TA7A 8317	M12 X 1.75	9.0	110	24	7.0
TA7A 8318	M14 X 2.0	11.0	110	26	9.0
TA7A 8319	M16 X 2.0	12.0	110	27	9.0
TA7A 8320	M20 X 2.5	16.0	140	32	12.0

Taps Material	HSS-E
Standard	DIN
Chamfer	FORM C
Coating	TiAlN
Cutting Direction	RIGHT HAND
Tolerance	M 6H

1) This taps available in various grades of High Speed Steel like HSS- M2, M-35, M-42.

2) This taps available in various types of coating lin TiN, TiAlN, TiCN, Alcrona Pro.

3) This taps available in various Indian & international standard like DIN, ISO, BS, ANSI.

4) This taps are available in following thread type :
   - i) MC (ISO Metric coarse)
   - ii) MF (ISO Metric fine)
   - iii) UNC (Unfied coarse)
   - iv) UNF (Unifed Fine)
   - v) BSW (British standard whitworth coarse)
   - vi) BSF (British standard whitworth fine)
   - vii) BA (British Association)
   - viii) BSPT (British standard pipe)
   - ix) NPS / NPSF (National pipe)
   - x) NPT / NPTF (National pipe)

5) Center through coolant taps available on request.

BRIGHT India Tools

RECOMMENDED TAPPING DRILL

MC ISO METRIC COURSE

SIZE mm	PITCH mm	DRILL mm
MI	0.25	0.75
MI.1	0.25	0.85
MI.2	0.25	0.95
MI.4	0.3	1.1
MI.6	0.35	1.25
MI.7	0.35	1.35
MI.8	0.35	1.45
M2	0.4	1.6
M2	0.45	1.55
M2.2	0.45	1.75
M2.3	0.4	1.9
M2.5	0.45	2.05
M2.6	0.45	2.15
M3	0.5	2.5
M3	0.6	2.4
M3.5	0.6	2.9
M4	0.7	3.3
M4	0.75	3.25
M4.5	0.75	3.75
M5	0.8	4.2
M5	0.9	4.1
M5.5	0.9	4.6
M6	1	5
M7	1	6
M8	1.25	6.75
M9	1.25	7.75
M10	1.5	8.5
M11	1.5	9.5
M12	1.75	10.2
M14	2	12
M16	2	14
M18	2.5	15.5
M20	2.5	17.5
M22	2.5	19.5
M24	3	21
M27	3	24
M30	3.5	26.5
M33	3.5	29.5
M36	4	32
M39	4	35
M42	4.5	37.5
M45	4.5	40.5
M48	5	43
M52	5	47
M56	5.5	50.5
M60	5.5	54.5
M64	6	58
M68	6	62
M72	6	66
M76	6	70

MF ISO METRIC FINE

SIZE mm	PITCH mm	DRILL mm
M2	0.25	1.75
M2.2	0.25	1.95
M2.3	0.25	2.05
M2.5	0.35	2.15
M2.6	0.35	2.25
M3	0.35	2.65
M3.5	0.35	3.15
M4	0.45	3.65
M4	0.5	3.5
M5	0.35	4.65
M5	0.5	4.5
M5	0.75	4.25
M5.5	0.5	5
M6	0.5	5.5
M6	0.75	5.25
M7	0.75	6.25
M8	0.5	7.5
M8	0.75	7.25
M8	1	7
M9	0.75	8.25
M9	1	8
M10	0.50	9.5
M10	0.75	9.25
M10	1	9
M10	1.25	8.75
M11	0.75	10.25
M11	1	10
M11	1.25	9.75
M12	0.5	11.5
M12	0.75	11.25
M12	1	11
M12	1.25	10.75
M12	1.5	10.5
M14	1	13
M14	1.25	12.75
M14	1.50	12.5
M15	0.75	14.25
M15	1	14
M15	1.5	13.5
M16	0.5	15.5
M16	0.75	15.25
M16	1	15
M16	1.25	14.75
M16	1.5	14.5
M17	1	16
M17	1.5	15.5
M18	0.75	17.25
M18	1	17
M18	1.25	16.75
M18	1.5	16.5
M18	2	16
M19	1	18

MF ISO METRIC FINE continued

SIZE mm	PITCH mm	DRILL mm
M20	1	19
M20	1.5	18.5
M20	2	18
M22	1	21
M22	1.5	20.5
M22	2	20
M24	1	23
M24	1.5	22.5
M24	2	22
M25	1	24
M25	1.5	23.5
M25	2	23
M27	1	26
M27	1.5	25.5
M27	2	25
M28	1	27
M28	1.5	26.5
M28	2	26
M30	1	29
M30	1.5	28.5
M30	2	28
M30	3	27
M32	1	31
M32	1.5	30.5
M32	2	30
M33	1.5	31.5
M33	2	31
M33	3	30
M35	1.5	33.5
M35	2	33
M35	3	32
M36	1	35
M36	1.5	34.5
M36	2	34
M36	3	33
M38	1	37
M38	1.5	36.5
M38	2	36
M39	1.5	37.5
M39	2	37
M39	3	36
M40	1	39
M40	1.5	38.5
M40	2	38
M40	3	37
M42	1.5	40.5
M42	2	40
M42	3	39
M42	4	38
M45	1.5	43.5
M45	3	42
M48	1.5	46.5

MF ISO METRIC FINE continued

SIZE mm	PITCH mm	DRILL mm
M48	1.5	46.5
M48	2	46
M48	3	45
M48	4	44
M50	1.5	48.5
M50	2	48
M50	3	47
M52	1.5	50.5
M52	2	50
M52	3	49
M52	4	48
M56	2	54
M56	4	52

G (BSP) MECHANICAL JOINT Rp (BSP) LEAKPROOF JOINT

SIZE mm	PITCH mm	DRILL mm	DRILL mm
1/8	28	8.8	8.6
1/4	19	11.8	11.5
3/8	19	15.25	15
1/2	14	19	18.5
5/8	14	21	20.5
3/4	14	24.5	24
7/8	14	28.5	27.75
1"	11	30.75	30.25
1.1/4	11	39.5	39
1.1/2	11	45.25	44.75
1.3/4	11	51.3	50.5
2"	11	57.2	56.5
2.1/4	11	63.3	62.5
2.1/2	11	72.8	72.3
3"	11	85.5	85

G (BSP) MECHANICAL JOINT Rp (BSP) LEAKPROOF JOINT

SIZE mm	PITCH mm	DRILL mm
1/8	28	8.6
1/4	19	11.5
3/8	19	15
1/2	14	18.5
3/4	14	24
1"	11	30
1.1/4	11	39
1.1/2	11	45
2"	11	56.5
2.1/2	11	71.5

BRIGHT India Tools

RECOMMENDED TAPPING DRILL

UNC

SIZE No. or Inch	PITCH TPI	DRILL mm
No. 1	64	1.55
No. 2	56	1.85
No. 3	48	2.10
No. 4	40	2.35
No. 5	40	2.65
No. 6	32	2.85
No. 8	32	3.50
No. 10	24	3.90
No. 12	24	4.50
1/4	20	5.10
5/16	18	6.60
3/8	16	8.00
7/16	14	9.40
1/2	13	10.80
9/16	12	12.20
5/8	11	13.50
3/4	10	16.50
7/8	9	19.50
1"	8	22.25
1.1/8	7	25.00
1.1/4	7	28.00
1.3/8	6	30.75
1.1/2	6	34.00
1.3/4	5	39.50
2"	4.5	45.00
2.1/4	4.5	51.50
2.1/2	4	57.25
2.3/4	4	63.50
3"	4	70.00

UN - 8

SIZE No. or Inch	PITCH TPI	DRILL mm
1.1/8	8	25.30
1.1/4	8	28.50
1.3/8	8	31.60
1.1/2	8	34.80
1.5/8	8	38.00
1.3/4	8	41.20
1.7/8	8	44.30
2"	8	47.50
2.1/4	8	55.00
2.1/2	8	61.30

BSW

SIZE mm	PITCH TPI	DRILL mm
1/8	40	2.60
5/32	32	3.10
3/16	24	3.60
1/4	20	5.10
5/16	18	6.50
3/8	16	7.90
7/16	14	9.30
1/2	12	10.50
9/16	12	12.00
5/8	11	13.50
11/16	11	15.00
3/4	10	16.50
7/8	9	19.25
1"	8	22.00
1.1/8	7	24.75
1.1/4	7	28.00
1.1/2	6	33.50
1.3/4	5	39.00
2"	4.5	44.50
2.1/4	4	50.00
2.1/2	4	56.50

UNEF

SIZE No. or Inch	PITCH TPI	DRILL mm
No. 12	32	4.70
1/4	32	5.50
5/16	32	7.10
3/8	32	8.60
7/16	28	10.10
1/2	28	11.70
9/16	24	13.00
5/8	24	14.75
11/16	24	16.25
3/4	20	17.50
13/16	20	19.25
7/8	20	20.75
15/16	20	22.25
1"	20	23.75
1.1/8	18	26.75
1.1/4	18	30.00
1.3/8	18	33.00
1.1/2	18	36

BSF

SIZE mm	PITCH mm	DRILL mm
3/16	32	4
7/32	28	4.7
1/4	26	5.4
9/32	26	6.2
5/16	22	6.8
3/8	20	8.3
7/16	18	9.8
1/2	16	11.2
9/16	16	12.7
5/8	14	14
11/16	14	15.75
3/4	12	17
7/8	11	20
1"	10	23
1.1/8	9	26
1.1/4	9	29
1.3/8	8	32
1.1/2	8	35
1.5/8	8	37.5
1.3/4	7	40
2"	7	46.5

UN - 12

SIZE No. or Inch	PITCH TPI	DRILL mm
1 5/8	12	39.10
1 3/4	12	42.30
1 7/8	12	45.40
2"	12	48.60
2 1/4	12	55.00
2 1/4	12	61.30
1"	12	23.50

NPT / NPTF

(1:16 TAPER SIZE Inch	PITCH TPI	DRILL mm
1/16	27	6.30
1/8	27	8.50
1/4	18	11.10
3/8	18	14.70
1/2	14	18.00
3/4	14	23.88
1"	11.1/2	29.00
1.1/4	11.1/2	38.00
1.1/2	11.1/2	44.00
2"	11.1/2	56.00

UNF

SIZE No. or Inch	PITCH TPI	DRILL mm
3/16	32	4
7/32	28	4.7
1/4	26	5.4
9/32	26	6.2
5/16	22	6.8
3/8	20	8.3
7/16	18	9.8
1/2	16	11.2
9/16	16	12.7
5/8	14	14
11/16	14	15.75
3/4	12	17
7/8	11	20
1"	10	23
1.1/8	9	26
1.1/4	9	29
1.3/8	8	32
1.1/2	8	35
1.5/8	8	37.5
1.3/4	7	40
2"	7	46.5

NPS / NPSF

SIZE mm	PITCH TPI	DRILL mm	DRILL mm
1/8	27	8.90	8.70
1/4	18	11.50	11.30
3/8	18	15.00	14.70
1/2	14	18.50	18.20
3/4	14	24.00	23.50
1"	11 1/2	30.00	29.50
1.1/4	11 1/2	39.00	38.50
1.1/2	11 1/2	45.00	44.50
2"	11 1/2	57.00	56.50

Trouble Shooting Guide

SURFACE FINISH

Torn or Rough Threads

Causes	Solutions
Chamfer too short	a) Increase the chamfer length
Wrong cutting angle	a) Select the correct cutting face angle.
Galling	a) Use thread relieved taps. b) Reduce land width. c) Use proper surface treated taps like steam tempered or TIN coated. d) Use over size drill. e) Obtain proper alignment between tap and work.
Chip Packing	a) Use Spiral fluted taps. b) Use oversize drill.

TOOL LIFE

Breakage

Incorrect Tap Selection	a) Avoid chip packing in the flutes at bottom of the hole. b) Use spiral fluted taps for blind holes. c) Use proper surface treated taps like steam tempered or TIN coated.
Excessive Tapping Torque	a) Use larger drill size. b) Increase the chamfer length. c) Increase cutting angle. d) Apply a tap with more thread relief and reduced land width.
Operating Conditions	a) Reduce tapping speed. b) Avoid misslignment between tap and the hole and tapered hole. c) Use floating tap holder. d) Use tapping holder with torque adjustment. e) Avoid hitting bottom of the hole with tap.
Tool Condition	a) Do not grind the bottom of the flute. b) Avoid too narrow land width. c) Re-grind tool more frequently.

Edge Chipping

Incorrect Tap Selection	a) Reduce cutting angle. b) Increase chamfer length.
Operating Conditions	a) Reduce tapping speed. b) Avoid misalignment between tap and the hole c) Avoid sudden return or revere in blind hole tapping.

TOOL LIFE

Wear

Incorrect Tap Selection	a) Apply specially designed taps for tapping high tensile materials. b) Change to a type of high - speed tap that contains vanadium. c) Use proper surface treated taps like steam tempered or TIN coated d) Increase chamfer length.
Operating Conditions	a) Reduce tapping speed. b) Apply proper cutting lubricants. c) Avoid work hardened hole. d) Use larger hole size.

DIMENSIONAL ACCURACY

Over Size Pitch Diameter

Causes	Solutions
Incorrect tap	a) Use proper tolerance taps. b) Use longer taper lead lamps.
Chip Packing	a) Use spiral fluted taps. b) Reduce number of flutes to increase space for chips. c) If tapping a blind hole, allow the extra depth of chamfer or reduce the chamfer length. d) Use proper lubricant.
Galling	a) Use proper surface treated taps like steam tempered or TIN coated. b) Use proper cutting lubricant. c) Reduce tapping speed. d) Use proper cutting face angle in accordance with material being tapped. e) Use larger hole size.
Operating Conditions	a) Apply proper tapping speed. b) Correct alignment of tap and drill hole. c) Use proper tapping speed to avoid torn or rough threads. d) Use pitch control tapping. e) Use proper tapping machine with suitable power. f) Avoid mis alignment of the tap with respect to workpiece.

Under Size Pitch Diameter

Incorrect Tap	a) Use oversize taps for cutting material such as copper alloy, aluminum alloy & cast iron. b) Use proper chamfer angle. c) Increase cutting angle of tap in relation with material to be tapped.
Damaged thread	a) Use proper reversing speed to avoid damaging tapped thread on the way out of the hole.

Taps Cutting data Recommendations

	Material	Rm (N/mm2)	Cutting Speed vc (m/min)		
			Uncoated	Coated AL2 Plus / TiCN	Coolant respectively lubrication (alternative)
			Cutting Speed for diffracted solvable oils (8%-12%) could be increased by 10%-20% by use of cutting oil respectively MQL		
	Plain carbon steel	-700	15 - 20	30 - 40	Cutting oil
	Free cutting steel	-700	15 - 20	30 - 40	Cutting oil
	Structural low alloy steel	500-950	12 - 18	20 - 30	Cutting oil
	Heat Treatable Steel, Medium Strength	500-950	12 - 18	20 - 30	Cutting oil
	Cast Steel	-950	12 - 18	20 - 30	Cutting oil
	Case Hardened Steel	-950	12 - 18	20 - 30	Cutting oil
	Stainless Steel, Ferritic, Martenistic	500-950	10 - 15	15 - 20	Cutting oil
	Heat Treatable Steel, high Strength	950-1400	8 - 12	12 - 16	Cutting oil
	Nitriding Steel	950-1400	8 - 12	12 - 16	Cutting oil
	Tool Steel (upto 45 HRC)	950-1400	8 - 12	12 - 16	Cutting oil
	Stainless Steel, Austenitic	500-950	8 - 10	12 - 15	Cutting oil
	Maraging Steel		4 - 6	10 - 15	Cutting oil
	Grey Cast Iron	100-400 (120-260 HB)	15 - 20	20 - 30	Cutting oil
	Alloyed Grey Cast Iron	150-250	15 - 20	20 - 30	Cutting oil
		(160-230 HB)			
	Nodular Cast Iron	400-800	20 - 30	25 - 40	Cutting oil
		(120-310 HB)			
	Malleable Cast Iron	350-700	20 - 30	25 - 40	Cutting oil
		(150-280 HB)			
	Pure Metals, Soft	-500	20 - 30	30 - 40	Cutting oil
	Aluminum alloys, Long chipping	-550	15 - 20	20 - 30	Cutting oil
	Aluminum alloys, Short chipping	-400	15 - 20	25 - 35	Cutting oil
	Copper alloys, Long chipping	300-700	15 - 20	20 - 30	Cutting oil
	Copper alloys, Short chipping	-500	15 - 20	20 - 30	Cutting oil
	Magnesium Alloys	150-300	20 - 30	30 - 40	Cutting oil
	Thermoplastics	40-70	20 - 30	30 - 40	Cutting oil
	Duroplastics	20-40	10 - 15	20 - 30	Cutting oil
	Titanium Alloys, Medium Strength	-950	4 - 8	6 - 10	Cutting oil
	Titanium Alloys, High Strength	900-1400	2 - 6	6 - 10	Cutting oil
	Nickel Based Alloys, Medium Strength	-950	4 - 8	6 - 10	Cutting oil
	Heat Resistant Nickel Based Alloys, High Strength	900-1400	2 - 6	6 - 10	Cutting oil
	Chilled Cast Iron	300-600 HB	2 - 4	6 - 10	Cutting oil

The recommended speed shown in the above table is only starting point which may vary considerably to suit service conditions.

ENQUIRY - SPECIAL THREAD TAPS

Item Code :	SPTAP :

Order Quantity :		Consumption :		(Monthly)		(Yearly)

All Length & Diameter measures in 'mm'

Workpiece material	
Tensile strength	
Drill depth	
Tapping Depth	

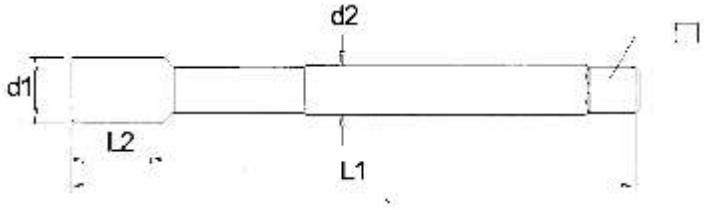
Type of Hole :
Through ☐ Blind ☐

Cutting direction :
RH ☐ LH ☐

Coolant supply :
Internal ☐ External ☐

Shank Standard :
DIN ☐ JIS ☐ ISO ☐

Construction dimensions / thread description :



d1	
d2	
L1	
L2	
☐	

Flute style :
Spiral ☐
Spiral Point (Gun nose) ☐
Straight ☐

Chamfer lead :
lead type A (6-8 threads)
lead type B (4-5 threads)
lead type C (2-3 threads)
lead type E (1.5 threads)
special lead.
(length in mm)

Coating :
without coating ☐
TiN ☐
TiCN ☐
TiAlN ☐

Thread tolerance :
4H ☐ 1B ☐
6H ☐ 2B ☐
7H ☐ 3B ☐
8H ☐
4G ☐
6G ☐
7G ☐
8G ☐

No. of Flutes :		Helix angle :	

Additional Information :

BRIGHT INDIA TOOLS

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