



Tapping & Threading Catalogue

ISSUE 8

Company Profile

ITC is a specialist tooling supplier. Our objective is to supply our customers with the best possible products, at the same time making them more efficient by introducing productivity and method improvements. To achieve this we continue to invest in our team of capable and enthusiastic engineers and technical sales people, backed up by an in-house team which we believe is second to none. From solid carbide and PCD tooling, through to indexable milling, turning and boring, plus top quality tool holders, ITC has an unbeatable product range.

Better by design, better by ITC

ITC's state-of-the-art production facility includes CNC grinding machines from world leading manufacturers including Walter, Deckel, Rollomatic and Anca. We have invested in a centralised oil filtration system to ensure that grinding takes place under optimum conditions with clean oil, and our inspection department includes computerised laser measuring equipment, to maintain the high standards for which ITC is renowned.

We manufacture and source the best available products from around the world, and hold well over 300,000 Solid Carbide tools, tool bodies, inserts and tool holders on the shelf ready for same day despatch. ITC also offers modification and regrind services, meaning we can adapt existing tools to your requirements, and return used tools to an 'as new' condition. Our continued investment in cutting edge CNC grinding equipment gives us the capacity to rapidly manufacture custom made tools to your precise specifications.

ITC: an easy company to do business with

We believe that good customer service is vital, and all of our staff are highly trained to provide expert support, whether you know exactly what you need, or need guidance from start to finish.

Manufacturing companies rely on ITC to provide an unbeatable combination of first class service, rapid response, huge stocks, and access to a diverse and ever growing product line.







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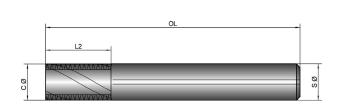




Metric Carbide Threadmills

Description

- Helical flutes
- With through coolant hole (unless stated)
- TiAIN coated



P	М	K	N	S	н
•	•	•	•	•	•

Metric

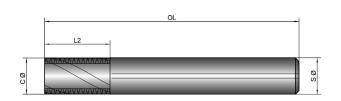
CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0100*	M3 x 0.5	2.2	6	58	6	3
TTM0101*	M4 x 0.7	2.9	6	58	9	3
TTM0102*	M5 x 0.8	3.9	6	58	11	3
TTM0103	M6 x 1	4.8	6	63	13	3
TTM0104	M8 x 1.25	6	6	63	17	3
TTM0105	M10 x 1.5	7.5	8	80	21	3
TTM0106	M12 x 1.75	8.6	10	80	26	4
TTM0107	M14 x 2 / M16 x 2	9.9	10	100	34	4
TTM0107R	M16 x 2	11.9	12	100	34	4
TTM0108	M20 x 2.5	13.4	16	100	40	4

^{*} No coolant hole

Metric Carbide Threadmills

Description

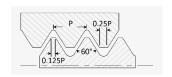
- Helical flutes
- With through coolant hole (unless stated)
- TiAIN coated



P	М	K	N	S	н
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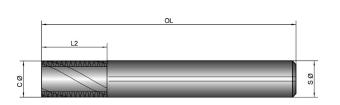
Metric

CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0119	M6 / M8 x 0.75	4.5	6	63	12	3
TTM0121	M8 x 1 / M10 x 1	5.9	6	63	16	3
TTM0123	M10 x 1.25 / M12 x 1.25	7.4	8	80	21	3
TTM0126	M16 x 1.5 / M20 x 1.5	11.9	12	100	32	4
TTM0127	M20 x 2 / M24 x 2	15.9	16	100	46	4









UNCCarbide Threadmills

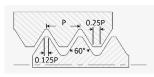
Description

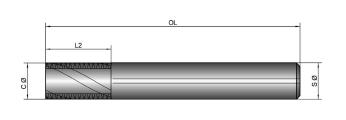
- Helical flutes
- With through coolant hole
- TiAlN coated

P	М	K	N	S	Н
•	•	•	•	•	•

Metric

CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0205	1/4-20 UNC	4.7	6	63	13	3
TTM0208	5/16-18 UNC	5.3	6	63	16	3
TTM0209	3/8-16 UNC	5.9	6	63	20	3
TTM0210	7/16-14 UNC	7.9	8	80	24	3
TTM0211	1/2-13 UNC	8.9	10	80	26	3
TTM0212	9/16-12 UNC	9.9	10	80	28	3





P	М	K	N	S	Н
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UNFCarbide Threadmills

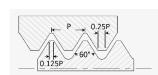
Description

- Helical flutes
- With through coolant hole (unless stated)
- TiAIN coated

Metric

CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0201*	10-32 UNF	3	6	58	10	3
TTM0202*	1/4-28 UNF	4.5	6	58	13	3
TTM0203	5/16-24 UNF	5.9	6	63	16	3
TTM0204	3/8-24 UNF	5.9	6	63	20	3
TTM0206	7/16-20 UNF	7.9	8	80	24	3
TTM0207	1/2-20 UNF	9.9	10	80	26	4

^{*} No coolant hole

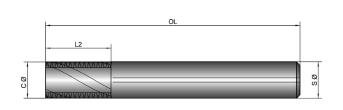




BSP/GCarbide Threadmills

Description

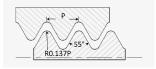
- Helical flutes
- With through coolant hole
- TiAlN coated



Р	М	K	N	S	Н
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Metric

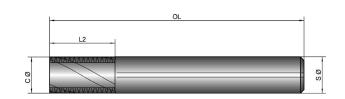
CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0301	1/8 - 28 BSP	7.6	8	80	16	3
TTM0302	1/4, 3/8 - 19 BSP	7.9	8	80	18	3
TTM0303	1/2, 7/8 - 14 BSP	11.9	12	100	26	4
TTM0304	1" - 11 BSP	15.9	16	100	42	4



NPTCarbide Threadmills

Description

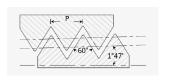
- Helical flutes
- With through coolant hole
- TiAIN coated



P	М	K	N	S	Н
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Metric

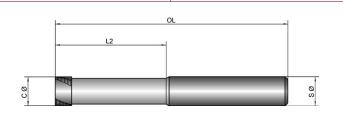
CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTM0400	1/16, 1/8-27 NPT	5.9	6	63	9.4	3
TTM0401	1/8-27 NPT	7.6	8	80	9.4	3
TTM0402	1/4, 3/8-18 NPT	9.9	10	80	14.1	4
TTM0403	1/2, 3/4-14 NPT	15.9	16	100	20	4
TTM0404	1", 2"-11.5 NPT	15.9	16	100	26.5	4











Р	М	K	N	S	Н
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Mini Carbide Threadmills

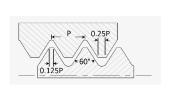
Description

- 3 Flute
- 3 Cutting teeth
- Helical flutes
- TiAIN coated

Metric

CATALOGUE NUMBER	SIZE	С	SØ	OL	L2
TTMM03*	M2 x 0.4	1.55	6	58	6.2
TTMM04*	M2.5 x 0.45	1.95	6	58	7.7
TTMM05	M3 x 0.5	2.4	6	58	9.2
TTMM06	M4 x 0.7	3.15	6	58	12.3
TTMM07	M5 x 0.8	4.05	6	58	15.4
TTMM08	M6 x 1	4.8	6	58	18.5
TTMM012	4-40 UNC	2.1	6	58	9
TTMM013	6-32 UNC	2.55	6	58	10.5
TTMM014	8-32 UNC	3.2	6	58	13
TTMM025	10-24 UNC	3.58	6	58	15.5
TTMM026	1/4-20 UNC	4.88	6	58	18.5
TTMM015	10-32 UNF	3.2	6	58	15.5
TTMM016	1/4-28 UNF	5.25	6	58	18.5
TTMM017	5/16-24 UNF	6.6	8	64	25
TTMM018	3/8-24 UNF	6.6	8	64	25

 $^{^{\}star}$ These have 2 cutting teeth





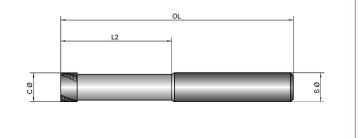




Mini Carbide Threadmills

Description

- 3 Flute
- 3 Cutting teeth
- Helical flutes
- TiAIN coated



P	М	K	N	S	Н
•	•	•	•	•	•

Metric

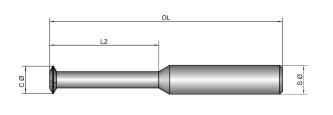
CATALOGUE NUMBER	SIZE	С	SØ	OL	L2
TTMM029	MJ3 x 0.5	2.4	6	64	9.20
TTMM030	MJ4 x 0.7	3.15	6	64	12.30
TTMM031	MJ5 x 0.8	4.05	6	64	15.40
TTMM032	MJ6 x 1	4.8	6	64	18.50
TTMM033	MJ8 x 1.25	6.5	8	64	24.60
TTMM036	MJ10 x 1.5	7.9	8	64	30.5
TTMM040	6-32 UNJC	2.70	6	57	11.00
TTMM041	8-32 UNJC	2.70	6	57	11.00
TTMM042	10-32 UNJF	2.70	6	57	11.00
TTMM043	1/4-28 UNJF	5.40	6	57	19.50
TTMM044	5/16-24 UNJF	6.70	8	63	24.10
TTMM045	3/8-24 UNJF	6.70	8	63	24.10



The MJ and UNJF Thread profiles both have a controlled root radius and conform to ANSI/ASME B1.21M-1997 and MIL-S-8879.

Originally they were designed for use within the Aerospace industry, but have now been adopted for any highly stressed application requiring high temperature or high fatigue strength.







Single Point Carbide Threadmills

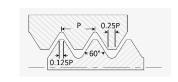
Description

 Threadmills with one row of teeth - for difficult to reach applications

Metric

CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NØ
TMSP010	M1.6 x 0.35	1.16	4	51	2.41	4
TMSP020	M2 x 0.4	1.55	6	58	6.20	4
TMSP025	M2.5 x 0.45	1.95	6	58	7.70	4
TMSP030	M3 x 0.5	2.40	6	58	9.20	4
TMSP040	M4 x 0.7	3.15	6	58	12.30	4
TMSP050	M5 x 0.8	4.05	6	58	15.40	4
TMSP060	M6 x 1	4.80	6	58	18.50	4
TMSP080	M8 x 1.25	6.00	6	58	24.00	5
TMSP100	M10 x 1.5	7.50	8	64	30.00	5

This type of tool is also called a Thread Whirler. For Speeds & Feeds please see page 11



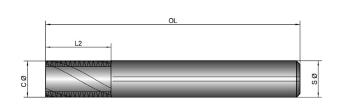




DiamondCoated Threadmills

Description

- Material: solid carbide
- Helical flutes
- Diamond coated



COMPOSITE MATERIALS - CARBON FIBRE

Metric

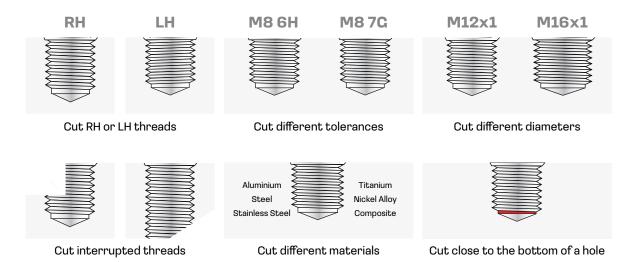
CATALOGUE NUMBER	SIZE	С	SØ	OL	L2	NUMBER OF FLUTES
TTMD040	M4 x 0.7	3.15	6	55	10.85	3
TTMD050	M5 x 0.8	4	6	55	13.15	3
TTMD060	M6 x 1	4.8	6	55	16.5	3
TTMD080	M8 x 1.25	6	6	55	21.8	3
TTMD100	M10 x 1.5	8	8	60	26.2	3
TTMD120	M12 x 1.75	9.9	10	75	30.6	4





These Speeds & Feeds are a starting point and can be adjusted accordingly.

Typical Threadmilling Applications

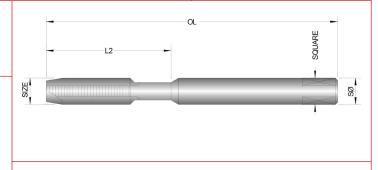


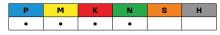


Varitap Spiral Point

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 371
- WP49EC: steam oxide treated
- WU41EC: TiN coated





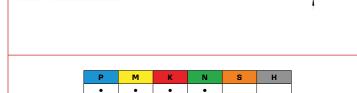
Metric - Spiral Point

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	WP49EC	WU41EG	DRILL DIA.
VTSP06505	M2 x 0.40	2.8	2.1	45	13	•	•	1.6mm
VTSP06508	M2.5 x 0.45	2.8	2.1	50	15	•	•	2.1mm
VTSP06510	M3 x 0.5	3.5	2.7	56	18	•	•	2.5mm
VTSP06512	M3.5 x 0.6	4	3	56	20	•	•	2.9mm
VTSP06513	M4 x 0.7	4.5	3.4	63	21	•	•	3.3mm
VTSP06515	M5 x 0.8	6	4.9	70	25	•	•	4.2mm
VTSP06517	M6 x 1	6	4.9	80	30	•	•	5mm
VTSP06519	M7 x 1	7	5.5	80	30	•	•	6mm
VTSP06521	M8 x 1.25	8	6.2	90	35	•	•	6.8mm
VTSP06523	M10 x 1.5	10	8	100	39	•	•	8.5mm

Varitap Spiral Point

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 376
- WP49EC: steam oxide treated
- WU41EC: TiN coated



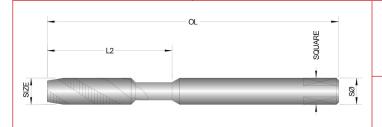
Metric - Spiral Point

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	WP49EC	WU41EG	DRILL DIA.
VTSP06531	M12 x 1.75	9	7	110	•	•	10.2mm
VTSP06533	M14 x 2	11	9	110	•	•	12mm
VTSP06535	M16 x 2	12	9	110	•	•	14mm
VTSP06537	M18 x 2.5	14	11	125	•	•	15.5mm
VTSP06538	M20 x 2.5	16	12	140	•	•	17.5mm
VTSP06540	M24 x 3	18	14.5	160	•	•	21mm

 $6\mathrm{C}$ oversize taps are also available in the Varitap range. DIN 376 – Drill size is greater than the shank diameter.









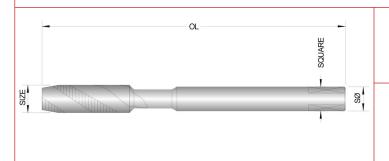
Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 371
- WP49EC: steam oxide treated
- WU41EC: TiN coated

Metric – Sprial Flute

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	WP49EC	WU41EG	DRILL DIA.
VTSFT-TC6506	M2 x 0.4	2.8	2.1	45	13	•	•	1.6mm
VTSFT6509	M2.5 x 0.45	2.8	2.1	50	15	•	•	2.1mm
VTSFT-TC6508	M3 x 0.5	3.5	2.7	56	18	•	•	2.5mm
VTSFT6513	M3.5 x 0.6	4	3	56	20	•	•	2.9mm
VTSFT-TC6510	M4 x 0.7	4.5	3.4	63	21	•	•	3.3mm
VTSFT-TC6511	M5 x 0.8	6	4.9	70	25	•	•	4.2mm
VTSFT-TC6514	M6 x 1	6	4.9	80	30	•	•	5mm
VTSFT6520	M7 x 1	7	5.5	80	30	•	•	6mm
VTSFT-TC6518	M8 x 1.25	8	6.2	90	35	•	•	6.8mm
VTSFT-TC6550	M10 x 1.5	10	8	100	39	•	•	8.5mm





Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 376
- WP49EG: steam oxide treated
- WU41EC: TiN coated

Metric - Sprial Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	WP49EG	WU41EG	DRILL DIA.
VTSFT-TC6528	M12 x 1.75	9	7	110	•	•	10.2mm
VTSFT-TC6532	M14 x 2	11	9	110	•	•	12mm
VTSFT-TC6564	M16 x 2	12	9	110	•	•	14mm
VTSFT-TC6539	M18 x 2.5	14	11	125	•	•	15.5mm
VTSFT-TC6543	M20 x 2.5	16	12	140	•	•	17.5mm
VTSFT-TC6549	M24 x 3	18	14.5	160	•	•	21mm

DIN 376 - Drill size is greater than the shank diameter. For Speeds & Feeds please see page 40

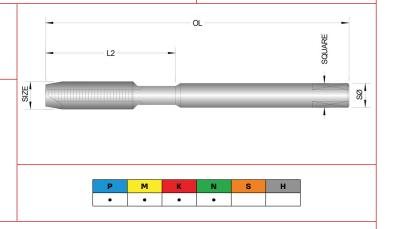






Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 371
- TiN coated



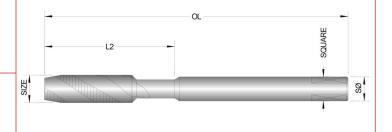
Metric - Long Series - Spiral Point

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	DRILL DIA.
024890	M3 x 0.5	3.5	2.7	100	18	2.5mm
024891	M4 x 0.7	4.5	3.4	125	21	3.3mm
024892	M5 x 0.8	6	4.9	140	25	4.2mm
024893	M6 x 1	6	4.9	160	30	5mm
024894	M8 x 1.25	8	6.2	180	35	6.8mm
024895	M10 x 1.5	10	8	200	39	8.5mm

Extra Length Taps

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 371



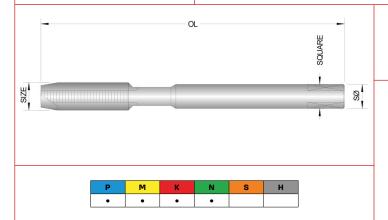
P	М	K	N	S	н
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Metric - Long Series - Spiral Flute

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	DRILL DIA.
033431	M3 x 0.5	3.5	2.7	100	18	2.5mm
038702	M4 x 0.7	4.5	3.4	125	21	3.3mm
710204	M5 x 0.8	6	4.9	140	25	4.2mm
031413	M6 x 1	6	4.9	160	30	5mm
038703	M8 x 1.25	8	6.2	180	35	6.8mm
038701	M10 x 1.5	10	8	200	39	8.5mm

Larger sizes are available up to M36.





Varitap Spiral Point

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 376
- WP49EG: steam oxide treated

Metric Fine - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	WP49EG	DRILL DIA.
VTSP06546	M4 x 0.5	2.8	2.1	63	•	3.5mm
VTSP06547	M5 x 0.5	3.5	2.7	70	•	4.5mm
VTSP06548	M6 x 0.5	4.5	3.4	80	•	5.5mm
VTSP06549	M6 x 0.75	4.5	3.4	80	•	5.3mm
VTSP06551	M8 x 0.75	6	4.9	80	•	7.3mm
VTSP06552	M8 x 1	6	4.9	80	•	7mm
VTSP06553	M10 x 0.75	7	5.5	90	•	9.2mm
VTSP06554	M10 x 1	7	5.5	90	•	9mm
VTSP06555	M10 x 1.25	7	5.5	90	•	8.8mm
VTSP06556	M11 x 1	8	6.2	90	•	11mm
VTSP06557	M12 x 1	9	7	100	•	10.8mm
VTSP06558	M12 x 1.25	9	7	100	•	10.5mm
VTSP06559	M12 x 1.5	9	7	100	•	13mm
VTSP06560	M14 x 1	11	9	100	•	12.8mm
VTSP06561	M14 x 1.25	11	9	100	•	12.5mm
VTSP06562	M14 x 1.5	11	9	100	•	15mm
VTSP06563	M16 x 1	12	9	100	•	14.5mm
VTSP06564	M16 x 1.5	12	9	100	•	17mm
VTSP06565	M18 x 1	14	11	110	•	16.5mm
VTSP06566	M18 x 1.5	14	11	110	•	19mm
VTSP06569	M20 x 1.5	16	14	125	•	18.5mm

Can't find the pitch you want? Call the office for a quote.

For Speeds & Feeds please see page 40

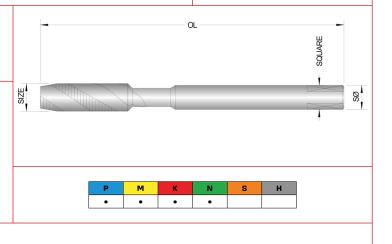




Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to **DIN 376**
- WP49EC: steam
- oxide treated



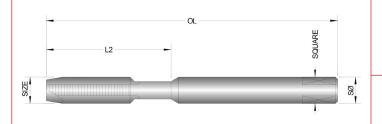
Metric Fine – Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	WP49EC	DRILL DIA.
VTSFT6546	M4 x 0.5	2.8	2.1	63	•	3.5mm
VTSFT6547	M5 x 0.5	3.5	2.7	70	•	4.5mm
VTSFT6548	M6 x 0.5	4.5	3.4	80	•	5.5mm
VTSFT6549	M6 x 0.75	4.5	3.4	80	•	5.3mm
VTSFT6550	M8 x 0.75	6	4.9	80	•	7.3mm
VTSFT6551	M8 x 1	6	4.9	80	•	7mm
VTSFT6552	M10 x 0.75	7	5.5	90	•	9.2mm
VTSFT6553	M10 x 1	7	5.5	90	•	9mm
VTSFT6554	M10 x 1.25	7	5.5	90	•	8.8mm
VTSFT6555	M12 x 1	9	7	100	•	11mm
VTSFT6556	M12 x 1.25	9	7	100	•	10.8mm
VTSFT6557	M12 x 1.5	9	7	100	•	10.5mm
VTSFT6558	M14 x 1	11	9	100	•	13mm
VTSFT6559	M14 x 1.25	11	9	100	•	12.8mm
VTSFT6560	M14 x 1.5	11	9	100	•	12.5mm
VTSFT6561	M16 x 1	12	9	100	•	15mm
VTSFT6562	M16 x 1.5	12	9	100	•	14.5mm
VTSFT6563	M18 x 1	14	11	110	•	17mm
VTSFT6564	M18 x 1.5	14	11	110	•	16.5mm
VTSFT6566	M20 x 1	16	14	125	•	19mm
VTSFT6567	M20 x 1.5	16	14	125	•	18.5mm
VTSFT6568	M20 x 2	16	14	125	•	18mm



Thinking of Threadmilling, turn back to page 04. For Speeds & Feeds please see page 40





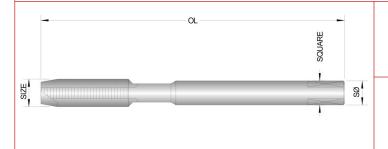
P M K N S H

Varitap Spiral Point

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EC: steam oxide treated
- WU41EC: TiN coated

UNC - Spiral Point

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	WP49EC	WU41EG	DRILL DIA.
VTSP06005	4-40 UNC	3.5	2.7	56	18	•	•	2.3mm
VTSP06008	6-32 UNC	4	3	56	20	•	•	2.8mm
VTSP06011	8-32 UNC	4.5	3.4	63	21	•	•	3.5mm
VTSP06013	10-24 UNC	6	4.9	70	25	•	•	3.9mm
VTSP06016	1/4-20 UNC	7	5.5	80	30	•	•	5.1mm
VTSP06019	5/16-18 UNC	8	6.2	90	35	•	•	6.6mm
VTSP06022	3/8-16 UNC	10	8	100	39	•	•	8mm
VTSP06025	7/16-14 UNC	8	6.2	100	41	•	•	9.4mm
VTSP06028	1/2-13 UNC	9	7	110	47	•	•	10.8mm



P M K N S H

Varitap Spiral Point

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EG: steam oxide treated

UNC - Spiral Point

CATALOGUE NUMBER	CØ	sø	SQUARE	OL	WP49EG	DRILL DIA.
VTSP06031	9/16-12 UNC	11	9	110	•	12.2mm
VTSP06033	5/8-11 UNC	12	9	110	•	13.5mm
VTSP06035	3/4-10 UNC	16	12	140	•	16.5mm
VTSP06037	7/8-9 UNC	18	14.5	140	•	19.5mm
VTSP06039	1"-8 UNC	18	14.5	160	•	22.5mm



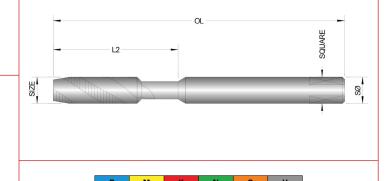


Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EC: steam oxide treated

•	WU41EG:	I IIN coated





CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	WP49EG	WU41EG	DRILL DIA.
VTSFT6005	4-40 UNC	3.5	2.7	56	18	•	•	2.3mm
VTSFT6008	6-32 UNC	4	3	56	20	•	•	2.8mm
VTSFT6011	8-32 UNC	4.5	3.4	63	21	•	•	3.5mm
VTSFT6013	10-24 UNC	6	4.9	70	25	•	•	3.9mm
VTSFT6016	1/4-20 UNC	7	5.5	80	30	•	•	5.1mm
VTSFT6019	5/16-18 UNC	8	6.2	90	35	•	•	6.6mm
VTSFT6022	3/8-16 UNC	10	8	100	39	•	•	8mm
VTSFT6025	7/16-14 UNC	8	6.2	100	41	•	•	9.4mm
VTSFT6028	1/2-13 UNC	9	7	110	47	•	•	10.8mm

Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EC: steam oxide treated

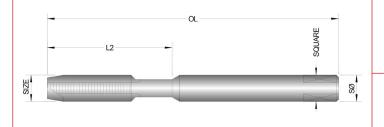
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UNC - Spiral Flute

CATALOGUE NUMBER	CØ	sø	SQUARE	OL	WP49EC	DRILL DIA.
VTSFT6033	5/8-11 UNC	12	9	110	•	12.2mm
VTSFT6035	3/4-10 UNC	16	12	140	•	13.5mm
VTSFT6037	7/8-9 UNC	18	14.5	140	•	16.5mm
VTSFT6039	1"-8 UNC	18	14.5	160	•	19.5mm
VTSP06039	1"-8 UNC	18	14.5	160	•	22.5mm







P M K N S H

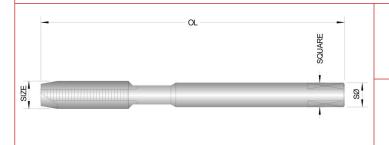
Varitap Spiral Point

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EC: steam oxide treated
- WU41EC: TiN coated

UNF - Spiral Point

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	WP49EC	WU41EG	DRILL DIA.
VTSP06010	6-40 UNF	4	3	56	20	•	•	3mm
VTSP06014	10-32 UNF	6	4.9	70	25	•	•	4.1mm
VTSP06017	1/4-28 UNF	7	5.5	80	30	•	•	5.5mm
VTSP06020	5/16-24 UNF	8	6.2	90	35	•	•	6.9mm
VTSP06023	3/8-24 UNF	10	8	100	39	•	•	8.5mm
VTSP06019	5/16-18 UNF	8	6.2	90	35	•	•	6.6mm
VTSP06022	3/8-16 UNF	10	8	100	39	•	•	8mm
VTSP06025	7/16-14 UNF	8	6.2	100	41	•	•	9.4mm
VTSP06028	1/2-13 UNF	9	7	110	47	•	•	10.8mm





Varitap Spiral Point

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371/376
- WP49EG: steam oxide treated
- WU41EC: TiN coated

UNF - Spiral Point

CATALOGUE NUMBER	CØ	sø	SQUARE	OL	WP49EG	DRILL DIA.
VTSP06026	7/16-20 UNF	8	6.2	100	•	9.9mm
VTSP06029	1/2-20 UNF	9	7	110	•	11.5mm
VTSP06032	9/16-18 UNF	11	9	110	•	12.9mm
VTSP06034	5/8-18 UNF	12	9	110	•	14.5mm
VTSP06036	3/4-16 UNF	16	12	140	•	17.5mm
VTSP06038	7/8-14 UNF	18	14.5	140	•	20.5mm
VTSP06040	1"-12 UNF	18	14.5	160	•	23.4mm



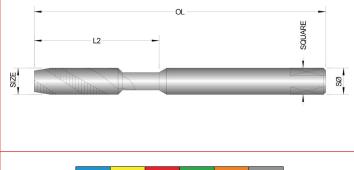


Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to DIN 371
- WP49EC: steam oxide treated

•	WU41EC:	TiN coated
•	WU41EG:	TIN coated





UNF - Spiral Flute

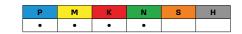
CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	WP49EC	WU41EG	DRILL DIA.
VTSFT6010	6-40 UNF	4	3	56	20	•	•	3mm
VTSFT6014	10-32 UNF	6	4.9	70	25	•	•	4.1mm
VTSFT6017	1/4-28 UNF	7	5.5	80	30	•	•	5.5mm
VTSFT6020	5/16-24 UNF	8	6.2	90	35	•	•	6.9mm
VTSFT6023	3/8-24 UNF	10	8	100	39	•	•	8.5mm

Varitap Spiral Flute

Description

- Material: HSSE
- Tolerance: 2B
- Dimensions to **DIN 376**
- WP49EC: steam



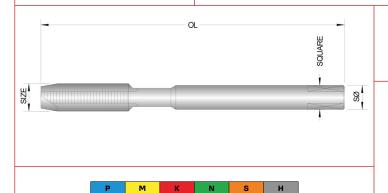


UNF - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	WP49EC	WU41EG	DRILL DIA.
VTSFT6026	7/16-20 UNF	8	6.2	100	•	•	9.9mm
VTSFT6029	1/2-20 UNF	9	7	110	•	•	11.5mm
VTSFT6032	9/16-18 UNF	11	9	110	•	•	12.9mm
VTSFT6034	5/8-18 UNF	12	9	110	•	•	14.5mm
VTSFT6036	3/4-16 UNF	16	12	140	•	•	17.5mm
VTSFT6038	7/8-14 UNF	18	14.5	140	•	•	20.5mm
VTSFT6040	1"-12 UNF	18	14.5	160	•	•	23.4mm







Varitap Spiral Point

Description

- Material: HSSE
- Dimensions to DIN 5156
- DIN EN ISO 228 British standard pipe thread

•	WP49EC: steam
	oxide treated

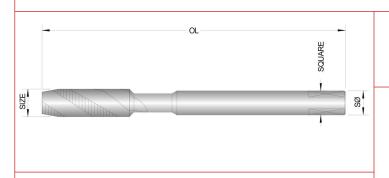
BSP - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	WP49EC	WU41EG	DRILL DIA.
VTSP08605	1/8 - 28 BSP	7	5.5	90	•	•	8.8mm
VTSP08606	1/4 - 19 BSP	11	9	100	•	•	11.8mm
VTSP08607	3/8 - 19 BSP	12	9	100	•	•	15.3mm
VTSP08608	1/2 - 14 BSP	16	12	125	•	•	19mm

BSP is also known as a C thread.

Drill size is greater than the shank diameter.

For Speeds & Feeds please see page 40



Р	М	K	N	S	н
•	•	•	•		

Varitap Spiral Flute

Description

- Material: HSSE
- Dimensions to DIN 5156
- DIN EN ISO 228 British standard pipe thread

WP49EC: steam
oxide treated

BSP - Spiral Flute

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	WP49EC	WU41EC	DRILL DIA.
VTSFT8605	1/8 - 28 BSP	7	5.5	90	•	•	8.8mm
VTSFT8606	1/4 - 19 BSP	11	9	100	•	•	11.8mm
VTSFT8607	3/8 - 19 BSP	12	9	100	•	•	15.3mm
VTSFT8608	1/2 - 14 BSP	16	12	125	•	•	19mm

BSP is also known as a C thread.

Drill size is greater than the shank diameter.





Vario Pipe Taps

Description

Material: HSSE-PM

 Dimensions to DIN 5156 Usage:general purpose, aluminiums, free machining steels stainless steels, copper, brass



Р	М	K	N	s	н
•	•	•	•		

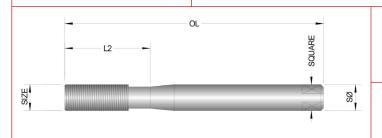
BSPT (RC) / NPT / NPTF - Pipe Taps

	ı					
CATALOGUE NUMBER		CØ	SØ	SQUARE	OL	DRILL DIA.
110044	BSPT (RC)	RC 1/8-28	7	5.5	90	8.3mm
110043	BSPT (RC)	RC 1/4-19	11	9	100	11mm
110047	BSPT (RC)	RC 3/8-19	12	9	100	14.5mm
110042	BSPT (RC)	RC 1/2-14	15	11	107	18.1mm
104417	NPT	1/16-27 NPT	6	4.9	80	6.2mm
104420	NPT	1/8-27 NPT	7	5.5	90	8.4mm
104419	NPT	1/4-18 NPT	11	9	100	11.1mm
104424	NPT	3/8-18 NPT	12	9	110	14.3mm
104418	NPT	1/2-14 NPT	16	12	125	17.9mm
104433	NPTF	1/8-27 NPTF	7	5.5	90	8.4mm
104432	NPTF	1/4-18 NPTF	11	9	100	11mm
104436	NPTF	3/8-18 NPTF	12	9	110	14.5mm
104431	NPTF	1/2-14 NPTF	16	12	125	17.5mm



All BSPT (RC), NPT and NPTF are 1:16 taper. For Speeds & Feeds please see page 40







DuramaxThread Former

Description

- Material: HSSE
- Tolerance: 6H
- Dimensions to DIN 371
- For use with most materials, especially aluminium and copper
- TiN coated

Thread Former Taps without Oil Grooves

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	DRILL DIA.
019226	M1 x 0.25	2.5	2.1	40	5.5	0.88mm
009995	M1.6 x 0.35	2.5	2.1	40	8	1.45mm
106428	M2 x 0.4	2.8	2.1	45	9	1.8mm
106429	M2.5 x 0.45	2.8	2.1	50	9	2.3mm
106430	M3 x 0.5	3.5	2.7	56	18	2.8mm
106432	M4 x 0.7	4.5	3.4	63	21	3.7mm
106434	M5 x 0.8	6	4.9	70	25	4.7mm
106435	M6 x 1	6	4.9	80	30	5.55mm
106437	M8 x 1.25	8	6.2	90	35	7.4mm
106247	M10 x 1.5	10	8	100	39	9.3mm

Accurate and good quality core holes are essential for successful thread forming. For Speeds & Feeds please see page 40



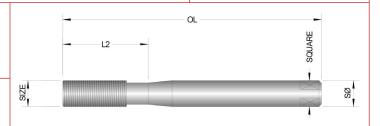
Duramax Thread Former

Description

Material: HSSE-PM

Tolerance: 6HDimensions to DIN 371 For general purpose use, especially steel and stainless steel

• TiN coated



Р	М	K	N	S	н
•	•	•	•		

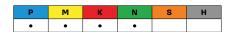
Metric / UNC / UNF - Thread Former Taps with Oil Grooves

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
106542	M2 x 0.4	2.8	2.1	45	9	1.82mm
106543	M2.5 x 0.45	2.8	2.1	50	14	2.3mm
106545	M3 x 0.5	3.5	2.7	56	18	2.8mm
106547	M4 x 0.7	4.5	3.4	63	21	3.7mm
106550	M5 x 0.8	6	4.9	70	25	4.7mm
106552	M6 x 1	6	4.9	80	30	5.55mm
106555	M8 x 1.25	8	6.2	90	35	7.4mm
106541	M10 x 1.5	10	8	100	39	9.3mm
106437	M8 x 1.25	8	6.2	90	35	7.4mm
106247	M10 x 1.5	10	8	100	39	9.3mm
106620	10 - 24 UNC	6	4.9	70	25	4.35mm
106617	1/4 - 20 UNC	7	5.5	80	30	5.8mm
106619	5/16 - 18 UNC	8	6.2	90	35	7.3mm
106618	3/8 - 16 UNC	10	8	100	39	8.8mm
106654	10-32 UNF	6	4.9	70	25	4.5mm
106650	1/4 - 28 UNF	7	5.5	80	30	6mm
106653	5/16 - 24 UNF	8	6.2	90	35	7.5mm
106652	3/8 - 24 UNF	10	8	90	39	9.1mm

All metals can be formed providing the material has a 10% minimum elongation. For Speeds & Feeds please see page 40







Hand Taps and Hand Tap Sets

Description

- Material: HSS
- Tolerance: 6H (metric)
- Tolerance: 2B (UNC/UNF)

• For manual use in all materials

	2nd Tap only	Plug Tap only	Tap Set
--	--------------	---------------	---------

CØ	CATALOGUE NUMBER	CATALOGUE NUMBER	CATALOGUE NUMBER
M3	14742	14743	14744
M4	14758	14759	14760
M5	14774	14775	14777
М6	14782	14783	14784
M8	14798	14799	14800
M10	14814	14815	14816
M12	14830	14831	14832
4-40 UNC	15185	15186	15187
6-32 UNC	15238	15239	15234
8-32 UNC	15284	15285	15278
10-24 UNC	15328	15329	15323
1/4 UNC	14023	14024	14025
5/16 UNC	14093	14094	14095
3/8 UNC	14158	14159	14160
7/16 UNC	14222	14223	14224
1/2 UNC	14282	14283	14284
10-32 UNF	15361	15362	15355
1/4 UNF	14056	14057	14058
5/16 UNF	14123	14124	14125
3/8 UNF	14191	14192	14193
7/16 UNF	14247	14248	14249
1/2 UNF	14309	14310	14311



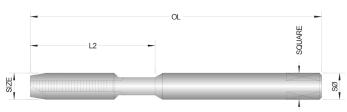
Taper tap has 6-8 pitch lead, 2nd tap has 4-5 pitch lead, plug tap has 1-2 pitch lead. For Speeds & Feeds please see page 40



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Variant 1 VA **Spiral Point**

Description

• Tolerance: 6H

• Material: HSSE-PM

• Dimensions to DIN 371/376

• Hardlube coated

Metric - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
008800	M1.6 x 0.35	2.5	2.1	40	8	1.3mm
027258	M2 x 0.4	2.8	2.1	45	9	1.6mm
323059	M2.5 x 0.45	2.8	2.1	50	14	2.1mm
022977	M3 x 0.5	3.5	2.7	56	18	2.5mm
020720	M4 x 0.7	4.5	3.4	63	21	3.3mm
022978	M5 x 0.8	6	4.9	70	25	4.2mm
022979	M6 x 1	6	4.9	80	30	5mm
022980	M8 x 1.25	8	6.2	90	35	6.8mm
022981	M10 x 1.5	10	8	100	39	8.5mm
023819	M12 x 1.75	9	7	110	-	10.2mm
024313	M16 x 2	12	9	110	-	14mm
024649	M20 x 2.5	16	12	140	-	17.5mm

HSSE-PM (powder metal) material taps provide a higher process reliability and increases tool life by a third. The special production process ensures a finer and uniform distribution of carbides in the material, and allows for a longer sharpness of the tool. Edge chipping is also reduced to a minimum.

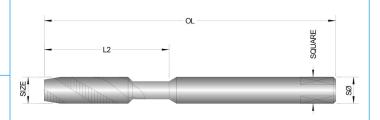


Dominant 1 VaSpiral Flute

Description

Material: HSSE-PM • Dimensions to DIN 371/376

• Tolerance: 6H • Hardlube coated



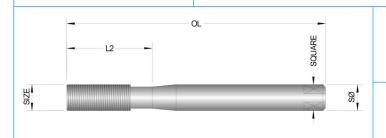


Metric - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
043738	M2 x 0.4	2.8	2.1	45	9	1.6mm
112416	M2.5 x 0.45	2.8	2.1	50	14	2.1mm
013746	M3 x 0.5	3.5	2.7	56	18	2.5mm
013756	M4 x 0.7	4.5	3.4	63	21	3.3mm
013758	M5 x 0.8	6	4.9	70	25	4.2mm
013764	M6 x 1	6	4.9	80	30	5mm
013765	M8 x 1.25	8	6.2	90	35	6.8mm
013766	M10 x 1.5	10	8	100	39	8.5mm
013782	M12 x 1.75	9	7	110	-	10.2mm
013788	M16 x 2	12	9	110	-	14mm
019068	M20 x 2.5	16	12	140	-	17.5mm







Duramax 1 H Thread Former

Description

Material: HSSE-PM • Dimensions to DIN 371/376

• Tolerance: 6HX • BT coated

P M K N S H • • • •

Metric - Thread Former with Oil Grooves

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
060384	M2 x 0.4	2.8	2.1	45	9	1.8mm
058015	M2.5 x 0.45	2.8	2.1	50	9	2.3mm
052508	M3 x 0.5	3.5	2.7	56	18	2.8mm
050403	M4 x 0.7	4.5	3.4	63	21	3.7mm
054125	M5 x 0.8	6	4.9	70	25	4.7mm
050145	M6 x 1	6	4.9	80	30	5.5mm
051431	M8 x 1.25	8	6.2	90	35	7.4mm
054822	M10 x 1.5	10	8	100	39	9.3mm
053680	M12 x 1.75	9	7	110	-	11.2mm
054869	M16 x 2	12	9	110	-	15.1mm

BT Coating: Aluminium Chrome Nitride coating with 3300H surface hardness provides excellent wear resistance.



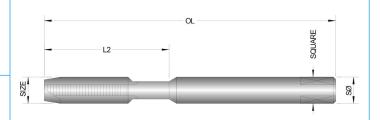


Variant 1 VA Spiral Point

Description

• Material: HSSE-PM • Dimensions to DIN 371/376

• Tolerance: 2B • Hardlube coated



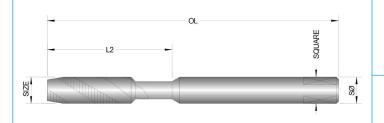
Р	М	K	N	S	Н
•	•	•	•	•	

UNC - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
035006	4-40 UNC	3.5	2.7	56	18	2.3mm
032247	6-32 UNC	4	3	56	20	2.9mm
040512	8-32 UNC	4.5	3.4	63	21	3.5mm
045660	10-24 UNC	6	4.9	70	25	3.9mm
042477	1/4-20 UNC	7	5.5	80	30	5.1mm
042478	5/16-18 UNC	8	6.2	90	35	6.6mm
045663	3/8-16 UNC	10	8	100	39	8mm
048943	7/16-14 UNC	8	6.2	100	-	9.4mm
042480	1/2-13 UNC	9	7	110	-	10.8mm







Dominant 1 VA Spiral Flute

Description

 Material: HSSE-PM

• Tolerance: 2B

• Dimensions to DIN 371/376

• Hardlube coated

P M K N S H • • • • •

UNC - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
055596	4-40 UNC	3.5	2.7	56	18	2.3mm
044704	6-32 UNC	4	3	56	20	2.9mm
044964	8-32 UNC	4.5	3.4	63	21	3.5mm
028946	10-24 UNC	6	4.9	70	25	3.9mm
021509	1/4-20 UNC	7	5.5	80	30	5.1mm
021513	5/16-18 UNC	8	6.2	90	35	6.6mm
021514	3/8-16 UNC	10	8	100	39	8mm
021515	7/16-14 UNC	8	6.2	100	-	9.4mm
021516	1/2 -13 UNC	9	7	110	-	10.8mm

HSSE-PM (powder metal) material taps provide a higher process reliability and increases tool life by a third. The special production process ensures a finer and uniform distribution of carbides in the material, and allows for a longer sharpness of the tool. Edge chipping is also reduced to a minimum.



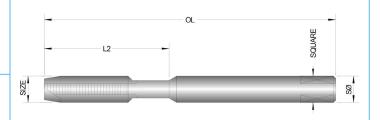


Variant 1 VA **Spiral Point**

Description

Material: HSSE-PM • Dimensions to DIN 371/376

 Tolerance: 2B • Hardlube coated



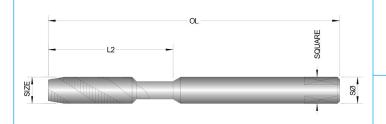
Р	М	K	N	S	Н
•	•	•	•	•	

UNF - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
045675	10-32 UNF	6	4.9	70	25	4.1mm
042481	1/4-28 UNF	7	5.5	80	30	5.5mm
042483	5/16-24 UNF	8	6.2	90	35	6.9mm
033290	3/8-24 UNF	10	8	90	39	8.5mm
033289	7/16-20 UNF	8	6.2	100	-	9.9mm
042484	1/2-20 UNF	9	7	100	-	11.5mm







Dominant 1 VA Spiral Flute

Description

Tolerance: 2B

• Material: HSSE-PM • Dimensions to DIN 371/376

• Hardlube coated

UNF - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
028948	10-32 UNF	6	4.9	70	25	4.1mm
021547	1/4-20 UNF	7	5.5	80	30	5.5mm
021548	5/16-24 UNF	8	6.2	90	30	6.9mm
027334	3/8-24 UNF	10	8	90	39	8.5mm
031214	7/16-20 UNF	8	6.2	100	-	9.9mm
029009	1/2-20 UNF	9	7	100	-	11.5mm

If using a collet chuck to hold the tap, use a tap collet with a square to ensure a positive drive. For Speeds & Feeds please see page 40

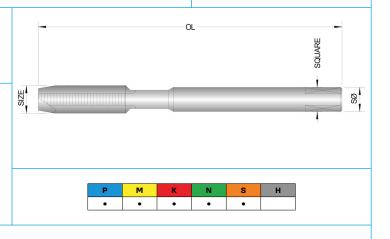




Variant 2 Spiral Point

Description

- Material: HSSE-PM
- Dimensions to DIN 5156
- TiN coated

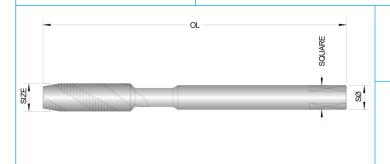


BSP - Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	DRILL DIA.
005191	C 1/8-28 BSP	7	5.5	90	8.8mm
005190	C 1/4-19 BSP	11	9	100	11.8mm
005193	C 3/8-19 BSP	12	9	100	15.3mm
005192	G 1/2-14 BSP	16	12	125	19mm







Dominant 2 Spiral Flute

Description

- Material: HSSE-PM
- Dimensions to DIN 5156
- TiN coated

BSP - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	DRILL DIA.
024856	C 1/8-28 BSP	7	5.5	90	8.8mm
024857	G 1/4-19 BSP	11	9	100	11.8mm
024858	C 3/8-19 BSP	12	9	100	15.3mm
024859	G 1/2-14 BSP	16	12	125	19mm

For diameters greater than $\frac{1}{2}$ BSP, see page 08 for Threadmills. For Speeds & Feeds please see page 40





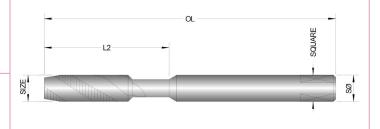
Avant NI 13 for Nickel Alloys

Description

Material: HSSE-PM For difficult to machine nickel alloys

 Dimensions to DIN 371

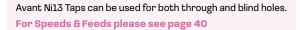
• TiCN coated



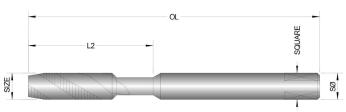


MJ / UNJC / UNJF – for Nickel Alloys

CØ	sø	SQUARE	OL	L2	TICN	DRILL DIA.
MJ3 x 0.5 - 4H	3.5	2.7	56	11	•	2.6mm
MJ4 x 0.7 - 4H	4.5	3.4	63	13	•	3.4mm
MJ5 x 0.8 - 4H	6	4.9	70	16	•	4.3mm
MJ6 x 1 - 4H	6	4.9	80	19	•	5.1mm
MJ8 x 1.25 - 4H	8	6.2	90	35	•	6.9mm
MJ10 x 1.5 - 4H	10	8	100	39	•	8.7mm
4-40 UNJC-3B	3.5	2.7	56	11	•	2.3mm
6-32 UNJC-3B	4	3	56	12	•	2.8mm
8-32 UNJC-3B	4.5	3.4	63	13	•	3.5mm
10-24 UNJC-3B	6	4.9	70	16	•	3.9mm
1/4-20 UNJC-3B	7	5.5	80	30	•	5.2mm
10-32 UNJF-3B	6	4.9	70	16	•	4.2mm
1/4-28 UNJF-3B	7	5.5	80	20	•	5.6mm
	MJ3 x 0.5 - 4H MJ4 x 0.7 - 4H MJ5 x 0.8 - 4H MJ6 x 1 - 4H MJ8 x 1.25 - 4H MJ10 x 1.5 - 4H 4-40 UNJC-3B 6-32 UNJC-3B 10-24 UNJC-3B 1/4-20 UNJC-3B	MJ3 x 0.5 - 4H 3.5 MJ4 x 0.7 - 4H 4.5 MJ5 x 0.8 - 4H 6 MJ6 x 1 - 4H 6 MJ8 x 1.25 - 4H 8 MJ10 x 1.5 - 4H 10 4-40 UNJC-3B 3.5 6-32 UNJC-3B 4.5 10-24 UNJC-3B 6 1/4-20 UNJC-3B 7	MJ3 x 0.5 - 4H 3.5 2.7 MJ4 x 0.7 - 4H 4.5 3.4 MJ5 x 0.8 - 4H 6 4.9 MJ6 x 1 - 4H 6 4.9 MJ8 x 1.25 - 4H 8 6.2 MJ10 x 1.5 - 4H 10 8 4-40 UNJC-3B 3.5 2.7 6-32 UNJC-3B 4 3 8-32 UNJC-3B 4.5 3.4 10-24 UNJC-3B 6 4.9 1/4-20 UNJC-3B 7 5.5	MJ3 x 0.5 - 4H 3.5 2.7 56 MJ4 x 0.7 - 4H 4.5 3.4 63 MJ5 x 0.8 - 4H 6 4.9 70 MJ6 x 1 - 4H 6 4.9 80 MJ8 x 1.25 - 4H 8 6.2 90 MJ10 x 1.5 - 4H 10 8 100 4-40 UNJC-3B 3.5 2.7 56 6-32 UNJC-3B 4 3 56 8-32 UNJC-3B 4.5 3.4 63 10-24 UNJC-3B 6 4.9 70 1/4-20 UNJC-3B 7 5.5 80	MJ3 x 0.5 - 4H 3.5 2.7 56 11 MJ4 x 0.7 - 4H 4.5 3.4 63 13 MJ5 x 0.8 - 4H 6 4.9 70 16 MJ6 x 1 - 4H 6 4.9 80 19 MJ8 x 1.25 - 4H 8 6.2 90 35 MJ10 x 1.5 - 4H 10 8 100 39 4-40 UNJC-3B 3.5 2.7 56 11 6-32 UNJC-3B 4 3 56 12 8-32 UNJC-3B 4.5 3.4 63 13 10-24 UNJC-3B 6 4.9 70 16 1/4-20 UNJC-3B 7 5.5 80 30	MJ3 x 0.5 - 4H 3.5 2.7 56 11 • MJ4 x 0.7 - 4H 4.5 3.4 63 13 • MJ5 x 0.8 - 4H 6 4.9 70 16 • MJ6 x 1 - 4H 6 4.9 80 19 • MJ8 x 1.25 - 4H 8 6.2 90 35 • MJ10 x 1.5 - 4H 10 8 100 39 • 4-40 UNJC-3B 3.5 2.7 56 11 • 6-32 UNJC-3B 4 3 56 12 • 8-32 UNJC-3B 4.5 3.4 63 13 • 10-24 UNJC-3B 6 4.9 70 16 • 1/4-20 UNJC-3B 7 5.5 80 30 •







P	М	K	N	S	Н
•	•	•	•	•	

Avant Ti H13 for Titanium Alloys

Description

- Material: HSSE-PM
- Dimensions to DIN 371
- For aerospace and motor racing use
- TiCN coated

MJ / UNJC / UNJF – for Titanium Alloys

CATALOGUE NUMBER	CØ	sø	SQUARE	OL	L2	TICN	DRILL DIA.
111040	MJ3 x 0.5 - 4H	3.5	2.7	56	11	•	2.6mm
111041	MJ4 x 0.7 - 4H	4.5	3.4	63	13	•	3.4mm
111042	MJ5 x 0.8 - 4H	6	4.9	70	16	•	4.3mm
111043	MJ6 x 1 - 4H	6	4.9	80	19	•	5.1mm
111044	MJ8 x 1.25 - 4H	8	6.2	90	35	•	6.9mm
111051	MJ10 x 1.5 - 4H	10	8	100	39	•	8.7mm
						•	
108765	4-40 UNJC-3B	3.5	2.7	56	11	•	2.3mm
108766	6-32 UNJC-3B	4	3	56	12	•	2.8mm
109308	8-32 UNJC-3B	4.5	3.4	63	13	•	3.5mm
108764	10-24 UNJC-3B	6	4.9	70	16	•	3.9mm
109309	1/4-20 UNJC-3B	7	5.5	80	30	•	5.2mm
						•	
109231	10-32 UNJF-3B	6	4.9	70	16	•	4.2mm
109209	1/4-28 UNJF-3B	7	5.5	80	20	•	5.6mm
109211	5/16-24 UNJF-3B	8	6.2	90	35	•	7mm
109232	3/8-24 UNJF-3B	10	8	90	39	•	8.6mm

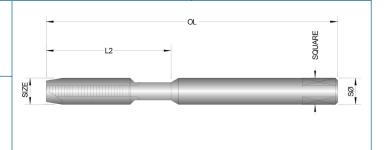
Spiral Point Taps are also available, please contact the sales office. For Speeds & Feeds please see page 40



Wire Insert Spiral Point

Description

- Material: HSSE-PM
- Tolerance: 6HX
- Dimensions to DIN 371/376



Р	М	K	N	S	н
•	•	•	•	•	•

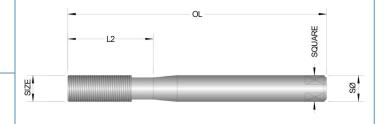
EG Metric – Wire Insert – Spiral Point

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	DRILL DIA.
TSP1302	EG M2.5	3.5	2.7	56	18	2.7mm
TSP1303	EC M3	4.5	3.4	63	21	3.2mm
TSP1304	EG M4	6	4.9	70	25	4.2mm
TSP1305	EC M5	6	4.9	80	30	5.3mm
TSP1306	EC M6	8	6.2	90	35	6.3mm
TSP1307	EC M8	10	8	100	39	8.4mm
TSP1308	EC M10	9	7	100	-	10.5mm
TSP1309	EG M12	11	9	110	-	12.5mm

Wire Insert Thread Former

Description

- Material: HSS
- Tolerance: 6HX
- · Special Dimensions

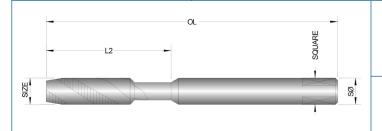


P	М	K	N	S	н
•	•	•	•	•	•

EC Metric - Wire Insert - Thread Former

CATALOGUE NUMBER	СØ	SØ	SQUARE	OL	L2	DRILL DIA.
TTF8750	EC M2	3.6	2.8	46	11.2	2.3mm
TTF8751	EG M2.5	3.6	2.8	49.2	16	2.8mm
TTF8752	EC M3	3.6	2.8	50.8	17.5	3.4mm
TTF8753	EG M4	5	3.9	60.5	24	4.6mm
TTF8754	EC M5	6.5	4.85	63.5	25.4	5.6mm
TTF8755	EC M6	8.1	6	69	32.5	6.8mm
TTF8756	EC M8	9.7	7.25	74.7	31.75	9mm
TTF8757	EC M10	9.3	7	86	24	11.3mm





P M K N S H

Wire Insert Spiral Flute

Description

- Material: HSSE-PM
- Dimensions to DIN371 / DIN376
- TiAlN + WCC/C coated
- Form E lead

EC M / UNC / UNF - Wire Insert - Spiral Flute

CATALOGUE NUMBER	CØ	SØ	SQUARE	OL	L2	TIALN + WCC/C	DRILL DIA.
025654	EG M2 x 0.4	2.8	2.1	50	14	•	2.1mm
025655	EG M2.5 x 0.45	3.5	2.7	56	18	•	2.7mm
025658	EG M3 x 0.5	4.5	3.4	63	21	•	3.2mm
025660	EG M4 x 0.7	6	4.9	70	25	•	4.2mm
025661	EG M5 x 0.8	6	4.8	80	30	•	5.3mm
025663	EC M6 x 1	8	6.2	90	35	•	6.3mm
025664	EC M8 x 1.25	10	8	100	39	•	8.4mm
025665	EC M10 x 1.5	9	7	100	-	•	10.5mm
025667	EG M12 x 1.75	11	9	110	-	•	12.5mm
110494	EG M16 x 2	14	11	125	-	•	16.5mm
025679	EG 4-40 UNC	4.5	3.4	63	21	•	3.1mm
025681	EC 6-32 UNC	6	4.9	70	25	•	3.8mm
025682	EC 8-32 UNC	6	4.9	80	30	•	4.4mm
025683	EC 10-24 UNC	7	5.5	80	30	•	5.2mm
025685	EG 1/4-20 UNC	8	6.2	90	35	•	6.7mm
025698	EG 10-32 UNF	6	4.9	80	30	•	5.1mm
025699	EG 1/4-28 UNF	8	6.2	90	35	•	6.6mm
025700	EG 5/16-24 UNF	10	8	90	39	•	8.3mm
025694	EG 3/8-24 UNF	8	6.2	90	-	•	9.8mm
025692	EG 1/2-20 UNF	11	9	100	-	•	13.1mm

Short lead form E taps are ideal for getting down near to the bottom of the hole.

For Speeds & Feeds please see page 40



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Technical Data - Tapping

SUGGESTED SPEEDS & FEEDS

RECOMMENDED SPEED (Vc m/min)

MATERIAL	TENSILE STRENGTH APPROX. (n/mm2)	ELOCATION %	UNCOATED	COATED
Aluminium - Free Machining	400	15	10-15	15-25
Aluminium - Cast Iron	450	8	10-15	15-25
Mild Steel - Free Machining	700	25	8-12	15-20
Alloy Steels	1000	25	3-5	6-10
Tool Steels	850	12	4-8	8-12
Stainless Steels	850	25	8-12	12-18
High Tensile Steels	850	8	4-8	8-12
Nickel Alloys	1000	25	3-5	4-8
Titanium Alloys	850	20	3-5	4-8

Above are supplied as a guide only, material properties can vary. See below for conversion chart from m/min to RPM.

TAPPING SPEED CHART

Vc m/min

DIA. OF TAP	2	3	4	5	6	8	10	12	15	20	25	30	40
1	637	955	1273	1592	1910	2546	3183	3820	4775	6366	7958	9549	12732
2	318	477	637	796	955	1273	1592	1910	2387	3183	3979	4775	6366
3	212	318	424	531	637	849	1061	1273	1592	2122	2653	3183	4244
4	159	239	318	398	477	637	796	955	1194	1592	1989	2387	3183
5	127	191	255	318	382	509	637	764	955	1273	1592	1910	2546
6	106	159	212	265	318	424	531	637	796	1061	1326	1592	2122
8	80	119	159	199	239	318	398	477	597	796	995	1194	1592
10	64	95	127	159	191	255	318	382	477	637	796	955	1273
12	53	80	106	133	159	212	265	318	398	531	663	796	1061
14	45	68	91	114	136	182	227	273	341	455	568	682	909
16	40	60	80	99	119	159	199	239	298	398	497	597	796
18	35	53	71	88	106	141	177	212	265	354	442	531	707
20	32	48	64	80	95	127	159	191	239	318	398	477	637





S High-Temp Alloys
H Hardened Materials

material group	description	content	tensile strength RM (MPa)*	hardness (HB)	hardness (HRC)	material number
P0	Low-Carbon Steels, Long Chipping	C <0,25%	<530	<125	-	-
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0,25%	<530	<125	-	C15, Ck22, ST37-2, S235JR, 9SMnPb28, GS38
P2	Medium- and High-Carbon Steels	C >0,25%	>530	<220	<25	ST52, S355JR, C35, GS60, Cf53
P3	Alloy Steels and Tool Steels	C >0,25%	600–850	<330	<35	16MnCr5, Ck45, 21CrMoV5-7, 38SMn28
P4	Alloy Steels and Tool Steels	C >0,25%	850–1400	340–450	35–48	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P5	Ferritic, Martensitic, and PH Stainless Steels	-	600–900	<330	<35	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	-	900–1350	350–450	35–48	X102CrMo17, G-X120Cr29
M1	Austenitic Stainless Steel	-	<600	130–200		X5CrNi 18 10, X2CrNiMo 17 13 2, G-X25CrNiSi18 9, X15CrNiSi 20 12
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	-	600–800	150–230	<25	X2CrNiMo 13 4, X5NiCr 32 21, X5CrNiNb 18 10, G-X15CrNi 25-20
МЗ	Duplex Stainless Steel	-	<800	135–275	<30	X8CrNiMo27 5, X2CrNiMoN22 5 3, X2OCrNiSi25 4, G-X4OCrNiSi27 4
K1	Grey Cast Iron	-	125–500	120–290	<32	GG15, GG25, GG30, GG40, GTW40
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	-	<600	130–260	<28	GGG40, GTS35
Кз	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	-	>600	180–350	<43	GGG60, GTW55, GTS65
N1	Wrought Aluminium	-	-	-		AIMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminium Alloys and Magnesium Alloys	Si <12,2%	-	-	-	GAISiCu4, GDAISi10Mg
N3	High-Silicon Aluminium Alloys and Magnesium Alloys	Si >12,2%	-	-	-	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	-	-	-	-	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fibreglass	-	-	-	-	Lexan®, Hostalen®, Polystyrol, Makrolon®
N6	Carbon, Graphite Composites, CFRP	-	-	-	-	CFK, GFK
N7	Metal Matrix Composites (MMC)	-	-	-	-	-
S1	Iron-Based, Heat-Resistant Alloys	-	500-1200	160–260	25–48	X1NiCrMoCu32 28 7, X12NiCrSi36 16, X5NiCrAITi31 20, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	-	1000–1450	250–450	25–48	Haynes® 188, Stellite® 6,21,31
S 3	Nickel-Based, Heat-Resistant Alloys	-	600–1700	160–450	<48	INCONEL® 690, INCONEL 625, Hastelloy®, NIMONIC® 75
S4	Titanium and Titanium Alloys	ı	900–1600	300–400	33–48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	-	-	-	44–48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153, Hardox* 400
H2	Hardened Materials	-	-	-	48–55	-
Н3	Hardened Materials	-	-	-	56–60	-
H4	Hardened Materials	-	-	-	>60	-

Notes

Terms and Conditions of Sale

2.2. The definitions and the	or most production in time contained apply in triced contained.
"Buyer"	the person, firm or company who purchases the Goods from ITC;
"ITC"	Industrial Tooling Corporation Limited (Company No. 2573537) the registered office of which is at Cyber House, Unit 1 Kepler, Lichfield Road Industrial Estate, Tamworth, B79 TXE;
"Contract"	any contract between ITC and the Buyer for the sale and purchase of the Goods, incorporating these conditions;
"Delivery Point"	the place where delivery of the Coods is to take place under condition 4;
"Coods"	any goods agreed in the Contract to be supplied to the Buyer by ITC (including any part or parts of them);
"Intellectual Property"	any copyrights, letters, patents, know how, inventions, utility models, registered and unregistered designs, trade and service marks, trade names, logos, patent applications, rights in the nature of copyrights and all other similar rights in the Coods and (where applicable) the Services, and

applicable) the Services; and
any services greed in the Contract to be supplied to the Buyer by ITC.

1.2. A reference to a particular law is a reference to it as it is in force for the time being taking account of any amendment, extension, application or re-ene and includes any subordinate legislation for the time being in force made under it.

1.3. Words in the singular include the plural and in the plural include the singular.

1.4. A reference to one gender includes a reference to the other gender.

1.5. Condition bearings on out affect the interpretation of these conditions.

- 2. Application of terms
 2.1. Subject to any variation under condition 2.3 the Contract shall be on these conditions to the exclusion of all other terms and conditions (including any terms or
- 2. Application in cerns
 2. Application in cerns
 2. The conditions which the Buyer purports to apply under any purchase order, confirmation of order, specification or other document, or conditions which the Buyer purports to apply under any purchase order, confirmation of order, specification or other document, 2.2. No terms or conditions endors on delivered with or contained in the Buyer's purchase order, confirmation of order, specification or other document ability of the purport of the Contract simply as a result of such document being referred to in the Contract.
 2.3. These conditions apply to all ITC is sales and any variantion to these conditions and any representations about the Boods or the Services shall have no effect unless expressly agreed in writing and signed by a director of ITC. The Buyer acknowledges that it, has not relied on any statement, promise or representation made or given by or on health of ITC which is not set out in the Contract.

 2.4. Each order or acceptance of a quotation for Coods or Services by the Buyer from ITC shall be deemed to be an offer by the Buyer to buy Coods and/or Services subject to these conditions. The Buyer shall ensure that the minimum value of its order is not less than the surger or provides the Services to the Buyer.

 2.5. No order placed by the Buyer shall be deemed to be accepted by ITC until a written acknowledgement of order is issued by ITC or (if earlier) ITC delivers the Coods to the Buyer or provides the Services to the Buyer.

 2.6. The Buyer shall ensure that the terms of its order and any applicable specification are complete and accurate.

 2.7. Any quotation is given on the basis than to Contracts thall come into the service of the Buyer's acceptance of other to the Buyer. Any quotation is valid for a period of 80 days only from its date, provided that ITC has not previously withdrawn it.

 2.8. Acceptance of delivery of the Code or performance of the Services to the libe deemed to onclusive evidence of the Buyer's acceptance of these Conditions.

 2

- 3. Description
 3. 1. The quantity and description of the Coods or the Services to be performed shall be as set out in ITC's quotation or acknowledgement of order.
 3.2. All samples, drawings, descriptive matter, specifications and advertising issued by ITC and any descriptions or illustrations contained in ITC's catalogues or brochures are issued or published for the sole purpose of giving an approximate idea of the Coods described in them. They shall not form part of the Contract and this is not a sale by sample.
 3.5. If the Coods are to be manufactured or as part of the Services any process is to be applied to the Coods by ITC; or if the Coods or Services are to be provided in accordance with a specification or any other document, data information or materials submitted by the Buyer, the Buyer shallming ITC against all loss, damages, costs and expenses awarded against or incurred by ITC in connection with or paid or agreed to be paid by ITC in settlement of any claim for infiningement of any patent, copyright, design, trade mark or other industrial or intellectual property rights of any other person which results from ITC's use of the Buyer's information. of the Buyer's information.
- of the Buyer's information.

 3.4. TIT reserves the right to make any changes in the specification of the Coods which are required to conform with any applicable statutory or EC requirements or, where the Coods are to be supplied to TIT's specification, which do not materially affect their quality or performance.

 3.5. No order which has been accepted by TIC may be cancelled by the Buyer except, with the agreement in writing of TIC and on terms that the Buyer shall indemnify ITC in full against all loss (including without prejudice to the generality of the foregoing loss of profit), costs (including without prejudice to the generality of the foregoing loss of profit), costs damages, charges and expenses incurred by TIC as a result of cancellation.

- damages, charges and expenses incurred up and as a second second

- indirectly by any delay in the delivery of the Doods or the performance of the Services (even if caused by ITIC's negligence), nor shall any delay entitle the Buyer to terminate or rescind the Dortract unless such delay exceeds 180 days.

 4.5. If for any reason the Buyer fails to accept delivery of any of the Doods when they are ready for delivery, or ITC is unable to deliver the Coods on time because the Buyer has not provided appropriate instructions, documents, licences or authorisations:
 4.5.1 risk in the Coods shall be deemed to have been delivered.
 4.5.2 the Coods shall be deemed to have been delivered.
 4.5.3. ITC may store the Coods until delivery, whereupon the Buyer shall be liable for all related costs and expenses (including, without limitation, storage and insurance); and
 4.5.4. sell the Coods at the best price readily attainable and (after deducting any costs for storage and other selling expenses) account to the Buyer for the excess over the price or charges the Buyer for any shortfall below the price under the Contract.
 4.6. The Buyer shall provide at the Delivery Point and at its expenses adequate and appropriate equipment and manual labour for loading the Coods.
 4.7. ITIT Celeviers to the Buyer a quantity of Coods (long begode, non-stock items) of up to 10% more or less than the quantity accepted by ITIC. the Buyer shall not be entitled to object to or reject the Coods or any of them by reason of the surplus or shortfall and shall pay for such goods at the pro rata Contract rate.
 4.8. ITIC may deliver the Coods by separate instalments. Each separate instalment shall be invoiced and paid for in accordance with the provisions of the Contract. ns of the Contract.
- 4.9. Each installment shall be a separate Contract and no cancellation or termination of any one Contract relating to an installment shall entitle the Buyer to repudiate or cancel any other Contract or installment.

 5. Non-delivery
- 5. Non-delivery

 5. The quantity of any consignment of Coods as recorded by ITC on despatch from ITC's place of business shall be conclusive evidence of the quantity received by the Buyer on delivery unless the Buyer can provide conclusive evidence proving the contrary.

 5. ITCs shall not be liable for any non-delivery of Coods (even if caused by ITC's negligence) unless the Buyer gives written notice to ITC of the non-delivery within 3 days of the date when the Coods would in the ordinary course of events have been received.

 5. Any liability of ITC for non-delivery of the Coods shall be limited to replacing the Coods within a reasonable time or issuing a credit note at the pro rata Contract rate against any invoice raised for such Coods.

- 6. Risk/title
- 6.1 Risk of damage to or loss of the Coods shall pass to the Buyer
- Lank of damage to or loss of the Coods shall pass to the Buyer:

 6.1.1 in the case of Coods to be delivered at TIC's premises, at the time when TIC notifies the Buyer that the Coods are available for collection; or

 6.1.1 in the case of Coods to be delivered of therwise than at TIC's premises, at the time of delivery or, if the Buyer wrongfully fails to take delivery of the

 Coods, the time when TIC has tendered delivery of the Coods.

 8.1.1 in respect of deliveries made in accordance with clauses 0.(1) above and notwithstanding any other provision contained in these Conditions, a transportation insurance policy shall be taken only at the Buyer's written request and at the Buyer's expense.

 Ownership of the Coods shall not pass to the Buyer until TIC has received in full (in cash or cleared funds) all sums due to it in respect of:

 8.2.1 elbe Coods, and

 8.2.2 all others must which are or which become due to TIC from the Buyer on any account.

 Until ownership of the Coods has passed to the Buyer, the Buyer shall:

 8.3.1 hold the Coods on a fluciously basis as TIC's ballee.

 8.3.2 store each consignment of the Coods (a no cost to TIC) separately from all other goods purchased from TIC and those of the Buyer or any third party in such a way that they remain readily identifiable as TIC's property;

 8.3.3 not remove, destroy, defect or obscure any identifying mark or packaging on or relating to the Coods; and

 8.3.4 maintain the Coods in satisfactory condition and keep them insured on TIC's behalf for their full price against all risks to the reasonable satisfaction of TIC. or negative the Buyer and the satisfaction of TIC. or negative the Buyer and the satisfaction of TIC. or negative the Buyer and the satisfaction of TIC. or negative the Buyer and the satisfaction of TIC. or negative the Buyer and TIC's behalf for their full price against all risks to the reasonable satisfaction of TIC. or negative the Buyer shall produce the policy of Insurance to TIC.

- 6.3.3. not remove, destroy, defice or obscure any identifying mark or packaging on or relating to the Goods, and
 6.3.4. maintain the Coods in satisfactory condition and keep them insured on TIC's behalf for their full price against all risks to the reasonable satisfaction of TIC. On request the Buyer shall produce the policy of insurance to TIC.
 6.4.1. any sale shall be deficted in the ordinary course of the Buyer's business at full market value, and
 6.4.2. any such sale shall be asale of TIC's property on the Buyer's own behalf and the Buyer shall deal as principal when making such a sale.
 6.5. The Buyer's right to possession of the Coods shall terminate immediately if
 6.5.1 the Buyer has a bankruptcy order made against him or makes an arrangement or composition with his creditors, or otherwise takes the benefit off any statutory provision for the time being in force for the relief of insolvent debtors, or (being a body corporate) convenes a meeting of creditors (whether formal or informal), or enters into liquidation (whether violuntary or compulsory) except a solvent voluntary liquidation for the purpose only of reconstruction or amalgamation, or has a receiver and/or manage, andiminativation or administration receiver appropriated of its undertaking or any part thereof, or documents are filed with the court for the appointment of an administrator or the Buyer on notice of intention to appoint an administrator is given by the Buyer or its directors or by a qualifying floating charges pladier (as defined in paragraph 14 of an administration or given the purpose of the Buyer or may proceedings are commenced relating to the insolvency or possible insolvency or the Buyer or for the granting of an administration order in respect of the Buyer or any proceedings are commenced relating to the insolvency or possible insolvency or the Buyer or business of the Buyer or any proceedings are commenced relating to the insolvency or possible insolvency or the Buyer and p

- 7. Price
 T. Unless otherwise agreed by TTC in writing, the price for the Coods shall be the price set out in TTC's price list published on the date of delivery or deemed delivery. The price for the Services stall be in accordance with the quotation provided by TTC to the Buyer in accordance with clause 3.1.
 2.7. The minimum value of the Buyer's order shall be not less than 200.00.
- 7.2. The minimum value of the Buyer's order shall be exclusive of any value added tax and all costs or charges in relation to packaging, loading, unloading, carriage and insurance, all of which amounts the Buyer shall pay in addition when it is due to pay for the Coods.
 7.4. In the event that the Buyer's order is to be delivered to the Buyer then the Buyer shall pay for the costs of carriage notified to the Buyer by ITC from time
- 15. The service has a constraint of the Buyer at any time before the delivery to increase the price and/or the ancillary costs to reflect any increase in the costs to TEV which is due to any flactor beyond the control of TEV (such as, without limitation, any foreign exchange fluctuation, currency regulation, alteration of taxes, levies or duties, significant increase in the costs of labour, materials or other costs of manufacture), any change in delivery dates, quantities or specifications for the Coods or change to the required Services which is requested by the Buyer, or any delay caused by any instructions of the Buyer or failure of the Buyer to give TEV adequate information or instructions.

- a. r-ayiniti.
 S. L. Subject to condition 8.4, payment of the price for the Coods or the Services is (unless otherwise agreed in writing by the parties) due in pounds sterling on the last working day of the month following the month in which the Coods are delivered or deemed to be delivered. ITC reserves the right to request payment for the Coods and/or Services in advance.

- for the Coods and/or Services in advance.

 8.2. Time for payment shall be of the essence.

 8.3. No payment shall be off the essence.

 8.4. All payments payable to ITC under the Contract shall become due immediately on its termination despite any other provision.

 8.4. All payments payable to ITC under the Contract shall become due immediately on its termination despite any other provision.

 8.5. The Buyer shall make all payments due under the Contract in full without any deduction whether by way of set-off, counterclaim, discount, abatement or otherwise unless the Buyer has a valid court order requiring an amount equal to such deduction to be paid by ITC to the Buyer.

 8.6. If the Buyer fails to pay ITC any sum due pursuant to the Contract, the Buyer shall be liable to pay interest to ITC on such sum from the due data for payment at the annual rate of 8% above the base lending rate from time to time of National Westmisster Bark jct, according on a daily basis until payment is made, whether before or after any judgment. ITC reserves the right to daim interest under the Late Payment of Commercial Debts (Interest) Act 1998.

 9. Quality
 - r ere ITC is not the manufacturer of the Goods, ITC shall endeavour to transfer to the Buyer the benefit of any warranty or guarantee given to ITC
- - 9.2.1. (subject to the other provisions of these conditions) on delivery that the Goods shall be of satisfactory quality within the meaning of the Sale of Goods
 - 9.2.2. bought if the Buyer had made known that purpose to ITC in writing and ITC has confirmed in writing that it is reasonable for the Buyer to rely on the
- 9.2.2. Bought a use outer that make start makes per per control of the material used in nacordance with the Contract and at the intervals and within the times referred to in the Contract.

 9.3. The above warranty is given by TIO subject to the following conditions:
 9.3. The above warranty is given by TIO subject to the following conditions:
 9.3. IT chall be under no liability if it is established by TIC that some part of the material used in manufacture was defective;
 9.3.2. TIC shall be under no liability in respect of any defect in the Coods or Services arising from any drawing, design or specification supplied by the Buyer;
 9.3.3. TIC shall be under no liability under the above warranty (or any other warranty, condition or guarantee) if the Price and all ancillary costs have not been raid by the nature of the material used in manufacture.

- 9.3.2. ITC shall be under no liability under the above warrenty (or any other warranty, condition or guarantee) if the Price and all annillary costs have not been paid by the due date for payment.
 9.4. ITC shall not be liable for a breash of either of the warranties in condition 9.2 unless:
 9.4. ITC shall not be liable for a breash of either of the defect to ITC, and, if the defect is as a result of damage in transit to the carrier, within 7 days of the time when the Buyer gives written notice of the defect to ITC, and, if the defect is as a result of damage in transit to the carrier, within 7 days of the time when the Buyer discovers or ought to have discovered the defect, and
 9.4.2. ITC shall not be allowed for a breash of either of the warranties in condition 9.2 if.
 9.5. It of shall not be liable for a breach of either of the warranties in condition 9.2 if.
 9.5. It of shall not be liable for a breach of either of the warranties in condition 9.2 if.
 9.5. It be Duyer makes any further use of such Coods after giving such notice, or
 9.5. It be defect arises because the Buyer failed to follow ITC so rail or written instructions as to the storage, installation, commissioning, use or maintenance of the Coods or (if there are none) good trade practice; or
 9.5. At the given alters or erginaries such Goods without the written consent of ITC.
 9.6. Subject to condition 9.5. if any of the Coods do not conform with either of the warranties in condition 9.2 ITC shall at its option repair or replace such Coods (or the defective part) or refund the price of such Coods at the pro-orate Contact Contact rate provided that, if ITC so requests, the Buyer shall, at ITC's expense, return the Coods or the part of such Coods which is defective to ITC.
 9.7. ITIC complex with condition 9.0 it shall have no further liability for a breach of either of the warranties in condition 9.2 in respect of such Coods.
- mitation of liability
- 10.1. Subject to condition 4, condition 5 and condition 9, the following provisions set out the entire financial liability of ITC (including any liability for the acts or
- 10.1. Subject to condition 4, condition 5 and condition 9, the following provisions set out the entire financial liability of TIC (including any liability for the acts or omissions of its employees, agents and sub-contractors) to the Buyer in respect of:

 10.1. any treach of these conditions.

 10.1. any use made or resale by the Buyer of any of the Coods, or of any product incorporating any of the Coods; and

 10.1. any representation, statement to returbus act or omission including negligence arising under or in connection with the Contract.

 10.2. All warranties, conditions and other terms implied by statute or common law (save for the conditions implied by section 12 of the Sale of Coods Act 1979) are, to the fullest extent permitted by blue, excluded from the Contract.

 10.3. Nothing in these conditions excludes or limits the liability of ITC:

 10.3. Nothing in these conditions excludes or limits the liability of ITC:

 10.3.1. for death or personal injury vasued by ITC is negligence. or

 10.3.2. under section (3), Consumer Protection Act 1987: or

 10.3.3. for any matter which it would be illegal for ITC to exclude or extempt to exclude its liability; or

 10.3.4. for freud or fraudulent misrepresentation.

 10.4. 1. ITC's total liability in contract, tert (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise, arising in connection with the performance or contemplated performance of the Contract shall be limited to the Contract, and 10.4.2. ITC-shall not be lable to the Buyer fire less of from consequential, or any diam's for onesequential compression whitescene (no second examples) with a fire-contract or onesequential, or any diam's for onesequential or any diam's for onesequential or or of contracts of contracts.

- consequential, or any claims for consequential compensation whatsoever (howsoever caused) which arise out of or in connection with the Contract
- 11. Unless the context otherwise requires, any term or expression which is defined in or given a particular meaning by the provisions of INCOTERMS shall have the same meaning in these Conditions, but if there is any conflict between the provisions of INCOTERMS and these Conditions, the latter shall prevail.

 11.2. Where the Coods are supplied for export from the United Kingdom, the provisions of this clause 11 shall (subject to any special terms agreed in writing between the Buyer and IT(2) apply notwithstanding any other provisions of thise Conditions.

 11.3. The Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Coods into the country of destination and for the payment of any duties on them.

 11.4. Unless otherwise agreed in writing between the Buyer and IT(2, the Coods shall be delivered [fob the air or sea port of shipment] and the Seller shall be under no obligation to give notice under section 3(3) of the Sale of Coods Act 1979.

 13. The Buyer shall be responsible for avaraging for testing and inspection of the Coods at ITC's premises before shipment. ITC shall have no liability for any claim in respect of any defect in the Coods which would be apparent on inspection and which is made after shipment, or in respect of any danged uning transit.

- 11.6. Unless otherwise required by ITC, payment of all amounts due to the Seller shall be made by an irrevocable letter of credit, in a form acceptable to ITC, to be opened by the Buyer in favour of ITC and confirmed by a bank in the United Kingdom acceptable to ITC within 14 days after the
- Bodypastic sor r. v. is duponed yet a company to the Contract is concluded.

 1.7. The Buyer stall not fail the Bodyer is now a result of the Contract is concluded.

 1.7. The Buyer stall not fail the Bodyer is now a fail to the Bodyer at or before the time the Buyer's order is placed to the Bodyer at order in the Buyer is not one of the Buyer is now and the Bodyer is now a
- LTIC may assign the Contract or any part of it to any person, firm or company. 2. The Buyer shall not be entitled to assign the Contract or any part of it without the prior written consent of ITC.
- 13. Force majeure
 13.1. TIC reserves the right to defer the date of delivery or performance or to cancel the Contract or reduce the volume of the Coods ordered by the Buyer (without
 13.1. TIC reserves the right to defer the date of delivery or performance or to cancel the Contract or reduce the volume of the Coods ordered by the Buyer (without
 13.1. TIC reserves the right to defer the date of delivery or performance or to cancel the Contract or reduce the volume of the Coods ordered by the Buyer (without
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 13.1. TIC reserves the right to defer the date of delivery or performance or to cancel the Contract or reduce the volume of the Coods or the Volume of the Volume of the Coods or the Volume of the In Creamer's strengts to desert the date of delivery or performance or the contract or reduced the volume of the Looks ordered by the eligible (the liability to the layer) file is prevented from or delayed in the earrying on of its business due to circumstances beyond the reasonable control of TIC including, without limitation, acts of Cod, governmental actions, war or national emergency, acts of terrorism, protests, rict, civil commotion, fire, explosion, flood, epidemic, look-outs, strikes or other labour disputes (whether or not relating to either party's workforce), or restraints or delays affecting carriers or inability or delay in obtaining supplies of adequate or suitable materials, provided that, if the event in question continues for a continuous period in excess of 90 days, the Buyer shall be entitled to give notice in writing to TIC to terminate the Contract.
- 14.1. Each right or remedy of ITC under the Contract is without prejudice to any other right or remedy of ITC whether under the Contract or not.

 14.2 If any provision of the Contract is found by any court, tribunal or administrative body of competent jurisdiction to be wholly or partly liegal, invalid, void voidable, unenforceability or unreasonability or unreasonability
- 14.4. Any waiver by ITC of any breach of, or any default under; any provision of the Contract by the Buyer shall not be deemed a waiver of any subsequent breach or default and shall in no way affect the other terms of the Contract.

 14.5. The parties to the Contract do not intend that any term of the Contract shall be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1898 by
- any person that is not a party to it. 14.6. The formation, existence, construc construction, performance, validity and all aspects of the Contract shall be governed by English law and the parties submit to the exclusive jurisdiction of the English court:
- 15. Communications 15.1. All notices sent between the partie
- 15. Communications

 15. Lalmotoes sent between the parties relating to the Contract shall be in writing and delivered by hand or sent by pre-paid first class post or sent by fix.

 15. Lalmotoes sent between the parties relating to the Contract shall be in writing and delivered by hand or sent by pre-paid first class post or sent by fix.

 15. Lalmotoes sent between the parties relating to the Contract of office of the addressee (if it is a company) or (in any other case) to any address of the Buyer set out in any document which forms part of the bontract or such other address as shall be notified to ITC by the Buyer.

 15. 2. Notices shall be deemed to have been received:

 15. 2. Notices shall be deemed to have been received:

 15. 2. If sent by pre-paid first class post, two days (excluding Saturdays, Sundays and bank and public holidays) after posting (exclusive of the day of posting); or

 15. 2. If sent by the pre-paid first class post, two days (excluding Saturdays, Sundays and bank and public holidays) after posting (exclusive of the day of posting); or

 15. 2. If delivered by hand, on the day of delivery; or

 15. 2. If sent by the X or a working day prior to 4.00 pm, at the time of transmission and otherwise on the next working day.

 15. 3. Notices addressed to ITC shall be marked for the attention of Mr P Craves.
- 18. If any olaim is made against the Buyer that the Coods or Services provided infringe or that their use or resale infringes the patent, copyright, design, trade mark or other industrial or intellectual property rights of any other person, then unless the claim arises from the use of any drawing, design or specification supplied by the Buyer. It chall indemnify the Buyer against all loss changes, costs and expenses awarded against or incurred by the Buyer in connection with the claim, or paid or agreed to be paid by the Buyer in settlement of the claim, provided that:

 18.11. the Buyer shall immediately inform ITC of all such claims:

 18.12. TC is given full control of any proceedings or negotiations in connection with any such claim;

 18.13. the Buyer shall give ITC all reasonable assistance for the purposes of any such proceedings or negotiations:

 18.14. except pursuant to a final award, the Buyer shall not pay or accept any such chaim, or compromise any such proceedings without the consent of ITC (which shall not be unreasonably withheld).

 18.15. the Buyer shall on the buyer shall not pay or accept any such chaim, or compromise any such proceedings without the consent of ITC in the part of the purposes of any such proceedings or negotiations.

 - use its best endeavours to do); 16.1.6. ITC shall be entitled to the benefit of, and the Buyer shall accordingly account to ITC for, all damages and costs (if any) awarded in favour of the Buyer which are payable by, or agreed with the consent of the Buyer (which consent shall not be unreasonably withheld) to be paid by, any other party in
- which are payable by, or agreed with the consent of the Buyer (which consent shall not be unreasonably withheld) to be paid by, any other party in respect of any such claim, and a lat. I without prejudice to any duty of the Buyer at common law, ITC shall be entitled to require the Buyer to take such steps as ITC may reasonably require to mitigate or reduce any such loss, damages, costs or expenses for which ITC is fable to indemnify the Buyer under this clause. Insolvency of Buyer .

 This clause applies if.

 171.1. the Buyer makes any voluntary arrangement with its creditors or (being an individual or firm) becomes bankrupt or (being a company) becomes subject to an administration order or goes into liquidation (otherwise than for the purposes of amalgamation or reconstruction), or .

 171.2. an encumbrancer takes passession, or a receiver is appointed, of any of the property or assets of the Buyer; or .

 171.4. ITC reasonably apprehends that any of the events mentioned above is about to occur in relation to the Buyer and notifies the Buyer accordingly. If this clause applies then, without prejudice to any other right or remedy available to ITC. ITC shall be entitled to cancel the Contract or suspend any further deliveries or performance of the Services under the Contract without any liability to the Buyer, and if the Coods have been delivered but not paid for the Price and the Ancillary Costs shall become immediately due and payable notwithstanding any previous agreement or arrangement to the contrary. 17.2 If this cla





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