Merlin Tools Ltd

Solid Carbide Endmills
Drills including 3xD - 5xD - 8xD
Solid Carbide Threadmills ISO Metric & NPT
Izar HSSCo & Izarmax ASP52 Endmills
Machine Taps HSSCo & ASP2023
Carbide Rotary Burrs
Collets & Chucks

the power to succeed

Merlin Tools Limited

It is our policy at Merlin Tools to recognise the complexity of the UK cutting tool and toolholding market, and establish long term partnerships with world-wide leading manufacturers to satisfy U.K needs, and for Merlin Tools to provide the highest quality precision cutting tools at competitive prices.

Quality

Merlin Tools ensures that each product supplied is of the highest quality and passes through vigorous inspection processes during manufacture. All tools are manufactured to ISO9001 certification.

Service and Satisfaction

Our Extensive stock holdings enable us to offer next day delivery on all catalogued items throughout the U.K and Northern Ireland.
Last despatch time 5.30 p.m.

Technical Support

Our technical engineers are available to answer your technical queries by telephone or on site to provide engineering solutions.

Mission Statement

Merlin Tools is totally committed to the satisfaction of our customers and the development of our manufacturing partners through continuous improvement in their quality, technology, engineering, product availability and service.

Index

Index

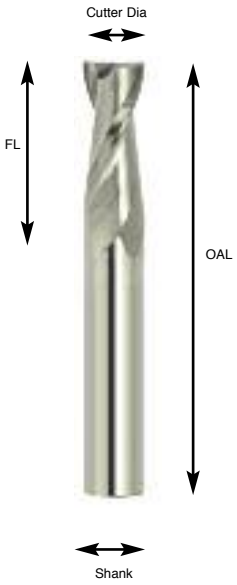
Index

Index

Index

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Standard

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	211 -10301	21.77
1.5	3	5	38	211 -10302	21.77
2	3	6	38	211 -10303	21.77
2.5	3	7	38	211 -10304	21.77
3	3	12	38	211 -10305	20.55
3.5	4	12	50	211 -10306	30.23
4	4	14	50	211 -10307	25.64
4.5	5	14	50	211 -10308	36.25
5	5	16	50	211 -10309	33.09
6	6	19	63	211 -10310	38.01
7	8	19	63	211 -10311	51.79
8	8	19	63	211 -10312	47.62
9	10	22	70	211 -10313	69.32
10	10	22	70	211 -10314	72.73
12	12	25	75	211 -10316	96.75
14	14	30	88	211 -10318	147.91
16	16	32	88	211 -10320	157.81
18	18	36	100	211 -10322	249.39
20	20	38	100	211 -10324	269.36
25	25	38	100	211 -10329	421.16

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Standard

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	214 -10301	28.51
1.5	3	5	38	214 -10302	28.51
2	3	6	38	214 -10303	28.51
2.5	3	7	38	214 -10304	28.51
3	3	12	38	214 -10305	26.81
3.5	4	12	50	214 -10306	43.36
4	4	14	50	214 -10307	33.43
4.5	5	14	50	214 -10308	47.31
5	5	16	50	214 -10309	43.21
6	6	19	63	214 -10310	49.58
7	8	19	63	214 -10311	74.95
8	8	19	63	214 -10312	62.13
9	10	22	70	214 -10313	108.64
10	10	22	70	214 -10314	94.87
12	12	25	75	214 -10316	126.33
14	14	30	88	214 -10318	192.98
16	16	32	88	214 -10320	195.63
18	18	36	100	214 -10322	315.40
20	20	38	100	214 -10324	366.50
25	25	38	100	214 -10329	532.96

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Standard

Tolerance Cutting
+0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	311 -10401	21.77
1.5	3	5	38	311 -10402	21.77
2	3	6	38	311 -10403	21.77
2.5	3	7	38	311 -10404	21.77
3	3	12	38	311 -10405	20.55
3.5	4	12	50	311 -10406	30.23
4	4	14	50	311 -10407	25.64
4.5	5	14	50	311 -10408	36.25
5	5	16	50	311 -10409	33.09
6	6	19	63	311 -10410	38.01
7	8	19	63	311 -10411	51.79
8	8	19	63	311 -10412	47.62
9	10	22	70	311 -10413	69.32
10	10	22	70	311 -10414	72.73
12	12	25	75	311 -10416	96.75
14	14	30	88	311 -10418	147.91
16	16	32	88	311 -10420	157.81
18	18	36	100	311 -10422	249.39
20	20	38	100	311 -10424	269.36
25	25	38	100	311 -10429	421.16

For technical information
see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Standard

Tolerance Cutting
+0.00mm-.051mm

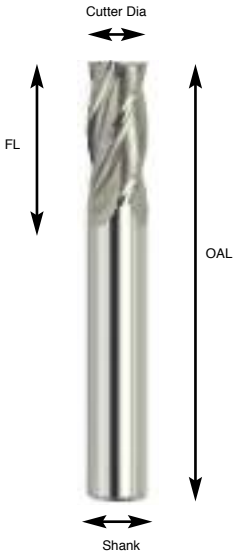
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	314 -10401	28.51
1.5	3	5	38	314 -10402	28.51
2	3	6	38	314 -10403	28.51
2.5	3	7	38	314 -10404	28.51
3	3	12	38	314 -10405	26.81
3.5	4	12	50	314 -10406	43.36
4	4	14	50	314 -10407	33.43
4.5	5	14	50	314 -10408	47.31
5	5	16	50	314 -10409	43.21
6	6	19	63	314 -10410	49.58
7	8	19	63	314 -10411	74.95
8	8	19	63	314 -10412	62.13
9	10	22	70	314 -10413	108.64
10	10	22	70	314 -10414	94.87
12	12	25	75	314 -10416	126.33
14	14	30	88	314 -10418	192.98
16	16	32	88	314 -10420	195.63
18	18	36	100	314 -10422	315.40
20	20	38	100	314 -10424	366.50
25	25	38	100	314 -10429	532.96

For technical information
see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Standard

Tolerance Cutting +0.00mm-.051mm



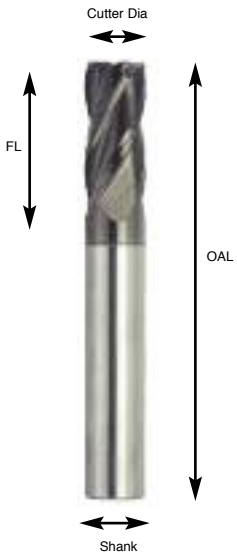
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	411 -10501	21.77
1.5	3	5	38	411 -10502	21.77
2	3	6	38	411 -10503	21.77
2.5	3	7	38	411 -10504	21.77
3	3	12	38	411 -10505	20.55
3.5	4	12	50	411 -10506	30.23
4	4	14	50	411 -10507	25.64
4.5	5	14	50	411 -10508	36.25
5	5	16	50	411 -10509	33.09
6	6	19	63	411 -10510	38.01
7	8	19	63	411 -10511	51.79
8	8	19	63	411 -10512	47.62
9	10	22	70	411 -10513	69.32
10	10	22	70	411 -10514	72.73
12	12	25	75	411 -10516	96.75
14	14	30	88	411 -10518	147.91
16	16	32	88	411 -10520	157.81
18	18	36	100	411 -10522	249.39
20	20	38	100	411 -10524	269.36
25	25	38	100	411 -10529	421.16

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Standard

Tolerance Cutting +0.00mm-.051mm



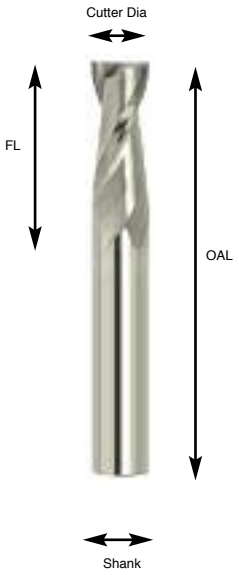
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	414 -10501	28.51
1.5	3	5	38	414 -10502	28.51
2	3	6	38	414 -10503	28.51
2.5	3	7	38	414 -10504	28.51
3	3	12	38	414 -10505	26.81
3.5	4	12	50	414 -10506	43.36
4	4	14	50	414 -10507	33.43
4.5	5	14	50	414 -10508	47.31
5	5	16	50	414 -10509	43.21
6	6	19	63	414 -10510	49.58
7	8	19	63	414 -10511	74.95
8	8	19	63	414 -10512	62.13
9	10	22	70	414 -10513	108.64
10	10	22	70	414 -10514	94.87
12	12	25	75	414 -10516	126.33
14	14	30	88	414 -10518	192.98
16	16	32	88	414 -10520	195.63
18	18	36	100	414 -10522	315.40
20	20	38	100	414 -10524	366.50
25	25	38	100	414 -10529	532.96

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Standard

Tolerance Cutting
+0.000"-0.002"



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	211 -00304	22.80
3/32"	1/8"	3/8"	1-1/2"	211 -00306	22.80
1/8"	1/8"	1/2"	1-1/2"	211 -00308	20.85
5/32"	3/16"	9/16"	2"	211 -00310	30.71
3/16"	3/16"	5/8"	2"	211 -00312	28.50
7/32"	1/4"	5/8"	2-1/2"	211 -00314	41.28
1/4"	1/4"	3/4"	2-1/2"	211 -00316	42.17
9/32"	5/16"	7/8"	2-1/2"	211 -00318	51.59
5/16"	5/16"	7/8"	2-1/2"	211 -00320	49.88
3/8"	3/8"	7/8"	2-1/2"	211 -00324	62.33
7/16"	7/16"	1"	2-3/4"	211 -00328	83.99
1/2"	1/2"	1"	3"	211 -00332	102.72
9/16"	9/16"	1-1/4"	3-1/2"	211 -00336	135.46
5/8"	5/8"	1-1/4"	3-1/2"	211 -00340	184.16
3/4"	3/4"	1-1/2"	4"	211 -00348	238.55
7/8"	7/8"	1-1/2"	4"	211 -00356	368.54
1"	1"	1-1/2"	4"	211 -00364	426.17

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Standard

Tolerance Cutting
+0.00"-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	214 -00304	29.68
3/32"	1/8"	3/8"	1-1/2"	214 -00306	29.57
1/8"	1/8"	1/2"	1-1/2"	214 -00308	27.11
5/32"	3/16"	9/16"	2"	214 -00310	41.05
3/16"	3/16"	5/8"	2"	214 -00312	52.31
7/32"	1/4"	5/8"	2-1/2"	214 -00314	56.50
1/4"	1/4"	3/4"	2-1/2"	214 -00316	57.90
9/32"	5/16"	7/8"	2-1/2"	214 -00318	78.46
5/16"	5/16"	7/8"	2-1/2"	214 -00320	72.38
3/8"	3/8"	7/8"	2-1/2"	214 -00324	82.72
7/16"	7/16"	1"	2-3/4"	214 -00328	112.04
1/2"	1/2"	1"	3"	214 -00332	140.58
9/16"	9/16"	1-1/4"	3-1/2"	214 -00336	212.84
5/8"	5/8"	1-1/4"	3-1/2"	214 -00340	253.97
3/4"	3/4"	1-1/2"	4"	214 -00348	310.65
7/8"	7/8"	1-1/2"	4"	214 -00356	479.95
1"	1"	1-1/2"	4"	214 -00364	555.02

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 3-flute Standard

Tolerance Cutting +0.000-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	311 -00404	22.80
3/32"	1/8"	3/8"	1-1/2"	311 -00406	22.80
1/8"	1/8"	1/2"	1-1/2"	311 -00408	20.85
5/32"	3/16"	9/16"	2"	311 -00410	30.71
3/16"	3/16"	5/8"	2"	311 -00412	28.50
7/32"	1/4"	5/8"	2-1/2"	311 -00414	41.28
1/4"	1/4"	3/4"	2-1/2"	311 -00416	42.17
9/32"	5/16"	7/8"	2-1/2"	311 -00418	51.59
5/16"	5/16"	7/8"	2-1/2"	311 -00420	49.88
3/8"	3/8"	7/8"	2-1/2"	311 -00424	62.33
7/16"	7/16"	1"	2-3/4"	311 -00428	83.99
1/2"	1/2"	1"	3"	311 -00432	102.72
9/16"	9/16"	1-1/4"	3-1/2"	311 -00436	135.46
5/8"	5/8"	1-1/4"	3-1/2"	311 -00440	184.16
3/4"	3/4"	1-1/2"	4"	311 -00448	238.55
7/8"	7/8"	1-1/2"	4"	311 -00456	368.54
1"	1"	1-1/2"	4"	311 -00464	426.17

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 3-flute Standard

Tolerance Cutting +0.00"-0.002"

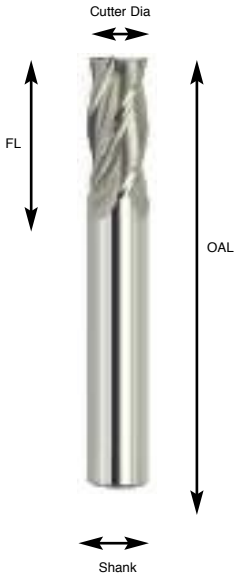
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	314 -00404	29.68
3/32"	1/8"	3/8"	1-1/2"	314 -00406	29.57
1/8"	1/8"	1/2"	1-1/2"	314 -00408	27.11
5/32"	3/16"	9/16"	2"	314 -00410	41.05
3/16"	3/16"	5/8"	2"	314 -00412	52.31
7/32"	1/4"	5/8"	2-1/2"	314 -00414	56.50
1/4"	1/4"	3/4"	2-1/2"	314 -00416	57.90
9/32"	5/16"	7/8"	2-1/2"	314 -00418	78.46
5/16"	5/16"	7/8"	2-1/2"	314 -00420	72.38
3/8"	3/8"	7/8"	2-1/2"	314 -00424	82.72
7/16"	7/16"	1"	2-3/4"	314 -00428	112.04
1/2"	1/2"	1"	3"	314 -00432	140.58
9/16"	9/16"	1-1/4"	3-1/2"	314 -00436	212.84
5/8"	5/8"	1-1/4"	3-1/2"	314 -00440	253.97
3/4"	3/4"	1-1/2"	4"	314 -00448	310.65
7/8"	7/8"	1-1/2"	4"	314 -00456	479.95
1"	1"	1-1/2"	4"	314 -00464	555.02

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Standard

Tolerance Cutting
+0.000"-0.002"



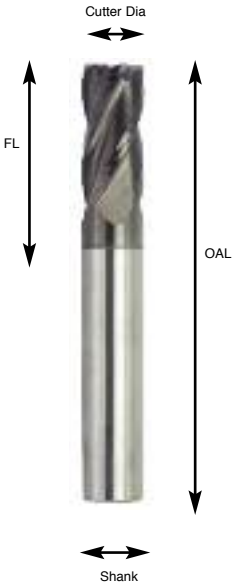
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	411- 00504	22.80
3/32"	1/8"	3/8"	1-1/2"	411- 00506	22.80
1/8"	1/8"	1/2"	1-1/2"	411- 00508	20.85
5/32"	3/16"	9/16"	2"	411 -00510	30.71
3/16"	3/16"	5/8"	2"	411 -00512	28.50
7/32"	1/4"	5/8"	2-1/2"	411 -00514	41.28
1/4"	1/4"	3/4"	2-1/2"	411 -00516	42.17
9/32"	5/16"	7/8"	2-1/2"	411 -00518	51.59
5/16"	5/16"	7/8"	2-1/2"	411 -00520	49.88
3/8"	3/8"	7/8"	2-1/2"	411 -00524	62.33
7/16"	7/16"	1"	2-3/4"	411 -00528	83.99
1/2"	1/2"	1"	3"	411 -00532	102.72
9/16"	9/16"	1-1/4"	3-1/2"	411 -00536	135.46
5/8"	5/8"	1-1/4"	3-1/2"	411 -00540	184.16
3/4"	3/4"	1-1/2"	4"	411 -00548	238.55
7/8"	7/8"	1-1/2"	4"	411 -00556	368.54
1"	1"	1-1/2"	4"	411 -00564	426.17

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Standard

Tolerance Cutting
+0.00"-0.002"



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	414 -00504	29.68
3/32"	1/8"	3/8"	1-1/2"	414 -00506	29.57
1/8"	1/8"	1/2"	1-1/2"	414 -00508	27.11
5/32"	3/16"	9/16"	2"	414 -00510	41.05
3/16"	3/16"	5/8"	2"	414 -00512	52.31
7/32"	1/4"	5/8"	2-1/2"	414 -00514	56.50
1/4"	1/4"	3/4"	2-1/2"	414 -00516	57.90
9/32"	5/16"	7/8"	2-1/2"	414 -00518	78.46
5/16"	5/16"	7/8"	2-1/2"	414 -00520	72.38
3/8"	3/8"	7/8"	2-1/2"	414 -00524	82.72
7/16"	7/16"	1"	2-3/4"	414 -00528	112.04
1/2"	1/2"	1"	3"	414 -00532	140.58
9/16"	9/16"	1-1/4"	3-1/2"	414 -00536	212.84
5/8"	5/8"	1-1/4"	3-1/2"	414 -00540	253.97
3/4"	3/4"	1-1/2"	4"	414 -00548	310.65
7/8"	7/8"	1-1/2"	4"	414 -00556	479.95
1"	1"	1-1/2"	4"	414 -00564	555.02

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Corner Radius

Tolerance Cutting +0.00mm-.051mm

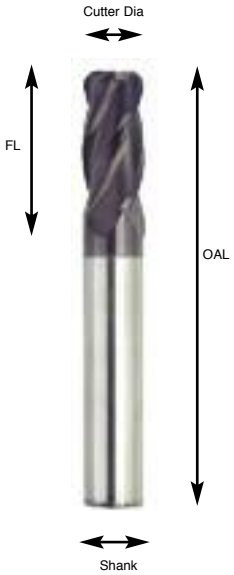
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
4	4	14	50	214 -10307-0.25R	0.25	63.84
4	4	14	50	214 -10307-0.50R	0.50	63.84
4	4	14	50	214 -10307-0.75R	0.75	63.84
4	4	14	50	214 -10307-1.00R	1.00	63.84
6	6	19	63	214 -10310-0.25R	0.25	66.45
6	6	19	63	214 -10310-0.50R	0.50	66.45
6	6	19	63	214 -10310-0.75R	0.75	66.45
6	6	19	63	214 -10310-1.00R	1.00	66.45
6	6	19	63	214 -10310-1.25R	1.25	66.45
6	6	19	63	214 -10310-1.50R	1.50	66.45
8	8	19	63	214 -10312-0.50R	0.50	86.21
8	8	19	63	214 -10312-0.75R	0.75	86.21
8	8	19	63	214 -10312-1.00R	1.00	86.21
8	8	19	63	214 -10312-1.25R	1.25	86.21
8	8	19	63	214 -10312-1.50R	1.50	86.21
8	8	19	63	214 -10312-2.00R	2.00	86.21
10	10	22	70	214 -10314-0.50R	0.50	109.79
10	10	22	70	214 -10314-0.75R	0.75	109.79
10	10	22	70	214 -10314-1.00R	1.00	109.79
10	10	22	70	214 -10314-1.50R	1.50	109.79
10	10	22	70	214 -10314-2.00R	2.00	109.79
10	10	22	70	214 -10314-3.00R	3.00	109.79
12	12	25	75	214 -10316-0.50R	0.50	128.20
12	12	25	75	214 -10316-0.75R	0.75	128.20
12	12	25	75	214 -10316-1.00R	1.00	128.20
12	12	25	75	214 -10316-1.50R	1.50	128.20
12	12	25	75	214 -10316-2.00R	2.00	128.20
12	12	25	75	214 -10316-3.00R	3.00	128.20
16	16	32	88	214 -10320-0.50R	0.50	248.18
16	16	32	88	214 -10320-0.75R	0.75	248.18
16	16	32	88	214 -10320-1.00R	1.00	248.18
16	16	32	88	214 -10320-1.50R	1.50	248.18
16	16	32	88	214 -10320-2.00R	2.00	248.18
16	16	32	88	214 -10320-3.00R	3.00	248.18
20	20	38	100	214 -10324-0.50R	0.50	395.01
20	20	38	100	214 -10324-0.75R	0.75	395.01
20	20	38	100	214 -10324-1.00R	1.00	395.01
20	20	38	100	214 -10324-1.50R	1.50	395.01
20	20	38	100	214 -10324-2.00R	2.00	395.01
20	20	38	100	214 -10324-3.00R	3.00	395.01

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Corner Radius

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
4	4	14	50	414 -10507-0.25R	0.25	63.84
4	4	14	50	414 -10507-0.50R	0.50	63.84
4	4	14	50	414 -10507-0.75R	0.75	63.84
4	4	14	50	414 -10507-1.00R	1.00	63.84
6	6	19	63	414 -10510-0.25R	0.25	66.45
6	6	19	63	414 -10510-0.50R	0.50	66.45
6	6	19	63	414 -10510-0.75R	0.75	66.45
6	6	19	63	414 -10510-1.00R	1.00	66.45
6	6	19	63	414 -10510-1.25R	1.25	66.45
6	6	19	63	414 -10510-1.50R	1.50	66.45
8	8	19	63	414 -10512-0.50R	0.50	86.21
8	8	19	63	414 -10512-0.75R	0.75	86.21
8	8	19	63	414 -10512-1.00R	1.00	86.21
8	8	19	63	414 -10512-1.25R	1.25	86.21
8	8	19	63	414 -10512-1.50R	1.50	86.21
8	8	19	63	414 -10512-2.00R	2.00	86.21
10	10	22	70	414 -10514-0.50R	0.50	109.79
10	10	22	70	414 -10514-0.75R	0.75	109.79
10	10	22	70	414 -10514-1.00R	1.00	109.79
10	10	22	70	414 -10514-1.50R	1.50	109.79
10	10	22	70	414 -10514-2.00R	2.00	109.79
10	10	22	70	414 -10514-3.00R	3.00	109.79
12	12	25	75	414 -10516-0.50R	0.50	128.20
12	12	25	75	414 -10516-0.75R	0.75	128.20
12	12	25	75	414 -10516-1.00R	1.00	128.20
12	12	25	75	414 -10516-1.50R	1.50	128.20
12	12	25	75	414 -10516-2.00R	2.00	128.20
12	12	25	75	414 -10516-3.00R	3.00	128.20
16	16	32	88	414 -10520-0.50R	0.50	248.18
16	16	32	88	414 -10520-0.75R	0.75	248.18
16	16	32	88	414 -10520-1.00R	1.00	248.18
16	16	32	88	414 -10520-1.50R	1.50	248.18
16	16	32	88	414 -10520-2.00R	2.00	248.18
16	16	32	88	414 -10520-3.00R	3.00	248.18
20	20	38	100	414 -10524-0.50R	0.50	395.01
20	20	38	100	414 -10524-0.75R	0.75	395.01
20	20	38	100	414 -10524-1.00R	1.00	395.01
20	20	38	100	414 -10524-1.50R	1.50	395.01
20	20	38	100	414 -10524-2.00R	2.00	395.01
20	20	38	100	414 -10524-3.00R	3.00	395.01

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	216 -17501	27.62
1.5	3	5	38	216 -17502	27.62
2	3	6	38	216 -17503	26.81
2.5	3	7	38	216 -17504	26.81
3	3	12	38	216 -17505	25.96
4	4	14	50	216 -17507	35.82
5	5	16	50	216 -17509	40.96
6	6	19	63	216 -17510	49.34
8	8	19	63	216 -17512	60.34
10	10	22	70	216 -17514	96.50
12	12	25	75	216 -17516	137.02
14	14	30	88	216 -17518	220.37
16	16	32	88	216 -17520	217.78
18	18	36	100	216 -17522	330.70
20	20	38	100	216 -17524	391.34

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm

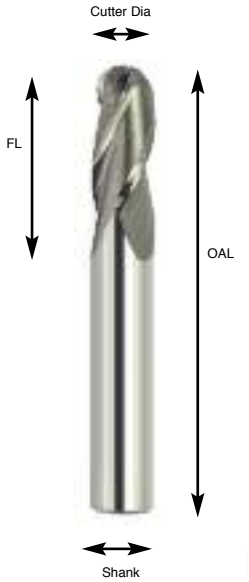
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	219 -17501	36.52
1.5	3	5	38	219 -17502	36.52
2	3	6	38	219 -17503	34.91
2.5	3	7	38	219 -17504	34.91
3	3	12	38	219 -17505	33.92
4	4	14	50	219 -17507	43.21
5	5	16	50	219 -17509	50.49
6	6	19	63	219 -17510	55.75
8	8	19	63	219 -17512	71.58
10	10	22	70	219 -17514	120.03
12	12	25	75	219 -17516	153.09
14	14	30	88	219 -17518	287.68
16	16	32	88	219 -17520	286.19
18	18	36	100	219 -17522	418.35
20	20	38	100	219 -17524	495.18

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 3-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm



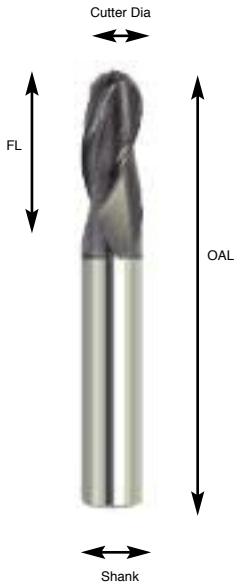
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	316 -17601	27.62
1.5	3	5	38	316 -17602	27.62
2	3	6	38	316 -17603	26.81
2.5	3	7	38	316 -17604	26.81
3	3	12	38	316 -17605	25.96
4	4	14	50	316 -17607	35.82
5	5	16	50	316 -17609	40.96
6	6	19	63	316 -17610	49.34
8	8	19	63	316 -17612	60.34
10	10	22	70	316 -17614	96.50
12	12	25	75	316 -17616	137.02
14	14	30	88	316 -17618	220.37
16	16	32	88	316 -17620	217.78
18	18	36	100	316 -17622	330.70
20	20	38	100	316 -17624	391.34

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 3-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm



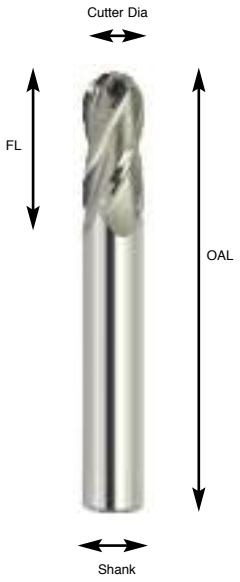
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	319 -17601	36.52
1.5	3	5	38	319 -17602	36.52
2	3	6	38	319 -17603	34.91
2.5	3	7	38	319 -17604	34.91
3	3	12	38	319 -17605	33.92
4	4	14	50	319 -17607	43.21
5	5	16	50	319 -17609	50.49
6	6	19	63	319 -17610	55.75
8	8	19	63	319 -17612	71.58
10	10	22	70	319 -17614	120.03
12	12	25	75	319 -17616	153.09
14	14	30	88	319 -17618	287.68
16	16	32	88	319 -17620	286.19
18	18	36	100	319 -17622	418.35
20	20	38	100	319 -17624	495.18

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	416 -17701	27.62
1.5	3	5	38	416 -17702	27.62
2	3	6	38	416 -17703	26.81
2.5	3	7	38	416 -17704	26.81
3	3	12	38	416 -17705	25.96
4	4	14	50	416 -17707	35.82
5	5	16	50	416 -17709	40.96
6	6	19	63	416 -17710	49.34
8	8	19	63	416 -17712	60.34
10	10	22	70	416 -17714	96.50
12	12	25	75	416 -17716	137.02
14	14	30	88	416 -17718	220.37
16	16	32	88	416 -17720	217.78
18	18	36	100	416 -17722	330.70
20	20	38	100	416 -17724	391.34

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed

Tolerance Cutting +0.00mm-.051mm

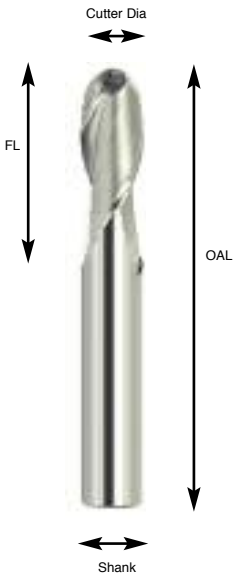
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	3	38	419 -17701	36.52
1.5	3	5	38	419 -17702	36.52
2	3	6	38	419 -17703	34.91
2.5	3	7	38	419 -17704	34.91
3	3	12	38	419 -17705	33.92
4	4	14	50	419 -17707	43.21
5	5	16	50	419 -17709	50.49
6	6	19	63	419 -17710	55.75
8	8	19	63	419 -17712	71.58
10	10	22	70	419 -17714	120.03
12	12	25	75	419 -17716	153.09
14	14	30	88	419 -17718	287.68
16	16	32	88	419 -17720	286.19
18	18	36	100	419 -17722	418.35
20	20	38	100	419 -17724	495.18

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting
+0.000"-0.002"



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	216 -07504	28.07
3/32"	1/8"	3/8"	1-1/2"	216 -07506	28.07
1/8"	1/8"	1/2"	1-1/2"	216 -07508	27.37
5/32"	3/16"	9/16"	2"	216 -07510	37.67
3/16"	3/16"	5/8"	2"	216 -07512	36.46
7/32"	1/4"	5/8"	2-1/2"	216 -07514	49.61
1/4"	1/4"	3/4"	2-1/2"	216 -07516	52.54
9/32"	5/16"	7/8"	2-1/2"	216 -07518	63.53
5/16"	5/16"	7/8"	2-1/2"	216 -07520	63.12
3/8"	3/8"	7/8"	2-1/2"	216 -07524	78.14
7/16"	7/16"	1"	2-3/4"	216 -07528	97.72
1/2"	1/2"	1"	3"	216 -07532	135.53
3/4"	3/4"	1-1/2"	4"	216 -07548	277.21

For technical information see page 192 - 197

Performance Solid Carbide - *Coated TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting
+0.00"-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	219 -07504	36.51
3/32"	1/8"	3/8"	1-1/2"	219 -07506	36.51
1/8"	1/8"	1/2"	1-1/2"	219 -07508	35.63
5/32"	3/16"	9/16"	2"	219 -07510	49.06
3/16"	3/16"	5/8"	2"	219 -07512	47.00
7/32"	1/4"	5/8"	2-1/2"	219 -07514	64.60
1/4"	1/4"	3/4"	2-1/2"	219 -07516	68.42
9/32"	5/16"	7/8"	2-1/2"	219 -07518	82.72
5/16"	5/16"	7/8"	2-1/2"	219 -07520	82.15
3/8"	3/8"	7/8"	2-1/2"	219 -07524	101.75
7/16"	7/16"	1"	2-3/4"	219 -07528	127.28
1/2"	1/2"	1"	3"	219 -07532	176.50
3/4"	3/4"	1-1/2"	4"	219 -07548	361.00

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed

Tolerance Cutting +0.000"-0.002"

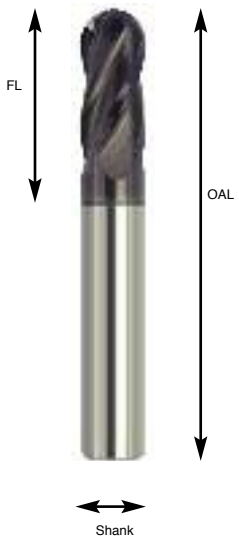
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	416 -07704	28.07
3/32"	1/8"	3/8"	1-1/2"	416 -07706	28.07
1/8"	1/8"	1/2"	1-1/2"	416 -07708	27.37
5/32"	3/16"	9/16"	2"	416 -07710	37.67
3/16"	3/16"	5/8"	2"	416 -07712	36.46
7/32"	1/4"	5/8"	2-1/2"	416 -07714	49.61
1/4"	1/4"	3/4"	2-1/2"	416 -07716	52.54
9/32"	5/16"	7/8"	2-1/2"	416 -07718	63.53
5/16"	5/16"	7/8"	2-1/2"	416 -07720	63.12
3/8"	3/8"	7/8"	2-1/2"	416 -07724	78.14
7/16"	7/16"	1"	2-3/4"	416 -07728	97.72
1/2"	1/2"	1"	3"	416 -07732	135.53
3/4"	3/4"	1-1/2"	4"	416 -07748	277.21

For technical information see page 192 - 197

Performance Solid Carbide - *Coated TiALN* Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed

Tolerance Cutting +0.00"-0.002"



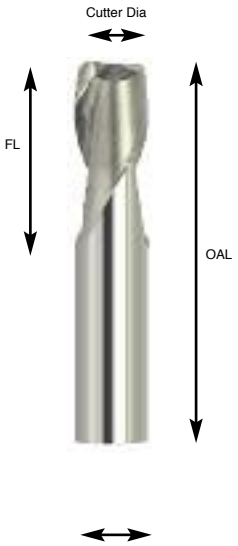
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/4"	1-1/2"	419 -07704	36.51
3/32"	1/8"	3/8"	1-1/2"	419 -07706	36.51
1/8"	1/8"	1/2"	1-1/2"	419 -07708	35.63
5/32"	3/16"	9/16"	2"	419 -07710	49.06
3/16"	3/16"	5/8"	2"	419 -07712	47.00
7/32"	1/4"	5/8"	2-1/2"	419 -07714	64.60
1/4"	1/4"	3/4"	2-1/2"	419 -07716	68.42
9/32"	5/16"	7/8"	2-1/2"	419 -07718	82.72
5/16"	5/16"	7/8"	2-1/2"	419 -07720	82.15
3/8"	3/8"	7/8"	2-1/2"	419 -07724	101.75
7/16"	7/16"	1"	2-3/4"	419 -07728	127.28
1/2"	1/2"	1"	3"	419 -07732	176.50
3/4"	3/4"	1-1/2"	4"	419 -07748	361.00

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Stub Mills

Tolerance Cutting
+0.00mm-.051mm



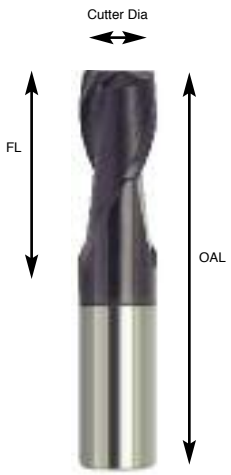
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	211S -85001	21.78
1.5	3	3	38	211S -85051	21.78
2	3	4	38	211S -85101	16.46
2.5	3	5	38	211S -85151	16.46
3	3	6	38	211S -85201	16.46
3.5	4	7	50	211S -85251	23.40
4	4	8	50	211S -85301	23.40
4.5	5	9	50	211S -85351	23.40
5	5	10	50	211S -85401	29.16
6	6	12	50	211S -85451	29.86
8	8	12	50	211S -85501	34.50
10	10	14	50	211S -85551	62.77
12	12	16	63	211S -85601	72.76
16	16	20	75	211S -85651	155.46
20	20	25	75	211S -85701	222.57

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Stub Mills

Tolerance Cutting
+0.00mm-.051mm



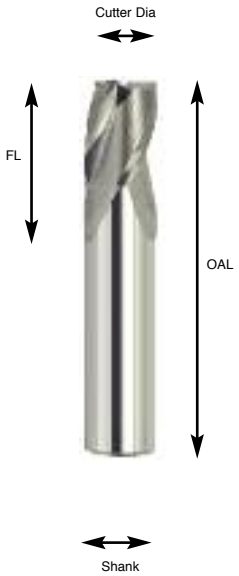
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	214S -85001	28.39
1.5	3	3	38	214S -85051	28.39
2	3	4	38	214S -85101	21.55
2.5	3	5	38	214S -85151	21.55
3	3	6	38	214S -85201	21.55
3.5	4	7	50	214S -85251	30.48
4	4	8	50	214S -85301	30.48
4.5	5	9	50	214S -85351	30.48
5	5	10	50	214S -85401	38.04
6	6	12	50	214S -85451	38.97
8	8	12	50	214S -85501	45.06
10	10	14	50	214S -85551	81.83
12	12	16	63	214S -85601	94.99
16	16	20	75	214S -85651	202.93
20	20	25	75	214S -85701	290.44

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Stub Mills

Tolerance Cutting +0.00mm-.051mm



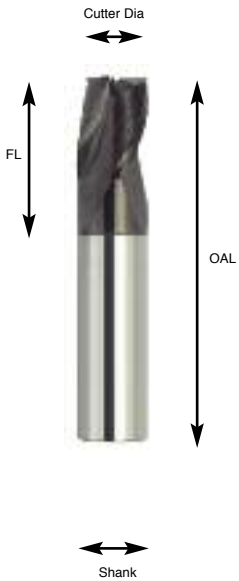
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	311S -85002	21.78
1.5	3	3	38	311S -85052	21.78
2	3	4	38	311S -85102	16.46
2.5	3	5	38	311S -85152	16.46
3	3	6	38	311S -85202	16.46
3.5	4	7	50	311S -85252	23.40
4	4	8	50	311S -85302	23.40
4.5	5	9	50	311S -85352	23.40
5	5	10	50	311S -85402	29.16
6	6	12	50	311S -85452	29.86
8	8	12	50	311S -85502	34.50
10	10	14	50	311S -85552	62.77
12	12	16	63	311S -85602	72.76
16	16	20	75	311S -85652	155.46
20	20	25	75	311S -85702	222.57

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Stub Mills

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	314S -85002	28.39
1.5	3	3	38	314S -85052	28.39
2	3	4	38	314S -85102	21.55
2.5	3	5	38	314S -85152	21.55
3	3	6	38	314S -85202	21.55
3.5	4	7	50	314S -85252	30.48
4	4	8	50	314S -85302	30.48
4.5	5	9	50	314S -85352	30.48
5	5	10	50	314S -85402	38.04
6	6	12	50	314S -85452	38.97
8	8	12	50	314S -85502	45.06
10	10	14	50	314S -85552	81.83
12	12	16	63	314S -85602	94.99
16	16	20	75	314S -85652	202.93
20	20	25	75	314S -85702	290.44

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Stub Mills

Tolerance Cutting
+0.00mm-.051mm

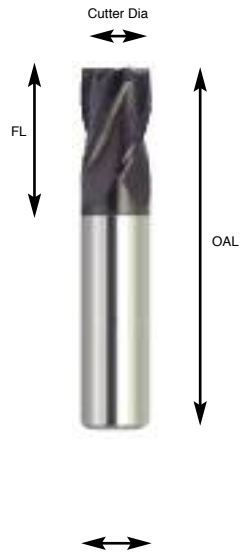
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	411S -85000	21.78
1.5	3	3	38	411S -85050	21.78
2	3	4	38	411S -85100	16.46
2.5	3	5	38	411S -85150	16.46
3	3	6	38	411S -85200	16.46
3.5	4	7	50	411S -85250	23.40
4	4	8	50	411S -85300	23.40
4.5	5	9	50	411S -85350	23.40
5	5	10	50	411S -85400	29.16
6	6	12	50	411S -85450	29.86
8	8	12	50	411S -85500	34.50
10	10	14	50	411S -85550	62.77
12	12	16	63	411S -85600	72.76
16	16	20	75	411S -85650	155.46
20	20	25	75	411S -85700	222.57

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Stub Mills

Tolerance Cutting
+0.00mm-.051mm



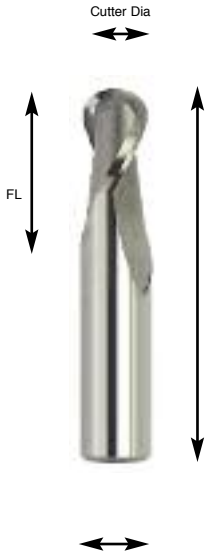
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	414S -85000	28.39
1.5	3	3	38	414S -85050	28.39
2	3	4	38	414S -85100	21.55
2.5	3	5	38	414S -85150	21.55
3	3	6	38	414S -85200	21.55
3.5	4	7	50	414S -85250	30.48
4	4	8	50	414S -85300	30.48
4.5	5	9	50	414S -85350	30.48
5	5	10	50	414S -85400	38.04
6	6	12	50	414S -85450	38.97
8	8	12	50	414S -85500	45.06
10	10	14	50	414S -85550	81.83
12	12	16	63	414S -85600	94.99
16	16	20	75	414S -85650	202.93
20	20	25	75	414S -85700	290.44

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Ball Nosed Stub Mills

Tolerance Cutting +0.00mm-.051mm



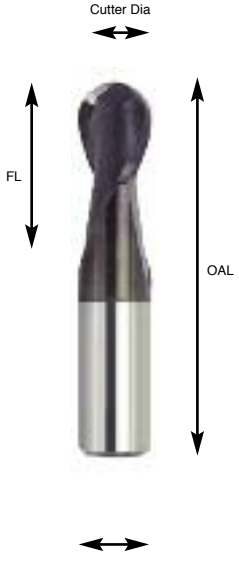
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	216S -85005	25.65
1.5	3	3	38	216S -85055	25.65
2	3	4	38	216S -85105	20.92
2.5	3	5	38	216S -85155	20.92
3	3	6	38	216S -85205	26.10
3.5	4	7	50	216S -85255	29.35
4	4	8	50	216S -85305	29.35
4.5	5	9	50	216S -85355	29.35
5	5	10	50	216S -85405	36.57
6	6	12	50	216S -85455	37.52
8	8	12	50	216S -85505	42.32
10	10	14	50	216S -85555	78.75
12	12	16	63	216S -85605	91.46
16	16	20	75	216S -85655	183.66
20	20	25	75	216S -85705	254.61

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Ball Nosed Stub Mills

Tolerance Cutting +0.00mm-.051mm



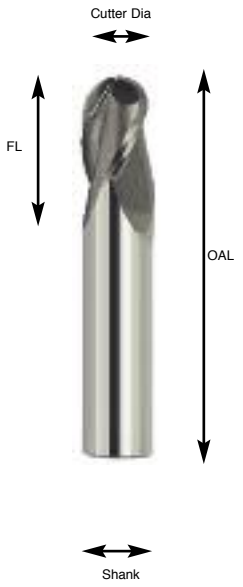
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	219S -85005	33.46
1.5	3	3	38	219S -85055	33.46
2	3	4	38	219S -85105	27.28
2.5	3	5	38	219S -85155	27.28
3	3	6	38	219S -85205	34.59
3.5	4	7	50	219S -85255	38.27
4	4	8	50	219S -85305	38.27
4.5	5	9	50	219S -85355	38.27
5	5	10	50	219S -85405	47.82
6	6	12	50	219S -85455	49.03
8	8	12	50	219S -85505	55.30
10	10	14	50	219S -85555	102.81
12	12	16	63	219S -85605	119.30
16	16	20	75	219S -85655	239.69
20	20	25	75	219S -85705	332.29

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Ball Nosed Stub Mills

Tolerance Cutting
+0.00mm-.051mm



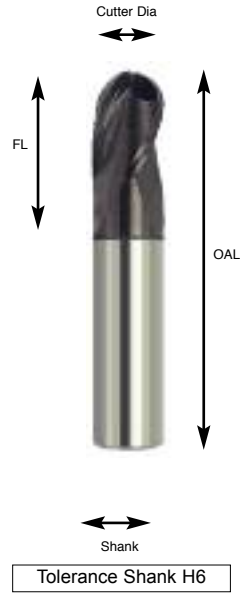
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	316S -85006	25.65
1.5	3	3	38	316S -85056	25.65
2	3	4	38	316S -85106	20.92
2.5	3	5	38	316S -85156	20.92
3	3	6	38	316S -85206	26.10
3.5	4	7	50	316S -85256	29.35
4	4	8	50	316S -85306	29.35
4.5	5	9	50	316S -85356	29.35
5	5	10	50	316S -85406	36.57
6	6	12	50	316S -85456	37.52
8	8	12	50	316S -85506	42.32
10	10	14	50	316S -85556	78.75
12	12	16	63	316S -85606	91.46
16	16	20	75	316S -85656	183.66
20	20	25	75	316S -85706	254.61

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Ball Nosed Stub Mills

Tolerance Cutting
+0.00mm-.051mm



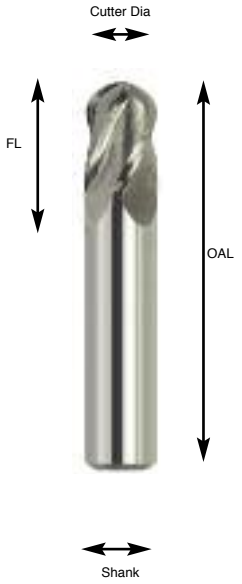
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	319S -85006	33.46
1.5	3	3	38	319S -85056	33.46
2	3	4	38	319S -85106	27.28
2.5	3	5	38	319S -85156	27.28
3	3	6	38	319S -85206	34.59
3.5	4	7	50	319S -85256	38.27
4	4	8	50	319S -85306	38.27
4.5	5	9	50	319S -85356	38.27
5	5	10	50	319S -85406	47.82
6	6	12	50	319S -85456	49.03
8	8	12	50	319S -85506	55.30
10	10	14	50	319S -85556	102.81
12	12	16	63	319S -85606	119.30
16	16	20	75	319S -85656	239.69
20	20	25	75	319S -85706	332.29

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed Stub Mills

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	416S -85004	25.65
1.5	3	3	38	416S -85054	25.65
2	3	4	38	416S -85104	20.92
2.5	3	5	38	416S -85154	20.92
3	3	6	38	416S -85204	26.10
3.5	4	7	50	416S -85254	29.35
4	4	8	50	416S -85304	29.35
4.5	5	9	50	416S -85354	29.35
5	5	10	50	416S -85404	36.57
6	6	12	50	416S -85454	37.52
8	8	12	50	416S -85504	42.32
10	10	14	50	416S -85554	78.75
12	12	16	63	416S -85604	91.46
16	16	20	75	416S -85654	183.66
20	20	25	75	416S -85704	254.61

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Ball Nosed Stub Mills

Tolerance Cutting +0.00mm-.051mm

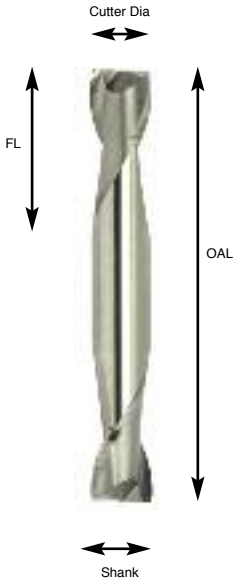
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	3	2	38	419S -85004	33.46
1.5	3	3	38	419S -85054	33.46
2	3	4	38	419S -85104	27.28
2.5	3	5	38	419S -85154	27.28
3	3	6	38	419S -85204	34.59
3.5	4	7	50	419S -85254	38.27
4	4	8	50	419S -85304	38.27
4.5	5	9	50	419S -85354	38.27
5	5	10	50	419S -85404	47.82
6	6	12	50	419S -85454	49.03
8	8	12	50	419S -85504	55.30
10	10	14	50	419S -85554	102.81
12	12	16	63	419S -85604	119.30
16	16	20	75	419S -85654	239.69
20	20	25	75	419S -85704	332.29

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute DE Stub

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	251 -11503	29.86
2.5	3	5	38	251 -11504	29.86
3	3	6	38	251 -11505	27.20
3.5	4	7	50	251 -11506	37.52
4	4	8	50	251 -11507	36.46
5	5	10	50	251 -11509	42.67
6	6	12	63	251 -11510	49.88
8	8	12	63	251 -11512	64.85
10	10	12	70	251 -11514	99.03
12	12	16	75	251 -11516	123.94

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute DE Stub

Tolerance Cutting
+0.00mm-.051mm

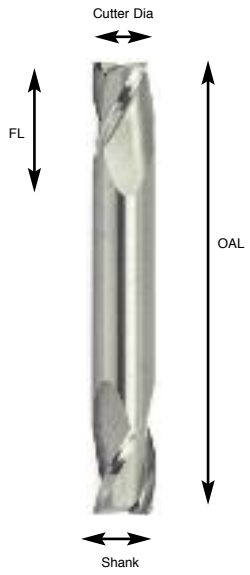
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	259 -11503	49.21
2.5	3	5	38	259 -11504	49.21
3	3	6	38	259 -11505	44.71
3.5	4	7	50	259 -11506	61.76
4	4	8	50	259 -11507	62.01
5	5	10	50	259 -11509	72.56
6	6	12	63	259 -11510	84.78
8	8	12	63	259 -11512	110.21
10	10	12	70	259 -11514	168.21
12	12	16	75	259 -11516	210.64

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute DE Stub

Tolerance Cutting +0.00mm-.051mm



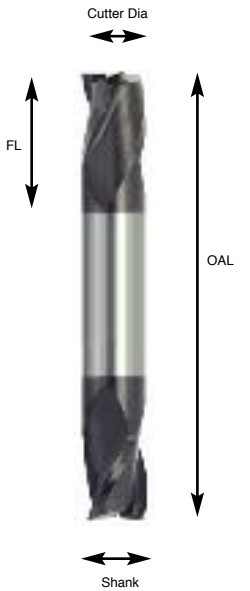
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	351 -11603	29.86
2.5	3	5	38	351 -11604	29.86
3	3	6	38	351 -11605	27.20
3.5	4	7	50	351 -11606	37.52
4	4	8	50	351 -11607	36.46
5	5	10	50	351 -11609	42.67
6	6	12	63	351 -11610	49.88
8	8	12	63	351 -11612	64.85
10	10	12	70	351 -11614	99.03
12	12	16	75	351 -11616	123.94

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute DE Stub

Tolerance Cutting +0.00mm-.051mm



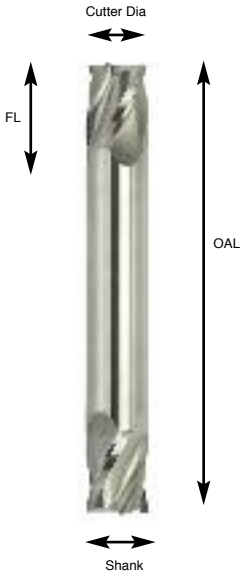
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	359 -11603	49.21
2.5	3	5	38	359 -11604	49.21
3	3	6	38	359 -11605	44.71
3.5	4	7	50	359 -11606	61.76
4	4	8	50	359 -11607	62.01
5	5	10	50	359 -11609	72.56
6	6	12	63	359 -11610	84.78
8	8	12	63	359 -11612	110.21
10	10	12	70	359 -11614	168.21
12	12	16	75	359 -11616	210.64

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute DE Stub

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	451 -11703	29.86
2.5	3	5	38	451 -11704	29.86
3	3	6	38	451 -11705	27.20
3.5	4	7	50	451 -11706	37.52
4	4	8	50	451 -11707	36.46
5	5	10	50	451 -11709	42.67
6	6	12	63	451 -11710	49.88
8	8	12	63	451 -11712	64.85
10	10	12	70	451 -11714	99.03
12	12	16	75	451 -11716	123.94

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute DE Stub

Tolerance Cutting
+0.00mm-.051mm

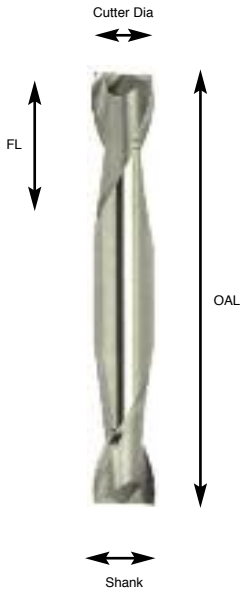
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	3	4	38	459 -11703	49.21
2.5	3	5	38	459 -11704	49.21
3	3	6	38	459 -11705	44.71
3.5	4	7	50	459 -11706	61.76
4	4	8	50	459 -11707	62.01
5	5	10	50	459 -11709	72.56
6	6	12	63	459 -11710	84.78
8	8	12	63	459 -11712	110.21
10	10	12	70	459 -11714	168.21
12	12	16	75	459 -11716	210.64

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute DE Stub

Tolerance Cutting +0.000"-0.002"



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/8"	1-1/2"	251 -01504	30.71
3/32"	1/8"	3/16"	1-1/2"	251 -01506	28.93
1/8"	1/8"	1/4"	1-1/2"	251 -01508	27.20
5/32"	3/16"	5/16"	2"	251 -01510	37.67
3/16"	3/16"	3/8"	2"	251 -01512	36.46
7/32"	1/4"	1/2"	2-1/2"	251 -01514	51.44
1/4"	1/4"	1/2"	2-1/2"	251 -01516	51.59
5/16"	5/16"	1/2"	2-1/2"	251 -01520	65.96
3/8"	3/8"	1/2"	2-1/2"	251 -01524	76.77
1/2"	1/2"	5/8"	3"	251 -01532	130.31

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute DE Stub

Tolerance Cutting +0.000"-0.002"

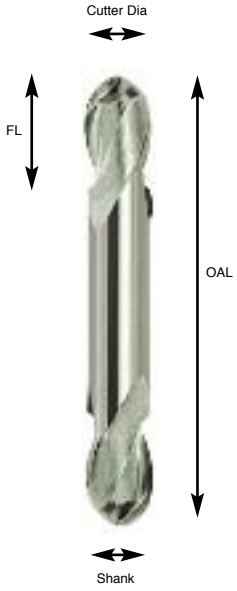
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	1/8"	1-1/2"	451 -01704	30.71
3/32"	1/8"	3/16"	1-1/2"	451 -01706	28.93
1/8"	1/8"	1/4"	1-1/2"	451 -01708	27.20
5/32"	3/16"	5/16"	2"	451 -01710	37.67
3/16"	3/16"	3/8"	2"	451 -01712	36.46
7/32"	1/4"	1/2"	2-1/2"	451 -01714	51.44
1/4"	1/4"	1/2"	2-1/2"	451 -01716	51.59
5/16"	5/16"	1/2"	2-1/2"	451 -01720	65.96
3/8"	3/8"	1/2"	2-1/2"	451 -01724	76.77
1/2"	1/2"	5/8"	3"	451 -01732	130.31

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute DE-BN Stub

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	261 -12505	35.53
3.5	4	6	50	261 -12506	47.05
4	4	7	50	261 -12507	47.05
4.5	5	7	50	261 -12508	52.65
5	5	8	50	261 -12509	52.65
6	6	10	63	261 -12510	61.31
7	7	10	63	261 -12511	67.66
8	8	11	63	261 -12512	78.65
9	9	11	63	261 -12513	104.70
10	10	13	70	261 -12514	127.83
11	11	13	76	261 -12515	144.31
12	12	13	76	261 -12516	155.23

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute DE-BN Stub

Tolerance Cutting
+0.00mm-.051mm

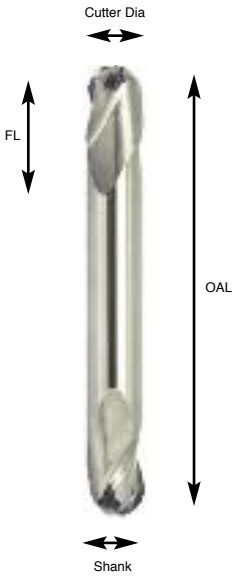
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	269 -12505	55.98
3.5	4	6	50	269 -12506	80.04
4	4	7	50	269 -12507	80.04
4.5	5	7	50	269 -12508	89.40
5	5	8	50	269 -12509	89.40
6	6	10	63	269 -12510	104.18
7	7	10	63	269 -12511	115.01
8	8	11	63	269 -12512	133.66
9	9	11	63	269 -12513	178.58
10	10	13	70	269 -12514	217.15
11	11	13	76	269 -12515	245.34
12	12	13	76	269 -12516	263.74

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute DE-BN Stub

Tolerance Cutting +0.00mm-.051mm



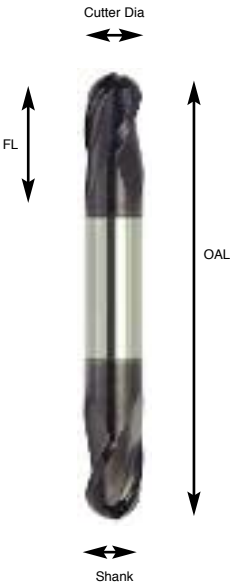
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	361 -13505	35.53
3.5	4	6	50	361 -13506	47.05
4	4	7	50	361 -13507	47.05
4.5	5	7	50	361 -13508	52.65
5	5	8	50	361 -13509	52.65
6	6	10	63	361 -13510	61.31
7	7	10	63	361 -13511	67.66
8	8	11	63	361 -13512	78.65
9	9	11	63	361 -13513	104.70
10	10	13	70	361 -13514	127.83
11	11	13	76	361 -13515	144.31
12	12	13	76	361 -13516	155.23

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute DE-BN Stub

Tolerance Cutting +0.00mm-.051mm



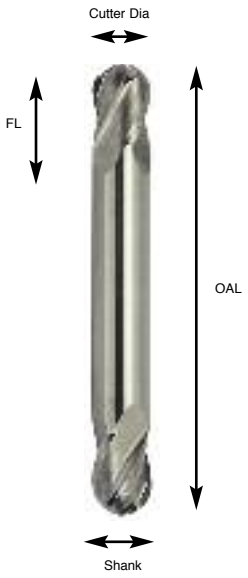
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	369 -13505	55.98
3.5	4	6	50	369 -13506	80.04
4	4	7	50	369 -13507	80.04
4.5	5	7	50	369 -13508	89.40
5	5	8	50	369 -13509	89.40
6	6	10	63	369 -13510	104.18
7	7	10	63	369 -13511	115.01
8	8	11	63	369 -13512	133.66
9	9	11	63	369 -13513	178.58
10	10	13	70	369 -13514	217.15
11	11	13	76	369 -13515	245.34
12	12	13	76	369 -13516	263.74

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute DE-BN Stub

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	461 -14505	35.53
3.5	4	6	50	461 -14506	47.05
4	4	7	50	461 -14507	47.05
4.5	5	7	50	461 -14508	52.65
5	5	8	50	461 -14509	52.65
6	6	10	63	461 -14510	61.31
7	7	10	63	461 -14511	67.66
8	8	11	63	461 -14512	78.65
9	9	11	63	461 -14513	104.70
10	10	13	70	461 -14514	127.83
11	11	13	76	461 -14515	144.31
12	12	13	76	461 -14516	155.23

For technical information
see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute DE-BN Stub

Tolerance Cutting
+0.00mm-.051mm

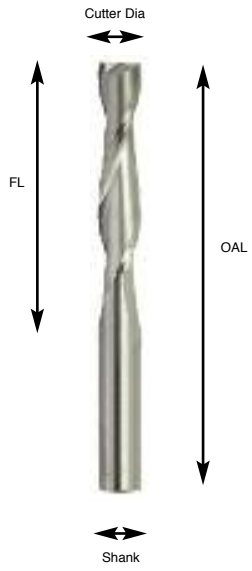
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	38	469 -14505	55.98
3.5	4	6	50	469 -14506	80.04
4	4	7	50	469 -14507	80.04
4.5	5	7	50	469 -14508	89.40
5	5	8	50	469 -14509	89.40
6	6	10	63	469 -14510	104.18
7	7	10	63	469 -14511	115.01
8	8	11	63	469 -14512	133.66
9	9	11	63	469 -14513	178.58
10	10	13	70	469 -14514	217.15
11	11	13	76	469 -14515	245.34
12	12	13	76	469 -14516	263.74

For technical information
see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Long

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	221 -10605	44.40
4	4	25	65	221 -10607	47.30
5	5	25	75	221 -10609	52.19
6	6	25	75	221 -10610	61.71
8	8	25	75	221 -10612	84.02
10	10	38	100	221 -10614	121.35
12	12	50	100	221 -10616	160.64
16	16	75	150	221 -10618	312.01
20	20	75	150	221 -10624	593.63
25	25	75	150	221 -10629	700.62

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Long

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	229 -10605	57.96
4	4	25	65	229 -10607	61.71
5	5	25	75	229 -10609	68.13
6	6	25	75	229 -10610	80.61
8	8	25	75	229 -10612	109.69
10	10	38	100	229 -10614	158.41
12	12	50	100	229 -10616	209.68
16	16	75	150	229 -10618	407.17
20	20	75	150	229 -10624	774.72
25	25	75	150	229 -10629	914.25

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Long

Tolerance Cutting
+0.00mm-.051mm

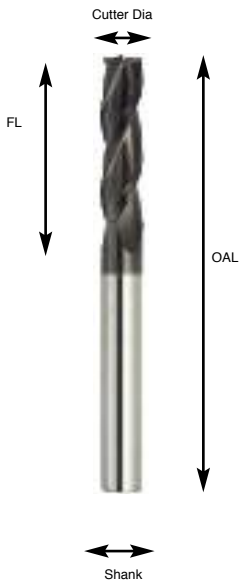
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	321 -10705	44.40
4	4	25	65	321 -10707	47.30
5	5	25	75	321 -10709	52.19
6	6	25	75	321 -10710	61.71
8	8	25	75	321 -10712	84.02
10	10	38	100	321 -10714	121.35
12	12	50	100	321 -10716	160.64
16	16	75	150	321 -10718	312.01
20	20	75	150	321 -10724	593.63
25	25	75	150	321 -10729	700.62

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Long

Tolerance Cutting
+0.00mm-.051mm



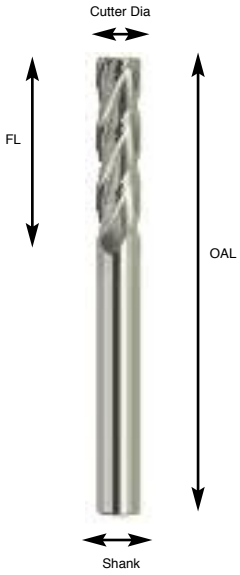
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	329 -10705	57.96
4	4	25	65	329 -10707	61.71
5	5	25	75	329 -10709	68.13
6	6	25	75	329 -10710	80.61
8	8	25	75	329 -10712	109.69
10	10	38	100	329 -10714	158.41
12	12	50	100	329 -10716	209.68
16	16	75	150	329 -10718	407.17
20	20	75	150	329 -10724	774.72
25	25	75	150	329 -10729	914.25

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Long

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	421 -10805	44.40
4	4	25	65	421 -10807	47.30
5	5	25	75	421 -10809	52.19
6	6	25	75	421 -10810	61.71
8	8	25	75	421 -10812	84.02
10	10	38	100	421 -10814	121.35
12	12	50	100	421 -10816	160.64
16	16	75	150	421 -10818	312.01
20	20	75	150	421 -10824	593.63
25	25	75	150	421 -10829	700.62

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute Long

Tolerance Cutting +0.00mm-.051mm

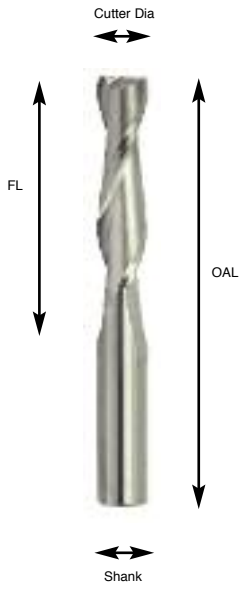
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	429 -10805	57.96
4	4	25	65	429 -10807	61.71
5	5	25	75	429 -10809	68.13
6	6	25	75	429 -10810	80.61
8	8	25	75	429 -10812	109.69
10	10	38	100	429 -10814	158.41
12	12	50	100	429 -10816	209.68
16	16	75	150	429 -10818	407.17
20	20	75	150	429 -10824	774.72
25	25	75	150	429 -10829	914.25

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute Long

Tolerance Cutting +0.000"-0.002"



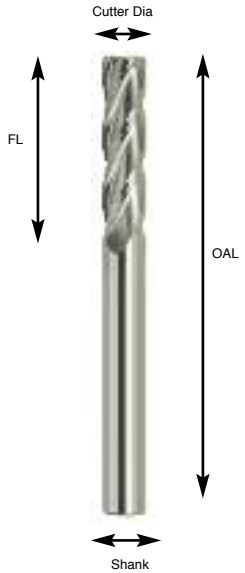
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/4"	1/4"	1-1/8"	3"	221 -00616	64.66
5/16"	5/16"	1-1/8"	3"	221 -00620	88.01
3/8"	3/8"	1-1/8"	3"	221 -00624	117.15
7/16"	7/16"	2"	4"	221 -00628	155.57
1/2"	1/2"	2"	4"	221 -00632	168.28
5/8"	5/8"	2-1/4"	5"	221 -00640	326.94
3/4"	3/4"	2-1/4"	5"	221 -00648	575.42
1"	1"	2-1/4"	5"	221 -00664	733.98

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 4-flute Long

Tolerance Cutting +0.000-0.002"



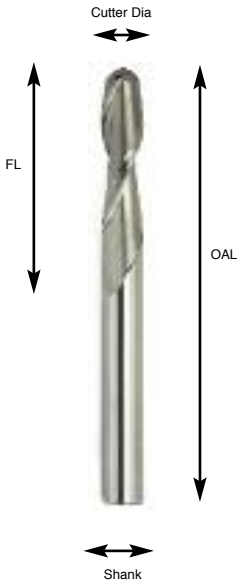
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/4"	1/4"	1-1/8"	3"	421 -00816	64.66
5/16"	5/16"	1-1/8"	3"	421 -00820	88.01
3/8"	3/8"	1-1/8"	3"	421 -00824	117.15
7/16"	7/16"	2"	4"	421 -00828	155.57
1/2"	1/2"	2"	4"	421 -00832	168.28
5/8"	5/8"	2-1/4"	5"	421 -00840	326.94
3/4"	3/4"	2-1/4"	5"	421 -00848	575.42
1"	1"	2-1/4"	5"	421 -00864	733.98

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Long Ball Nosed

Tolerance Cutting +0.00mm-.051mm



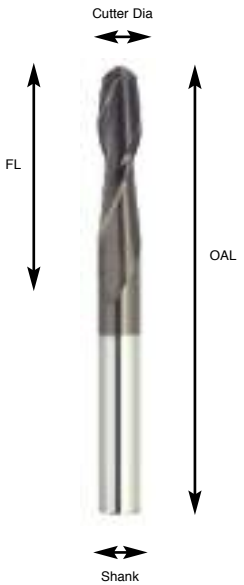
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	236 -17505	46.38
4	4	25	65	236 -17507	51.80
5	5	25	75	236 -17509	61.32
6	6	25	75	236 -17510	74.26
8	8	25	75	236 -17512	100.76
10	10	38	100	236 -17514	145.62
12	12	50	100	236 -17516	192.54
16	16	75	150	236 -17520	389.86
20	20	75	150	236 -17524	659.16
25	25	75	150	236 -17529	854.30

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute Long Ball Nosed

Tolerance Cutting +0.00mm-.051mm



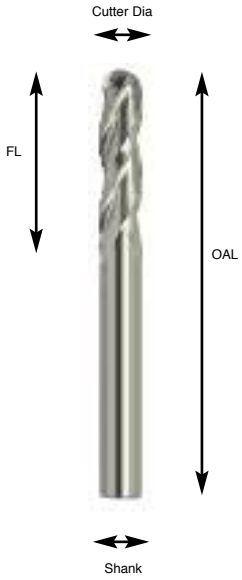
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	239 -17505	60.59
4	4	25	65	239 -17507	67.63
5	5	25	75	239 -17509	80.02
6	6	25	75	239 -17510	96.80
8	8	25	75	239 -17512	131.44
10	10	38	100	239 -17514	190.10
12	12	50	100	239 -17516	251.30
16	16	75	150	239 -17520	508.85
20	20	75	150	239 -17524	860.27
25	25	75	150	239 -17529	1114.84

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Long Ball Nosed

Tolerance Cutting
+0.00mm-.051mm



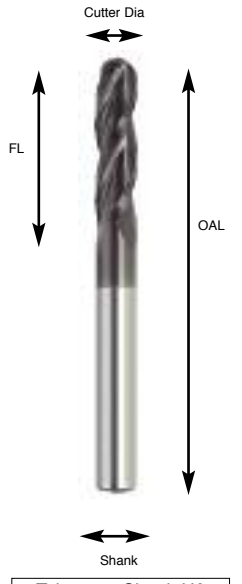
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	336 -17605	46.38
4	4	25	65	336 -17607	51.80
5	5	25	75	336 -17609	61.32
6	6	25	75	336 -17610	74.26
8	8	25	75	336 -17612	100.76
10	10	38	100	336 -17614	145.62
12	12	50	100	336 -17616	192.54
16	16	75	150	336 -17620	389.86
20	20	75	150	336 -17624	659.16
25	25	75	150	336 -17629	854.30

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 3-flute Long Ball Nosed

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	339 -17605	60.59
4	4	25	65	339 -17607	67.63
5	5	25	75	339 -17609	80.02
6	6	25	75	339 -17610	96.80
8	8	25	75	339 -17612	131.44
10	10	38	100	339 -17614	190.10
12	12	50	100	339 -17616	251.30
16	16	75	150	339 -17620	508.85
20	20	75	150	339 -17624	860.27
25	25	75	150	339 -17629	1114.84

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Long Ball Nosed

Tolerance Cutting
+0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	436 -17705	46.38
4	4	25	65	436 -17707	51.80
5	5	25	75	436 -17709	61.32
6	6	25	75	436 -17710	74.26
8	8	25	75	436 -17712	100.76
10	10	38	100	436 -17714	145.62
12	12	50	100	436 -17716	192.54
16	16	75	150	436 -17720	389.86
20	20	75	150	436 -17724	659.16
25	25	75	150	436 -17729	854.30

For technical information see page 192 - 197

Performance Solid Carbide - Coated *TiALN*
Centre Cutting End-Mills 30º Helix
Micro-grain K30 4-flute Long Ball Nosed

Tolerance Cutting
+0.00mm-.051mm

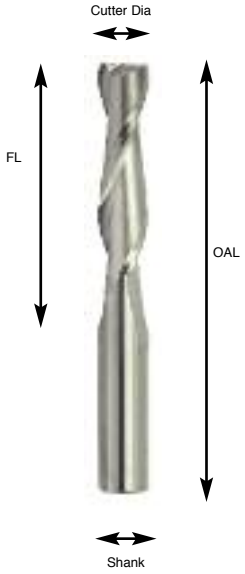
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	25	65	439 -17705	60.59
4	4	25	65	439 -17707	67.63
5	5	25	75	439 -17709	80.02
6	6	25	75	439 -17710	96.80
8	8	25	75	439 -17712	131.44
10	10	38	100	439 -17714	190.10
12	12	50	100	439 -17716	251.30
16	16	75	150	439 -17720	508.85
20	20	75	150	439 -17724	860.27
25	25	75	150	439 -17729	1114.84

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 2-flute 'Extra Long' Length

Tolererance Cutting
+0.00mm-.051mm



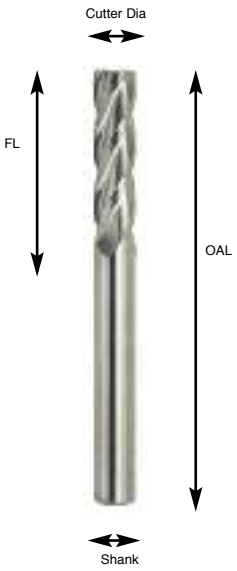
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	38	100	222 -10061	95.92
6	6	75	150	222 -15061	105.18
6	8	75	200	222 -20061	157.36
8	8	42	100	222 -10062	97.81
8	8	75	150	222 -15062	108.64
8	8	75	200	222 -20062	130.68
8	10	75	200	222 -20063	208.76
10	10	75	150	222 -15064	142.91
10	10	75	200	222 -20064	165.30
12	12	75	150	222 -15065	191.80
12	12	75	200	222 -20065	218.52
14	14	62	125	222 -10066	217.65
14	14	75	150	222 -15066	238.29
14	16	75	200	222 -20066	315.07
16	16	75	200	222 -20067	331.38
18	18	75	200	222 -20068	539.12
20	20	75	200	222 -20069	693.94

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish
Centre Cutting Slot-Drills 30º Helix
Micro-grain K30 4-flute 'Extra Long' Length

Tolererance Cutting
+0.00mm-.051mm



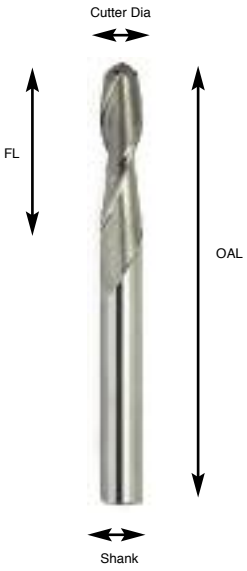
Tolererance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	38	100	444 -10071	95.92
6	6	75	150	444 -15071	105.18
6	8	75	200	444 -20071	157.36
8	8	42	100	444 -10072	97.81
8	8	75	150	444 -15072	108.64
8	8	75	200	444 -20072	130.68
8	10	75	200	444 -20073	208.76
10	10	75	150	444 -15074	142.91
10	10	75	200	444 -20074	165.30
12	12	75	150	444 -15075	191.80
12	12	75	200	444 -20075	218.52
14	14	62	125	444 -10076	217.65
14	14	75	150	444 -15076	238.29
14	16	75	200	444 -20076	315.07
16	16	75	200	444 -20077	331.38
18	18	75	200	444 -20078	539.12
20	20	75	200	444 -20079	693.94

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting Slot-Drills 30º Helix Micro-grain K30 2-flute BN 'Extra Long' Length

Tolerance Cutting +0.00mm-.051mm



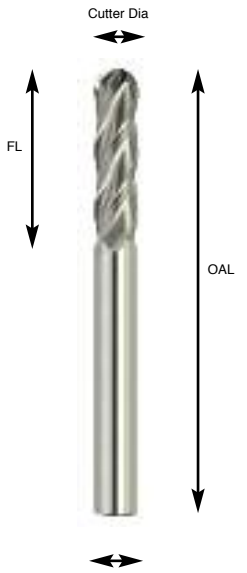
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	38	100	226 -10081	124.56
6	6	75	150	226 -15081	136.76
6	8	75	200	226 -20081	204.58
8	8	42	100	226 -10082	127.07
8	8	75	150	226 -15082	141.27
8	8	75	200	226 -20082	169.90
8	10	75	200	226 -20083	271.42
10	10	75	150	226 -15084	185.81
10	10	75	200	226 -20084	214.90
12	12	75	150	226 -15085	249.28
12	12	75	200	226 -20085	284.05
14	14	62	125	226 -10086	282.89
14	14	75	150	226 -15086	309.73
14	16	75	200	226 -20086	409.54
16	16	75	200	226 -20087	430.86
18	18	75	200	226 -20088	700.83
20	20	75	200	226 -20089	902.17

For technical information see page 192 - 197

Solid Carbide General Purpose - Bright Finish Centre Cutting End-Mills 30º Helix Micro-grain K30 4-flute BN 'Extra Long' Length

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	38	100	446 -10091	124.56
6	6	75	150	446 -15091	136.76
6	8	75	200	446 -20091	204.58
8	8	42	100	446 -10092	127.07
8	8	75	150	446 -15092	141.27
8	8	75	200	446 -20092	169.90
8	10	75	200	446 -20093	271.42
10	10	75	150	446 -15094	185.81
10	10	75	200	446 -20094	214.90
12	12	75	150	446 -15095	249.28
12	12	75	200	446 -20095	271.42
14	14	62	125	446 -10096	282.89
14	14	75	150	446 -15096	430.86
14	16	75	200	446 -20096	409.54
16	16	75	200	446 -20097	700.83
18	18	75	200	446 -20098	700.83
20	20	75	200	446 -20099	902.17

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish Centre Cutting End-Mills 60º Helix Micro-grain K30 3-flute Hi-Helix

Tolerance Cutting +0.00mm-.051mm

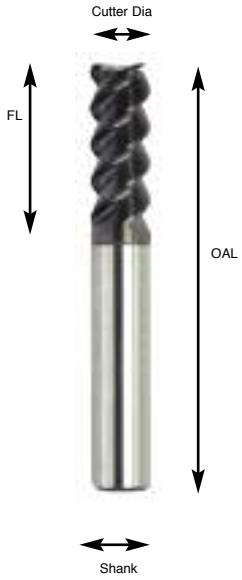
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	20	63	650 -10410	62.42
8	8	22	63	650 -10412	85.35
10	10	25	70	650 -10414	106.36
12	12	25	75	650 -10416	137.33
16	16	30	88	650 -10420	293.76
20	20	38	100	650 -10424	399.73

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 60º Helix Micro-grain K30 3-flute Hi-Helix

Tolerance Cutting +0.00mm-.051mm



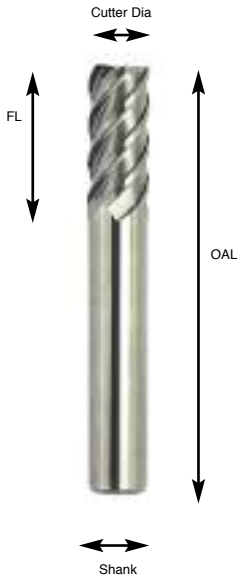
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	20	63	659 -10410	67.21
8	8	22	63	659 -10412	100.30
10	10	25	70	659 -10414	127.07
12	12	25	75	659 -10416	151.28
16	16	30	88	659 -10420	302.30
20	20	38	100	659 -10424	438.58

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish Centre Cutting End-Mills 45º Helix Micro-grain K30 Five-flute

Tolerance Cutting +0.00mm-.051mm



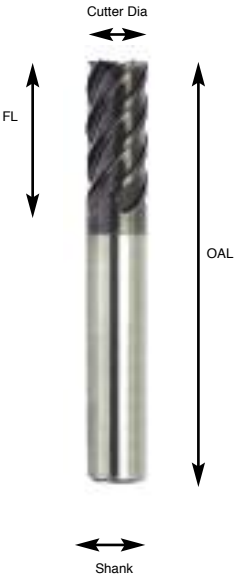
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	9	39	520 -25505	41.21
4	4	14	51	520 -25507	63.53
5	5	16	51	520 -25509	63.53
6	6	19	64	520 -25510	83.92
8	8	21	64	520 -25512	96.53
10	10	22	70	520 -25514	116.92
12	12	25	76	520 -25516	149.76
14	14	30	89	520 -25518	213.98
16	16	32	89	520 -25520	339.43
20	20	38	102	520 -25524	378.12
25	25	38	102	520 -25529	722.74

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN* Centre Cutting End-Mills 45º Helix Micro-grain K30 Five-flute

Tolerance Cutting +0.00mm-.051mm



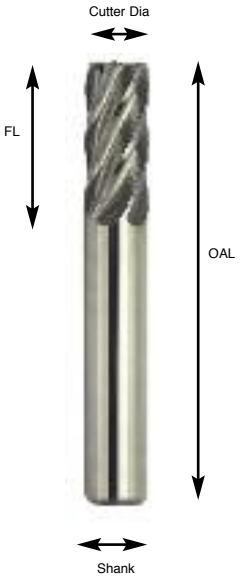
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	9	39	525 -25505	57.51
4	4	14	51	525 -25507	88.71
5	5	16	51	525 -25509	88.71
6	6	19	64	525 -25510	117.17
8	8	21	64	525 -25512	134.76
10	10	22	70	525 -25514	177.45
12	12	25	76	525 -25516	236.33
14	14	30	89	525 -25518	298.71
16	16	32	89	525 -25520	473.85
20	20	38	102	525 -25524	550.88
25	25	38	102	525 -25529	1008.93

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish Centre Cutting 30º Helix RHS/RHC Micro-grain K30 Six-flute

Tolerance Cutting +0.00mm-.051mm



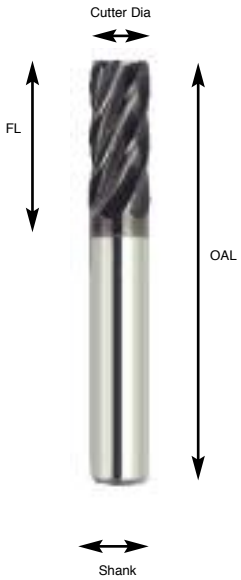
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	660 -16605	23.24
4	4	14	50	660 -16607	30.37
5	5	16	50	660 -16609	40.18
6	6	19	63	660 -16610	42.86
8	8	21	63	660 -16612	53.37
10	10	25	70	660 -16614	74.95
12	12	25	75	660 -16616	109.03
16	16	32	88	660 -16620	224.24
20	20	38	100	660 -16624	292.67

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN* Centre Cutting 30º Helix RHS/RHC Micro-grain K30 Six-flute

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	665 -16605	30.28
4	4	14	50	665 -16607	39.60
5	5	16	50	665 -16609	52.52
6	6	19	63	665 -16610	55.98
8	8	21	63	665 -16612	69.64
10	10	25	70	665 -16614	97.77
12	12	25	75	665 -16616	142.27
16	16	32	88	665 -16620	248.76
20	20	38	100	665 -16624	381.92

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish
Centre Cutting 15º Helix Pocket Mill
Micro-grain K30 2-flute Long Ball Nosed

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	75	670 -10705	44.98
4	4	6	75	670 -10707	53.30
6	6	12	100	670 -10710	67.30
8	8	14	100	670 -10712	89.46
10	10	18	100	670 -10714	112.40
12	12	22	150	670 -10716	222.81
14	14	26	150	670 -10718	302.75
16	16	30	150	670 -10720	392.00
18	18	34	150	670 -10722	480.67
20	20	38	150	670 -10724	532.54

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN*
Centre Cutting 15º Helix Pocket Mill
Micro-grain K30 2-flute Long Ball Nosed

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	6	75	675 -10705	60.59
4	4	6	75	675 -10707	65.96
6	6	12	100	675 -10710	72.60
8	8	14	100	675 -10712	94.75
10	10	18	100	675 -10714	117.77
12	12	22	150	675 -10716	247.32
14	14	26	150	675 -10718	320.46
16	16	30	150	675 -10720	427.28
18	18	34	150	675 -10722	497.52
20	20	38	150	675 -10724	560.20

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish Centre Cutting 30º Helix - Fine Micro-grain K30 3-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm

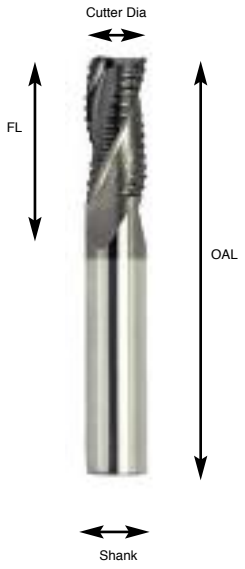
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	530 -10410	96.01
8	8	19	63	530 -10412	109.79
10	10	22	70	530 -10414	137.73
12	12	25	75	530 -10416	192.14
16	16	32	88	530 -10420	279.24
20	20	38	100	530 -10424	379.66
25	25	38	100	530 -10429	567.31

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN* Centre Cutting 30º Helix - Fine Micro-grain K30 3-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	539 -10410	125.32
8	8	19	63	539 -10412	143.28
10	10	22	70	539 -10414	179.82
12	12	25	75	539 -10416	250.67
16	16	32	88	539 -10420	364.36
20	20	38	100	539 -10424	495.42
25	25	38	100	539 -10429	738.58

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish
Centre Cutting 30º Helix - Fine
Micro-grain K30 4-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	600 -10510	96.01
8	8	19	63	600 -10512	109.79
10	10	22	70	600 -10514	137.73
12	12	25	75	600 -10516	192.14
16	16	32	88	600 -10520	279.24
20	20	38	100	600 -10524	379.66
25	25	38	100	600 -10529	567.31

For technical information see page 192 - 197

High-Performance Solid Carbide - Coated *TiALN*
Centre Cutting 30º Helix - Fine
Micro-grain K30 4-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm

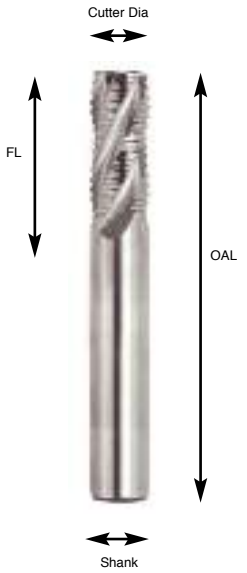
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	609 -10510	125.32
8	8	19	63	609 -10512	143.30
10	10	22	70	609 -10514	179.83
12	12	25	75	609 -10516	250.68
16	16	32	88	609 -10520	364.36
20	20	38	100	609 -10524	495.43
25	25	38	100	609 -10529	738.60

For technical information see page 192 - 197

High Performance Solid Carbide Centre Cutting 30º Helix - For Aluminium - Coarse Micro-grain K30 3-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm



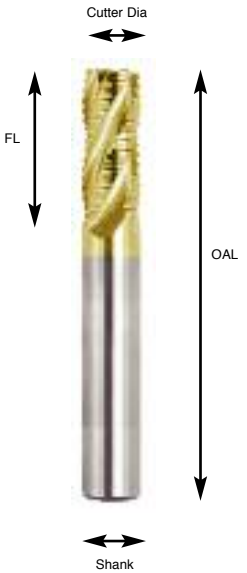
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	603 -10410	96.01
8	8	19	63	603 -10412	109.79
10	10	22	70	603 -10414	137.73
12	12	25	75	603 -10416	192.14
16	16	32	88	603 -10420	279.24
20	20	38	100	603 -10424	379.65
25	25	38	100	603 -10429	567.31

For technical information see page 192 - 197

High Performance Solid Carbide - Coated *(ZrN)* Centre Cutting 30º Helix - For Aluminium - Coarse Micro-grain K30 3-flute Roughing Mill

Tolerance Cutting +0.00mm-.051mm



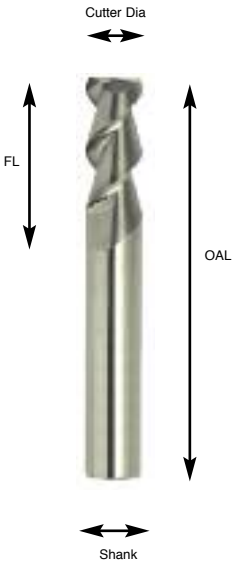
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	699 -10410	125.32
8	8	19	63	699 -10412	143.28
10	10	22	70	699 -10414	179.82
12	12	25	75	699 -10416	250.67
16	16	32	88	699 -10420	364.36
20	20	38	100	699 -10424	495.42
25	25	38	100	699 -10429	738.58

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 2-flute Alumazip

Tolerance Cutting +0.00mm-.051mm



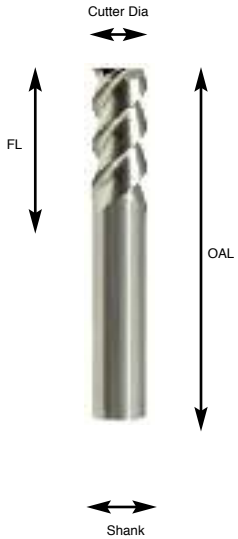
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	254 -11305	35.84
4	4	14	50	254 -11307	41.03
5	5	19	50	254 -11309	44.54
6	6	19	63	254 -11310	49.33
8	8	19	63	254 -11312	62.17
10	10	22	70	254 -11314	81.50
12	12	25	83	254 -11316	105.11
14	14	30	88	254 -11318	195.86
16	16	32	88	254 -11320	171.00
20	20	38	100	254 -11324	335.87
25	25	38	100	254 -11329	539.09

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 3-flute Alumazip

Tolerance Cutting +0.00mm-.051mm



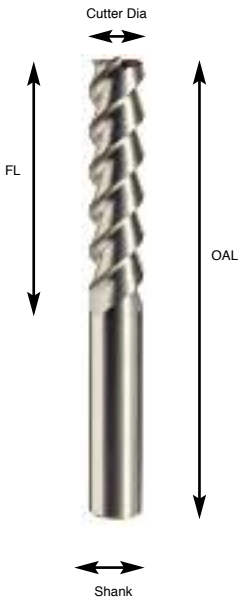
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	356 -13505	35.81
4	4	15	50	356 -13507	41.01
5	5	20	50	356 -13509	44.54
6	6	20	64	356- 13510	49.32
8	8	22	64	356 -13512	62.17
10	10	25	70	356 -13514	81.50
12	12	25	76	356 -13516	105.09
14	14	30	90	356 -13518	194.84
16	16	35	90	356 -13520	170.99
18	18	35	90	356 -13522	188.08
20	20	40	100	356 -13524	335.87

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 3-flute Long Alumazip

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	15	75	357 -13605	43.57
4	6	20	75	357 -13607	49.86
5	6	25	75	357 -13609	54.17
6	6	35	100	357 -13610	60.00
8	8	45	100	357 -13612	75.59
10	10	45	100	357 -13614	99.09
12	12	50	100	357 -13616	127.78
14	14	50	100	357 -13618	238.15
16	16	60	150	357 -13620	207.34
18	18	60	150	357 -13622	225.83
20	20	60	150	357 -13624	408.43

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
40º Helix - For Aluminium
Micro-grain K30 3-flute - Long Reach

Tolerance Cutting
+0.00mm-.051mm

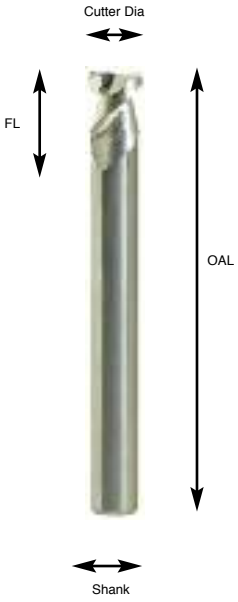
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	PART NUMBER	PRICE £
6	6	6	100	5	20	355 -13310	95.58
8	8	6	100	7	25	355 -13312	100.48
10	10	10	100	9	25	355 -13314	119.53
12	12	12	100	11	40	355 -13316	150.16
14	14	12	125	13	50	355 -13318	199.30
16	16	12	125	14	50	355 -13320	228.36
18	18	14	125	16	50	355 -13322	290.44
20	20	16	150	18	65	355 -13324	370.17

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
50º Helix - For Aluminium
Micro-grain K30 2-flute Long Reduced Shank

Tolerance Cutting
+0.00mm-.051mm



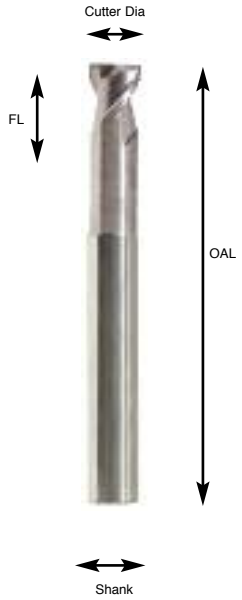
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	5	6	100	256 -14310	96.56
8	7	8	100	256 -14312	100.36
10	9	10	100	256 -14314	119.24
12	11	12	100	256 -14316	123.81
14	12	14	125	256 -14318	197.56
16	14	16	125	256 -14320	240.25
18	16	18	125	256 -14322	300.55
20	18	20	150	256 -14324	345.09

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
40º Helix - For Aluminium
Micro-grain K30 2-flute - Long Reach

Tolerance Cutting +0.00mm-.051mm



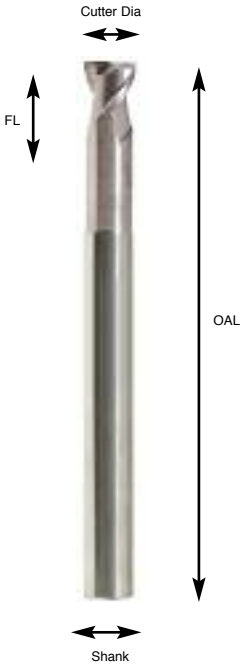
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	PART NUMBER	PRICE £
3	6	3	75	2.5	12	255 -12305	78.79
4	6	4	75	3.5	15	255 -12307	78.79
5	6	5	75	4.5	20	255 -12309	78.79
6	6	6	100	5	20	255 -12310	95.58
8	8	6	100	7	25	255 -12312	100.48
10	10	10	100	9	25	255 -12314	119.53
12	12	12	100	11	40	255 -12316	150.16
14	14	12	125	13	50	255 -12318	199.30
16	16	12	125	14	50	255 -12320	228.36
18	18	14	125	16	50	255 -12322	290.44
20	20	16	150	18	65	255 -12324	370.17

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
40º Helix - For Aluminium - *Extra Long*
Micro-grain K30 2-flute - Long Reach

Tolerance Cutting +0.00mm-.051mm



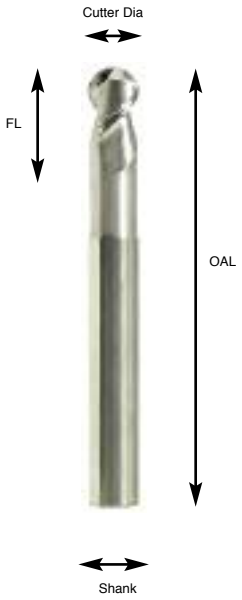
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	PART NUMBER	PRICE £
6	6	6	150	5	20	255 -12310XL	133.38
8	8	8	150	7	25	255 -12312XL	140.26
10	10	10	150	9	25	255 -12314XL	166.77
12	12	12	150	11	40	255 -12316XL	305.86
14	14	14	175	13	50	255 -12318XL	621.28
16	16	16	200	14	50	255 -12320XL	804.36
18	18	18	200	16	50	255 -12322XL	999.13
20	20	20	200	18	65	255 -12324XL	1191.69

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
50º Helix - For Aluminium
Micro-grain K30 2-flute Ball Nosed Long Reach

Tolerance Cutting +0.00mm-.051mm



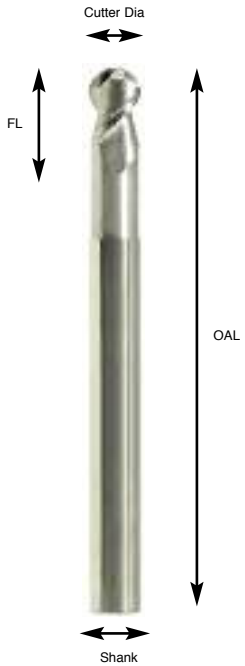
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	PART NUMBER	PRICE £
2	6	4	75	1.8	8	257 -13703	49.06
3	6	5	75	2.7	9	257 -13705	49.06
4	6	6	75	3.6	15	257 -13707	49.06
5	6	7	75	4.5	18	257 -13709	49.42
6	6	8	75	5	20	257 -13710	64.97
8	8	10	100	7	25	257 -13712	83.03
10	10	12	100	9	30	257 -13714	105.75
12	12	16	100	11	40	257 -13716	151.00
14	14	18	100	13	45	257 -13718	318.83
16	16	20	125	14	50	257 -13720	342.80
18	18	22	125	16	60	257 -13722	476.68
20	20	25	150	18	65	257 -13724	448.48

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
50º Helix - For Aluminium - *Extra Long*
Micro-grain K30 2-flute Ball Nosed Long Reach

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	PART NUMBER	PRICE £
6	6	8	150	5	20	257 -13710XL	156.84
8	8	10	150	7	25	257 -13712XL	167.66
10	10	12	150	9	25	257 -13714XL	180.15
12	12	16	150	11	40	257 -13716XL	330.34
14	14	18	175	13	50	257 -13718XL	671.04
16	16	20	200	14	50	257 -13720XL	868.70
18	18	22	200	16	50	257 -13722XL	1079.11
20	20	25	200	18	65	257 -13724XL	1272.82

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
50º Helix - For Aluminium
Micro-grain K30 2-flute BN Long Reduced Shank

Tolerance Cutting +0.00mm-.051mm

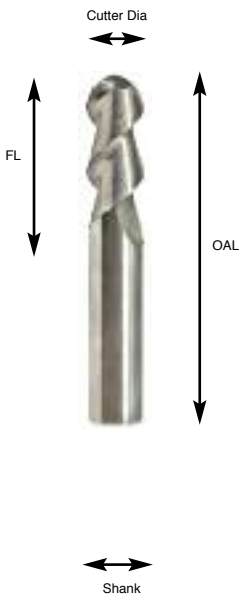
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	5	6	100	258 -13810	102.74
8	7	8	100	258 -13812	106.06
10	9	10	100	258 -13814	124.12
12	11	12	100	258 -13816	136.13
14	12	14	125	258 -13818	226.33
16	14	16	125	258 -13820	255.21
18	16	18	125	258 -13822	321.74
20	18	20	150	258 -13824	367.51

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 2-flute Ball Nosed Alumazip

Tolerance Cutting +0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	260 -13905	35.23
4	4	14	50	260 -13907	38.10
5	5	19	50	260 -13909	39.98
6	6	19	63	260 -13910	48.58
8	8	19	63	260 -13912	56.36
10	10	22	70	260 -13914	83.09
12	12	25	83	260 -13916	126.83
14	14	30	83	260 -13918	180.37
16	16	32	88	260 -13920	196.07
18	18	35	90	260 -13922	268.87
20	20	38	100	260 -13924	322.81

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 2-flute Alumazip Corner Radius

Tolerance Cutting +0.00mm-.051mm

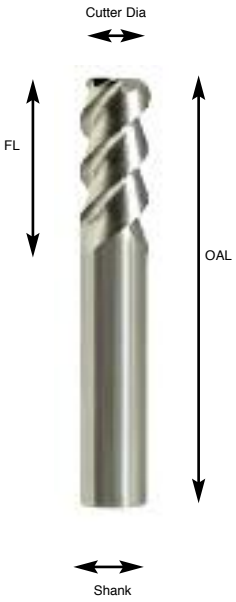
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
3	3	12	38	254 -11305-0.5R	0.5	43.57
3	3	12	38	254 -11305-1.0R	1.0	43.57
4	4	14	50	254 -11307-0.5R	0.5	49.86
4	4	14	50	254 -11307-1.0R	1.0	49.86
5	5	19	50	254 -11309-0.5R	0.5	54.17
5	5	19	50	254 -11309-1.0R	1.0	54.17
6	6	19	63	254 -11310-0.5R	0.5	60.01
6	6	19	63	254 -11310-1.0R	1.0	60.01
6	6	19	63	254 -11310-1.5R	1.5	60.01
6	6	19	63	254- 11310-2.0R	2.0	60.01
8	8	19	63	254 -11312-0.5R	0.5	75.59
8	8	19	63	254 -11312-1.0R	1.0	75.59
8	8	19	63	254 -11312-1.5R	1.5	75.59
8	8	19	63	254 -11312-2.0R	2.0	75.59
8	8	19	63	254 -11312-3.0R	3.0	75.59
10	10	22	70	254 -11314-0.5R	0.5	99.09
10	10	22	70	254 -11314-1.0R	1.0	99.09
10	10	22	70	254 -11314-1.5R	1.5	99.09
10	10	22	70	254 -11314-2.0R	2.0	99.09
10	10	22	70	254 -11314-3.0R	3.0	99.09
12	12	25	83	254 -11316-0.5R	0.5	127.78
12	12	25	83	254 -11316-1.0R	1.0	127.78
12	12	25	83	254 -11316-1.5R	1.5	127.78
12	12	25	83	254 -11316-2.0R	2.0	127.78
12	12	25	83	254 -11316-3.0R	3.0	127.78
14	14	30	83	254 -11318-0.5R	0.5	220.89
14	14	30	83	254 -11318-1.0R	1.0	220.89
16	16	32	88	254 -11320-0.5R	0.5	207.94
16	16	32	88	254 -11320-1.0R	1.0	207.94
16	16	32	88	254 -11320-1.5R	1.5	207.94
16	16	32	88	254 -11320-2.0R	2.0	207.94
16	16	32	88	254 -11320-3.0R	3.0	207.94
16	16	32	88	254 -11320-4.0R	4.0	207.94
18	18	35	88	254 -11322-0.5R	0.5	325.23
18	18	35	88	254 -11322-1.0R	1.0	325.23
20	20	38	100	254 -11324-0.5R	0.5	373.18
20	20	38	100	254 -11324-1.0R	1.0	373.18
20	20	38	100	254 -11324-1.5R	1.5	373.18
20	20	38	100	254 -11324-2.0R	2.0	373.18
20	20	38	100	254 -11324-3.0R	3.0	373.18
20	20	38	100	254 -11324-4.0R	4.0	373.18

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 3-flute Alumazip Corner Radius

Tolerance Cutting +0.00mm-.051mm



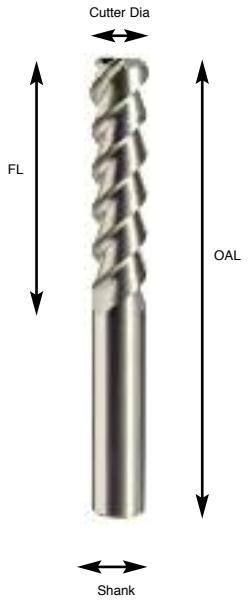
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
3	3	12	38	356 -13505-0.5R	0.5	43.56
3	3	12	38	356 -13505-1.0R	1.0	43.56
4	4	15	50	356 -13507-0.5R	0.5	49.86
4	4	15	50	356 -13507-1.0R	1.0	49.86
5	5	20	50	356 -13509-0.5R	0.5	54.16
5	5	20	50	356 -13509-1.0R	1.0	54.16
6	6	20	64	356 -13510-0.5R	0.5	60.00
6	6	20	64	356 -13510-1.0R	1.0	60.00
6	6	20	64	356 -13510-1.5R	1.5	60.00
6	6	20	64	356- 13510-2.0R	2.0	60.00
8	8	22	64	356 -13512-0.5R	0.5	75.59
8	8	22	64	356 -13512-1.0R	1.0	75.59
8	8	22	64	356 -13512-1.5R	1.5	75.59
8	8	22	64	356 -13512-2.0R	2.0	75.59
8	8	22	64	356 -13512-3.0R	3.0	75.59
10	10	25	70	356 -13514-0.5R	0.5	99.08
10	10	25	70	356 -13514-1.0R	1.0	99.08
10	10	25	70	356 -13514-1.5R	1.5	99.08
10	10	25	70	356 -13514-2.0R	2.0	99.08
10	10	25	70	356 -13514-3.0R	3.0	99.08
12	12	25	76	356 -13516-0.5R	0.5	127.77
12	12	25	76	356 -13516-1.0R	1.0	127.77
12	12	25	76	356 -13516-1.5R	1.5	127.77
12	12	25	76	356 -13516-2.0R	2.0	127.77
12	12	25	76	356 -13516-3.0R	3.0	127.77
14	14	30	90	356 -13518-0.5R	0.5	220.88
14	14	30	90	356 -13518-1.0R	1.0	220.88
16	16	35	90	356 -13520-0.5R	0.5	207.92
16	16	35	90	356 -13520-1.0R	1.0	207.92
16	16	35	90	356 -13520-1.5R	1.5	207.92
16	16	35	90	356 -13520-2.0R	2.0	207.92
16	16	35	90	356 -13520-3.0R	3.0	207.92
16	16	35	90	356 -13520-4.0R	4.0	207.92
18	18	35	90	356 -13522-0.5R	0.5	325.22
18	18	35	90	356 -13522-1.0R	1.0	325.22
20	20	40	100	356 -13524-0.5R	0.5	373.18
20	20	40	100	356 -13524-1.0R	1.0	373.18
20	20	40	100	356 -13524-1.5R	1.5	373.18
20	20	40	100	356 -13524-2.0R	2.0	373.18
20	20	40	100	356 -13524-3.0R	3.0	373.18
20	20	40	100	356 -13524-4.0R	4.0	373.18

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
55º Helix - For Aluminium
Micro-grain K30 3-flute Long Alumazip Corner Radius

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
3	3	15	75	357 -13605-0.5R	0.5	58.79
3	3	15	75	357 -13605-1.0R	1.0	58.79
4	4	20	75	357 -13607-0.5R	0.5	67.30
4	4	20	75	357 -13607-1.0R	1.0	67.30
5	5	25	75	357 -13609-0.5R	0.5	73.11
5	5	25	75	357 -13609-1.0R	1.0	73.11
6	6	35	100	357 -13610-0.5R	0.5	80.96
6	6	35	100	357 -13610-1.0R	1.0	80.96
6	6	35	100	357 -13610-1.5R	1.5	80.96
6	6	35	100	357- 13610-2.0R	2.0	80.96
8	8	45	100	357 -13612-0.5R	0.5	98.25
8	8	45	100	357 -13612-1.0R	1.0	98.25
8	8	45	100	357 -13612-1.5R	1.5	98.25
8	8	45	100	357 -13612-2.0R	2.0	98.25
8	8	45	100	357 -13612-3.0R	3.0	98.25
10	10	45	100	357 -13614-0.5R	0.5	123.83
10	10	45	100	357 -13614-1.0R	1.0	123.83
10	10	45	100	357 -13614-1.5R	1.5	123.83
10	10	45	100	357 -13614-2.0R	2.0	123.83
10	10	45	100	357 -13614-3.0R	3.0	123.83
12	12	50	100	357 -13616-0.5R	0.5	155.89
12	12	50	100	357 -13616-1.0R	1.0	155.89
12	12	50	100	357 -13616-1.5R	1.5	155.89
12	12	50	100	357 -13616-2.0R	2.0	155.89
12	12	50	100	357 -13616-3.0R	3.0	155.89
14	14	50	100	357 -13618-0.5R	0.5	285.77
14	14	50	100	357 -13618-1.0R	1.0	285.77
16	16	60	150	357 -13620-0.5R	0.5	244.65
16	16	60	150	357 -13620-1.0R	1.0	244.65
16	16	60	150	357 -13620-1.5R	1.5	244.65
16	16	60	150	357 -13620-2.0R	2.0	244.65
16	16	60	150	357 -13620-3.0R	3.0	244.65
16	16	60	150	357 -13620-4.0R	4.0	244.65
18	18	60	150	357 -13622-0.5R	0.5	271.00
18	18	60	150	357 -13622-1.0R	1.0	271.00
20	20	60	150	357 -13624-0.5R	0.5	449.28
20	20	60	150	357 -13624-1.0R	1.0	449.28
20	20	60	150	357 -13624-1.5R	1.5	449.28
20	20	60	150	357 -13624-2.0R	2.0	449.28
20	20	60	150	357 -13624-3.0R	3.0	449.28
20	20	60	150	357 -13624-4.0R	4.0	449.28

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
40º Helix - For Aluminium
Micro-grain K30 2-flute Long-Reach Corner Radius

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	NECK DIA.	REACH	CORNER RADIUS	PART NUMBER	PRICE £
3	6	3	75	2.5	12	0.5	255 -12305-0.5R	95.18
3	6	3	75	2.5	12	1.0	255 -12305-1.0R	95.18
4	6	4	75	3.5	15	0.5	255 -12307-0.5R	95.18
4	6	4	75	3.5	15	1.0	255 -12307-1.0R	95.18
5	6	5	75	4.5	20	0.5	255 -12309-0.5R	95.18
5	6	5	75	4.5	20	1.0	255 -12309-1.0R	95.18
6	6	6	100	5	20	0.5	255 -12310-0.5R	113.31
6	6	6	100	5	20	1.0	255 -12310-1.0R	113.31
6	6	6	100	5	20	1.5	255 -12310-1.5R	113.31
6	6	6	100	5	20	2.0	255 -12310-2.0R	113.31
8	8	8	100	7	25	0.5	255 -12312-0.5R	120.12
8	8	8	100	7	25	1.0	255 -12312-1.0R	120.12
8	8	8	100	7	25	1.5	255 -12312-1.5R	120.12
8	8	8	100	7	25	2.0	255 -12312-2.0R	120.12
8	8	8	100	7	25	3.0	255 -12312-3.0R	120.12
10	10	10	100	9	25	0.5	255 -12314-0.5R	137.78
10	10	10	100	9	25	1.0	255 -12314-1.0R	137.78
10	10	10	100	9	25	1.5	255 -12314-1.5R	137.78
10	10	10	100	9	25	2.0	255 -12314-2.0R	137.78
10	10	10	100	9	25	3.0	255 -12314-3.0R	137.78
12	12	12	100	11	40	0.5	255 -12316-0.5R	171.19
12	12	12	100	11	40	1.0	255 -12316-1.0R	171.19
12	12	12	100	11	40	1.5	255 -12316-1.5R	171.19
12	12	12	100	11	40	2.0	255 -12316-2.0R	171.19
12	12	12	100	11	40	3.0	255 -12316-3.0R	171.19
14	14	14	125	13	50	0.5	255 -12318-0.5R	210.77
14	14	14	125	13	50	1.0	255 -12318-1.0R	210.77
16	16	16	125	14	50	0.5	255 -12320-0.5R	302.21
16	16	16	125	14	50	1.0	255 -12320-1.0R	302.21
16	16	16	125	14	50	1.5	255 -12320-1.5R	302.21
16	16	16	125	14	50	2.0	255 -12320-2.0R	302.21
16	16	16	125	14	50	3.0	255 -12320-3.0R	302.21
16	16	16	125	14	50	4.0	255 -12320-4.0R	302.21
20	20	20	150	18	65	0.5	255 -12324-0.5R	439.27
20	20	20	150	18	65	1.0	255 -12324-1.0R	439.27
20	20	20	150	18	65	1.5	255 -12324-1.5R	439.27
20	20	20	150	18	65	2.0	255 -12324-2.0R	439.27
20	20	20	150	18	65	3.0	255 -12324-3.0R	439.27
20	20	20	150	18	65	4.0	255 -12324-4.0R	439.27

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - H/S/M
40º Helix - For Aluminium
Micro-grain K30 2-flute Ali-Carb

Tolerance Cutting
+0.00mm-.051mm

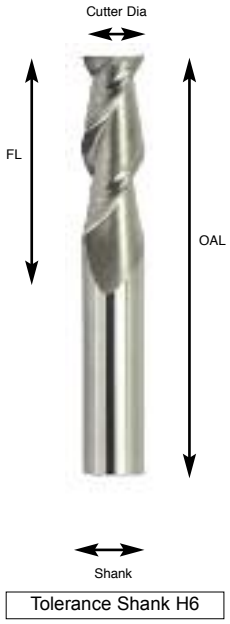
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	19	63	253 -10310	88.30
8	8	21	63	253 -10312	125.83
10	10	25	70	253 -10314	125.83
12	12	26	76	253 -10316	207.43
16	16	32	89	253 -10320	393.76
20	20	38	102	253 -10324	880.41

For technical information see page 192 - 197

Performance Solid Carbide - Bright Finish
45º Helix for Aluminium
Micro-grain K30 2-flute Hi-Helix

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	25	63	625 -10310	66.13
8	8	25	63	625 -10312	78.73
10	10	25	70	625 -10314	99.12
12	12	32	75	625 -10316	131.96
16	16	42	88	625 -10320	321.63
20	20	48	100	625 -10324	360.35

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute
V4 - Eccentric Relief

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	691 -25905	38.45
4	4	14	50	691 -25907	47.18
5	5	16	50	691 -25909	47.67
6	6	19	63	691 -25910	54.72
8	8	19	63	691 -25912	68.58
10	10	22	70	691 -25914	104.72
12	12	25	75	691 -25916	139.47
14	14	25	88	691 -25918	194.52
16	16	32	88	691 -25920	216.00
18	18	36	100	691 -25922	317.95
20	20	38	100	691 -25924	404.61
25	25	38	100	691 -25929	588.44

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Long
V4 - Eccentric Relief

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	20	65	692 -28905	63.97
4	4	20	65	692 -28907	68.13
5	5	20	75	692 -28909	75.19
6	6	25	75	692 -28910	88.97
8	8	25	75	692 -28912	121.07
10	10	38	100	692 -28914	174.87
12	12	50	100	692 -28916	231.49
14	14	56	125	692 -28918	254.60
16	16	56	150	692 -28920	430.44
18	18	56	150	692 -28922	538.31
20	20	56	150	692 -28924	813.26
25	25	70	150	692 -28929	956.69

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Corner Radius
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
3	3	12	38	691 -25905.25R	.25-.38	58.93
4	4	14	50	691 -25907.25R	.25-.38	68.85
5	5	16	50	691 -25909.25R	.25-.38	68.85
6	6	19	63	691 -25910.38R	.38-.51	71.69
8	8	19	63	691 -25912.38R	.38-.51	92.94
10	10	22	70	691 -25914.38R	.38-.51	118.38
12	12	25	75	691 -25916.64R	.64-.76	179.65
14	14	25	88	691 -25918.64R	.64-.76	204.26
16	16	32	88	691 -25920.76R	.76-.89	267.60
18	18	36	100	691 -25922.76R	.76-.89	382.64
20	20	38	100	691 -25924.76R	.76-.89	425.95
25	25	38	100	691 -25929.76R	.76-.89	609.12

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Long Corner Radius
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
3	3	20	65	692 -28905.25R	.25-.38	70.34
4	4	20	65	692 -28907.25R	.25-.38	78.68
5	5	20	75	692 -28909.25R	.25-.38	82.71
6	6	25	75	692 -28910.38R	.38-.51	97.84
8	8	25	75	692 -28912.38R	.38-.51	133.20
10	10	38	100	692 -28914.38R	.38-.51	192.36
12	12	50	100	692 -28916.64R	.64-.76	254.60
14	14	56	125	692 -28918.64R	.64-.76	280.08
16	16	56	150	692 -28920.76R	.76-.89	473.51
18	18	56	150	692 -28922.76R	.76-.89	592.17
20	20	56	150	692 -28924.76R	.76-.89	894.57
25	25	70	150	692 -28929.76R	.76-.89	1052.40

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Ball Nosed
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	693 -27905	37.42
4	4	14	50	693 -27907	47.67
5	5	16	50	693 -27909	55.71
6	6	19	63	693 -27910	61.51
8	8	19	63	693 -27912	78.99
10	10	22	70	693 -27914	132.51
12	12	25	75	693 -27916	169.03
14	14	25	88	693 -27918	289.97
16	16	32	88	693 -27920	315.96
18	18	36	100	693 -27922	421.72
20	20	38	100	693 -27924	546.68
25	25	38	100	693 -27929	656.03

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Ball Nosed Long
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	20	65	694 -26905	66.88
4	4	20	65	694 -26907	74.63
5	5	20	75	694 -26909	88.32
6	6	25	75	694 -26910	106.87
8	8	25	75	694 -26912	145.12
10	10	38	100	694 -26914	209.85
12	12	50	100	694 -26916	277.48
14	14	56	125	694 -26918	305.22
16	16	56	150	694 -26920	523.40
18	18	56	150	694 -26922	646.01
20	20	56	150	694 -26924	884.82
25	25	70	150	694 -26929	1146.71

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00"-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/8"	1/8"	3/8"	1-1/2"	695 -05908	28.54
3/16"	3/16"	7/16"	2"	695 -05912	39.03
1/4"	1/4"	5/8"	2-1/2"	695 -05916	57.71
5/16"	5/16"	13/16"	2-1/2"	695 -05920	68.31
3/8"	3/8"	7/8"	2-1/2"	695 -05924	85.37
7/16"	7/16"	1"	2-3/4"	695 -05928	115.04
1/2"	1/2"	1"	3"	695 -05932	140.69
9/16"	9/16"	1-1/8"	3-1/2"	695 -05936	185.56
5/8"	5/8"	1-1/4"	3-1/2"	695 -05940	252.30
3/4"	3/4"	1-1/2"	4"	695 -05948	326.83
1"	1"	1-1/2"	4"	695 -05964	583.91

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Long
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00"-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/4"	1/4"	1-1/8"	3"	696 -08916	68.14
3/8"	3/8"	1-1/8"	3"	696 -08924	92.76
1/2"	1/2"	2"	4"	696 -08932	149.17
5/8"	5/8"	2-1/4"	5"	696 -08940	344.56
3/4"	3/4"	2-1/4"	5"	696 -08948	606.46

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Corner Radius
V4 - Eccentric Relief

Tolerance Cutting +0.00"-0.002"

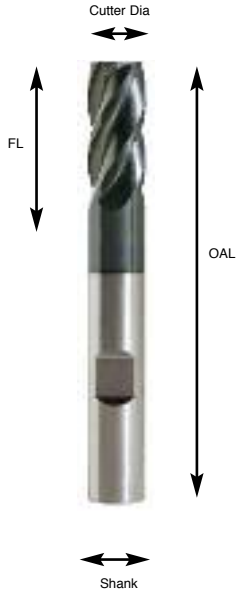
Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
1/8"	1/8"	3/8"	1-1/2"	695 -05908.010R	.010-.015	37.06
3/16"	3/16"	7/16"	2"	695 -05912.010R	.010-.015	50.71
1/4"	1/4"	5/8"	2-1/2"	695 -05916.015R	.015-.020	75.03
5/16"	5/16"	13/16"	2-1/2"	695 -05920.015R	.015-.020	88.79
3/8"	3/8"	7/8"	2-1/2"	695 -05924.015R	.015-.020	110.98
7/16"	7/16"	1"	2-3/4"	695 -05928.015R	.015-.020	149.56
1/2"	1/2"	1"	3"	695 -05932.025R	.025-.030	182.90
9/16"	9/16"	1-1/8"	3-1/2"	695 -05936.025R	.025-.030	241.23
5/8"	5/8"	1-1/4"	3-1/2"	695 -05940.035R	.035-0.40	327.99
3/4"	3/4"	1-1/2"	4"	695 -05948.035R	.035-0.40	424.86
1"	1"	1-1/2"	4"	695 -05964.035R	.035-0.40	759.07

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Long Corner Radius
V4 - Eccentric Relief

Tolerance Cutting +0.00"-0.002"



Tolerance Shank H6

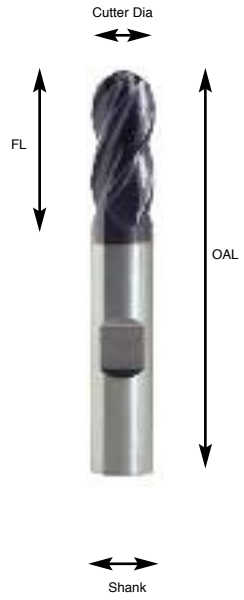
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	PRICE £
1/4"	1/4"	1-1/8"	3"	696 -08916.015R	.015-.020	89.93
3/8"	3/8"	1-1/8"	3"	696 -08924.015R	.015-.020	122.44
1/2"	1/2"	2"	4"	696 -08932.025R	.025-.030	196.88
5/8"	5/8"	2-1/4"	5"	696 -08940.030R	.030-.035	455.14
3/4"	3/4"	2-1/4"	5"	696 -08948.030R	.030-.035	667.10

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Ball Nosed
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00"-0.002"



Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/8"	1/8"	3/8"	1-1/2"	697 -07908	34.51
3/16"	3/16"	7/16"	2"	697 -07912	47.21
1/4"	1/4"	5/8"	2-1/2"	697 -07916	69.81
5/16"	5/16"	13/16"	2-1/2"	697 -07920	82.65
3/8"	3/8"	7/8"	2-1/2"	697 -07924	103.85
7/16"	7/16"	1"	2-3/4"	697 -07928	139.20
1/2"	1/2"	1"	3"	697 -07932	170.26
9/16"	9/16"	1-1/8"	3-1/2"	697 -07936	224.55
5/8"	5/8"	1-1/4"	3-1/2"	697 -07940	305.29
3/4"	3/4"	1-1/2"	4"	697 -07948	395.48
1"	1"	1-1/2"	4"	697 -07964	706.50

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
Centre Cutting - Variable Helix - Weldon Flat
Micro-grain K30 4-Flute Ball Nosed Long
V4 - Eccentric Relief

V4

Tolerance Cutting +0.00"-0.002"

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/4"	1/4"	1-1/8"	3"	698 -06916	82.45
3/8"	3/8"	1-1/8"	3"	698 -06924	112.23
1/2"	1/2"	2"	4"	698 -06932	193.90
5/8"	5/8"	2-1/4"	5"	698 -06940	416.95
3/4"	3/4"	2-1/4"	5"	698 -06948	733.82

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
50º Helix High Speed Machining
Micro-grain K30 Multi-Flute Corner Radius

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	No. Of Flutes	PRICE £
6	6	18	58	610 -11710-0.5R	0.5	6	79.07
6	6	18	58	610 -11710-1.0R	1.0	6	79.07
8	8	24	63	610 -11712-0.5R	0.5	6	102.16
8	8	24	63	610 -11712-1.0R	1.0	6	102.16
10	10	30	75	610 -11714-0.5R	0.5	6	147.64
10	10	30	75	610 -11714-1.0R	1.0	6	147.64
12	12	36	84	610 -11716-0.5R	0.5	6	183.02
12	12	36	84	610 -11716-1.0R	1.0	6	183.02
14	14	42	84	610 -11718-0.5R	0.5	6	270.26
14	14	42	84	610 -11718-1.0R	1.0	6	270.26
16	16	48	93	610 -11720-0.5R	0.5	8	290.38
16	16	48	93	610 -11720-1.0R	1.0	8	290.38
18	18	54	100	610 -11722-0.5R	0.5	8	397.96
18	18	54	100	610 -11722-1.0R	1.0	8	397.96
20	20	60	105	610 -11724-0.5R	0.5	8	439.73
20	20	60	105	610 -11724-1.0R	1.0	8	439.73

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
50º Helix High Speed Machining - Long
Micro-grain K30 Multi-Flute Corner Radius

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	Corner Radius	No. Of Flutes	PRICE £
6	6	32	75	620 -11710-0.5R	0.5	6	116.29
6	6	32	75	620 -11710-1.0R	1.0	6	116.29
8	8	32	75	620 -11712-0.5R	0.5	6	135.82
8	8	32	75	620 -11712-1.0R	1.0	6	135.82
10	10	50	100	620 -11714-0.5R	0.5	6	178.05
10	10	50	100	620 -11714-1.0R	1.0	6	178.05
12	12	50	100	620 -11716-0.5R	0.5	6	217.15
12	12	50	100	620 -11716-1.0R	1.0	6	217.15
14	14	50	100	620 -11718-0.5R	0.5	6	312.68
14	14	50	100	620 -11718-1.0R	1.0	6	312.68
16	16	62	125	620 -11720-0.5R	0.5	8	340.28
16	16	62	125	620 -11720-1.0R	1.0	8	340.28
18	18	62	125	620 -11722-0.5R	0.5	8	481.83
18	18	62	125	620 -11722-1.0R	1.0	8	481.83
20	20	65	130	620 -11724-0.5R	0.5	8	557.67
20	20	65	130	620 -11724-1.0R	1.0	8	557.67

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
50º Helix High Speed Machining
Micro-grain K30 Multi-Flute

Tolerance Cutting +0.00mm-.051mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. Of Flutes	PRICE £
3	6	10	63	680 -10905	4	53.11
4	6	12	63	680 -10907	4	63.10
6	6	15	63	680 -10910	6	67.63
8	8	20	75	680 -10912	6	95.86
10	10	25	80	680 -10914	6	124.24
12	12	30	100	680 -10916	6	153.12
14	14	30	100	680 -10918	8	258.42
16	16	40	110	680 -10920	8	271.58
18	18	45	125	680 -10922	10	418.60
20	20	45	125	680 -10924	10	436.84
25	25	45	125	680 -10929	10	632.39

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
50º Helix Power Mill
Micro-grain K30 4-Flute

Tolerance Cutting +0.00mm-.038mm

Tolerance Shank H6

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
4	6	12	60	690 -10107	108.77
6	6	15	60	690 -10110	122.81
8	8	20	75	690 -10112	135.66
10	10	25	80	690 -10114	228.85
12	12	30	102	690 -10116	318.19
16	16	40	110	690 -10120	623.14
20	20	45	125	690 -10124	875.91

For technical information see page 192 - 197

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix Short Length-Long Neck
Micro-grain K30 2-flute

Tolerance Cutting
+.000mm-.025mm

Tolerance Shank H6

CUTTER DIA. X AVAILABLE MILLING DEPTH	SHANK DIA	FL	OAL	NECK DIA.	PART NUMBER	PRICE £
0.5 x 2.5	6	0.7	60	0.45	700 -20305	104.48
0.6 x 3	6	0.9	60	0.55	700 -20306	104.48
0.8 x 4	6	1.2	60	0.75	700 -20308	104.48
1 x 5	6	1.5	60	0.95	700 -20301	104.48
1.2 x 6	6	1.8	60	1.15	700 -20312	104.48
1.4 x 7	6	2.1	60	1.35	700 -20314	104.48
1.5 x 7.5	6	2.3	60	1.45	700 -20315	90.04
1.6 x 8	6	2.4	60	1.55	700 -20316	90.04
1.8 x 9	6	2.7	60	1.75	700 -20318	90.04
2 x 10	6	3	60	1.95	700 -20320	90.04
2.5 x 12.5	6	3.7	60	2.4	700 -20325	90.04

For technical information see page 71

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix Short Length-Long Neck
Micro-grain K30 4-flute

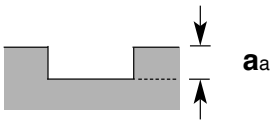
Tolerance Cutting
+.000mm-.038mm

Tolerance Shank H6

CUTTER DIA. X AVAILABLE MILLING DEPTH	SHANK DIA	FL	OAL	NECK DIA.	PART NUMBER	PRICE £
3 x 15	6	4.5	70	2.85	705 -20505	81.57
3.5 x 17.5	6	5.3	70	3.35	705 -20506	84.35
4 x 20	6	6	70	3.85	705 -20507	81.92
5 x 25	6	7.5	80	4.85	705 -20509	87.62
6 x 30	6	9	90	5.85	705 -20510	94.08

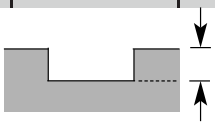
For technical information see page 71

Ultra-High Performance Solid Carbide - *TiALN* Suggested Speed and Feed Data Slotting - Series 700

Hardness	Tensile Strength Up to 750N/mm²	Up to 30 HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Mild Steel Carbon Steels Cast Iron	Alloy Steels Tool Steels Ti Alloys (annealed)	Hardened Steels Prehardened Steels Ti Alloys (Solution Treated and Aged)	Hardened Steels Prehardened Steels Stainless Steels Inconel Ni Based Alloys	Hardened Steels Heat Resistant	Hardened Steels
Depth of Cut						
	V=80 m/min	V=65 m/min	V=55 m/min	V=50 m/min	V=30 m/min	V=15 m/min
Mill Dia. (mm)	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min
0.5	32,000 / 250	32,000 / 200	32,000 / 200	30,500 / 150	19,000 / 80	10,000 / 30
0.6	32,000 / 300	32,000 / 250	29,500 / 220	25,000 / 200	15,500 / 80	8,450 / 30
0.8	31,500 / 400	27,000 / 350	22,000 / 250	19,000 / 200	11,500 / 80	6,350 / 30
1	26,500 / 500	21,500 / 450	17,500 / 350	15,000 / 250	9,500 / 80	5,050 / 30
1.5	17,500 / 600	14,000 / 500	11,500 / 400	10,000 / 250	6,350 / 80	3,350 / 30
2	13,000 / 600	10,500 / 500	8,900 / 400	7,600 / 250	4,750 / 80	2,500 / 30
2.5	10,500 / 600	8,650 / 500	7,100 / 400	6,100 / 250	3,800 / 80	2,000 / 30

Note: For Side Milling, Increase Feeds 20% to 50%

Ultra-High Performance Solid Carbide - *TiALN* Suggested Speed and Feed Data Slotting - Series 705

Hardness	Tensile Strength Up to 750N/mm²	Up to 30 HRC	30 to 38 HRC	38 to 45 HRC	45 to 55 HRC	55 to 60 HRC
Work Material	Mild Steel Carbon Steels Cast Iron	Alloy Steels Tool Steels	Hardened Steels Prehardened Steels (Free-Cutting)	Hardened Steels Prehardened Steels (Nonfree-Cutting)	Hardened Steels	Hardened Steels
Depth of Cut						
Mill Dia. (mm)	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min	Speed RPM / Feed mm/min
3	8,900 / 1,000	7,200 / 700	5,900 / 500	5,100 / 400	3,200 / 150	2,100 / 50
4	6,700 / 1,000	5,400 / 700	4,500 / 500	3,800 / 400	2,400 / 150	1,600 / 50
5	5,300 / 1,000	4,300 / 700	3,600 / 500	3,100 / 400	1,900 / 150	1,300 / 50
6	4,500 / 1,000	3,600 / 700	3,000 / 500	2,500 / 400	1,600 / 150	1,100 / 50

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix Centre Cutting
Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting
1mm thru 3mm
+.000mm -.025mm
3.5mm thru 6mm
+.000mm -.038mm

Tolerance Shank H6

CUTTER DIA. X AVAILABLE MILLING DEPTH	SHANK DIA	FL	OAL	NECK DIA.	PART NUMBER	PRICE £
1 x 2.5	6	1	50	0.95	710 -20601	151.89
1.2 x 3	6	1.2	50	1.15	710 -20612	151.89
1.4 x 7	6	1.4	50	1.35	710 -20614	177.42
1.5 x 3.8	6	1.5	50	1.45	710 -20615	158.53
1.6 x 4	6	1.6	50	1.55	710 -20616	177.42
1.8 x 4.5	6	1.8	50	1.75	710 -20618	177.42
2 x 5	6	2	50	1.95	710 -20620	158.53
2.5 x 5	6	2.5	50	2.4	710 -20625	169.38
3 x 6	6	3	50	2.85	710 -20630	169.38
3.5 x 6	6	3.5	50	3.35	710 -20635	186.87
4 x 6	6	4	50	3.85	710 -20640	169.38
5 x 7.5	6	5	50	4.85	710 -20650	180.38
6 x 9	6	6	50	5.85	710 -20660	191.49

For technical information see page 74 - 75

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix Centre Cutting - Long Neck Mill
Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting
.5mm thru 3mm
+.000mm -.025mm
3.5mm thru 6mm
+.000mm -.038mm

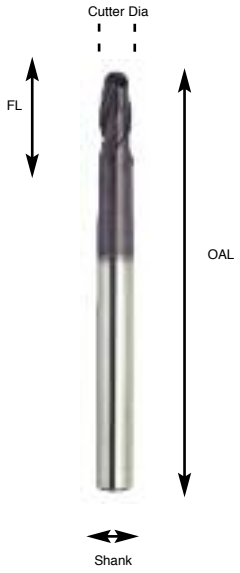
Tolerance Shank H6

CUTTER DIA. X AVAILABLE MILLING DEPTH	SHANK DIA	FL	OAL	NECK DIA.	PART NUMBER	PRICE £
0.5 x 2.5	6	0.5	60	0.45	715 -20705	115.77
0.6 x 3	6	0.6	60	0.55	715 -20706	115.77
0.8 x 4	6	0.8	60	0.75	715 -20708	115.77
1 x 5	6	1	60	0.95	715 -20701	106.85
1.2 x 6	6	1.2	60	1.15	715 -20712	106.85
1.4 x 7	6	1.4	60	1.35	715 -20714	124.49
1.5 x 7.5	6	1.5	60	1.45	715 -20715	106.85
1.6 x 8	6	1.6	60	1.55	715 -20716	124.49
1.8 x 9	6	1.8	60	1.75	715 -20718	124.49
2 x 10	6	2	60	1.95	715 -20720	106.85
2.5 x 12.5	6	2.5	60	2.4	715 -20725	116.01
3 x 15	6	3	70	2.85	715 -20730	116.01
3.5 x 17.5	6	3.5	70	3.35	715 -20735	124.65
4 x 20	6	4	70	3.85	715 -20740	116.01
5 x 25	6	5	80	4.85	715 -20750	124.57
6 x 30	6	6	90	5.85	715 -20760	133.96

For technical information see page 74 - 75

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix Centre Cutting - Pencil Neck
Micro-grain K30 2-flute Ball Nosed

Tolerance Cutting
1mm thru 3mm
+.000mm -.025mm
4mm thru 12mm
+.000mm -.038mm

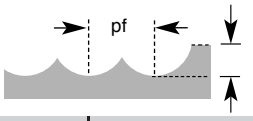


Tolerance Shank H6

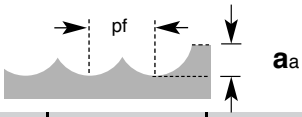
DIA	SHANK DIA	FL	OAL	NECK MAJOR DIA	NECK LENGTH	NON-TAPER NECK LENGTH	NECK INCLINE	PART NUMBER	PRICE £
1	6	2.5	60	3.8	20	4	5º	720 -27501	89.05
1	6	2.5	80	4.8	40	4	3º	720 -27601	97.99
1	6	2.5	70	1.8	20	4	1º 30'	720 -27701	106.85
2	6	5	60	4.3	20	7	5º	720 -27503	89.05
2	6	5	80	5.5	40	7	3º	720 -27603	106.85
2	6	5	70	2.7	20	7	1º 30'	720 -27703	97.99
3	6	8	70	5	30	10.5	3º	720 -27505	97.99
3	6	8	90	5.1	50	10.5	1º 30'	720 -27605	106.85
4	6	8	70	6	28	10.5	3º	720 -27507	106.85
4	6	8	90	6	48	10.5	1º 30'	720 -27607	115.77
5	8	10	90	8	40	12.5	3º	720 -27509	124.65
5	8	10	110	7.5	60	12.5	1º 30'	720 -27609	133.56
6	8	12	90	8	33.5	14.5	3º	720 -27510	151.36
6	8	12	110	8	52	14.5	1º 30'	720 -27610	160.25
8	10	14	100	10	35.5	16.5	3º	720 -27512	186.95
8	10	14	120	10	54.5	16.5	1º 30'	720 -27612	195.86
10	12	18	110	12	39.5	20.5	3º	720 -27514	273.01
10	12	18	130	12	58.5	20.5	1º 30'	720 -27614	287.47
12	16	22	140	16	60	25	3º	720 -27516	409.48
12	16	22	160	14.9	80	25	1º 30'	720 -27616	447.26

For technical information see page 74 - 75

Ultra-High Performance Solid Carbide - TiALN
Suggested Speed and Feed Data
High Speed Light Milling - Series 710, 715, 720

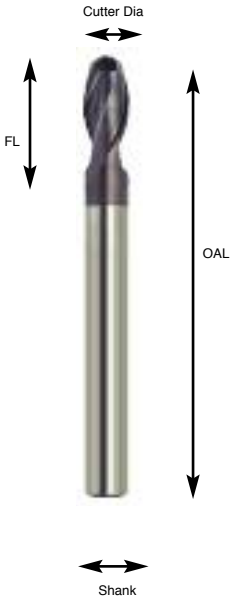
Hardness	Tensile Strength Up to 750N/mm^2		Up to 30 HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Cast Iron		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Prehardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Prehardened Steels Stainles Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Depth of Cut												
	V=290 m/min		V=250 m/min		V=220 m/min		V=175 m/min		V=175 m/min		V=120 m/min	
Mill Dia. (mm)	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min	Speed RPM	Feed mm/min
0.5	50,000	1,450	50,000	1,400	50,000	1,400	50,000	1,200	32,000	735	32,000	735
0.6	50,000	1,650	50,000	1,650	50,000	1,650	50,000	1,400	32,000	880	32,000	880
0.8	50,000	2,200	50,000	2,200	50,000	2,000	50,000	1,900	32,000	1,150	32,000	1,000
1	50,000	2,800	50,000	2,800	50,000	2,500	47,500	2,250	32,000	1,450	25,000	1,000
1.2	45,450	2,970	43,900	2,800	43,730	2,500	41,600	2,250	28,300	1,475	21,925	1,000
1.4	45,450	2,970	43,900	2,800	43,730	2,500	41,600	2,250	28,300	1,475	21,925	1,000
1.5	40,890	3,145	37,790	2,800	37,450	2,500	35,690	2,250	24,610	1,500	18,850	1,000
1.6	33,340	3,320	31,950	2,800	31,170	2,500	29,780	2,250	20,920	1,525	15,770	1,000
1.8	36,340	3,320	31,950	2,800	31,170	2,500	29,780	2,250	20,920	1,525	15,770	1,000
2	31,780	3,489	25,385	2,800	24,890	2,500	23,875	2,250	17,225	1,548	12,690	1,000
2.5	26,128	3,512	20,855	2,853	20,358	2,522	19,513	2,268	14,113	1,580	10,523	1,009
3	20,475	3,535	16,325	2,905	15,825	2,543	15,150	2,285	11,000	1,611	8,355	1,017
3.5	19,280	3,614	15,925	3,143	15,425	2,643	14,353	2,364	11,000	1,750	8,158	1,057
4	18,085	3,693	15,525	3,381	15,025	2,742	13,555	2,443	11,000	1,889	7,960	1,096
5	15,415	4,127	14,755	4,089	13,600	2,876	10,755	2,292	9,915	2,123	7,435	1,192
6	14,380	4,598	12,880	4,107	11,050	2,636	9,080	2,153	9,080	2,153	6,305	1,104
8	11,600	3,685	10,100	3,234	9,025	2,120	7,215	1,717	7,215	1,717	5,000	898
10	9,250	2,920	8,025	2,528	6,950	1,652	5,540	1,310	5,540	1,310	3,840	690
12	7,540	2,377	6,510	2,045	5,650	1,330	4,500	1,054	4,500	1,054	3,125	558

Ultra-High Performance Solid Carbide - TiALN
Suggested Speed and Feed Data
Profiling - Series 710, 715, 720

Hardness		Tensile Strength Up to 750N/mm^2		Up to 30 HRC		31 to 38 HRC		39 to 45 HRC		46 to 55 HRC		56 to 60 HRC	
Work Material	Cast Iron	Mild Steels Carbon Steels		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Prehardened Steels Ti Alloys (Solution Treated and Aged)		Hardened Steels Prehardened Steels Stainles Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Depth of Cut													
	V=175 m/min		V=140 m/min		V=115 m/min		V=90 m/min		V=80 m/min		V=70 m/min		V=50 m/min	
Mill Dia.	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
(mm)	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min
0.5	38,400	750	38,400	750	38,400	600	38,400	380	38,400	300	45,860	200	33,600	150
0.6	38,400	810	38,400	810	38,400	660	38,400	400	38,400	320	45,860	220	33,600	155
0.8	38,400	900	38,400	900	38,400	710	38,400	420	38,400	330	28,680	240	21,000	160
1	38,400	915	38,400	915	37,800	740	30,000	480	26,400	340	22,800	250	16,800	165
1.2	35,890	965	34,560	915	33,080	740	26,310	480	23,150	340	19,990	250	14,780	165
1.4	35,890	965	34,560	915	33,080	740	26,310	480	23,150	340	19,990	250	14,780	165
1.5	33,380	1,020	30,720	915	28,350	740	22,620	480	19,900	340	17,190	250	12,750	165
1.6	30,865	1,070	26,880	915	23,625	740	18,925	480	16,650	340	14,380	250	10,725	165
1.8	29,533	1,098	24,840	915	21,113	740	16,963	480	14,925	340	12,890	250	9,653	165
2	28,350	1,120	23,040	915	18,900	740	15,230	480	13,400	345	11,570	250	8,700	165
2.5	23,055	1,123	18,705	915	15,480	748	12,460	485	10,945	355	9,425	255	7,070	170
3	17,760	1,125	14,370	915	12,060	755	9,690	490	8,490	360	7,280	260	5,440	175
3.5	15,855	1,125	12,935	915	10,845	755	8,690	510	7,605	400	6,520	290	4,870	190
4	13,950	1,125	11,500	915	9,630	755	7,690	530	6,720	440	5,760	320	4,300	205
5	11,100	1,260	8,880	1,025	7,410	765	5,890	535	5,190	445	4,430	340	3,320	210
6	9,120	1,310	7,280	1,065	6,070	825	4,810	575	4,230	480	3,610	360	2,690	225
8	7,210	1,550	5,760	1,250	4,780	940	3,810	660	3,330	540	2,850	385	2,110	250
10	5,540	1,420	4,430	1,130	3,680	880	2,920	620	2,560	515	2,200	395	1,630	245
12	4,500	1,295	3,580	1,030	3,010	825	2,390	580	2,090	495	1,770	365	1,310	230

Ultra-High Performance Solid Carbide - *TiALN*
30º Helix
Micro-grain K30 2-Flute Ball Nosed

Tolerance Cutting
1mm thru 3mm
+.000mm-.025mm
3.5mm thru 25mm
+.000mm-.038mm

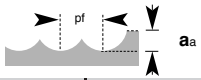


Tolerance Shank H6

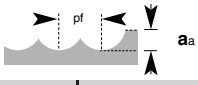
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	4	2.5	50	725 -27801	72.91
1.2	4	3	50	725 -27802	91.11
1.4	4	3.5	50	725 -27803	91.11
1.5	4	4	50	725 -27804	72.91
1.6	4	4	50	725 -27805	91.11
1.8	4	4.5	50	725 -27806	91.11
2	6	5	50	725 -27807	72.91
2.5	6	6	60	725 -27808	103.90
3	6	8	60	725 -27809	74.19
3.5	6	8	70	725 -27810	113.02
4	6	8	70	725 -27811	82.01
4	4	8	60	725 -27812	82.01
4.5	6	10	80	725 -27813	118.46
5	6	12	80	725 -27814	82.01
5.5	6	12	90	725 -27815	118.46
6	6	14	90	725 -27816	91.11
6.5	6	14	90	725 -27817	136.66
7	6	14	90	725 -27818	149.44
7.5	6	14	90	725 -27819	163.96
8	8	14	100	725 -27820	136.66
8.5	8	18	100	725 -27821	182.18
9	8	18	100	725 -27822	200.41
9.5	8	18	100	725 -27823	218.61
10	10	18	100	725 -27824	139.64
11	10	22	100	725 -27825	245.93
12	12	22	110	725 -27826	187.69
13	12	26	110	725 -27827	300.58
14	12	26	110	725 -27828	364.34
15	12	30	110	725 -27829	400.78
16	16	30	140	725 -27830	455.41
18	16	34	140	725 -27831	592.01
20	20	38	160	725 -27832	573.80
25	25	50	180	725 -27833	1183.99

For technical information see page 77

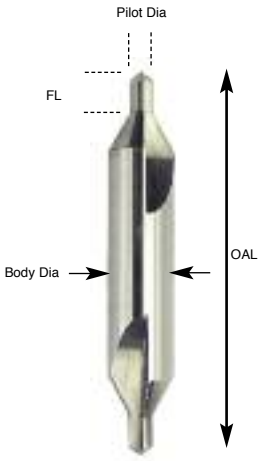
Ultra-High Performance Solid Carbide - *TiALN*
Suggested Speed and Feed Data
High Speed Light Milling - Series 725

Hardness	Tensile Strength Up to 750N/mm²		Up to 30 HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Cast Iron		Alloy Steels Tool Steels Ti Alloys (Annealed)		Hardened Steels Prehardened steels Ti Alloys (Solution treated ans aged)		Hardened Steels Prehardened steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		Hardened Steels	
Depth of Cut												
	V=300 m/min		V=260 m/min		V=225 m/min		V=180 m/min		V=180 m/min		V=125 m/min	
Mill Dia.	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
(mm)	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min
1	50,000	2,800	50,000	2,800	50,000	2,500	47,500	2,250	32,000	1,450	25,000	1,000
2	31,780	3,480	25,385	2,800	24,890	2,500	23,875	2,250	17,225	1,540	12,690	1,000
3	20, 475	3,530	16,325	2,900	15,825	2,540	15,150	2,280	11,000	1,610	8,355	1,010
4	18,085	3,690	15,525	3,380	15,025	2,740	13,555	2,440	11,000	1,880	7,960	1,090
5	15,415	4,120	14,755	4,080	13,600	2,870	10,755	2,290	9,915	2,120	7,435	1,190
6	14,380	4,590	12,880	4,100	11,050	2,630	9,080	2,150	9,080	2,150	6,305	1,100
8	11,600	3,680	10,100	3,230	9,025	2,120	7,215	1,710	7,215	1,710	5,000	890
10	9,250	2,920	8,025	2,520	6,950	1,650	5,540	1,310	5,540	1,310	3,840	690
12	7,540	2,370	6,510	2,040	5,650	1,330	4,500	1,050	4,500	1,050	3,125	550
14	6,800	2,150	5,900	1,850	5,100	1,200	4,050	970	4,050	970	2,800	500
16	6,000	1,910	5,190	1,610	4,485	1,050	3,575	850	3,575	850	2,465	440
18	5,300	1,650	4,550	1,450	3,950	940	3,150	750	3,150	750	2,200	390
20	4,890	1,540	4,215	1,340	3,650	870	2,925	700	2,925	700	2,010	360
22	4,255	1,350	3,710	1,170	3,190	760	2,550	610	2,550	610	1,755	310
25	3,740	1,180	3,250	1,030	2,805	670	2,215	530	2,215	530	1,525	270

Ultra-High Performance Solid Carbide - *TiALN*
Suggested Speed and Feed Data
Profiling - Series 725

Hardness		Tensile Strength Up to 750N/mm²		Up to 30 HRC		30 to 38 HRC		38 to 45 HRC		45 to 55 HRC		55 to 60 HRC	
Work Material	Cast Iron		Mild Steels Carbon Steels		Alloy Steels Prehardened steels Ti Alloys (Annealed)		Hardened Steels Prehardened steels Ti Alloys (Solution treated ans aged)		Hardened Steels Hardened Steels Stainless Steels Inconel Ni Based Alloys		Hardened Steels		
Depth of Cut													
	V=175 m/min		V=140 m/min		V=115 m/min		V=95 m/min		V= 80 m/min		V=70 m/min		V=50 m/min	
Mill Dia.	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed	Speed	Feed
(mm)	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min	RPM	mm/min
1	38,400	915	38,400	915	37,800	740	30,000	480	26,400	340	22,800	250	16,800	165
2	28,355	1,120	23,040	915	18,900	740	15,230	480	13,400	345	11,570	250	8,705	165
3	17,760	1,125	14,370	915	12,060	755	9,695	490	8,490	360	7,280	260	5,445	175
4	13,950	1,125	11,505	915	9,630	755	7,695	530	6,725	440	5,760	320	4,300	205
5	11,100	1,260	8,880	1,025	7,415	765	5,890	535	5,195	445	4,430	340	3,320	210
6	9,120	1,310	7,280	1,065	6,070	825	4,815	575	4,235	480	3,610	360	2,690	225
8	7,210	1,550	5,760	1,250	4,785	940	3,815	660	3,330	540	2,850	385	2,115	250
10	5,540	1,420	4,430	1,130	3,680	880	2,920	620	2,565	515	2,205	395	1,630	245
12	4,505	1,295	3,585	1,030	3,010	825	2,390	580	2,090	495	1,775	365	1,310	230
14	4,080	1,260	3,240	1,035	2,700	810	2,160	570	1,860	465	1,620	360	1,200	225
16	3,570	1,260	2,840	1,005	2,355	755	1,875	570	1,630	455	1,390	325	1,080	220
18	3,180	1,200	2,520	950	2,100	730	1,680	570	1,440	455	1,260	310	950	210
20	2,915	1,145	2,340	925	1,920	695	1,545	545	1,350	445	1,175	300	880	205
22	2,540	1,065	2,130	855	1,775	615	1,365	485	1,185	400	1,025	270	765	195
25	2,240	930	1,775	795	1,475	550	1,180	425	1,050	345	900	245	670	170

Solid Carbide General Purpose - Bright Finish
60º Helix Including Point Angle
Micro-grain K30 - Centre Drills

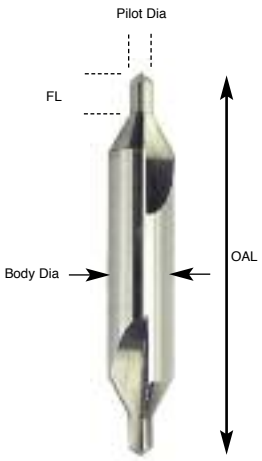


PILOT DIA	BODY DIA	FL	OAL	PART NUMBER	TOOL	PRICE £
3/64"	1/8"	3/64"	1-1/4"	106 -01608	1	31.29
5/64"	3/16"	5/64"	1-7/8"	106 -01612	2	38.92
7/64"	1/4"	7/64"	2"	106 -01616	3	53.52
1/8"	5/16"	1/8"	2-1/8"	106 -01620	4	73.34
3/16"	7/16"	3/16"	2-3/4"	106 -01628	5	110.63
7/32"	1/2"	7/32"	3"	106 -01632	6	151.36

For technical information see page 198 - 199

Tolerance Body
+0.000/-0.0005”

Solid Carbide General Purpose - Bright Finish
60º Helix Including Point Angle
Micro-grain K30 - Centre Drills



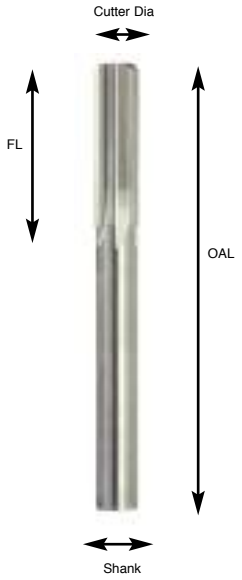
PILOT DIA	BODY DIA	FL	OAL	PART NUMBER	PRICE £
1.6	4	2.4	35.50	107 -01708	39.37
2	5	2.9	40	107 -01712	53.05
2.5	6.3	3.6	45	107 -01716	54.72
3.15	8	5.6	50	107 -01720	73.09
4	10	5.6	56	107 -01728	103.68
5	12.5	6.9	63	107 -01732	153.93

For technical information see page 198 - 199

Tolerance Body
+0.000/-0.013mm

Solid Carbide General Purpose
Straight Flute
Micro-grain K30 - Reamers

Tolerance Cutting H7



Tolerance Shank
+0.000/-0.025mm

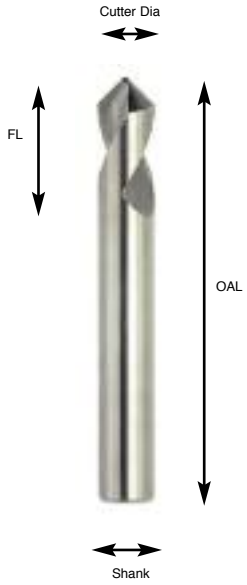
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	1.59	12.7	50.8	108 -01802	4	43.65
2.5	2.38	15.88	57.15	108 -01825	4	46.53
3	2.78	15.88	57.15	108 -01803	4	48.96
3.5	3.18	19.05	63.5	108 -01835	4	52.23
4	3.57	19.05	63.5	108 -01804	4	59.61
4.5	3.97	22.23	69.85	108 -01845	4	65.21
5	4.76	25.4	76.2	108 -01805	6	74.15
5.5	4.76	25.4	76.2	108 -01855	6	79.71
6	5.56	25.4	76.2	108 -01806	6	87.08
6.5	6.35	28.58	82.55	108 -01865	6	95.82
7	6.35	28.58	82.55	108 -01807	6	103.55
7.5	7.14	28.58	82.55	108 -01875	6	116.77
8	7.14	28.58	82.55	108 -01808	6	120.63
8.5	7.94	31.75	88.9	108 -01885	6	142.06
9	8.73	31.75	88.9	108 -01809	6	143.17
9.5	8.73	31.75	88.9	108 -01895	6	146.68
10	9.53	38.1	101.6	108 -01810	6	149.06
10.5	10.32	38.1	101.6	108 -11815	6	156.52
11	10.32	38.1	101.6	108 -01811	6	159.01
11.5	11.11	38.1	101.6	108 -11820	6	163.63
12	11.11	38.1	101.6	108 -01812	6	180.87
12.5	11.91	38.1	101.6	108 -11825	6	190.02

SUGGESTED SPEEDS/FEEDS (Surface m/min - mm/rev)

Material	Speed m/min	Feed mm/rev
Steel		
Rockwell C60 or harder	.2 - 6	.025 - .075
Rockwell C50 - 59	.4 - 8	.050 - .100
Rockwell C40 - 49	.6 - 12	.075 - .150
Rockwell C30 - 39	.10 - 20	.100 - .200
Rockwell C29 and under	18 - 27	.125 - .250
Cast Iron, Malleable Iron	15 - 26	.125 - .250
Non-Ferrous Metals	27 - 55	.125 - .300

Tool Dia	Suggested Stock Removal
1 - 3	0.08 - 0.16
.3 - 6	0.16 - 0.20
.6 - 10	0.20 - 0.30
.10 - 12.5	0.25 - 0.38

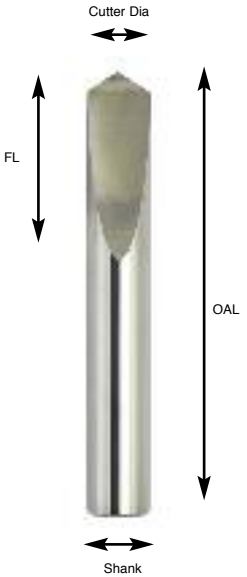
Solid Carbide General Purpose
90º & 120º Point - 30º Helix
Micro-grain K30 - NC Spotting Drills



CUTTER DIA	DEGREE POINT	FL	OAL	PART NUMBER	PRICE £
3	90	10	38	109 -01903	29.27
4	90	18	63	109 -01904	32.70
5	90	15	63	109 -01905	33.13
6	90	20	63	109 -01906	40.75
8	90	20	63	109 -01908	53.37
10	90	25	75	109 -01910	87.23
12	90	25	75	109 -01912	114.25
14	90	26	88	109 -01914	134.05
16	90	28	100	109 -01916	162.17
20	90	30	102	109 -01920	294.61
3	120	10	38	110 -01903	29.27
4	120	18	63	110 -01904	32.70
5	120	15	63	110 -01905	33.13
6	120	20	63	110 -01906	40.75
8	120	20	63	110 -01908	53.37
10	120	25	75	110 -01910	87.23
12	120	25	75	110 -01912	114.25
14	120	26	88	110 -01914	134.05
16	120	28	100	110 -01916	162.17
20	120	30	102	110 -01920	294.61

For technical information see page 198 - 199

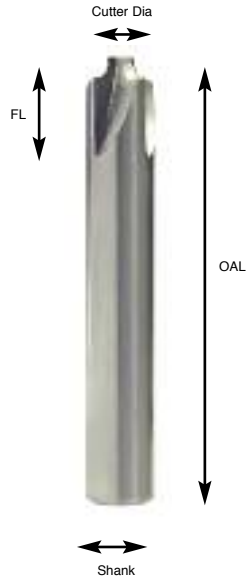
Solid Carbide General Purpose
118º Angle
Micro-grain K30 - Spade Drill



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	3	12	38	111 -33305	18.79
4	4	17	50	111 -33307	23.24
6	6	20	50	111 -33310	36.33
8	8	22	63	111 -33312	53.30
10	10	28	63	111 -33314	71.32
12	12	32	75	111 -33316	109.03

Solid Carbide General Purpose
90º Radius Plus Run Out
Micro-grain K30 4-flute Corner Rounding

Tolerance Cutting
+0.000mm-.051mm

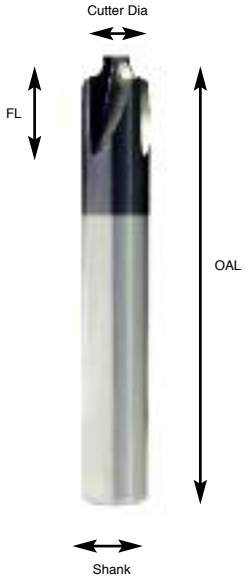


Tolerance Shank H6

RADIUS	OAL	SHANK DIA	PART NUMBER	PRICE £
0.5	64	8	112 -41105	87.86
1.0	64	8	112 -41110	87.86
1.5	70	10	112 -41115	95.18
2.0	70	10	112 -41120	95.18
2.5	76	12	112 -41125	101.82
3.0	76	12	112 -41130	101.82
3.5	89	16	112 -41135	155.70
4.0	89	16	112 -41140	155.70
4.5	89	16	112 -41145	155.70
5.0	89	16	112 -41150	155.70
5.5	100	20	112 -41155	233.70
6.0	100	20	112 -41160	233.70

High Performance Solid Carbide - *TiALN*
90º Radius Plus Run Out
Micro-grain K30 Corner Rounding

Tolerance Cutting
+0.00mm-.051mm



Tolerance Shank H6

Radius	OAL	SHANK DIA	PART NUMBER	PRICE £
0.5	64	8	122 -41105	122.61
1.0	64	8	122 -41110	122.61
1.5	70	10	122 -41115	132.80
2.0	70	10	122 -41120	132.80
2.5	76	12	122 -41125	142.56
3.0	76	12	122 -41130	142.56
3.5	89	16	122 -41135	193.79
4.0	89	16	122 -41140	193.79
4.5	89	16	122 -41145	193.79
5.0	89	16	122 -41150	193.79
5.5	100	20	122 -41155	271.78
6.0	100	20	122 -41160	271.78

Solid Carbide General Purpose - Bright Finish
Chamfer Tool
Micro-grain K30 - 4 flute

CUTTER DIA	SHANK DIA	OAL	ANGLE	PART NUMBER	PRICE £
4	4	50	60º	113 -42260	40.22
4	4	50	82º	113 -42282	40.22
4	4	50	90º	113 -42290	40.22
5	5	50	60º	113 -52260	56.67
5	5	50	82º	113 -52282	56.67
5	5	50	90º	113 -52290	56.67
6	6	64	60º	113 -62260	66.79
6	6	64	82º	113 -62282	66.79
6	6	64	90º	113 -62290	66.79
8	8	64	60º	113 -82260	78.26
8	8	64	82º	113 -82282	78.26
8	8	64	90º	113 -82290	78.26
10	10	70	60º	113 -10260	93.43
10	10	70	82º	113 -10282	93.43
10	10	70	90º	113 -10290	93.43
12	12	76	60º	113 -12260	124.45
12	12	76	82º	113 -12282	124.45
12	12	76	90º	113 -12290	124.45

Perfomance - Solid Carbide - *TiALN*
Chamfer Tool
Micro-grain K30 - 4 flute

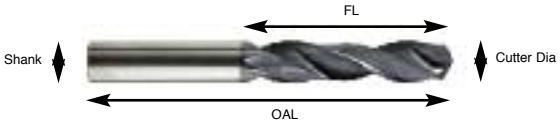
CUTTER DIA	SHANK DIA	OAL	ANGLE	PART NUMBER	PRICE £
4	4	50	60º	114 -42260	50.54
4	4	50	82º	114 -42282	50.54
4	4	50	90º	114 -42290	50.54
5	5	50	60º	114 -52260	71.00
5	5	50	82º	114 -52282	71.00
5	5	50	90º	114 -52290	71.00
6	6	64	60º	114 -62260	83.49
6	6	64	82º	114 -62282	83.49
6	6	64	90º	114 -62290	83.49
8	8	64	60º	114 -82260	97.89
8	8	64	82º	114 -82282	97.89
8	8	64	90º	114 -82290	97.89
10	10	70	60º	114 -10260	116.29
10	10	70	82º	114 -10282	116.29
10	10	70	90º	114 -10290	116.29
12	12	76	60º	114 -12260	156.70
12	12	76	82º	114 -12282	156.70
12	12	76	90º	114 -12290	156.70

Solid Carbide General Purpose - Countersinks
60º 82º 90º Included Point Angle
Micro-grain K30 1,3,6 Flutes

CUTTER DIA	SHANK DIA	FL	No. Of Flutes	Point Angle	PART NUMBER	PRICE £
3	3	38	1	60°	C-018160	23.57
3	3	38	1	82°	C-018182	23.57
3	3	38	1	90°	C-018190	23.57
3	3	38	3	60°	C-018360	23.57
3	3	38	3	82°	C-018382	23.57
3	3	38	3	90°	C-018390	23.57
3	3	38	6	60°	C-018660	23.57
3	3	38	6	82°	C-018682	23.57
3	3	38	6	90°	C-018690	23.57
5	5	50	1	60°	C-316160	25.33
5	5	50	1	82°	C-316182	25.33
5	5	50	1	90°	C-316190	25.33
5	5	50	3	60°	C-316360	25.33
5	5	50	3	82°	C-316382	25.33
5	5	50	3	90°	C-316390	25.33
5	5	50	6	60°	C-316660	25.33
5	5	50	6	82°	C-316682	25.33
5	5	50	6	90°	C-316690	25.33
6	6	50	1	60°	C-014160	28.43
6	6	50	1	82°	C-014182	28.43
6	6	50	1	90°	C-014190	28.43
6	6	50	3	60°	C-014360	28.43
6	6	50	3	82°	C-014382	28.43
6	6	50	3	90°	C-014390	28.43
6	6	50	6	60°	C-014660	28.43
6	6	50	6	82°	C-014682	28.43
6	6	50	6	90°	C-014690	28.43
9.5	6	66	1	60°	C-038160	45.35
9.5	6	66	1	82°	C-038182	45.35
9.5	6	66	1	90°	C-038190	45.35
9.5	6	66	3	60°	C-038360	45.35
9.5	6	66	3	82°	C-038382	45.35
9.5	6	66	3	90°	C-038390	45.35
9.5	6	66	6	60°	C-038660	45.35
9.5	6	66	6	82°	C-038682	45.35
9.5	6	66	6	90°	C-038690	45.35

CUTTER DIA	SHANK DIA	FL	No. Of Flutes	Point Angle	PART NUMBER	PRICE £
12.7	6	72	1	60°	C-012160	65.21
12.7	6	72	1	82°	C-012182	65.21
12.7	6	72	1	90°	C-012190	65.21
12.7	6	72	3	60°	C-012360	65.21
12.7	6	72	3	82°	C-012382	65.21
12.7	6	72	3	90°	C-012392	65.21
12.7	6	72	6	60°	C-012660	65.21
12.7	6	72	6	82°	C-012682	65.21
12.7	6	72	6	90°	C-012690	65.21
16	8	75	1	60°	C-058160	83.41
16	8	75	1	82°	C-058182	83.41
16	8	75	1	90°	C-058190	83.41
16	8	75	3	60°	C-058360	83.41
16	8	75	3	82°	C-058382	83.41
16	8	75	3	90°	C-058390	83.41
16	8	75	6	60°	C-058660	83.41
16	8	75	6	82°	C-058682	83.41
16	8	75	6	90°	C-058690	83.41
19	8	75	1	60°	C-034160	129.55
19	8	75	1	82°	C-034182	129.55
19	8	75	1	90°	C-034190	129.55
19	8	75	3	60°	C-034360	129.55
19	8	75	3	82°	C-034382	129.55
19	8	75	3	90°	C-034390	129.55
19	8	75	6	60°	C-034660	129.55
19	8	75	6	82°	C-034682	129.55
19	8	75	6	90°	C-034690	129.55
25	8	83	1	60°	C-001160	241.91
25	8	83	1	82°	C-001182	241.91
25	8	83	1	90°	C-001190	241.91
25	8	83	3	60°	C-001360	241.91
25	8	83	3	82°	C-001382	241.91
25	8	83	3	90°	C-001390	241.91
25	8	83	6	60°	C-001660	241.91
25	8	83	6	82°	C-001682	241.91
25	8	83	6	90°	C-001690	241.91

Performance Solid Carbide Drills - *TiALN* - (DIN) 6537 3xD without coolant 140º Point Angle - 30º Helix Micro-grain K30



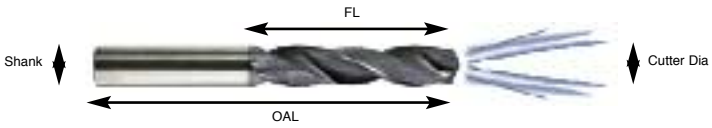
SOLID
Without through holes

Tolerance Shank h6
Tolerance Cutting m7

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
3	20	62	6	123 -XD300	51.89
3.1	20	62	6	123 -XD310	51.89
3.2	20	62	6	123 -XD320	51.89
3.3	20	62	6	123 -XD330	51.89
3.4	20	62	6	123 -XD340	51.89
3.5	20	62	6	123 -XD350	51.89
3.6	20	62	6	123 -XD360	51.89
3.7	20	62	6	123 -XD370	51.89
3.8	24	66	6	123 -XD380	51.89
3.9	24	66	6	123 -XD390	51.89
4	24	66	6	123 -XD400	51.89
4.1	24	66	6	123 -XD410	51.89
4.2	24	66	6	123 -XD420	51.89
4.3	24	66	6	123 -XD430	51.89
4.4	24	66	6	123 -XD440	51.89
4.5	24	66	6	123 -XD450	51.89
4.6	24	66	6	123 -XD460	51.89
4.7	24	66	6	123 -XD470	51.89
4.8	28	66	6	123 -XD480	51.89
4.9	28	66	6	123 -XD490	51.89
5	28	66	6	123 -XD500	51.89
5.1	28	66	6	123 -XD510	51.89
5.2	28	66	6	123 -XD520	51.89
5.3	28	66	6	123 -XD530	51.89
5.4	28	66	6	123 -XD540	51.89
5.5	28	66	6	123 -XD550	51.89
5.6	28	66	6	123 -XD560	51.89
5.7	28	66	6	123 -XD570	51.89
5.8	28	66	6	123 -XD580	51.89
5.9	28	66	6	123 -XD590	51.89
6	28	66	6	123 -XD600	51.89
6.1	34	79	8	123 -XD610	61.46
6.2	34	79	8	123 -XD620	61.46
6.3	34	79	8	123 -XD630	61.46
6.4	34	79	8	123 -XD640	61.46
6.5	34	79	8	123 -XD650	61.46
6.6	34	79	8	123 -XD660	61.46
6.7	34	79	8	123 -XD670	61.46
6.8	34	79	8	123 -XD680	61.46
6.9	34	79	8	123 -XD690	61.46
7	34	79	8	123 -XD700	61.46
7.1	41	79	8	123 -XD710	61.46
7.2	41	79	8	123 -XD720	61.46
7.3	41	79	8	123 -XD730	61.46
7.4	41	79	8	123 -XD740	61.46
7.5	41	79	8	123 -XD750	61.46
7.6	41	79	8	123 -XD760	61.46
7.7	41	79	8	123 -XD770	61.46
7.8	41	79	8	123 -XD780	61.46
7.9	41	79	8	123 -XD790	61.46
8	41	79	8	123 -XD800	61.46
8.1	47	89	10	123 -XD810	70.26
8.2	47	89	10	123 -XD820	70.26
8.3	47	89	10	123 -XD830	70.26
8.4	47	89	10	123 -XD840	70.26
8.5	47	89	10	123 -XD850	70.26
8.6	47	89	10	123 -XD860	70.26
8.7	47	89	10	123 -XD870	70.26
8.8	47	89	10	123 -XD880	70.26
8.9	47	89	10	123 -XD890	70.26
9	47	89	10	123 -XD900	70.26
9.1	47	89	10	123 -XD910	70.26
9.2	47	89	10	123 -XD920	70.26
9.3	47	89	10	123 -XD930	70.26
9.4	47	89	10	123 -XD940	70.26
9.5	47	89	10	123 -XD950	70.26
9.6	47	89	10	123 -XD960	70.26
9.7	47	89	10	123 -XD970	70.26
9.8	47	89	10	123 -XD980	70.26
9.9	47	89	10	123 -XD990	70.26
10	47	89	10	123 -XD100	70.26
10.1	55	102	12	123 -XD101	100.81
10.2	55	102	12	123 -XD102	100.81
10.3	55	102	12	123 -XD103	100.81
10.4	55	102	12	123 -XD104	100.81
10.5	55	102	12	123 -XD105	100.81
10.6	55	102	12	123 -XD106	100.81
10.7	55	102	12	123 -XD107	100.81
10.8	55	102	12	123 -XD108	100.81
10.9	55	102	12	123 -XD109	100.81
11	55	102	12	123 -XD110	100.81
11.1	55	102	12	123 -XD111	100.81
11.2	55	102	12	123 -XD112	100.81
11.3	55	102	12	123 -XD113	100.81
11.4	55	102	12	123 -XD114	100.81
11.5	55	102	12	123- XD115	100.81
11.6	55	102	12	123 -XD116	100.81
11.7	55	102	12	123 -XD117	100.81
11.8	55	102	12	123 -XD118	100.81
11.9	55	102	12	123 -XD119	100.81
12	55	102	12	123 -XD120	100.81
12.5	60	107	14	123 -XD125	132.26
13	60	107	14	123 -XD130	132.26
13.5	60	107	14	123 -XD135	132.26
14	60	107	14	123 -XD140	132.26
14.5	65	115	16	123 -XD145	177.75
15	65	115	16	123 -XD150	177.75
15.5	65	115	16	123 -XD155	177.75
16	65	115	16	123 -XD160	177.75
16.5	73	123	18	123 -XD165	229.49
17	73	123	18	123 -XD170	229.49
17.5	73	123	18	123 -XD175	229.49
18	73	123	18	123 -XD180	229.49
18.5	79	131	20	123 -XD185	293.70
19	79	131	20	123 -XD190	293.70
19.5	79	131	20	123 -XD195	293.70
20	79	131	20	123 -XD200	293.70

For technical information see page 206

Performance Solid Carbide Drills - *TiALN* - (DIN) 6537
3xD with coolant 140º Point Angle - 30º Helix
Micro-grain K30



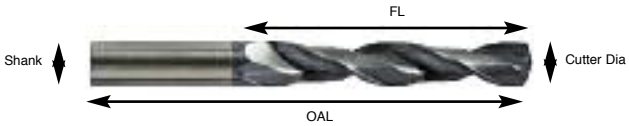
COOLANT
With through holes

Tolerance Shank h6
Tolerance Cutting m7

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
3	20	62	6	133 -XD300	67.87
3.1	20	62	6	133 -XD310	67.87
3.2	20	62	6	133 -XD320	67.87
3.3	20	62	6	133 -XD330	67.87
3.4	20	62	6	133 -XD340	67.87
3.5	20	62	6	133 -XD350	67.87
3.6	20	62	6	133 -XD360	67.87
3.7	20	62	6	133 -XD370	67.87
3.8	24	66	6	133 -XD380	67.87
3.9	24	66	6	133 -XD390	67.87
4	24	66	6	133 -XD400	67.87
4.1	24	66	6	133 -XD410	67.87
4.2	24	66	6	133 -XD420	67.87
4.3	24	66	6	133 -XD430	67.87
4.4	24	66	6	133 -XD440	67.87
4.5	24	66	6	133 -XD450	67.87
4.6	24	66	6	133 -XD460	67.87
4.7	24	66	6	133 -XD470	67.87
4.8	28	66	6	133 -XD480	67.87
4.9	28	66	6	133 -XD490	67.87
5	28	66	6	133 -XD500	67.87
5.1	28	66	6	133 -XD510	67.87
5.2	28	66	6	133 -XD520	67.87
5.3	28	66	6	133 -XD530	67.87
5.4	28	66	6	133 -XD540	67.87
5.5	28	66	6	133 -XD550	67.87
5.6	28	66	6	133 -XD560	67.87
5.7	28	66	6	133 -XD570	67.87
5.8	28	66	6	133 -XD580	67.87
5.9	28	66	6	133 -XD590	67.87
6	28	66	6	133 -XD600	67.87
6.1	34	79	8	133 -XD610	94.06
6.2	34	79	8	133 -XD620	94.06
6.3	34	79	8	133 -XD630	94.06
6.4	34	79	8	133 -XD640	94.06
6.5	34	79	8	133 -XD650	94.06
6.6	34	79	8	133 -XD660	94.06
6.7	34	79	8	133 -XD670	94.06
6.8	34	79	8	133 -XD680	94.06
6.9	34	79	8	133 -XD690	94.06
7	34	79	8	133 -XD700	94.06
7.1	41	79	8	133 -XD710	94.06
7.2	41	79	8	133 -XD720	94.06
7.3	41	79	8	133 -XD730	94.06
7.4	41	79	8	133 -XD740	94.06
7.5	41	79	8	133 -XD750	94.06
7.6	41	79	8	133 -XD760	94.06
7.7	41	79	8	133 -XD770	94.06
7.8	41	79	8	133 -XD780	94.06
7.9	41	79	8	133 -XD790	94.06
8	41	79	8	133 -XD800	94.06
8.1	47	89	10	133 -XD810	123.21
8.2	47	89	10	133 -XD820	123.21
8.3	47	89	10	133 -XD830	123.21
8.4	47	89	10	133 -XD840	123.21
8.5	47	89	10	133 -XD850	123.21
8.6	47	89	10	133 -XD860	123.21
8.7	47	89	10	133 -XD870	123.21
8.8	47	89	10	133 -XD880	123.21
8.9	47	89	10	133 -XD890	123.21
9	47	89	10	133 -XD900	123.21
9.1	47	89	10	133 -XD910	123.21
9.2	47	89	10	133 -XD920	123.21
9.3	47	89	10	133 -XD930	123.21
9.4	47	89	10	133 -XD940	123.21
9.5	47	89	10	133 -XD950	123.21
9.6	47	89	10	133 -XD960	123.21
9.7	47	89	10	133 -XD970	123.21
9.8	47	89	10	133 -XD980	123.21
9.9	47	89	10	133 -XD990	123.21
10	47	89	10	133 -XD100	123.21
10.1	55	102	12	133 -XD101	165.54
10.2	55	102	12	133 -XD102	165.54
10.3	55	102	12	133 -XD103	165.54
10.4	55	102	12	133 -XD104	165.54
10.5	55	102	12	133 -XD105	165.54
10.6	55	102	12	133 -XD106	165.54
10.7	55	102	12	133 -XD107	165.54
10.8	55	102	12	133 -XD108	165.54
10.9	55	102	12	133 -XD109	165.54
11	55	102	12	133 -XD110	165.54
11.1	55	102	12	133 -XD111	165.54
11.2	55	102	12	133 -XD112	165.54
11.3	55	102	12	133 -XD113	165.54
11.4	55	102	12	133 -XD114	165.54
11.5	55	102	12	133- XD115	165.54
11.6	55	102	12	133 -XD116	165.54
11.7	55	102	12	133 -XD117	165.54
11.8	55	102	12	133 -XD118	165.54
11.9	55	102	12	133 -XD119	165.54
12	55	102	12	133 -XD120	165.54
12.5	60	107	14	133 -XD125	238.40
13	60	107	14	133 -XD130	238.40
13.5	60	107	14	133 -XD135	238.40
14	60	107	14	133 -XD140	238.40
14.5	65	115	16	133 -XD145	311.71
15	65	115	16	133 -XD150	311.71
15.5	65	115	16	133 -XD155	311.71
16	65	115	16	133 -XD160	311.71
16.5	73	123	18	133 -XD165	426.24
17	73	123	18	133 -XD170	426.24
17.5	73	123	18	133 -XD175	426.24
18	73	123	18	133 -XD180	426.24
18.5	79	131	20	133 -XD185	516.01
19	79	131	20	133 -XD190	516.01
19.5	79	131	20	133 -XD195	516.01
20	79	131	20	133 -XD200	516.01

For technical information see page 206

Performance Solid Carbide Drills - *TiALN* - (DIN) 6537
5xD without coolant 140º Point Angle - 30º Helix
Micro-grain K30



SOLID
Without through holes

Tolerance Shank h6
Tolerance Cutting m7

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
3	28	66	6	125 -XD300	66.14
3.1	28	66	6	125 -XD310	66.14
3.2	28	66	6	125 -XD320	66.14
3.3	28	66	6	125 -XD330	66.14
3.4	28	66	6	125 -XD340	66.14
3.5	28	66	6	125 -XD350	66.14
3.6	28	66	6	125 -XD360	66.14
3.7	28	66	6	125 -XD370	66.14
3.8	36	74	6	125 -XD380	66.14
3.9	36	74	6	125 -XD390	66.14
4	36	74	6	125 -XD400	66.14
4.1	36	74	6	125 -XD410	66.14
4.2	36	74	6	125 -XD420	66.14
4.3	36	74	6	125 -XD430	66.14
4.4	36	74	6	125 -XD440	66.14
4.5	36	74	6	125 -XD450	66.14
4.6	36	74	6	125 -XD460	66.14
4.7	44	82	6	125 -XD470	66.14
4.8	44	82	6	125 -XD480	66.14
4.9	44	82	6	125 -XD490	66.14
5	44	82	6	125 -XD500	66.14
5.1	44	82	6	125 -XD510	66.14
5.2	44	82	6	125 -XD520	66.14
5.3	44	82	6	125 -XD530	66.14
5.4	44	82	6	125 -XD540	66.14
5.5	44	82	6	125 -XD550	66.14
5.6	44	82	6	125 -XD560	66.14
5.7	44	82	6	125 -XD570	66.14
5.8	44	82	6	125 -XD580	66.14
5.9	44	82	6	125 -XD590	66.14
6	44	82	6	125 -XD600	66.14
6.1	53	91	8	125 -XD610	72.50
6.2	53	91	8	125 -XD620	72.50
6.3	53	91	8	125 -XD630	72.50
6.4	53	91	8	125 -XD640	72.50
6.5	53	91	8	125 -XD650	72.50
6.6	53	91	8	125 -XD660	72.50
6.7	53	91	8	125 -XD670	72.50
6.8	53	91	8	125 -XD680	72.50
6.9	53	91	8	125 -XD690	72.50
7	53	91	8	125 -XD700	72.50
7.1	53	91	8	125 -XD710	72.50
7.2	53	91	8	125 -XD720	72.50
7.3	53	91	8	125 -XD730	72.50
7.4	53	91	8	125 -XD740	72.50
7.5	53	91	8	125 -XD750	72.50
7.6	53	91	8	125 -XD760	72.50
7.7	53	91	8	125 -XD770	72.50
7.8	53	91	8	125 -XD780	72.50
7.9	53	91	8	125 -XD790	72.50
8	53	91	8	125 -XD800	72.50
8.1	61	103	10	125 -XD810	84.08
8.2	61	103	10	125 -XD820	84.08
8.3	61	103	10	125 -XD830	84.08
8.4	61	103	10	125 -XD840	84.08
8.5	61	103	10	125 -XD850	84.08
8.6	61	103	10	125 -XD860	84.08
8.7	61	103	10	125 -XD870	84.08
8.8	61	103	10	125 -XD880	84.08
8.9	61	103	10	125 -XD890	84.08
9	61	103	10	125 -XD900	84.08
9.1	61	103	10	125 -XD910	84.08
9.2	61	103	10	125 -XD920	84.08
9.3	61	103	10	125 -XD930	84.08
9.4	61	103	10	125 -XD940	84.08
9.5	61	103	10	125 -XD950	84.08
9.6	61	103	10	125 -XD960	84.08
9.7	61	103	10	125 -XD970	84.08
9.8	61	103	10	125 -XD980	84.08
9.9	61	103	10	125 -XD990	84.08
10	61	103	10	125 -XD100	84.08
10.1	71	118	12	125 -XD101	118.66
10.2	71	118	12	125 -XD102	118.66
10.3	71	118	12	125 -XD103	118.66
10.4	71	118	12	125 -XD104	118.66
10.5	71	118	12	125 -XD105	118.66
10.6	71	118	12	125 -XD106	118.66
10.7	71	118	12	125 -XD107	118.66
10.8	71	118	12	125 -XD108	118.66
10.9	71	118	12	125 -XD109	118.66
11	71	118	12	125 -XD110	118.66
11.1	71	118	12	125 -XD111	118.66
11.2	71	118	12	125 -XD112	118.66
11.3	71	118	12	125 -XD113	118.66
11.4	71	118	12	125 -XD114	118.66
11.5	71	118	12	125- XD115	118.66
11.6	71	118	12	125 -XD116	118.66
11.7	71	118	12	125 -XD117	118.66
11.8	71	118	12	125 -XD118	118.66
11.9	71	118	12	125 -XD119	118.66
12	71	118	12	125 -XD120	118.66
12.5	77	124	14	125 -XD125	158.35
13	77	124	14	125 -XD130	158.35
13.5	77	124	14	125 -XD135	158.35
14	77	124	14	125 -XD140	158.35
14.5	83	133	16	125 -XD145	200.05
15	83	133	16	125 -XD150	200.05
15.5	83	133	16	125 -XD155	200.05
16	83	133	16	125 -XD160	200.05
16.5	93	143	18	125 -XD165	284.36
17	93	143	18	125 -XD170	284.36
17.5	93	143	18	125 -XD175	284.36
18	93	143	18	125 -XD180	284.36
18.5	101	153	20	125 -XD185	399.89
19	101	153	20	125 -XD190	399.89
19.5	101	153	20	125 -XD195	399.89
20	101	153	20	125 -XD200	399.89

For technical information see page 206

Performance Solid Carbide Drills -*TiALN*- (DIN) 6537
5xD with coolant 140º Point Angle - 30º Helix
Micro-grain K30

COOLANT
With through holes

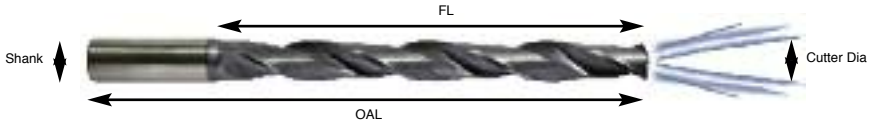
Tolerance Shank h6
Tolerance Cutting m7

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
3	28	66	6	135 -XD300	91.15
3.1	28	66	6	135 -XD310	91.15
3.2	28	66	6	135 -XD320	91.15
3.3	28	66	6	135 -XD330	91.15
3.4	28	66	6	135 -XD340	91.15
3.5	28	66	6	135 -XD350	91.15
3.6	28	66	6	135 -XD360	91.15
3.7	28	66	6	135 -XD370	91.15
3.8	36	74	6	135 -XD380	91.15
3.9	36	74	6	135 -XD390	91.15
4	36	74	6	135 -XD400	91.15
4.1	36	74	6	135 -XD410	91.15
4.2	36	74	6	135 -XD420	91.15
4.3	36	74	6	135 -XD430	91.15
4.4	36	74	6	135 -XD440	91.15
4.5	36	74	6	135 -XD450	91.15
4.6	36	74	6	135 -XD460	91.15
4.7	44	82	6	135 -XD470	91.15
4.8	44	82	6	135 -XD480	91.15
4.9	44	82	6	135 -XD490	91.15
5	44	82	6	135 -XD500	91.15
5.1	44	82	6	135 -XD510	91.15
5.2	44	82	6	135 -XD520	91.15
5.3	44	82	6	135 -XD530	91.15
5.4	44	82	6	135 -XD540	91.15
5.5	44	82	6	135 -XD550	91.15
5.6	44	82	6	135 -XD560	91.15
5.7	44	82	6	135 -XD570	91.15
5.8	44	82	6	135 -XD580	91.15
5.9	44	82	6	135 -XD590	91.15
6	44	82	6	135 -XD600	91.15
6.1	53	91	8	135 -XD610	107.63
6.2	53	91	8	135 -XD620	107.63
6.3	53	91	8	135 -XD630	107.63
6.4	53	91	8	135 -XD640	107.63
6.5	53	91	8	135 -XD650	107.63
6.6	53	91	8	135 -XD660	107.63
6.7	53	91	8	135 -XD670	107.63
6.8	53	91	8	135 -XD680	107.63
6.9	53	91	8	135 -XD690	107.63
7	53	91	8	135 -XD700	107.63
7.1	53	91	8	135 -XD710	107.63
7.2	53	91	8	135 -XD720	107.63
7.3	53	91	8	135 -XD730	107.63
7.4	53	91	8	135 -XD740	107.63
7.5	53	91	8	135 -XD750	107.63
7.6	53	91	8	135 -XD760	107.63
7.7	53	91	8	135 -XD770	107.63
7.8	53	91	8	135 -XD780	107.63
7.9	53	91	8	135 -XD790	107.63
8	53	91	8	135 -XD800	107.63
8.1	61	103	10	135 -XD810	127.68
8.2	61	103	10	135 -XD820	127.68
8.3	61	103	10	135 -XD830	127.68

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
8.4	61	103	10	135 -XD840	127.68
8.5	61	103	10	135 -XD850	127.68
8.6	61	103	10	135 -XD860	127.68
8.7	61	103	10	135 -XD870	127.68
8.8	61	103	10	135 -XD880	127.68
8.9	61	103	10	135 -XD890	127.68
9	61	103	10	135 -XD900	127.68
9.1	61	103	10	135 -XD910	127.68
9.2	61	103	10	135 -XD920	127.68
9.3	61	103	10	135 -XD930	127.68
9.4	61	103	10	135 -XD940	127.68
9.5	61	103	10	135 -XD950	127.68
9.6	61	103	10	135 -XD960	127.68
9.7	61	103	10	135 -XD970	127.68
9.8	61	103	10	135 -XD980	127.68
9.9	61	103	10	135 -XD990	127.68
10	61	103	10	135 -XD100	127.68
10.1	71	118	12	135 -XD101	196.30
10.2	71	118	12	135 -XD102	196.30
10.3	71	118	12	135 -XD103	196.30
10.4	71	118	12	135 -XD104	196.30
10.5	71	118	12	135 -XD105	196.30
10.6	71	118	12	135 -XD106	196.30
10.7	71	118	12	135 -XD107	196.30
10.8	71	118	12	135 -XD108	196.30
10.9	71	118	12	135 -XD109	196.30
11	71	118	12	135 -XD110	196.30
11.1	71	118	12	135 -XD111	196.30
11.2	71	118	12	135 -XD112	196.30
11.3	71	118	12	135 -XD113	196.30
11.4	71	118	12	135 -XD114	196.30
11.5	71	118	12	135- XD115	196.30
11.6	71	118	12	135 -XD116	196.30
11.7	71	118	12	135 -XD117	196.30
11.8	71	118	12	135 -XD118	196.30
11.9	71	118	12	135 -XD119	196.30
12	71	118	12	135 -XD120	196.30
12.5	77	124	14	135 -XD125	266.47
13	77	124	14	135 -XD130	266.47
13.5	77	124	14	135 -XD135	266.47
14	77	124	14	135 -XD140	266.47
14.5	83	133	16	135 -XD145	325.07
15	83	133	16	135 -XD150	325.07
15.5	83	133	16	135 -XD155	325.07
16	83	133	16	135 -XD160	325.07
16.5	93	143	18	135 -XD165	434.90
17	93	143	18	135 -XD170	434.90
17.5	93	143	18	135 -XD175	434.90
18	93	143	18	135 -XD180	434.90
18.5	101	153	20	135 -XD185	515.19
19	101	153	20	135 -XD190	515.19
19.5	101	153	20	135 -XD195	515.19
20	101	153	20	135 -XD200	515.19

For technical information see page 206

Performance Solid Carbide Drills -*TiALN* - (DIN) 6537
8xD with coolant 140º Point Angle - 30º Helix
Micro-grain K30



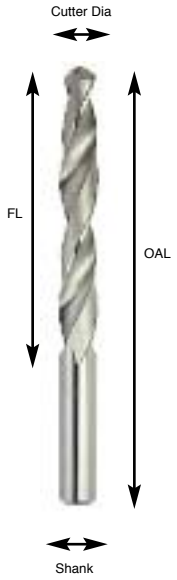
COOLANT
With through holes

Tolerance Shank h6
Tolerance Cutting m7

DRILL DIA	FL	OAL	SHANK DIA	PART NUMBER	PRICE £
3	34	72	6	138 -XD300	115.31
3.1	34	72	6	138 -XD310	115.31
3.2	34	72	6	138 -XD320	115.31
3.3	34	72	6	138 -XD330	115.31
3.4	34	72	6	138 -XD340	115.31
3.5	34	72	6	138 -XD350	115.31
3.6	34	72	6	138 -XD360	115.31
3.7	34	72	6	138 -XD370	115.31
3.8	43	81	6	138 -XD380	115.31
3.9	43	81	6	138 -XD390	115.31
4	43	81	6	138 -XD400	115.31
4.1	43	81	6	138 -XD410	115.31
4.2	43	81	6	138 -XD420	115.31
4.3	43	81	6	138 -XD430	115.31
4.4	43	81	6	138 -XD440	115.31
4.5	43	81	6	138 -XD450	115.31
4.6	43	81	6	138 -XD460	115.31
4.7	43	81	6	138 -XD470	115.31
4.8	57	95	6	138 -XD480	115.31
4.9	57	95	6	138 -XD490	115.31
5	57	95	6	138 -XD500	115.31
5.1	57	95	6	138 -XD510	115.31
5.2	57	95	6	138 -XD520	115.31
5.3	57	95	6	138 -XD530	115.31
5.4	57	95	6	138 -XD540	115.31
5.5	57	95	6	138 -XD550	115.31
5.6	57	95	6	138 -XD560	115.31
5.7	57	95	6	138 -XD570	115.31
5.8	57	95	6	138 -XD580	115.31
5.9	57	95	6	138 -XD590	115.31
6	57	95	6	138 -XD600	115.31
6.1	76	114	8	138 -XD610	206.09
6.2	76	114	8	138 -XD620	206.09
6.3	76	114	8	138 -XD630	206.09
6.4	76	114	8	138 -XD640	206.09
6.5	76	114	8	138 -XD650	206.09
6.6	76	114	8	138 -XD660	206.09
6.7	76	114	8	138 -XD670	206.09
6.8	76	114	8	138 -XD680	206.09
6.9	76	114	8	138 -XD690	206.09
7	76	114	8	138 -XD700	206.09
7.1	76	114	8	138 -XD710	206.09
7.2	76	114	8	138 -XD720	206.09
7.3	76	114	8	138 -XD730	206.09
7.4	76	114	8	138 -XD740	206.09
7.5	76	114	8	138 -XD750	206.09
7.6	76	114	8	138 -XD760	206.09
7.7	76	114	8	138 -XD770	206.09
7.8	76	114	8	138 -XD780	206.09
7.9	76	114	8	138 -XD790	206.09
8	76	114	8	138 -XD800	206.09
8.1	95	142	10	138 -XD810	272.99
8.2	95	142	10	138 -XD820	272.99
8.3	95	142	10	138 -XD830	272.99
8.4	95	142	10	138 -XD840	272.99
8.5	95	142	10	138 -XD850	272.99
8.6	95	142	10	138 -XD860	272.99
8.7	95	142	10	138 -XD870	272.99
8.8	95	142	10	138 -XD880	272.99
8.9	95	142	10	138 -XD890	272.99
9	95	142	10	138 -XD900	272.99
9.1	95	142	10	138 -XD910	272.99
9.2	95	142	10	138 -XD920	272.99
9.3	95	142	10	138 -XD930	272.99
9.4	95	142	10	138 -XD940	272.99
9.5	95	142	10	138 -XD950	272.99
9.6	95	142	10	138 -XD960	272.99
9.7	95	142	10	138 -XD970	272.99
9.8	95	142	10	138 -XD980	272.99
9.9	95	142	10	138 -XD990	272.99
10	95	142	10	138 -XD100	272.99
10.1	114	162	12	138 -XD101	378.08
10.2	114	162	12	138 -XD102	378.08
10.3	114	162	12	138 -XD103	378.08
10.4	114	162	12	138 -XD104	378.08
10.5	114	162	12	138 -XD105	378.08
10.6	114	162	12	138 -XD106	378.08
10.7	114	162	12	138 -XD107	378.08
10.8	114	162	12	138 -XD108	378.08
10.9	114	162	12	138 -XD109	378.08
11	114	162	12	138 -XD110	378.08
11.1	114	162	12	138 -XD111	378.08
11.2	114	162	12	138 -XD112	378.08
11.3	114	162	12	138 -XD113	378.08
11.4	114	162	12	138 -XD114	378.08
11.5	114	162	12	138- XD115	378.08
11.6	114	162	12	138 -XD116	378.08
11.7	114	162	12	138 -XD117	378.08
11.8	114	162	12	138 -XD118	378.08
11.9	114	162	12	138 -XD119	378.08
12	114	162	12	138 -XD120	378.08
12.5	133	182	14	138 -XD125	519.64
13	133	182	14	138 -XD130	519.64
13.5	133	182	14	138 -XD135	519.64
14	133	182	14	138 -XD140	519.64
14.5	152	204	16	138 -XD145	650.55
15	152	204	16	138 -XD150	650.55
15.5	152	204	16	138 -XD155	650.55
16	152	204	16	138 -XD160	650.55
16.5	171	223	18	138 -XD165	1026.56
17	171	223	18	138 -XD170	1026.56
17.5	171	223	18	138 -XD175	1026.56
18	171	223	18	138 -XD180	1026.56
18.5	190	244	20	138 -XD185	1256.27
19	190	244	20	138 -XD190	1256.27
19.5	190	244	20	138 -XD195	1256.27
20	190	244	20	138 -XD200	1256.27

For technical information see page 206

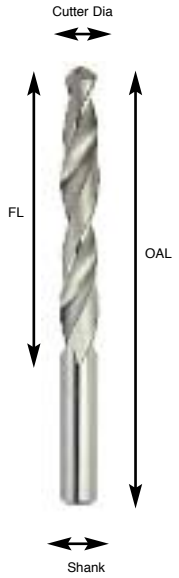
Solid Carbide Jobber Drills
118º Point Angle - 20º Helix
Micro-grain K10/30



DRILL DIA	FL	OAL	PART NUMBER	Price £
1/16"	3/4"	1-1/2"	102 -00404	17.44
3/32"	1"	2"	102 -00406	20.13
1/8"	1-1/4"	2-1/4"	102 -00408	24.57
5/32"	1-3/8"	2-1/2"	102 -00410	29.92
3/16"	1-5/8"	2-3/4"	102 -00412	36.33
7/32"	1-3/4"	3"	102 -00414	45.58
1/4"	2"	3-1/4"	102 -00416	55.22
9/32"	2-1/8"	3-1/2"	102 -00418	64.45
5/16"	2-3/8"	3-3/4"	102 -00420	76.36
11/32"	2-1/2"	4"	102 -00422	91.14
3/8"	2-3/4"	4-1/4"	102 -00424	107.27
13/32"	2-7/8"	4-1/2"	102 -00426	137.82
7/16"	2-7/8"	4-1/2"	102 -00428	156.39
15/32"	3"	4-3/4"	102 -00430	188.55
1/2"	3"	4-3/4"	102 -00432	194.17

For technical information see page 198 - 199

Solid Carbide Jobber Drills - (DIN) 338
118º Point Angle - 20º Helix
Micro-grain K30

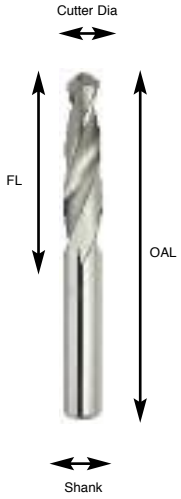


DRILL DIA	FL	OAL	PART NUMBER	PRICE £
1	16	34	103 -00710	17.78
1.5	19	38	103 -00715	17.44
2	22	45	103 -00720	18.20
2.5	26	51	103 -00725	20.62
3	33	61	103 -00730	23.48
3.1	36	65	103 -00731	26.16
3.2	36	65	103 -00732	26.44
3.3	36	65	103 -00733	26.84
3.4	39	70	103 -00734	28.17
3.5	39	70	103 -00735	25.83
3.6	39	70	103 -00736	28.68
3.7	39	70	103 -00737	29.12
3.8	43	75	103 -00738	29.35
3.9	43	75	103 -00739	31.12
4	43	75	103 -00740	30.37
4.1	43	75	103 -00741	34.14
4.2	43	75	103 -00742	35.30
4.3	47	80	103 -00743	36.91
4.4	47	80	103 -00744	38.09
4.5	47	80	103 -00745	36.07
4.6	47	80	103 -00746	38.50
4.7	47	80	103 -00747	38.76
4.8	52	86	103 -00748	39.94
4.9	52	86	103 -00749	40.35
5	52	86	103 -00750	39.94
5.1	52	86	103 -00751	42.97
5.2	52	86	103 -00752	44.47
5.3	57	93	103 -00753	45.12
5.4	57	93	103 -00754	46.40
5.5	57	93	103 -00755	45.58
5.6	57	93	103 -00756	48.83

DRILL DIA	FL	OAL	PART NUMBER	PRICE £
5.7	57	93	103 -00757	49.42
5.8	57	93	103 -00758	50.74
5.9	57	93	103 -00759	51.44
6	57	93	103 -00760	51.78
6.1	63	101	103 -00761	57.41
6.2	63	101	103 -00762	59.23
6.3	63	101	103 -00763	58.99
6.4	63	101	103 -00764	60.20
6.5	63	101	103 -00765	57.90
6.8	69	109	103 -00768	62.08
7	69	109	103 -00770	63.70
7.5	69	109	103 -00775	69.58
8	75	117	103 -00780	77.61
8.5	75	117	103 -00785	85.80
9	81	125	103 -00790	98.20
9.5	81	125	103 -00795	103.15
10	87	133	103 -00800	131.56
10.2	87	133	103 -00802	142.20
10.5	87	133	103 -00805	142.53
11	94	142	103 -00810	155.28
11.5	94	142	103 -00815	167.48
12	101	151	103 -00820	192.85
12.5	101	151	103 -00825	207.28
13	101	151	103 -00830	276.97
13.5	108	160	103 -00835	363.86
14	108	160	103 -00840	348.68
14.5	114	169	103 -00845	450.10
15	114	169	103 -00850	430.79
15.5	120	178	103 -00855	450.10
16	120	178	103 -00860	450.10

For technical information see page 198 - 199

Solid Carbide Stub Drills - (DIN) 6539
118º Point Angle - 25º Helix
Micro-grain K30

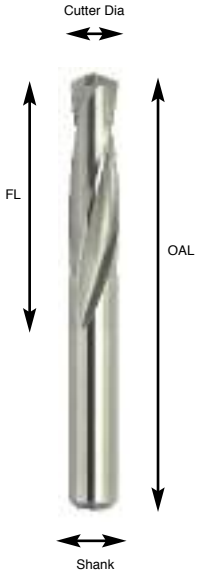


DRILL DIA	FL	OAL	PART NUMBER	PRICE £
3	16	46	203 -30000	20.08
3.1	16	46	203 -31000	20.08
3.2	18	49	203 -32000	18.24
3.3	18	49	203 -33000	18.24
3.4	20	52	203 -34000	20.00
3.5	20	52	203 -35000	20.00
3.6	20	52	203 -36000	22.31
3.7	20	52	203 -37000	22.31
3.8	22	55	203 -38000	22.31
3.9	22	55	203 -39000	22.31
4	22	55	203 -40000	21.56
4.1	22	55	203 -41000	25.57
4.2	22	55	203 -42000	25.57
4.3	24	58	203 -43000	25.57
4.4	24	58	203 -44000	25.57
4.5	24	58	203 -45000	28.13
4.6	24	58	203 -46000	28.13
4.7	24	58	203 -47000	29.73
4.8	26	62	203 -48000	29.73
4.9	26	62	203 -49000	29.73
5	26	62	203 -50000	28.07
5.1	26	62	203 -51000	30.62
5.2	26	62	203 -52000	32.90
5.3	26	62	203 -53000	32.90
5.4	28	66	203 -54000	32.90
5.5	28	66	203 -55000	36.93
5.6	28	66	203 -56000	36.93
5.7	28	66	203 -57000	38.12
5.8	28	66	203 -58000	38.12
5.9	28	66	203 -59000	38.12
6	28	66	203 -60000	32.31
6.1	31	70	203 -61000	38.59
6.2	31	70	203 -62000	38.59
6.3	31	70	203 -63000	38.59
6.4	31	70	203 -64000	38.59
6.5	31	70	203 -65000	45.86
6.6	31	70	203 -66000	45.86
6.7	31	70	203 -67000	45.86
6.8	34	74	203 -68000	45.86
6.9	34	74	203 -69000	45.86
7	34	74	203 -70000	48.23
7.1	34	74	203 -71000	48.23
7.2	34	74	203 -72000	48.23
7.3	34	74	203 -73000	51.59
7.4	34	74	203 -74000	51.59
7.5	34	74	203 -75000	51.59
7.6	37	79	203 -76000	59.68
7.7	37	79	203 -77000	59.68
7.8	37	79	203 -78000	59.68
7.9	37	79	203 -79000	59.68

DRILL DIA	FL	OAL	PART NUMBER	PRICE £
8	37	79	203 -80000	55.70
8.1	37	79	203 -81000	59.68
8.2	37	79	203 -82000	64.77
8.3	37	79	203 -83000	64.77
8.4	37	79	203 -84000	64.77
8.5	37	79	203 -85000	64.77
8.6	40	84	203 -86000	69.41
8.7	40	84	203 -87000	69.41
8.8	40	84	203 -88000	69.41
8.9	40	84	203 -89000	69.41
9	40	84	203 -90000	69.41
9.1	40	84	203 -91000	76.00
9.2	40	84	203 -92000	76.00
9.3	40	84	203 -93000	76.00
9.4	40	84	203 -94000	76.00
9.5	40	84	203 -95000	76.00
9.6	43	89	203 -96000	76.00
9.7	43	89	203 -97000	90.28
9.8	43	89	203 -98000	90.28
9.9	43	89	203 -99000	90.28
10	43	89	203 -10000	90.28
10.1	43	89	203 -10100	97.32
10.2	43	89	203 -10200	97.32
10.3	43	89	203 -10300	97.32
10.4	43	89	203 -10400	97.32
10.5	43	89	203 -10500	97.32
10.6	43	89	203 -10600	100.55
10.7	43	89	203 -10700	100.55
10.8	43	89	203 -10800	100.55
11	47	95	203 -11000	104.77
11.2	47	95	203 -11200	117.11
11.5	47	95	203 -11500	117.11
11.8	47	95	203 -11800	127.83
12	51	102	203 -12000	132.87
12.5	51	102	203 -12500	137.95
13	51	102	203 -13000	148.46
13.5	51	102	203 -13500	192.88
14	56	111	203 -14000	192.88
14.5	56	111	203 -14500	214.72
15	56	111	203 -15000	214.72
15.5	58	115	203 -15500	228.12
16	58	115	203 -16000	276.67
16.5	60	119	203 -16500	312.67
17	60	119	203 -17000	334.60
17.5	62	123	203 -17500	357.97
18	62	123	203 -18000	383.05
18.5	64	127	203 -18500	409.85
19	64	127	203 -19000	438.58
19.5	66	131	203 -19500	438.58
20	66	131	203 -20000	469.32

For technical information see page 198 - 199

Solid Carbide Slow Spiral Drills
135º Point Angle - 15º Helix
Micro-grain K30

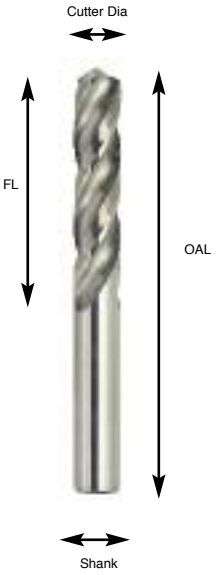


DRILL DIA	FL	OAL	PART NUMBER	PRICE £
1	13	38	104 -00910	20.79
1.1	13	38	104 -00911	20.79
1.2	13	38	104 -00912	20.79
1.3	13	38	104 -00913	20.79
1.4	13	38	104 -00914	20.79
1.5	13	38	104 -00915	19.84
1.6	18	43	104 -00916	19.84
1.7	18	43	104 -00917	19.84
1.8	18	43	104 -00918	20.02
1.9	18	43	104 -00919	21.06
2	19	45	104 -00920	21.06
2.1	19	45	104 -00921	21.06
2.2	19	45	104 -00922	21.06
2.3	19	45	104 -00923	21.06
2.4	21	46	104 -00924	21.06
2.5	21	46	104 -00925	21.88
2.6	21	46	104 -00926	21.88
2.7	21	46	104 -00927	21.88
2.8	22	48	104 -00928	23.54
2.9	22	48	104 -00929	23.54
3	22	48	104 -00930	23.54
3.1	22	48	104 -00931	23.54
3.2	24	52	104 -00932	23.54
3.3	24	52	104 -00933	27.58
3.4	24	52	104 -00934	27.86
3.5	24	52	104 -00935	28.17
3.6	25	52	104 -00936	28.68
3.7	25	52	104 -00937	28.86
3.8	25	52	104 -00938	29.18
3.9	25	52	104 -00939	29.35
4	27	53	104 -00940	31.45
4.1	27	53	104 -00941	31.94
4.2	27	53	104 -00942	32.55
4.3	27	53	104 -00943	33.13
4.4	29	55	104 -00944	34.47
4.5	29	55	104 -00945	34.82
4.6	29	55	104 -00946	35.39
4.7	29	55	104 -00947	36.23
4.8	30	57	104 -00948	42.01
4.9	30	57	104 -00949	43.04
5	30	57	104 -00950	43.62
5.1	30	57	104 -00951	44.13
5.2	32	60	104 -00952	45.06
5.3	32	60	104 -00953	50.34
5.4	32	60	104 -00954	45.92
5.5	32	60	104 -00955	46.04
5.6	33	61	104 -00956	46.49
5.7	33	61	104 -00957	47.07
5.8	33	61	104 -00958	47.92
5.9	33	61	104 -00959	48.17
6	33	61	104 -00960	49.68
6.1	35	63	104 -00961	50.41
6.2	35	63	104 -00962	51.19
6.3	35	63	104 -00963	51.44
6.4	35	63	104 -00964	52.86
6.5	35	63	104 -00965	63.37

DRILL DIA	FL	OAL	PART NUMBER	PRICE £
6.6	37	67	104 -00966	67.30
6.7	37	67	104 -00967	67.30
6.8	38	68	104 -00968	69.15
6.9	38	68	104 -00969	69.15
7	38	68	104 -00970	75.03
7.1	38	68	104 -00971	76.20
7.2	40	70	104 -00972	76.20
7.3	40	70	104 -00973	76.20
7.4	40	70	104 -00974	76.20
7.5	40	70	104 -00975	83.92
7.6	41	71	104 -00976	83.17
7.7	41	71	104 -00977	83.17
7.8	41	71	104 -00978	83.17
7.9	41	71	104 -00979	83.17
8	41	71	104 -00980	86.21
8.1	43	75	104 -00981	90.90
8.2	43	75	104 -00982	90.90
8.3	43	75	104 -00983	90.90
8.4	43	76	104 -00984	90.90
8.5	43	76	104 -00985	98.96
8.6	43	76	104 -00986	105.40
8.7	43	76	104 -00987	105.40
8.8	44	78	104 -00988	105.40
8.9	44	78	104 -00989	105.40
9	44	78	104 -00990	110.22
9.1	44	78	104 -00991	118.61
9.2	46	79	104 -00992	118.61
9.3	46	79	104 -00993	118.61
9.4	46	79	104 -00994	118.61
9.5	46	79	104 -00995	122.14
9.6	48	83	104 -00996	131.04
9.7	48	83	104 -00997	131.04
9.8	48	83	104 -00998	131.04
9.9	48	83	104 -00999	131.04
10	48	83	104 -00100	136.16
10.1	49	84	104 -00101	149.34
10.2	49	84	104 -00102	149.34
10.3	49	84	104 -00103	149.34
10.4	51	86	104 -00104	149.34
10.5	51	86	104 -00105	150.52
10.6	51	86	104 -00106	152.28
10.7	51	86	104 -00107	152.28
10.8	52	87	104 -00108	152.28
10.9	52	87	104 -00109	152.28
11	52	87	104 -00110	152.28
11.1	52	87	104 -00111	165.86
11.2	54	90	104 -00112	168.09
11.3	54	90	104 -00113	168.09
11.4	54	90	104 -00114	168.09
11.5	54	90	104 -00115	170.03
11.6	54	92	104 -00116	183.85
11.7	54	92	104 -00117	183.85
11.8	54	92	104 -00118	183.85
11.9	54	92	104 -00119	183.85
12	54	92	104 -00120	188.23

For technical information see page 198 - 199

Solid Carbide 3 Flute Drills - (DIN) 6539
130º Point Angle - 30º Helix - Self Centering
Micro-grain K30



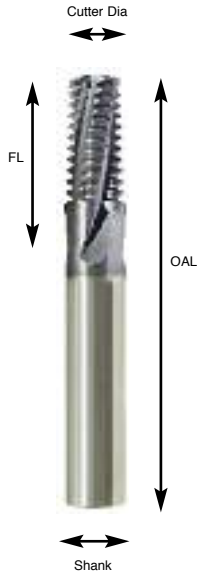
DRILL DIA	FL	OAL	PART NUMBER	PRICE £
4	22	55	105 -40000	33.04
4.1	22	55	105 -41000	32.29
4.2	22	55	105 -42000	32.48
4.3	24	58	105 -43000	32.64
4.4	24	58	105 -44000	36.16
4.5	24	58	105 -45000	35.17
4.6	24	58	105 -46000	35.64
4.7	24	58	105 -47000	35.90
4.8	26	62	105 -48000	39.25
4.9	26	62	105 -49000	39.77
5	26	62	105 -50000	40.35
5.1	26	62	105 -51000	42.20
5.2	26	62	105 -52000	43.30
5.3	28	66	105 -53000	44.54
5.4	28	66	105 -54000	45.12
5.5	28	66	105 -55000	45.58
5.6	28	66	105 -56000	48.75
5.7	28	66	105 -57000	48.75
5.8	28	66	105 -58000	49.49
5.9	28	66	105 -59000	48.75
6	31	66	105 -60000	50.29
6.1	31	70	105 -61000	52.62
6.2	31	70	105 -62000	52.62
6.3	31	70	105 -63000	53.05
6.4	31	70	105 -64000	53.87
6.5	31	70	105 -65000	59.75
6.6	31	70	105 -66000	64.27
6.7	31	70	105 -67000	64.27
6.8	34	74	105 -68000	65.21
6.9	34	74	105 -69000	65.21
7	34	74	105 -70000	64.88
7.1	34	74	105 -71000	68.31
7.2	34	74	105 -72000	68.31
7.3	34	74	105 -73000	68.31
7.4	34	74	105 -74000	68.31
7.5	34	74	105 -75000	71.66
7.6	37	79	105 -76000	76.70
7.7	37	79	105 -77000	76.70
7.8	37	79	105 -78000	79.98
7.9	37	79	105 -79000	79.98
8	37	79	105 -80000	77.55
8.1	37	79	105 -81000	83.99
8.2	37	79	105 -82000	83.99
8.3	37	79	105 -83000	83.99
8.4	37	79	105 -84000	83.99

DRILL DIA	FL	OAL	PART NUMBER	PRICE £
8.5	37	79	105 -85000	82.85
8.6	40	84	105 -86000	89.58
8.7	40	84	105 -87000	89.58
8.8	40	84	105 -88000	89.58
8.9	40	84	105 -89000	89.58
9	40	84	105 -90000	91.00
9.1	40	84	105 -91000	100.89
9.2	40	84	105 -92000	100.89
9.3	40	84	105 -93000	100.89
9.4	40	84	105 -94000	100.89
9.5	40	84	105 -95000	97.77
9.6	43	89	105 -96000	119.88
9.7	43	89	105 -97000	119.88
9.8	43	89	105 -98000	119.88
9.9	43	89	105 -99000	119.88
10	43	89	105 -10000	116.17
10.1	43	89	105 -10100	143.39
10.2	43	89	105 -10200	143.39
10.3	43	89	105 -10300	143.39
10.4	43	89	105 -10400	143.39
10.5	43	89	105 -10500	138.91
10.6	43	89	105 -10600	148.42
10.7	43	89	105 -10700	148.42
10.8	43	89	105 -10800	148.42
11	47	95	105 -11000	150.44
11.2	47	95	105 -11200	167.64
11.5	47	95	105 -11500	162.50
11.8	47	95	105 -11800	175.88
12	51	102	105 -12000	174.78
12.5	51	102	105 -12500	186.78
13	51	102	105 -13000	213.08
13.5	51	102	105 -13500	279.91
14	54	107	105 -14000	268.24
14.5	56	111	105 -14500	346.32
15	56	111	105 -15000	346.32
15.5	58	115	105 -15500	382.83
16	58	115	105 -16000	382.83
16.5	60	119	105 -16500	449.59
17	60	119	105 -17000	449.59
17.5	62	123	105 -17500	520.63
18	62	123	105 -18000	520.63
18.5	64	127	105 -18500	561.95
19	64	127	105 -19000	561.95
19.5	66	131	105 -19500	602.66
20	66	131	105 -20000	602.66

For technical information see page 198 - 199

NPT

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute



MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	№ OF FLUTES	№ OF THREADS	PRICE £
1/16-27	5.90	9.40	6	63	920 -00604	3	10	256.30
1/8-27	7.60	14.10	8	75	920 -00608	4	15	305.48
1/4-18	9.15	15.52	10	80	920 -00616	4	11	338.24
1/2-14	11.90	21.77	12	80	920 -00632	4	12	407.95
1-11.5	15.90	28.70	16	100	920 -00664	4	13	510.46
2.5-8	19.90	38.10	20	100	920 -00684	4	12	797.40

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

NPTF

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute

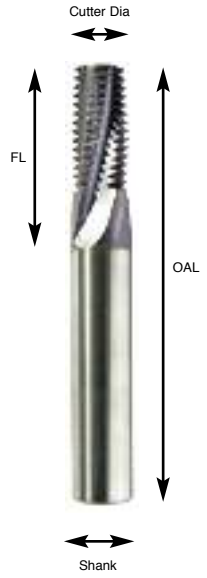
MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	№ OF FLUTES	№ OF THREADS	PRICE £
1/16-27	5.90	9.40	6	63	930 -00604	3	10	256.30
1/8-27	7.60	14.10	8	75	930 -00608	4	15	305.48
1/4-18	9.15	15.52	10	80	930 -00616	4	11	338.24
3/8-18	10.80	18.34	12	80	930 -00624	4	13	379.28
1/2-14	11.90	21.77	12	80	930 -00632	4	12	407.95
1-11.5	15.90	28.70	16	100	930 -00664	4	13	510.46
2.5-8	19.90	38.10	20	100	930 -00684	4	12	797.40

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

MF

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute



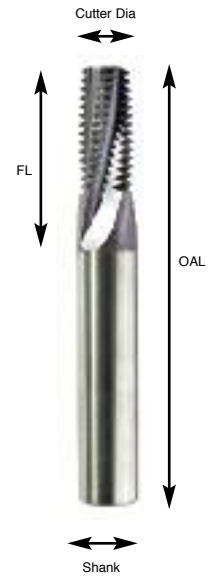
MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	№ OF FLUTES	№ OF THREADS	PRICE £
M6-.75	4.50	10.50	6	63	960 -10110	3	14	217.30
M8-1.00	5.90	13.00	6	63	960 -10112	3	13	256.30
M10-1.25	7.80	16.25	8	75	960 -10114	4	13	305.48
M12-1.25	9.40	18.75	10	80	960 -10116	4	15	338.24
M14-1.50	9.90	25.50	10	80	960 -10118	4	17	338.24
M16-1.50	11.90	28.50	12	80	960 -10120	4	19	407.95
M20-1.50	15.25	31.50	16	89	960 -10124	4	21	579.61

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

M

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute



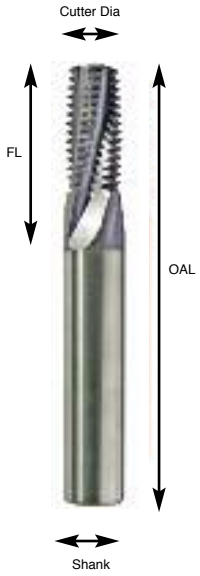
MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	№ OF FLUTES	№ OF THREADS	PRICE £
M3-.50	2.25	4.50	6	63	970 -10105	3	9	196.85
M3.5-.60	2.60	5.40	6	63	970 -10106	3	9	196.85
M4-.70	2.92	6.30	6	63	970 -10107	3	9	196.85
M4.5-.75	3.30	7.50	6	63	970 -10108	3	10	217.30
M5-.80	3.70	8.00	6	63	970 -10109	3	10	217.30
M6-1.00	4.50	10.00	6	63	970 -10110	3	10	217.30
M8-1.25	5.90	13.75	6	63	970 -10112	3	11	256.30
M10-1.50	7.80	16.50	8	75	970 -10114	4	11	305.48
M12-1.75	9.40	21.00	10	80	970 -10116	4	12	338.24
M14-2.00	9.90	26.00	10	80	970 -10118	4	13	338.24
M16-2.00	11.90	28.00	12	80	970 -10120	4	14	407.95
M18-2.50	13.50	30.00	14	80	970 -10122	4	12	469.43
M20-2.50	15.25	35.00	16	89	970 -10124	4	14	510.46
M24-3.00	18.20	39.00	20	100	970 -10126	4	13	797.40

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

UNF

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute



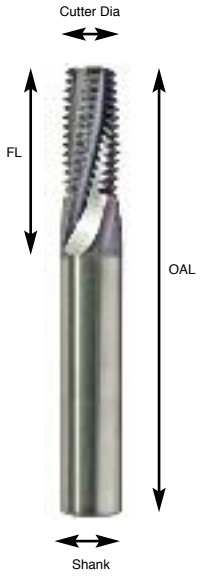
MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	Nº OF FLUTES	Nº OF THREADS	PRICE £
8-36	3.05	6.35	6	63	940 -00705	3	9	217.30
10-32	3.55	7.14	6	63	940 -00707	3	9	217.30
12-28	4.05	8.15	6	63	940 -00708	3	9	217.30
1/4-28	4.60	10.87	6	63	940 -00709	3	12	217.30
5/16-24	5.80	14.81	6	63	940 -00710	3	14	256.30
3/8-24	7.50	15.88	8	75	940 -00711	4	15	305.48
1/2-20	9.40	21.59	10	80	940 -00713	4	17	338.24
9/16-18	11.30	23.98	12	80	940 -00714	4	17	407.95
5/8-18	11.90	28.22	12	80	940 -00715	4	20	407.95
3/4-16	13.90	31.75	14	80	940 -00716	4	20	469.43
7/8-14	15.90	36.27	16	89	940 -00717	4	20	510.46
1-12	19.20	38.10	20	100	940 -00718	4	18	797.40

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

UNC

Solid Carbide Thread Mills - *AlTiN Coated*
15º Helix - Spiral Flute
Micro-grain K20/25 Multi-Flute



MIN THREAD DIA/PITCH	CUTTER DIA	CUT LENGTH	SHANK DIA	OAL	PART NUMBER	Nº OF FLUTES	Nº OF THREADS	PRICE £
4-40	2.05	4.45	6	63	950 -00704	2	7	196.85
6-32	2.30	5.54	6	63	950 -00705	3	7	196.34
8-32	3.05	6.35	6	63	950 -00706	3	8	196.47
10-24	3.55	7.42	6	63	950 -00707	3	7	217.30
12-24	4.05	8.46	6	63	950 -00709	3	8	217.30
1/4-20	4.40	10.16	6	63	950 -00710	3	8	217.30
5/16-18	5.80	14.27	6	63	950 -00711	3	9	256.30
3/8-16	7.20	15.88	8	75	950 -00712	4	10	305.48
7/16-14	8.75	18.14	10	80	950 -00713	4	10	338.24
1/2-13	9.40	21.49	10	80	950 -00714	4	11	338.24
9/16-12	11.30	23.27	12	80	950 -00715	4	11	407.95
5/8-11	11.90	27.69	12	80	950 -00716	4	12	407.95
3/4-10	13.90	30.48	14	80	950 -00717	4	12	469.43
7/8-9	15.90	36.68	16	89	950 -00718	4	13	510.46
1-8	19.20	38.10	20	100	950 -00719	4	12	797.40

For technical information see page 207

Tolerance Shank h6
Tolerance Cutting h10

M

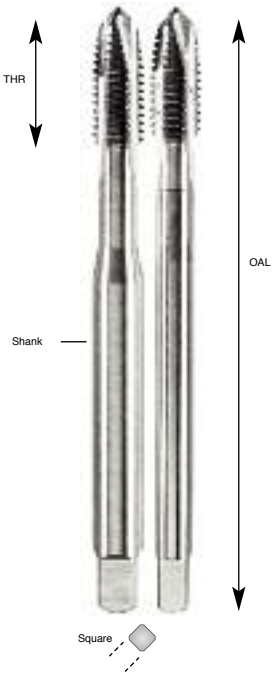
Machine Taps
Standard Applications

HRF

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	3.5–5h B	P1 P2 P3

Spiral Point

DIN 371 DIN 376



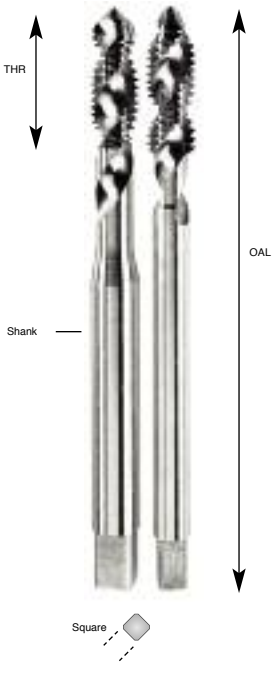
Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
2	0.40	2.8	8	45	2.1	3	8110 -61698	24.14
2.5	0.45	2.8	9	50	2.1	3	8110 -61704	19.82
3	0.50	3.5	11	56	2.7	3	8110 -61728	13.11
3.5	0.60	4	12	56	3	3	8110 -61742	15.07
4	0.70	4.5	13	63	3.4	3	8110 -61759	11.95
5	0.80	6	14	70	4,9	3	8110 -61780	12.49
6	1.00	6	16	80	4.9	3	8110 -61803	12.70
8	1.25	8	18	90	6.2	3	8110 -61827	14.33
10	1.50	10	22	100	8	3	8110 -61841	18.25
							DIN 376	
8	1.25	6	20	90	4.9	3	8110 -56410	21.69
10	1.50	7	22	100	5.5	3	8110 -56434	24.41
12	1.75	9	27	110	7	3	8110 -56458	25.37
14	2.00	11	30	110	9	3	8110 -56472	31.26
16	2.00	12	30	110	9	3	8110 -56496	37.64
18	2.50	14	34	125	11	4	8110 -56502	56.60
20	2.50	16	34	140	12	4	8110 -56519	62.50
22	2.50	18	34	140	14.5	4	8110 -56526	77.54
24	3.00	18	38	160	14.5	4	8110 -56533	94.97

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	2–3h C R35	C2 C3

Spiral Flute

DIN 371 DIN 376



Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
2	0.40	2.8	5	45	2.1	3	8120 -62695	31.68
2.5	0.45	2.8	6	45	2.1	3	8120 -62701	26.12
3	0.50	3.5	6	56	2.7	3	8120 -62725	16.69
3.5	0.60	4	6	56	3	3	8120 -62749	19.07
4	0.70	4.5	7	63	3.4	3	8120 -62756	15.07
5	0.80	6	8	70	4.9	3	8120 -62763	15.88
6	1.00	6	10	80	4.9	3	8120 -62770	16.29
8	1.25	8	13	90	6.2	3	8120 -62794	17.85
10	1.50	10	15	100	8	3	8120 -62800	22.99
							DIN 376	
8	1.25	6	13	90	4.9	3	8120 -58858	23.06
10	1.50	7	15	100	5.5	3	8120 -58872	25.10
12	1.75	9	18	110	7	3	8120- 58896	32.48
14	2.00	11	20	110	9	3	8120 -58902	41.16
16	2.00	12	20	110	9	3	8120 -58919	49.08
18	2.50	14	25	125	11	4	8120 -58926	72.80
20	2.50	16	25	140	12	4	8120 -58933	80.73
22	2.50	18	25	140	14.5	4	8120 -58940	98.13
24	3.00	18	30	160	14.5	4	8120 -58957	120.23

M

Machine Taps
Standard Applications

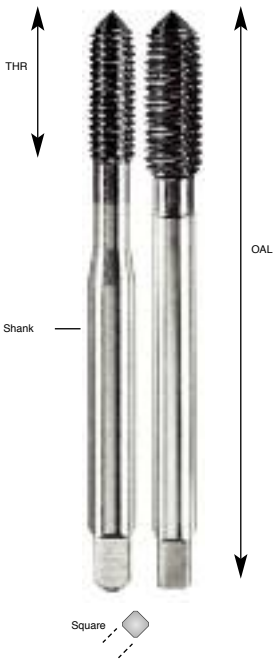
HRF

	DIN 13	Tol. ISO 2 6HX	DIN 371 DIN 376	HSSE (M35)	2–3h C	P2 d ≤2xd	C2 d ≤2xd

TiCN | Fluteless

Forming taps for materials with elongation >12%

DIN 371 DIN 376



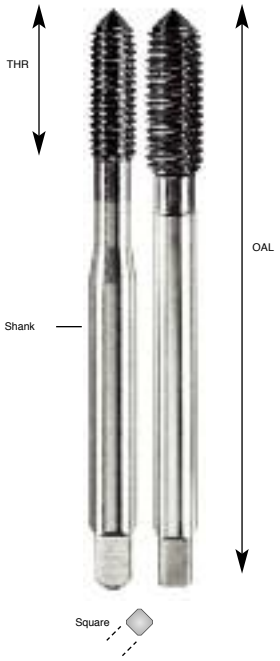
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	-	8130 -63739	28.15
4	0.70	4.5	13	63	3.4	-	8130 -63746	28.48
5	0.80	6	14	70	4.9	-	8130 -63753	28.77
6	1.00	6	16	80	4.9	-	8130 -63760	29.23
8	1.25	8	18	90	6	-	8130 -63784	32.40
10	1.50	10	22	100	8	-	8130 -63791	38.86
							DIN 376	
12	1.75	9	27	110	7	-	8130 -60127	45.68

	DIN 13	Tol. ISO 3 6GX	DIN 371 DIN 376	HSSE (M35)	2–3h C	P2 d ≤2xd	C2 d ≤2xd

TiCN | Fluteless

Forming taps for materials with elongation >12%

DIN 371 DIN 376

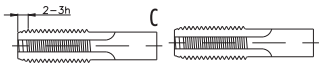
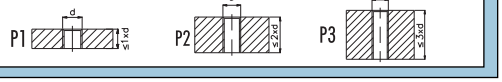


TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	-	8140 -64781	33.22
4	0.70	4.5	13	63	3.4	-	8140 -64798	33.70
5	0.80	6	14	70	4.9	-	8140 -64804	33.89
6	1.00	6	16	80	4.9	-	8140 -64811	34.59
8	1.25	8	18	90	6	-	8140 -64828	38.31
10	1.50	10	22	100	8	-	8140 -64835	45.96
							DIN 376	
12	1.75	9	27	110	7	-	8140 -64767	72.12

MF

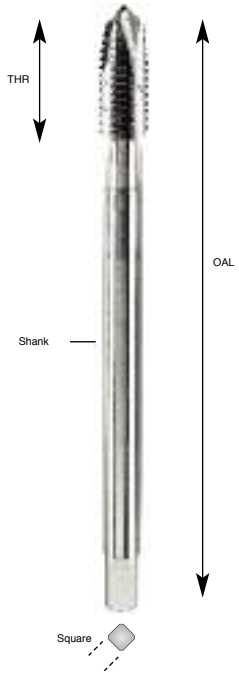
Machine Taps
Standard Applications

HRF

	DIN 13	Tol. ISO 2 6H	DIN 374	HSSE (M35)		

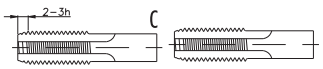
Spiral Point

DIN 374



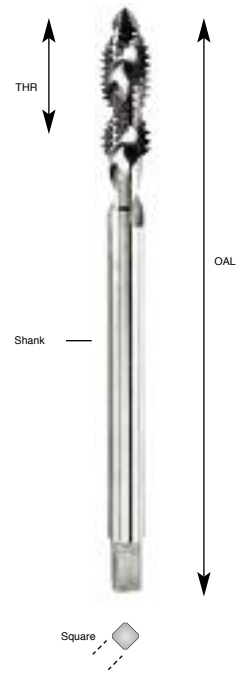
Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 374	
8	1.00	6	20	90	4.9	3	8150 -56656	21.50
10	1.00	7	20	90	5.5	3	8150 -56687	30.11
10	1.25	7	22	100	5.5	3	8150 -56694	26.31
12	1.00	9	22	100	7	3	8150 -56724	25.24
12	1.50	9	22	100	7	3	8150 -56748	32.62
14	1.50	11	22	100	9	3	8150 -56809	37.69
16	1.50	12	22	100	9	3	8150 -56861	43.47
18	1.50	14	25	110	11	4	8150 -56885	54.44
20	1.50	16	25	125	12	4	8150 -56915	55.66
22	1.50	18	25	125	14.5	4	8150 -56946	69.68
24	1.50	18	28	125	14.5	4	8150 -56977	74.22

	DIN 13	Tol. ISO 2 6H	DIN 374	HSSE (M35)		

Spiral Flute

DIN 374



Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

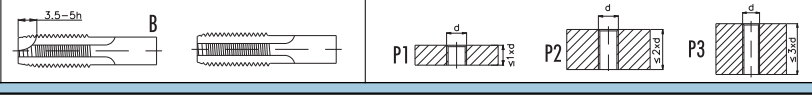
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 374	
8	1.00	6	13	90	4.9	3	8160 -59008	21.44
10	1.00	7	15	90	5.5	3	8160 -59022	23.13
10	1.25	7	18	100	5.5	3	8160 -59039	23.13
12	1.00	9	18	100	7	3	8160 -59060	27.12
12	1.50	9	18	100	7	3	8160 -59084	27.12
14	1.50	11	20	100	9	3	8160 -59114	35.05
16	1.50	12	20	100	9	3	8160 -59152	40.60
18	1.50	14	22	110	11	4	8160 -59169	46.76
20	1.50	16	22	125	12	4	8160 -59183	58.64
22	1.50	18	22	125	14.5	4	8160 -59190	63.38
24	1.50	18	25	125	14.5	4	8160 -59206	79.29

UNC

Machine Taps
Standard Applications

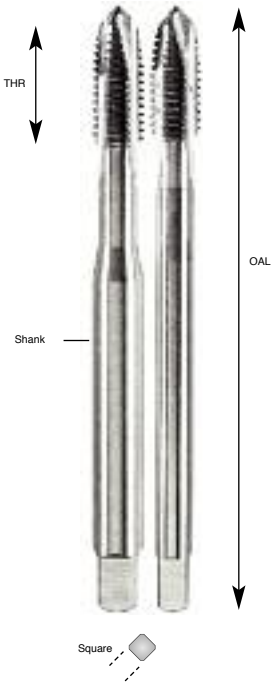
HRF

	ANSI B1.1	Tol. 2B	~DIN 371 ~DIN 376	HSSE (M35)



Spiral Point

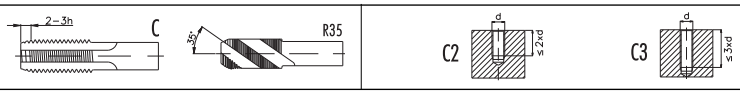
~DIN 371 ~DIN 376



Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

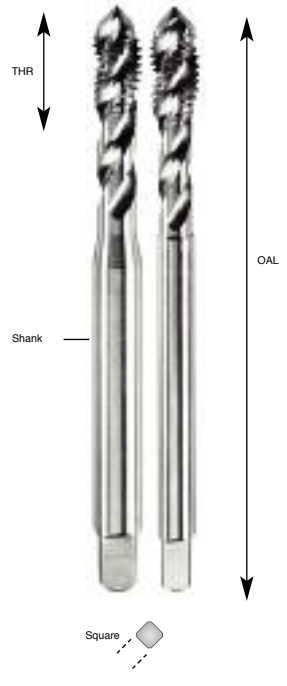
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							~DIN 371	
Nº4	40	3.5	11	56	2.7	3	8170 -61896	34.59
Nº5	40	3.5	11	56	2.7	3	8170 -61902	34.59
Nº6	32	4	12	56	3	3	8170 -61919	35.67
Nº8	32	4.5	13	63	3.4	3	8170 -61926	35.67
Nº10	24	6	14	70	4.9	3	8170 -61933	42.11
Nº12	24	6	19	80	4.9	3	8170 -61940	42.11
							~DIN 376	
1/4"	20	4.5	18	80	3.4	3	8170 -57271	14.47
5/16"	18	6	20	90	4.9	3	8170 -57301	16.37
3/8"	16	7	22	100	5.5	3	8170 -57295	20.62
7/16"	14	8	22	100	6.2	3	8170 -57325	29.64
1/2"	13	9	27	110	7	3	8170 -57264	29.77
9/16"	12	11	30	110	9	3	8170 -57349	37.69
5/8"	11	12	30	110	9	3	8170 -57318	44.22
3/4"	10	14	34	125	11	4	8170 -57288	66.23
7/8"	9	18	34	140	14.5	4	8170 -57332	91.78
1"	8	20	38	160	16	4	8170 -57356	109.93

	ANSI B1.1	Tol. 2B	~DIN 371 ~DIN 376	HSSE (M35)



Spiral Flute

~DIN 371 ~DIN 376



Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

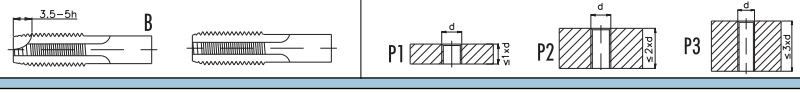
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							~DIN 371	
Nº4	40	3.5	5	56	2.7	3	8180 -62848	39.94
Nº5	40	3.5	5	56	2.7	3	8180 -62855	39.94
Nº6	32	4	5	56	3	3	8180 -62862	38.05
Nº8	32	4.5	7	63	3.4	3	8180 -62879	38.05
Nº10	24	6	11	70	4.9	3	8180 -62886	42.24
Nº12	24	6	11	80	4.9	3	8180 -62893	41.03
							~DIN 376	
1/4"	20	4.5	13	80	3.4	3	8180 -59275	18.25
5/16"	18	6	13	90	4.9	3	8180 -59305	21.17
3/8"	16	7	16	100	5.5	3	8180 -59299	26.93
7/16"	14	8	16	100	6.2	3	8180 -59329	37.42
1/2"	13	9	22	110	7	3	8180 -59268	37.90
9/16"	12	11	22	110	9	3	8180 -59343	48.34
5/8"	11	12	22	110	9	4	8180 -59312	56.19
3/4"	10	14	25	125	11	4	8180 -59282	84.45
7/8"	9	18	28	140	14.5	4	8180 -59336	117.11
1"	8	20	32	160	16	4	8180 -59350	140.82

Machine Taps
Standard Applications

UNF

HRF

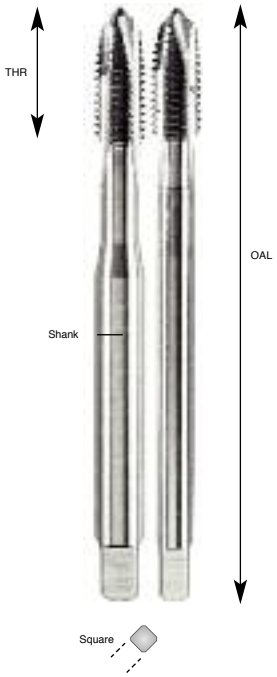
ANSI B1.1	Tol. 2B	~DIN 371 ~DIN 374	HSSE (M35)	



Spiral Point

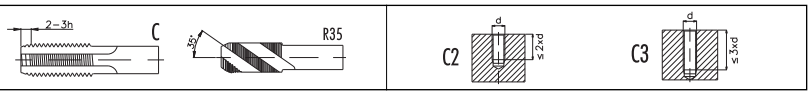
~DIN 371 ~DIN 374

Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							~DIN 371	
N°10	32	6	14	70	4.9	3	8190 -61995	17.31
N°12	28	6	14	80	4.9	3	8190 -62008	22.47
							~DIN 374	
1/4"	28	4.5	14	80	3.4	3	8190 -57370	14.47
5/16"	24	6	20	90	4.9	3	8190 -57400	16.37
3/8"	24	7	20	100	5.5	3	8190 -57394	20.62
7/16"	20	8	20	100	6.2	3	8190 -57424	29.64
1/2"	20	9	22	100	7	3	8190 -57363	29.77
9/16"	18	11	22	100	9	3	8190 -57448	37.69
5/8"	18	12	22	100	9	3	8190 -57417	44.22
3/4"	16	14	25	110	11	4	8190 -57387	66.23
7/8"	14	18	25	125	14.5	4	8190 -57431	91.78
1"	12	18	28	140	14.5	4	8190 -57455	109.93

ANSI B1.1	Tol. 2B	~DIN 371 ~DIN 374	HSSE (M35)	



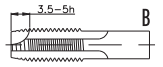
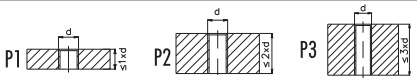
Spiral Flute

~DIN 371 ~DIN 374

Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

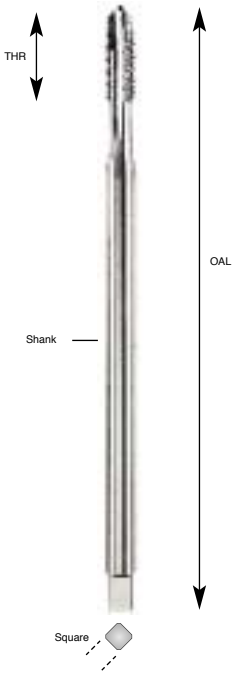
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							~DIN 371	
N°10	32	6	11	70	4.9	3	8200 -62961	22.05
N°12	28	6	11	80	4.9	3	8200 -62978	26.93
							~DIN 374	
1/4"	28	4.5	13	80	3.4	3	8200 -62909	18.25
5/16"	24	6	13	90	4.9	3	8200 -59411	21.17
3/8"	24	7	16	90	5.5	3	8200 -59404	26.93
7/16"	20	8	16	90	6.2	3	8200 -59435	37.42
1/2"	20	9	22	100	7	3	8200 -59381	37.90
9/16"	18	11	22	100	9	3	8200 -59459	48.34
5/8"	18	12	22	100	9	4	8200 -59428	56.19
3/4"	16	14	25	110	11	4	8200 -59398	84.45
7/8"	14	18	25	125	14.5	4	8200 -59442	117.11
1"	12	18	28	140	14.5	4	8200 -59466	140.82

Machine Taps
Standard Applications

	ISO228	Class A	DIN 5156	HSSE (M35)		

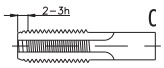
Spiral Point

DIN 5156



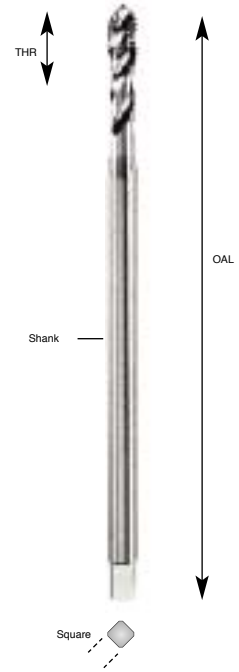
Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
1/8"	28	7	20	90	5.5	3	8210 -56250	22.59
1/4"	19	11	22	100	9	3	8210 -56243	31.68
3/8"	19	12	22	100	9	3	8210 -56274	46.70
1/2"	14	16	25	125	12	4	8210 -56236	66.09
5/8"	14	18	25	125	14.5	4	8210 -56281	94.97
3/4"	14	20	28	140	16	4	8210 -56267	87.09
7/8"	14	22	28	150	18	5	8210 -56298	149.08
1"	11	25	30	160	20	5	8210 -56304	169.27

	ISO 228	Class A	DIN 5156	HSSE (M35)		

Spiral Flute

DIN 5156

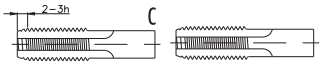
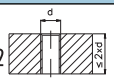


Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
1/8"	28	7	15	90	5.5	3	8220 -58728	26.93
1/4"	19	11	18	100	9	3	8220 -58711	40.41
3/8"	19	12	20	100	9	3	8220 -58742	56.19
1/2"	14	16	25	125	12	4	8220 -58704	84.64
5/8"	14	18	25	125	14.5	4	8220 -58759	105.59
3/4"	14	20	28	140	16	4	8220 -58735	110.75
7/8"	14	22	28	150	18	5	8220 -58766	190.56
1"	11	25	30	160	20	5	8220 -58773	197.74

Rc (BSPT) Machine Taps
Standard Applications

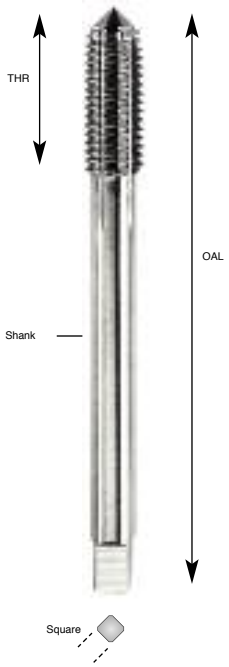
HRF

 DIN 2999		~DIN 5156	HSSE (M35)			

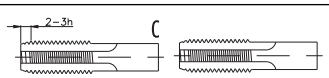
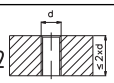
Straight Flute

~DIN 5156

Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
1/8"	28	7	28	90	5.5	3	8230 -52078	63.32
1/4"	19	11	28	100	9	4	8230 -52061	87.09
3/8"	19	12	28	100	9	5	8230 -52092	102.87
1/2"	14	16	36	140	12	5	8230 -52054	126.60
3/4"	14	20	36	140	16	5	8230 -52085	183.51
1"	11	25	40	160	20	6	8230 -52122	248.35

 ANSI B1.20.1		~DIN 374	HSSE (M35)			

NPT

Straight Flute

~DIN 374

Material	N/mm2	V(m/min)	Coolant
1.2 Cementation steels	<700	15-20	Emulsion
1.3 Non alloyed steels	<750	12-18	Emulsion
3.3 Graphite spheroidal	<700	10-15	Emulsion
6.3 Brass long chips	<700	15-20	Emulsion
6.5 Bronze long chips	<700	10-15	Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	⬡ mm	No. FLUTES	PART NUMBER	PRICE £
1/8"	27	8	18	90	6.2	4	8240 -51880	63.32
1/4"	18	11	27	100	9	4	8240 -51873	87.09
3/8"	18	14	27	110	11	5	8240 -51903	102.87
1/2"	14	18	35	140	14.5	5	8240 -51866	126.60
3/4"	14	20	35	140	18	5	8240 -51897	183.51
1"	11.5	25	44.5	160	22	6	8240 -51910	248.35

M

Machine Taps
High Performance - Special Applications

HRF

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)	B	P1	P2	P3
					3,5–5h	≤1xd	≤2xd	≤3xd

VAP — Spiral Point

DIN 371 DIN 376

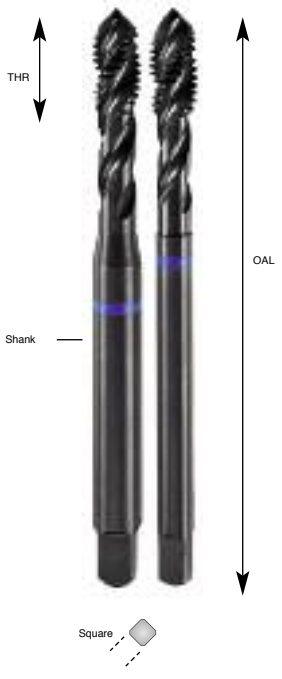
Material	N/mm2	V(m/min)	Coolant
1.1 Steel soft magnetics	<400	20-25	Emulsion
2.1 Stainless sulphured	<850	7-10	Cutting oil
2.2 Stainless austenitic	<850	5-8	Cutting oil
2.3 Stainless ferritic, Martensitic	<850	5-8	Cutting oil
4.1 Titanium pure	<700	10-15	Emulsion
5.1 Nickel pure	<500	8-12	Cutting oil

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◆ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9110 -62145	12.43
4	0.70	4.5	13	63	3.4	3	9110 -62152	12.70
5	0.80	6	14	70	4.9	3	9110 -62169	13.17
6	1.00	6	16	80	4.9	3	9110 -62176	13.29
8	1.25	8	18	90	6.2	3	9110 -62183	15.27
10	1.50	10	22	100	8	3	9110 -62190	19.28
							DIN 376	
8	1.25	6	20	90	4.9	3	9110 -57677	21.70
10	1.50	7	22	100	5.5	3	9110 -57684	23.06
12	1.75	9	27	110	7	3	9110 -57691	23.66
14	2.00	11	30	110	9	3	9110 -57707	29.43
16	2.00	12	30	110	9	3	9110 -57714	34.59
18	2.50	14	34	125	11	4	9110 -57721	46.70
20	2.50	16	34	140	12	4	9110 -57738	55.32

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)	C	R35	C2	C3
					2–3h	45°	≤2xd	≤3xd

VAP — Spiral Flute

DIN 371 DIN 376



Material	N/mm2	V(m/min)	Coolant
1.1 Steel soft magnetics	<400	20-25	Emulsion
2.1 Stainless sulphured	<850	7-10	Cutting oil
2.2 Stainless austenitic	<850	5-8	Cutting oil
2.3 Stainless ferritic, Martensitic	<850	5-8	Cutting oil
4.1 Titanium pure	<700	10-15	Emulsion
5.1 Nickel pure	<500	8-12	Cutting oil

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◆ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	6	56	2.7	3	9120 -63098	13.44
4	0.70	4.5	7	63	3.4	3	9120 -63104	13.65
5	0.80	6	8	70	4.9	3	9120 -63111	14.18
6	1.00	6	10	80	4.9	3	9120 -63128	14.33
8	1.25	8	13	90	6.2	3	9120 -63135	16.43
10	1.50	10	15	100	8	3	9120 -63142	20.69
							DIN 376	
8	1.25	6	13	90	4.9	3	9120 -59633	20.35
10	1.50	7	15	100	5.5	3	9120 -59640	25.10
12	1.75	9	18	110	7	3	9120 -59657	25.50
14	2.00	11	20	110	9	3	9120 -59664	31.68
16	2.00	12	20	110	9	3	9120 -59671	37.21
18	2.50	14	25	125	11	4	9120 -59688	50.23
20	2.50	16	25	140	12	4	9120 -59695	59.51

M Machine Taps
High Performance - Special Applications

HRF

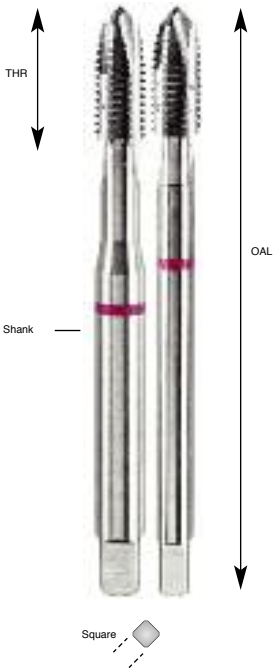
	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)	B

P1 P2 P3

Spiral Point

DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
1.4 Steel alloyed	<850	10-15	Cutting oil Emulsion
1.5 Steel treated alloys	>850 <1200	6-10	Cutting oil Emulsion
3.4 Cast iron graphite spherodical	>700 <1000	5-8	Emulsion



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9130 -62077	15.68
4	0.70	4.5	13	63	3.4	3	9130 -62091	15.68
5	0.80	6	14	70	4.9	3	9130 -62107	15.68
6	1.00	6	16	80	4.9	3	9130 -62114	17.24
8	1.25	8	18	90	6.2	3	9130 -62121	19.60
10	1.50	10	22	100	8	3	9130 -62138	22.99
							DIN 376	
8	1.25	6	20	90	4.9	3	9130 -57592	19.60
10	1.50	7	22	100	5.5	3	9130 -57608	22.99
12	1.75	9	27	110	7	3	9130 -57615	29.91
14	2.00	11	30	110	9	3	9130 -57622	37.69
16	2.00	12	30	110	9	3	9130 -57639	43.99

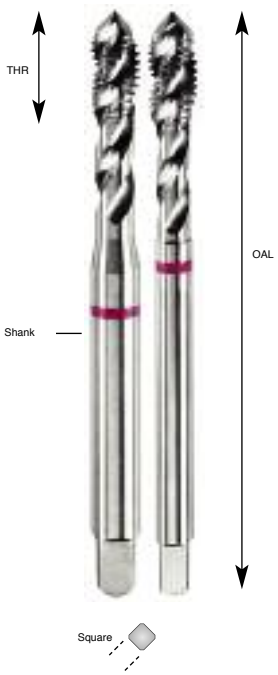
	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)	C

R35 C2 C3

Spiral Flute

DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
1.4 Steel alloyed	<850	10-15	Cutting oil Emulsion
1.5 Steel treated alloys	>850 <1200	6-10	Cutting oil Emulsion
3.4 Cast iron graphite spherodical	>700 <1000	5-8	Emulsion

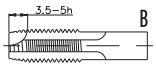
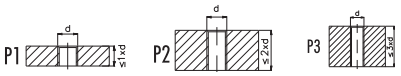


TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	6	56	2.7	3	9140 -63036	17.24
4	0.70	4.5	7	63	3.4	3	9140 -63043	17.24
5	0.80	6	8	70	4.9	3	9140 -63050	17.24
6	1.00	6	10	80	4.9	3	9140 -63067	18.40
8	1.25	8	13	90	6.2	3	9140 -63074	21.58
10	1.50	10	15	100	8	3	9140 -63081	26.38
							DIN 376	
8	1.25	6	13	90	4.9	3	9140 -59589	21.58
10	1.50	7	15	100	5.5	3	9140 -59596	26.38
12	1.75	9	18	110	7	3	9140 -59602	35.67
14	2.00	11	20	110	9	3	9140 -59619	43.38
16	2.00	12	20	110	9	3	9140 -59626	52.41

M

Machine Taps
High Performance - Special Applications

HRF

	 DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)		

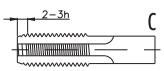
TiALN

Spiral Point

DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
1.4 Treated and alloyed steel	>850 >1200	12-20	Cutting oil Emulsion
1.6 Steel high resistance treated	>850 <1400	8-12	Cutting oil Emulsion
2.4 Stainless ferritic, martensitic	>850 <1200	8-12	Cutting oil Emulsion
3.4 Cast iron graphite spherodical	>700 <1000	10-16	Cutting oil Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9150 -66501	23.96
4	0.70	4.5	13	63	3.4	3	9150 -66518	25.03
5	0.80	6	14	70	4.9	3	9150 -66525	25.70
6	1.00	6	16	80	4.9	3	9150 -66532	26.93
8	1.25	8	18	90	6.2	3	9150 -66549	30.86
10	1.50	10	22	100	8	3	9150 -66556	34.99
							DIN 376	
8	1.25	6	20	90	4.9	3	9150 -66211	30.86
10	1.50	7	22	100	5.5	3	9150 -66228	34.99
12	1.75	9	27	110	7	3	9150 -66235	43.32
14	2.00	11	30	110	9	3	9150 -66242	52.12
16	2.00	12	30	110	9	3	9150 -66259	61.08

	 DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSEX (ASP2023)		

TiALN

Spiral Flute

DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
1.4 Treated and alloyed steel	>850 <1200	12-20	Cutting oil Emulsion
1.6 Steel high resistance treated	>850 <1400	8-12	Cutting oil Emulsion
2.4 Stainless ferritic, martensitic	>850 <1200	8-12	Cutting oil Emulsion
3.4 Cast iron graphite spherodical	>700 <1000	10-16	Cutting oil Emulsion

TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	6	56	2.7	3	9160 -66624	25.64
4	0.70	4.5	7	63	3.4	3	9160 -66631	26.52
5	0.80	6	8	70	4.9	3	9160 -66648	26.93
6	1.00	6	10	80	4.9	3	9160 -66655	27.88
8	1.25	8	13	90	6.2	3	9160 -66662	32.95
10	1.50	10	15	100	8	3	9160 -66679	38.44
							DIN 376	
8	1.25	6	13	90	4.9	3	9160 -66310	32.95
10	1.50	7	15	100	5.5	3	9160 -66327	38.44
12	1.75	9	18	110	7	3	9160 -66334	48.88
14	2.00	11	20	110	9	3	9160 -66341	58.30
16	2.00	12	20	110	9	3	9160 -66358	69.47

M Machine Taps
High Performance - Special Applications

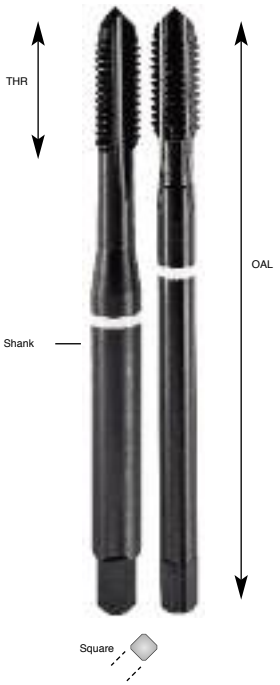
HRF

DIN 13	Tol. ISO 2 6HX	DIN 371 DIN 376	HSSE (M35)	2–3h, C, P1 ≤1xd, P2 ≤2xd, C1 ≤1xd, C2 ≤2xd

NIT Straight Flute

Material	N/mm2	V(m/min)	Coolant
3.1 Cast iron grey	<500	10-15	Emulsion

DIN 371 DIN 376



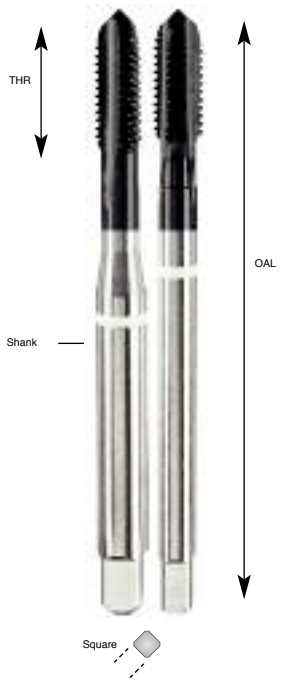
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9170 -60936	11.75
4	0.70	4.5	13	63	3.4	3	9170 -60943	11.27
5	0.80	6	14	70	4.9	3	9170 -60950	11.22
6	1.00	6	16	80	4.9	4	9170 -60967	12.31
8	1.25	8	18	90	6.2	4	9170 -60974	14.04
10	1.50	10	22	100	8	4	9170 -60981	16.90
							DIN 376	
8	1.25	6	20	90	4.9	4	9170 -53259	14.04
10	1.50	7	22	100	5.5	4	9170 -53273	16.90
12	1.75	9	27	110	7	4	9170 -53280	21.44
14	2.00	11	30	110	9	5	9170 -53297	29.91
16	2.00	12	30	110	9	5	9170 -53303	36.61
18	2.50	14	34	125	11	5	9170 -64736	67.70
20	2.50	16	34	140	12	5	9170 -53310	72.38

DIN 13	Tol. ISO 2 6HX	DIN 371 DIN 376	HSSE (M35)	2–3h, C, P1 ≤1xd, P2 ≤2xd, C1 ≤1xd, C2 ≤2xd

TiCN Straight Flute

Material	N/mm2	V(m/min)	Coolant
3.1 Cast iron grey	<500	10-15	Emulsion
3.2 Cast iron grey	>500 <1000	10-16	Emulsion

DIN 371 DIN 376



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9180 -64903	17.85
4	0.70	4.5	13	63	3.4	3	9180 -64910	18.05
5	0.80	6	14	70	4.9	3	9180 -64927	18.05
6	1.00	6	16	80	4.9	4	9180 -64934	19.14
8	1.25	8	18	90	6.2	4	9180 -64941	22.85
10	1.50	10	22	100	8	4	9180 -64958	27.59
							DIN 376	
8	1.25	6	20	90	4.9	4	9180 -64965	22.85
10	1.50	7	22	100	5.5	4	9180 -64972	27.59
12	1.75	9	27	110	7	4	9180 -64989	34.65
14	2.00	11	30	110	9	5	9180 -64996	44.41
16	2.00	12	30	110	9	5	9180 -65009	51.38
18	2.50	14	34	125	11	5	9180 -65016	85.48
20	2.50	16	34	140	12	5	9180 -65023	96.58

M Machine Taps
High Performance - Special Applications

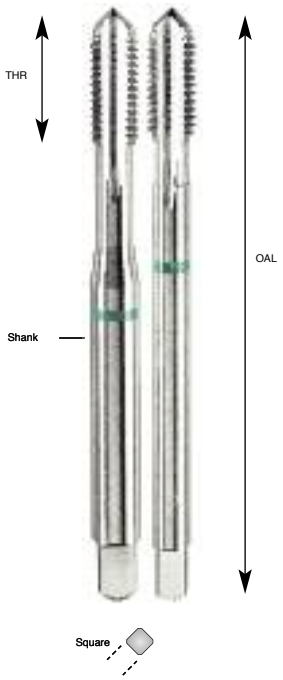
HRF

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	1.5–2h E	P1 d ≤1d	P2 d ≤2d	C1 d ≤1d	C2 d ≤2d

Straight Flute

Material	N/mm2	V(m/min)	Coolant
6.2 Brass short chip	<700	25-35	Cutting oil
6.4 Bronze short chip	<700	4-6	Cutting oil

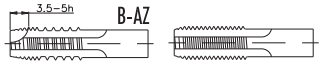
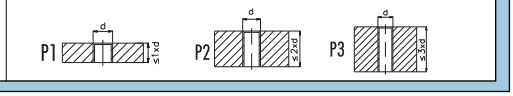
DIN 371 DIN 376



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9190 -66433	9.85
4	0.70	4.5	13	63	3.4	3	9190 -66440	10.11
5	0.80	6	14	70	4.9	3	9190 -66457	10.11
6	1.00	6	16	80	4.9	3	9190 -66464	11.48
8	1.25	8	18	90	6.2	3	9190 -66471	12.89
10	1.50	10	22	100	8	3	9190 -66488	14.86
							DIN 376	
8	1.25	6	20	90	4.9	3	9190 -66082	12.89
10	1.50	7	22	100	5.5	3	9190 -66099	14.86
12	1.75	9	27	110	7	3	9190 -66105	19.07
14	2.00	11	30	110	9	3	9190 -66112	25.43
16	2.00	12	30	110	9	3	9190 -66129	29.84

M Machine Taps
High Performance - Special Applications

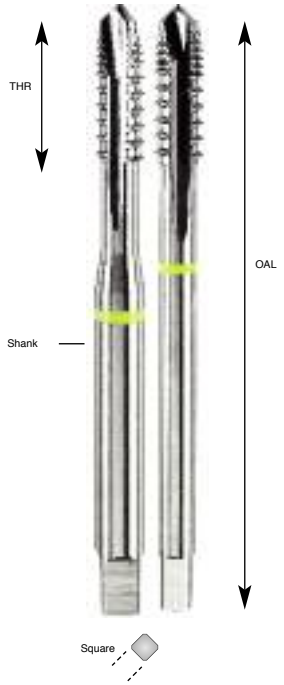
HRF

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	 

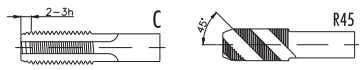
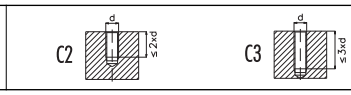
Spiral Point

Material	N/mm2	V(m/min)	Coolant
7.1 Aluminium magnesium non alloyed	<350	10-15	Emulsion
7.5 Magnesium alloys	<450	10-15	Emulsion

DIN 371 DIN 376



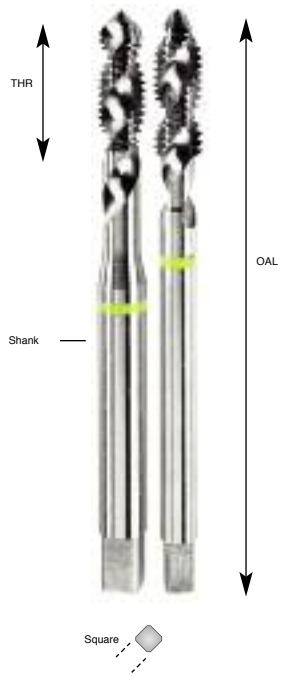
TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9200 -62442	16.02
4	0.70	4.5	13	63	3.4	3	9200 -62466	16.02
5	0.80	6	14	70	4.9	3	9200 -62473	16.02
6	1.00	6	16	80	4.9	3	9200 -62480	17.05
8	1.25	8	18	90	6.2	3	9200 -62497	20.29
10	1.50	10	22	100	8	3	9200 -62503	23.74
							DIN 376	
8	1.25	6	20	90	4.9	3	9200 -58117	20.29
10	1.50	7	22	100	5.5	3	9200 -58131	23.74
12	1.75	9	27	110	7	3	9200 -58148	29.98
14	2.00	11	30	110	9	3	9200 -58155	37.56
16	2.00	12	30	110	9	3	9200 -58162	49.42

	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	 

Spiral Flute

Material	N/mm2	V(m/min)	Coolant
7.1 Aluminium magnesium non alloyed	<350	10-15	Emulsion
7.5 Magnesium alloys	<450	10-15	Emulsion

DIN 371 DIN 376



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	2	9210 -63395	12.15
4	0.70	4.5	13	63	3.4	2	9210 -63418	12.49
5	0.80	6	14	70	4.9	2	9210 -63425	12.97
6	1.00	6	16	80	4.9	2	9210 -63432	13.11
8	1.25	8	18	90	6.2	2	9210 -63456	15.07
10	1.50	10	22	100	8	2	9210 -63463	18.18
							DIN 376	
8	1.25	6	20	90	4.9	2	9210 -59909	19.82
10	1.50	7	22	100	5.5	2	9210 -59923	20.62
12	1.75	9	27	110	7	2	9210 -59930	22.52
14	2.00	11	30	110	9	2	9210 -59947	27.95
16	2.00	12	30	110	9	2	9210 -65245	32.69

M

Machine Taps
High Performance - Special Applications

HRF

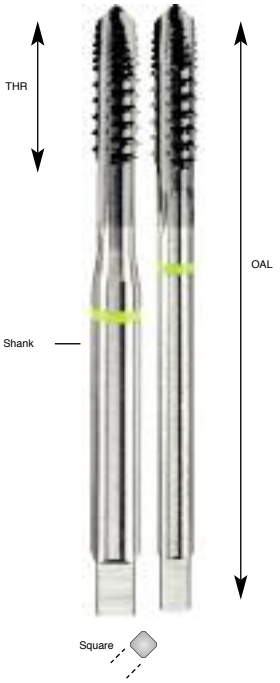
	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	3.5–5h B-AZ	P1 P2 P3

CrN

Spiral Point

DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
7.1 Aluminium magnesium non alloyed	<350	20-30	Emulsion
7.2 Alloys with Si<0.5%	<400	20-30	Cutting oil
7.3 Alloys with Si <10%	<400	20-30	Emulsion
7.5 Magnesium alloys	<400	20-30	Emulsion



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	3	9220 -66563	22.66
4	0.70	4.5	13	63	3.4	3	9220 -66570	23.47
5	0.80	6	14	70	4.9	3	9220 -66587	23.74
6	1.00	6	16	80	4.9	3	9220 -66594	24.63
8	1.25	8	18	90	6.2	3	9220 -66600	29.03
10	1.50	10	22	100	8	3	9220 -66617	33.37
							DIN 376	
8	1.25	6	20	90	4.9	3	9220 -66266	29.03
10	1.50	7	22	100	5.5	3	9220 -66273	33.37
12	1.75	9	27	110	7	3	9220 -66280	40.41
14	2.00	11	30	110	9	3	9220 -66297	49.02
16	2.00	12	30	110	9	3	9220 -66303	63.04

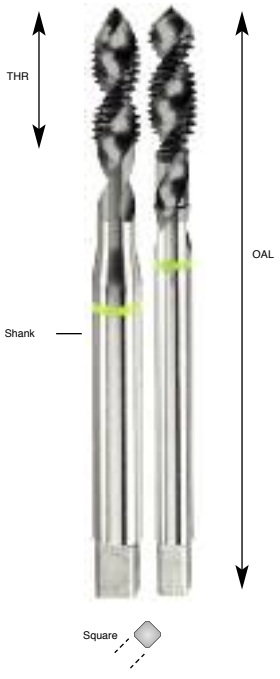
	DIN 13	Tol. ISO 2 6H	DIN 371 DIN 376	HSSE (M35)	2–3h C R45	C2 C3

CrN

Spiral Flute

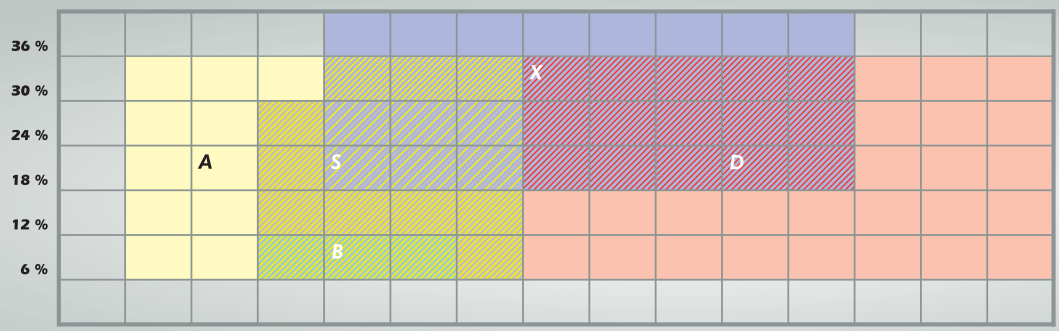
DIN 371 DIN 376

Material	N/mm2	V(m/min)	Coolant
7.1 Aluminium magnesium non alloyed	<350	20-30	Emulsion
7.2 Alloys with Si<0.5%	<400	20-30	Cutting oil
7.3 Alloys with Si <10%	<400	20-30	Emulsion
7.5 Magnesium alloys	<400	20-30	Emulsion



TAP DIA	PITCH	SHANK DIA mm	THR mm	OAL mm	◇ mm	No. FLUTES	PART NUMBER	PRICE £
							DIN 371	
3	0.50	3.5	11	56	2.7	2	9230 -66693	21.17
4	0.70	4.5	13	63	3.4	2	9230 -66709	22.12
5	0.80	6	14	70	4.9	2	9230 -66716	22.52
6	1.00	6	16	80	4.9	2	9230 -66723	23.82
8	1.25	8	18	90	6.2	2	9230 -66730	28.02
10	1.50	10	22	100	8	2	9230 -66747	32.28
							DIN 376	
8	1.25	6	20	90	4.9	2	9230 -66389	28.02
10	1.50	7	22	100	5.5	2	9230 -66396	32.28
12	1.75	9	27	110	7	2	9230 -66402	37.56
14	2.00	11	30	110	9	2	9230 -66419	51.05
16	2.00	12	30	110	9	2	9230 -66426	66.56

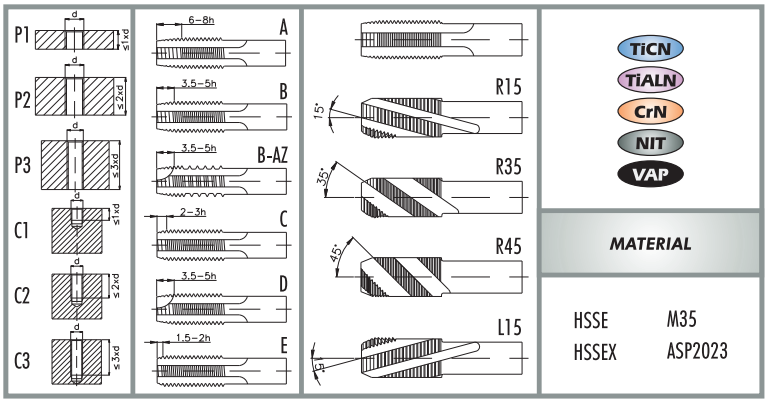
MATERIAL EXAMPLES



MATERIAL		HARDNESS (HB)	RESISTANCE (N/mm2)	NORM No	DIN	UNE	AFNOR	BS	UNI	AISI
1. STEEL	1.1 SOFT MAGNETICS	<120	<400	1.1013 1.1015	Rfe 100 Rfe 60					
	1.2 CEMENTATION	<200	<700	1.0037 1.0401	Fe 360 B (RSt 37-2) C15	AE235B, Fe360B F.111	E 24-2 AF 37 C12	Fe 360 B 080 A 15	Fe 360 B.C,D C15	A 283 Gr.C M 1015
	1.3 NON ALLOYED CARBON	<225	<750	1.0503 1.0535	C45 C55	F.114 F.115	1 C45 1 C55	060 A 47 070 M 55	C45 C55	1045 1055
	1.4 ALLOYED	<250	<850	1.2363 1.3243	X 100 CrMoV5 1 S 6 5 2 5	F.5227 F.5613	Z 100 CDV 5 Z85WDKCV.06.05.05.04.02	BA 2 BM 35	X 100 CrMoV5 1 KU HS 6-5-2-5	A2 M 35
	1.5 TREATED AND ALLOYED	>250 <350	>850 <1200	1.2343 1.8515	X 38 CrMoV 51 31 CrMo 12	F.5317 F.1712	Z 38 CDV 5 30 CD 12	BH 11 722 M 24	X 37 CrMoV51 KU 32 CrMo12	H11
	1.6 HIGH RESISTANCE TREATED	>250 <410	>850 <1400	1.2343 1.8515	X 38 CrMoV 51 31 CrMo 12	F.5317 F.1712	Z 38 CDV 5 30 CD 12	BH 11 722 M 24	X 37 CrMoV51 KU 32 CrMo12	H11
2. STAINLESS STEEL	2.1 SULPHURED	<250	<850	1.4104 1.4305	X 12 CrMoS 17 X 10 CrNiS 18 09	F.3117 F.3508	Z 13CF17 Z 8CNF18.09	303 S 21	X 10 CrS 17 X 10 CrNiS 18 09	430 F 303
	2.2 AUSTENITIC	<250	<850	1.4301 1.4435	X 5 CrNi 18 10 X 2 CrNiMo 18 14 3	F.3504 F.3533	Z 6CN18.09 Z 3CND17.11.02	304 S 15 316 S 61	X 5 CrNi 18 10 X 2 CrNiMo 17 13	304 316 L
	2.3 FERRITIC, MARTENSITIC	<250	<850	1.4021 1.4057	X 20 Cr 13 X 20 CrNi 17 2	F.3402 F.3427	Z 20C13 Z 15CN16.02	420 S 37 431 S 29	X 20 Cr 13 X 16 CrNi 16	420 431
	2.4 FERRITIC, MARTENSITIC	>250 <350	>850 <1200	1.4006 1.4016	X 10 Cr 13 X 6 Cr 17	F.3401 F.3113	Z 10C13 Z 8C17	410 C 21 430 S 17	X 12 Cr 13 X 8 Cr 17	410 430
3. CAST IRON	3.1 GREY	<150	<500	0.6015 0.6035	GG-15 GG-35	FG15 FG35	Ft 20 D Ft 35 D	Grade 150 Grade 350	G15 G35	A 48-25 B A 48-50 B
	3.2 GREY	>150 <300	>500 <1000	0.6025 0.6035	GG-25 GG-35	FG25 FG35	Ft 30 D Ft 35 D	Grade 260 Grade 350	G25 G35	A 48-40 B A 48-50 B
	3.3 GRAPHITE SPHEROIDAL	<200	<700	0.7040 0.7060	GGG-40 GGG-60		FGS 400-12 FGS 600.3	420/12 600/3	GS 420/12 GS 600/3	60-40-18 80-55-06
	3.4 GRAPHITE SPHEROIDAL	>200 <300	>700 <1000	0.7070 0.7080	GGG-70 GGG-80		FGS 700.2 FGS 800.2	700/2 800/2	GS 700/2 GS 800/2	100-70-03 120-90-02
4. TITANIUM	4.1 PURE	< 200	< 700	3.7024.1LN 3.7055	Ti 99,5 Grade 1 Ti 99,4 Grade 3		T35 T50			
	4.2 TITANIUM ALLOYS	< 270	< 900	3.7124 LN 3.7164 LN	TiCu 2,5 TiAl 6 v-Grade 5		T-U2 T-AGV	2TA10		
	4.3 TITANIUM ALLOYS	>270 <350	>900 <1250	3.7124 LN 3.7164 LN	TiCu 2,5 TiAl 6 v-Grade 5		T-U2 T-AGV	2TA10		
5. NICKEL	5.1 PURE	<150	<500	2.4042 2.4062	Ni 99 Csi Ni 99,4 Fe					
	5.2 NICKEL ALLOYS	<270	<900	2.4360 LN 2.4816	Monel 400 Inconel 600					
	5.3 NICKEL ALLOYS	>270 <350	>900 <1200	2.4631 2.4668	Nimonic 80 A Inconel 718					
6. COPPER	6.1 PURE	<100	<350	2.0060 2.0090	E-Cu 57 SF-Cu		Cu-ETP-2/C101 Cu-bl	Cu-ETP-2/C101 Cu-DHP/C106		C12200/DHP
	6.2 BRASS SHORT CHIP	<200	<700	2.0380 2.0402	CuZn 39 Pb2 (Ms58) CuZn 40 Pb2 (Ms58)		CuZn40 CuZn39Pb2	CZ 109 CZ 122		C 28000 C 38000
	6.3 BRASS LONG CHIP	<200	<700	2.0250 2.0265	CuZn 20 (Ms 80) CuZn 30 (Ms 70)		CuZn20 CuZn30	CZ 103 CZ 106		C 24000 C 26000
	6.4 BRONZE SHORT CHIP	<200	<700	2.1086 2.1096	G-CuSn 10 Zn G-CuSn5 ZnPb		CuPb5Sn5Zn5	CT1 LG2		C 90250 C 83600
	6.5 BRONZE LONG CHIP	<200	<700	2.1020 2.1030	CuSn 6 CuSn 8	C7150				
7. ALUMINIUM MAGNESIUM	7.1 NON ALLOYED	<100	<350	3.0250 3.0305	Al 99,5 H Al 99,9					
	7.2 ALLOYS WITH Si < 0.5%	<120	<400	3.0515 3.1355	AlMn1 AlCuMg 2	L-3811 L-3140	A-U4G1	N3 2L97	3568 3583	3103 2024
	7.3 ALLOYS WITH Si < 10%	<120	<400	3.2134 3.2373	G-AlSi 5 Cu 1 Mg G-AlSi 9 Mg	L-2571	A-S4GU A7-S10G	LM16	3600	355.1
	7.4 ALLOYS WITH Si >10%	<120	<400	3.2381 3.2581	G-AlSi 10 Mg G-AlSi 12	L-2560 L-2520	A-S10G A-S13	LM9 LMS	4514	A360 A413
	7.5 MAGNESIUM ALLOYS	<120	<400	3.5312 3.5161	MgAl 3 Zn, AZ 31 MgZn 6 Zr, ZK 60	AZ31 ZK60	G-A3Z1, AZ31 ZK60	AZ31, MAG11 MAG161, ZWU, ZK60	AZ31 ZK60	SAE52, SAE510 ZK60
8. PLASTICS	8.1 THERMOPLASTICS		50	NYLON PVC				PVC		
	8.2 HARD PLASTICS		80	BAQUELITA PERTINAX						

Technical Information

HOLE	CHAMFER	FLUTES	SURFACE



MATERIAL	
HSSE	M35
HSSEX	ASP2023

S

Tool Series			
8240	8110	8120
8230	8170	8200
	8210	8160
	8190	8180
	8150	8220
HOLE	P,C-1,2	P1,2,3	C2,3
CHAMFER	C	B	C
FLUTE			R35
SURFACE			
MATERIAL	HSSE	HSSE	HSSE
TOLERANCE	6H	6H	6H

APPLICATION

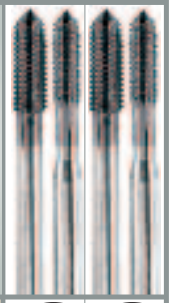
● OK

○ ~OK with previous transformation

COOLANT

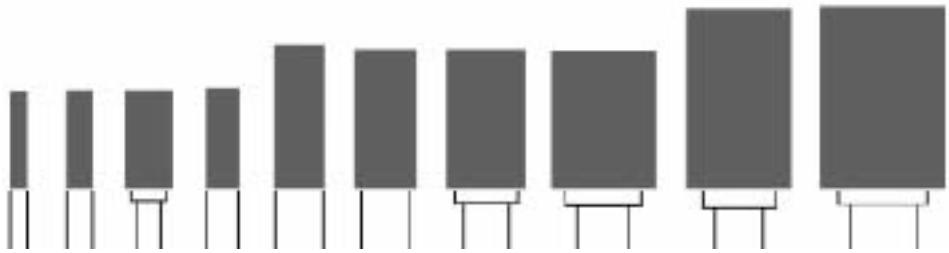
- CUTTING OIL 1
- OIL WITH ADITIVE 2
- EMULSION 3
- DRY 4

MATERIAL		HARDNESS (HB)	RESISTANCE (N/mm2)	V (m/min) Without coating VAP / NIT	V (m/min) With coating TiALN/TiCN/CrN			
1. STEEL	1.1 SOFT MAGNETICS	<120	<400	20-25	40-50	○ 3	○ 3	○ 3
	1.2 CEMENTATION	<200	<700	15-20	30-40	● 3	● 3	● 3
	1.3 NON ALLOYED CARBON	<225	<750	12-18	24-36	● 3	● 3	● 3
	1.4 ALLOYED	<250	<850	10-15	20-30	○ 1/3	○ 1/3	○ 1/3
	1.5 TREATED AND ALLOYED	>250 <350	>850 <1200	6-10	12-20			
	1.6 HIGH RESISTANCE TREATED	>250 <410	>850 <1400	4-6	8-12			
2. STAINLESS STEEL	2.1 SULPHURED	<250	<850	7-10	14-20			
	2.2 AUSTENITIC	<250	<850	5-8	10-16			
	2.3 FERRITIC,MARTENSITIC	<250	<850	5-8	10-16			
	2.4 FERRITIC,MARTENSITIC	>250 <350	>850 <1200	4-6	8-12			
3. CAST IRON	3.1 GREY	<150	<500	10-15	20-30			
	3.2 GREY	>150 <300	>500 <1000	5-8	10-16			
	3.3 GRAPHITE SPHEROIDAL	<200	<700	10-15	20-30	○ 3	● 3	● 3
	3.4 GRAPHITE SPHEROIDAL	>200 <300	>700 <1000	5-8	10-16			
4. TITANIUM	4.1 PURE	< 200	< 700	10-15	20-30			
	4.2 TITANIUM ALLOYS	< 270	< 900	8-12	16-24			
	4.3 TITANIUM ALLOYS	>270 <350	>900 <1250	4-6	8-12			
5. NICKEL	5.1 PURE	<150	<500	8-12	16-24			
	5.2 NICKEL ALLOYS	<270	<900	3-5	6-10			
	5.3 NICKEL ALLOYS	>270 <350	>900 <1200	2-4	4-8			
6. COPPER	6.1 PURE	<100	<350	6-8	12-16			
	6.2 BRASS SHORT CHIP	<200	<700	25-35	50-70			
	6.3 BRASS LONG CHIP	<200	<700	15-20	30-40	○ 3	● 3	● 3
	6.4 BRONZE SHORT CHIP	<200	<700	4-6	8-12			
	6.5 BRONZE LONG CHIP	<200	<700	10-15	20-30	○ 3	● 3	● 3
7. ALUMINIUM MAGNESIUM	7.1 NON ALLOYED	<100	<350	10-15	20-30			
	7.2 ALLOYS WITH SI<0,5%	<120	<400	10-15	20-30			
	7.3 ALLOYS WITH SI<10%	<120	<400	10-15	20-30		○ 3	○ 3
	7.4 ALLOYS WITH SI>10%	<120	<400	10-15	20-30		○ 3	○ 3
	7.5 MAGNESIUM ALLOYS	<120	<400	10-15	20-30			
8. PLASTICS	8.1 THERMOPLASTICS		50	10-15	20-30		○ 4/5	○ 4/5
	8.2 HARDPLASTICS		80	10-15	20-30			

F		B	X		D				A				S (A>12%)	
9170	9180	9190	9110	9120	9130	9150	9140	9160	9200	9220	9210	9230	8130	8140
P,C-1,2	P,C-1,2	P,C-1,2	P1,2,3	C2,3	P1,2,3	P1,2,3	C2,3	C2,3	P1,2,3	P1,2,3	C2,3	C2,3	P,C-123	P,C-123
C	C	E	B	C	B	B	C	C	B-AZ	B-AZ	C	C	C	C
				R35			R35	R35			R45	R45	NO	NO
NIT	TiCN		VAP	VAP		TiALN		TiALN		CrN		CrN	TiCN	TiCN
HSSE	HSSE	HSSE	HSSEX	HSSEX	HSSEX	HSSEX	HSSEX	HSSEX	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
6HX	6HX	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6H	6HX	6GX
														
													V (m/min) Without coating VAP / NIT	V (m/min) With coating TiCN TiNAl/CrN
			● 3	● 3									20-25	40-50
			○ 3	○ 3									15-20	30-40
													12-18	24-36
					● 1/3	○ 1/3	● 1/3	○ 1/3					10-15	20-30
					● 1/3	● 1/3	● 1/3	● 1/3					6-10	12-20
					○ 1/3	● 1/3	○ 1/3	● 1/3					4-6	8-12
			● 1	● 1									7-10	14-20
			● 1	● 1									5-8	10-16
			● 1	● 1	○ 1	○ 1	○ 1	○ 1					5-8	10-16
			○ 1	○ 1	○ 1	● 1	○ 1	● 1					4-6	8-12
● 3	● 3												10-15	20-30
○ 3	● 3												5-8	10-16
													10-15	20-30
					● 3	● 3	● 3	● 3					5-8	10-16
			● 3	● 3									10-15	20-30
					○ 1	○ 1	○ 1	○ 1					8-12	16-24
					○ 1	○ 1	○ 1	○ 1					4-6	8-12
			● 1	● 1									8-12	16-24
					○ 1	○ 1	○ 1	○ 1					3-5	6-10
					○ 1	○ 1	○ 1	○ 1					2-4	4-8
			○ 3	○ 3					○ 3	○ 3	○ 3	○ 3	6-8	12-16
○ 1	○ 1	● 1											25-35	50-70
													15-20	30-40
○ 1	○ 1	● 1											4-6	8-12
													10-15	20-30
									● 3	● 3	● 3	● 3	10-15	20-30
									○ 1	● 1	○ 1	● 1	10-15	20-30
									○ 3	● 3	○ 3	● 3	10-15	20-30
													10-15	20-30
									● 3	● 3	● 3	● 3	10-15	20-30
									○ 4/5	○ 4/5			10-15	20-30
					○ 1	● 1	○ 1	● 1					10-15	20-30

Tungsten Carbide Burrs
Cylinder - No End Cut
Standard Cut & Double Cut

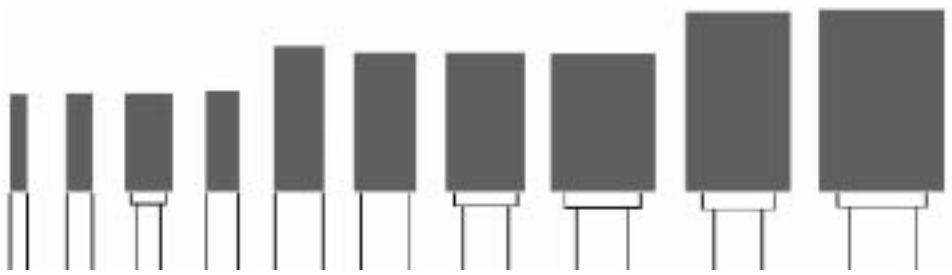
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
2.4	13	2.4	38	M0100	M0101	9.78
3	13	3	38	M0102	M0103	10.98
6	13	3	50	M0104	M0105	15.34
4	13	4	50	M0106	M0107	16.17
6	19	6	50	M0108	M0109	22.28
8	19	6	63	M0110	M0111	25.64
10	19	6	63	M0112	M0113	28.86
12	19	6	69	M0114	M0115	34.57
12	25	6	69	M0116	M0117	40.75
16	25	6	69	M0118	M0119	52.94



Tungsten Carbide Burrs
Cylinder - End Cut
Standard Cut & Double Cut

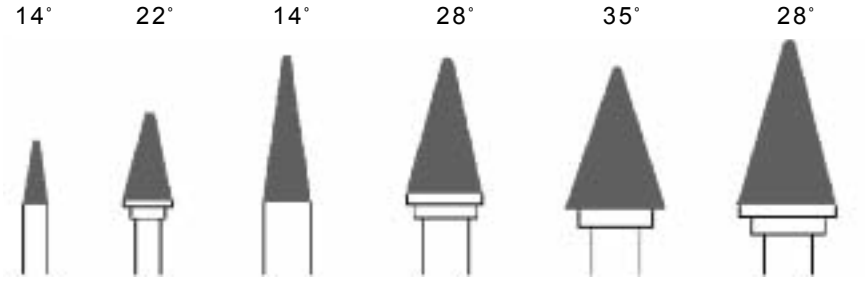
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
2.4	13	2.4	38	M0120	M0121	10.85
3	13	3	38	M0122	M0123	12.56
6	13	3	50	M0124	M0125	20.18
4	13	4	50	M0126	M0127	17.51
6	19	6	50	M0128	M0129	26.73
8	19	6	63	M0130	M0131	31.80
10	19	6	63	M0132	M0133	34.38
12	19	6	70	M0134	M0135	43.56
12	25	6	69	M0136	M0137	48.17
16	25	6	69	M0138	M0139	65.85

Burr application data see page 123



Tungsten Carbide Burrs
Cone - Included Angle
Standard Cut & Double Cut

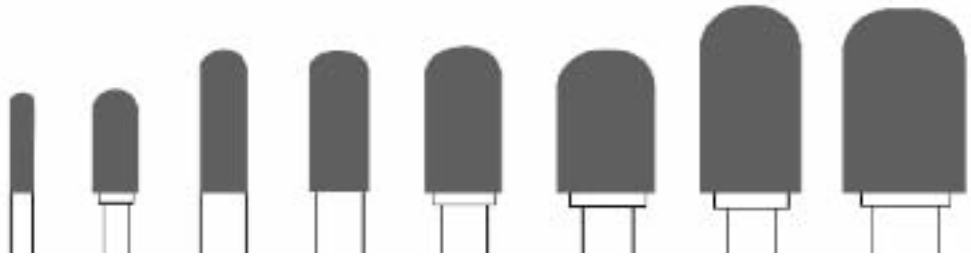
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	11	3	38	M0140	M0141	10.11
6	13	3	54	M0142	M0143	21.55
6	19	6	50	M0144	M0145	24.98
10	16	6	63	M0146	M0147	32.13
12	19	6	75	M0148	M0149	37.74
12	22	6	69	M0160	M0161	34.72



Tungsten Carbide Burrs
Ball Nosed Cylinder
Standard Cut & Double Cut

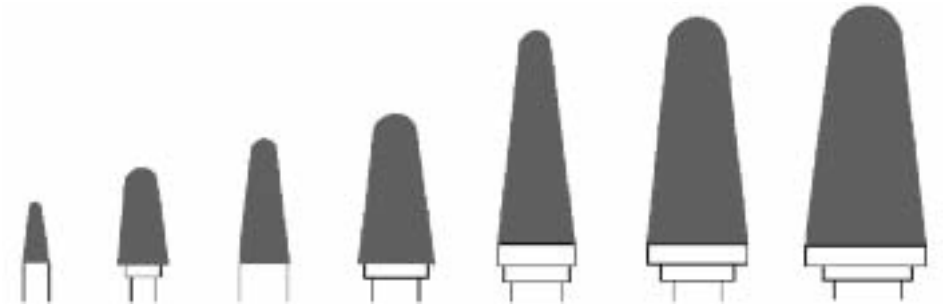
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	13	3	38	M0162	M0163	13.65
6	13	3	50	M0164	M0165	23.39
6	19	6	50	M0166	M0167	25.64
8	19	6	63	M0168	M0169	27.58
10	19	6	63	M0170	M0171	30.18
12	19	6	69	M0172	M0173	36.40
12	25	6	69	M0174	M0175	41.35
16	25	6	69	M0176	M0177	55.53

Burr application data see page 123



Tungsten Carbide Burrs
Ball Nosed Cone - Included Angle 14º
Standard Cut & Double Cut

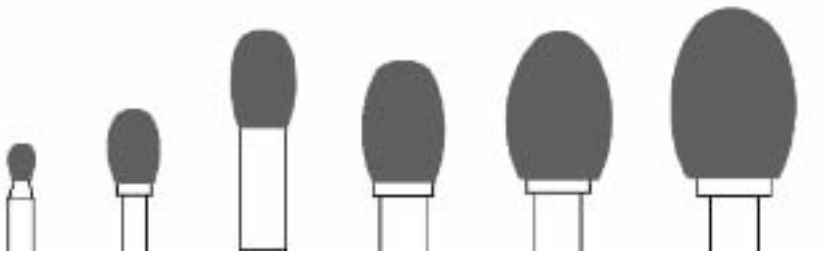
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	8	3	38	M0178	M0179	14.15
6	13	3	53	M0180	M0181	24.38
6	16	6	50	M0182	M0183	30.28
10	19	6	68	M0184	M0185	33.97
10	27	6	74	M0186	M0187	37.64
12	30	6	76	M0188	M0189	41.35
16	33	6	80	M0190	M0191	61.50



Tungsten Carbide Burrs
Oval
Standard Cut & Double Cut

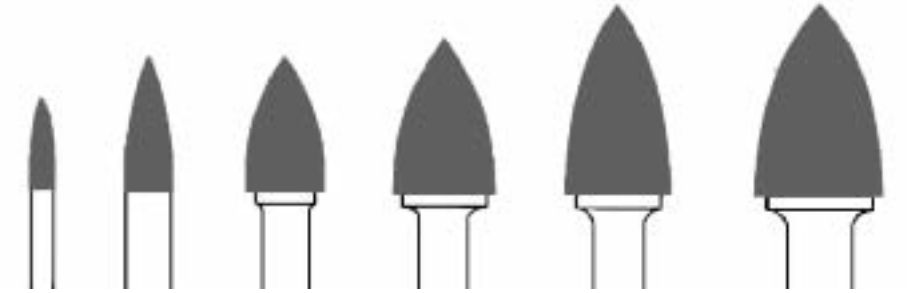
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	6	3	38	M0192	M0193	14.83
6	10	3	47	M0194	M0195	24.38
8	13	6	68	M0196	M0197	28.09
10	16	6	60	M0198	M0199	31.54
12	22	6	66	M0200	M0201	42.86
16	25	6	69	M0202	M0203	56.21

Burr application data see page 123



Tungsten Carbide Burrs
Tree
Standard Cut & Double Cut

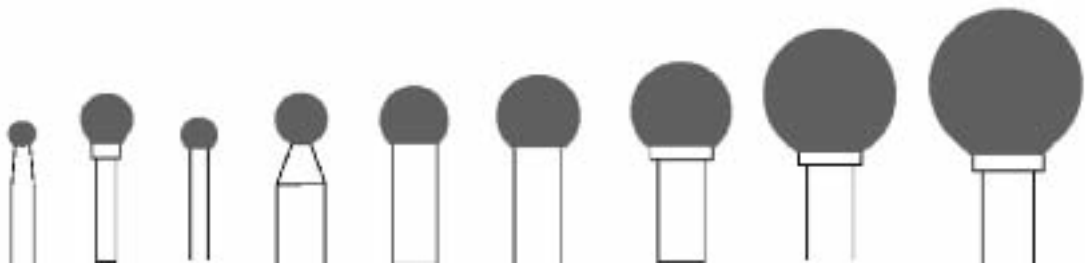
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	13	3	38	M0204	M0205	12.97
6	16	6	50	M0206	M0207	29.18
10	19	6	63	M0208	M0209	30.60
12	19	6	63	M0210	M0211	41.86
12	25	6	69	M0212	M0213	40.75
16	25	6	69	M0214	M0215	59.75



Tungsten Carbide Burrs
Ball
Standard Cut & Double Cut

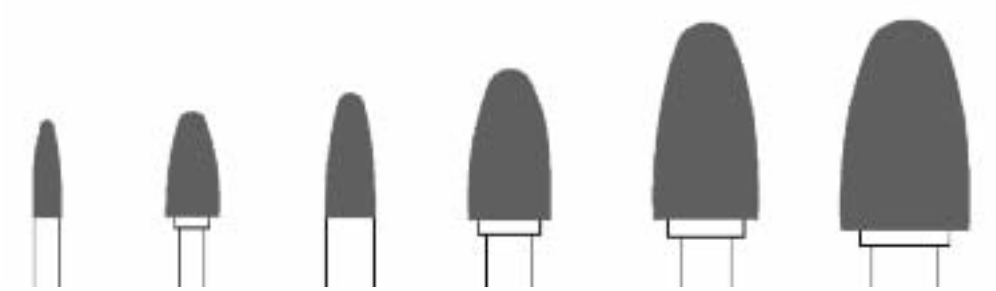
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	2.7	3	38	M0216	M0217	15.51
6	5.4	3	44	M0218	M0219	23.07
4	3.6	3	42	M0220	M0221	30.18
6	5.4	6	50	M0222	M0223	27.58
8	7.2	6	50	M0224	M0225	22.72
10	9	6	52	M0226	M0227	23.39
12	10.8	6	55	M0228	M0229	29.45
16	14.4	6	58	M0230	M0231	44.54
19	17.1	6	62	M0232	M0233	63.95

Burr application data see page 123



Tungsten Carbide Burrs
Ball Nosed Tree
Standard Cut & Double Cut

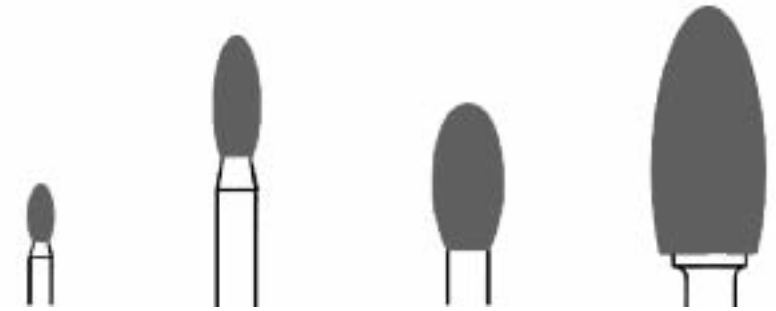
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	13	3	38	M0234	M0235	14.15
6	13	3	50	M0236	M0237	24.38
6	16	6	50	M0238	M0239	30.60
10	19	6	63	M0240	M0241	33.04
12	25	6	69	M0242	M0243	43.44
16	25	6	69	M0244	M0245	54.20



Tungsten Carbide Burrs
Flame
Standard Cut & Double Cut

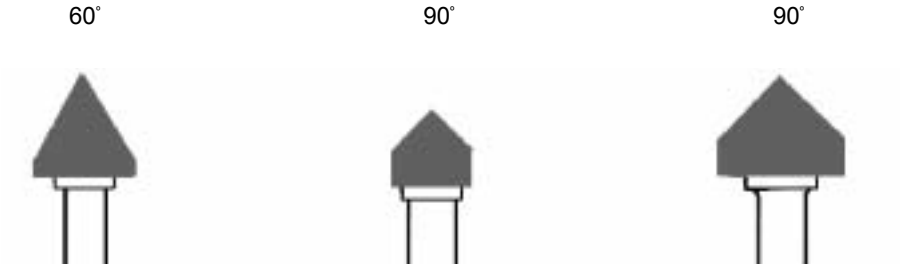
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	8	3	38	M0246	M0247	14.91
6	14	6	50	M0248	M0249	25.91
8	19	6	63	M0250	M0251	28.50
12	32	6	76	M0252	M0253	54.20

Burr application data see page 123



Tungsten Carbide Burrs
Countersink
Standard Cut

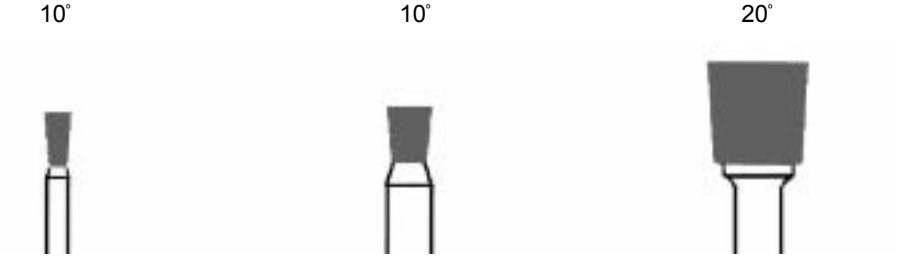
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
12	11	6	58	M0254	N/A	42.86
10	5	6	52	M0256	N/A	25.91
16	8	6	57	M0258	N/A	40.75



Tungsten Carbide Burrs
Inverted Cone - No End Cut
Standard Cut & Double Cut

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
3	6	3	38	M0260	M0261	13.65
6	7	6	50	M0262	M0263	23.65
12	13	6	69	M0264	M0265	39.83

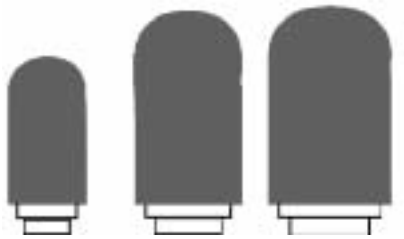
Burr application data see page 123



Tungsten Carbide Burrs
For Aluminium, Plastics & Zinc
Aluminium Cut

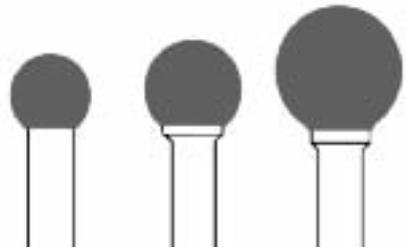
Ball Nosed Cylinder

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	19	6	63	M0300	44.97
12	25	6	69	M0302	60.00
16	25	6	69	M0304	84.59



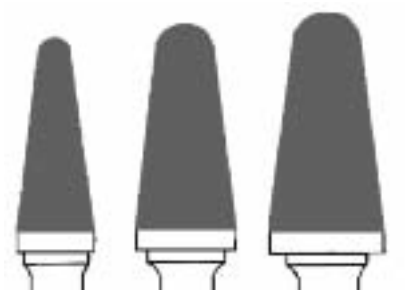
Ball

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	9	6	52	M0306	35.05
12	10.8	6	55	M0308	44.22
16	14.4	6	58	M0310	66.79



Ball Nosed Cone

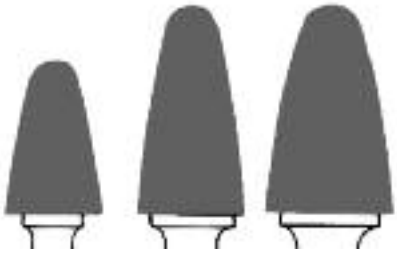
HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	25	6	74	M0312	53.87
12	30	6	76	M0314	68.82
16	33	6	80	M0316	90.41



Tungsten Carbide Burrs
For Aluminium, Plastics & Zinc
Aluminium Cut

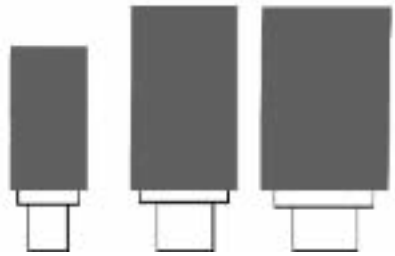
Ball Nosed Tree

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	19	6	63	M0318	42.26
12	25	6	69	M0320	61.58
16	25	6	69	M0322	74.43



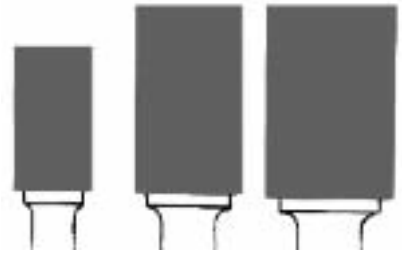
Cylinder End Cut

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	19	6	63	M0324	46.48
12	25	6	69	M0326	65.21
16	25	6	69	M0328	78.63



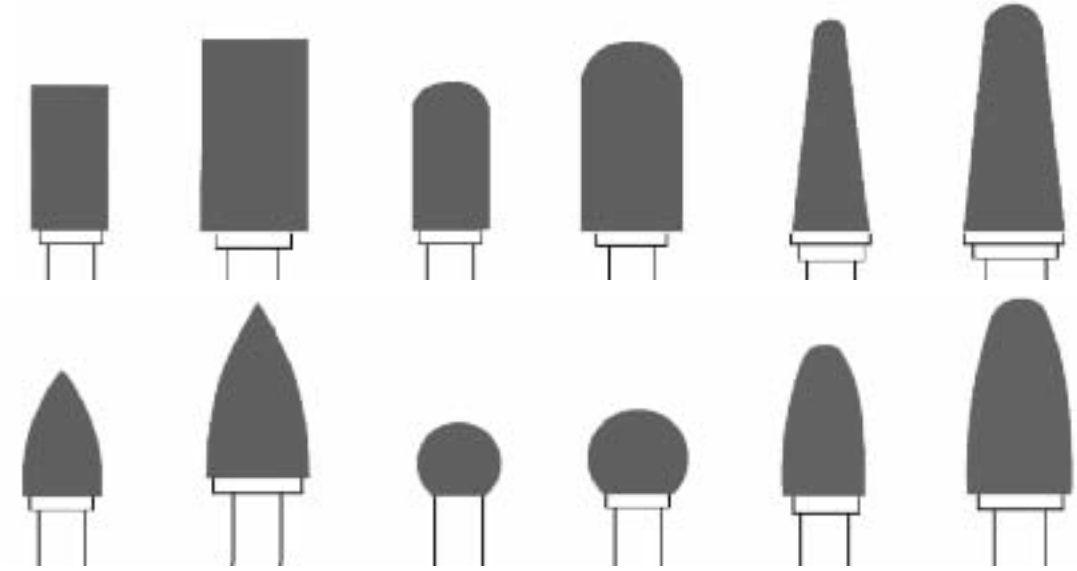
Cylinder No-End Cut

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER	PRICE £
10	19	6	63	M0330	32.34
12	25	6	69	M0332	46.39
16	25	6	69	M0334	62.16



Tungsten Carbide Burrs
Extra-Long Length
Standard Cut & Double Cut

	HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER STANDARD	PART NUMBER DOUBLE	PRICE £
Cylinder No End Cut	10	19	6	169	M0112XL	M0113XL	42.37
Cylinder No End Cut	12	25	6	175	M0116XL	M0117XL	54.71
Ball Nosed Cylinder	10	19	6	169	M0170XL	M0171XL	44.12
Ball Nosed Cylinder	12	25	6	175	M0174XL	M0175XL	56.12
Ball Nosed Cone	10	27	6	177	M0186XL	M0187XL	49.27
Ball Nosed Cone	12	30	6	178	M0188XL	M0189XL	56.12
Tree	10	19	6	169	M0208XL	M0209XL	44.46
Tree	12	25	6	175	M0212XL	M0213XL	55.37
Ball	10	9	6	158	M0226XL	M0227XL	37.59
Ball	12	10.8	6	161	M0228XL	M0229XL	42.11
Ball Nosed Tree	10	19	6	169	M0240XL	M0241XL	46.33
Ball Nosed Tree	12	25	6	175	M0242XL	M0243XL	57.40



Tungsten Carbide Tyre-Burrs
Tyre Routers
Double Cut - Round Shank & 3 Flats

HEAD DIA	HEAD LENGTH	SHANK DIA	OAL	PART NUMBER ROUND	PART NUMBER 3 FLATS	PRICE £ ROUND	PRICE £ 3 FLATS
3	25	3	50	TB0M	TB0MT	26.67	30.68
6	50	6	75	TB1M	TB1MT	53.46	62.35
8	53	8	100	TB2M	TB2MT	62.25	83.75
10	75	10	100	TB3M	TB3MT	89.03	122.90

Burr Application Data

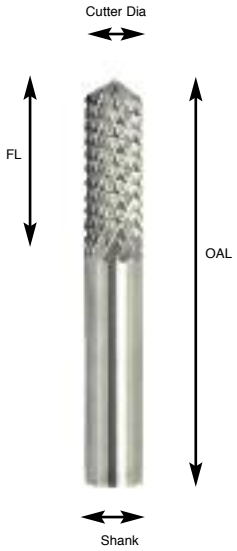
Materials	Double Cut	Single Cut	Aluminium Cut
Aluminium			o
Brass, Bronze, Copper	o	o	
Cast Iron	o	o	
Plastics			o
Steel, 40 - 55rc	o	o	
Steel, 40 - 60rc	o	o	
Steel, Carbon	o	o	
Steel Nickle, Chrome	o	o	
Stainless Steel	o	o	
Steel Weldments	o	o	
Titanium	o	o	
Zinc			o

o = Suitable for use

Recommended R.P.M Guide

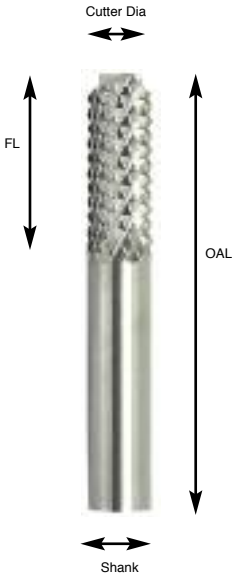
Burr Diameter	R.P.M
3mm Solid Carbide	45,000 - 50,000
6mm Solid Carbide	30,000 - 35,000
6mm Carbide Head Brazed to 3mm Steel Shank	25,000 - 30,000
8mm Carbide Head Brazed to 6mm Steel Shank	25,000 - 30,000
10mm Carbide Head Brazed to 6mm Steel Shank	25,000 - 30,000
12mm Carbide Head Brazed to 6mm Steel Shank	20,000 - 25,000
16mm Carbide Head Brazed to 6mm Steel Shank	15,000 - 20,000
25mm Carbide Head Brazed to 6mm Steel Shank	12,000 - 18,000

Solid Carbide General Purpose Fiberglass Routers Micro-grain K30 - Drill Point Cut



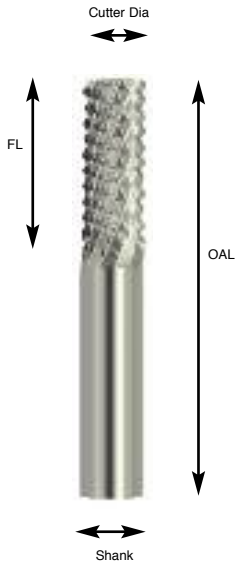
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	3/16"	1-1/2"	FG1 -70101	12.56
3/32"	1/8"	3/8"	1-1/2"	FG2 -70201	12.97
1/8"	1/8"	1/2"	1-1/2"	FG3 -70301	14.23
3/16"	3/16"	5/8"	2"	FG4 -70401	30.77
3/16"	1/4"	5/8"	2"	FG5 -70501	32.04
1/4"	1/4"	3/4"	2"	FG6 -70601	32.04
1/4"	1/4"	3/4"	2-1/2"	FG7 -70701	36.16
1/4"	1/4"	1"	2-1/2"	FG8 -70801	37.99
1/4"	1/4"	3/4"	3"	FG9 -70901	38.67
1/4"	1/4"	1"	3"	FG10 -71001	40.62
1/4"	1/4"	1-1/2"	3"	FG11 -71101	43.22
5/16"	5/16"	1"	2-1/2"	FG12 -71201	55.22
3/8"	3/8"	1"	2-1/2"	FG13 -71301	68.90
1/2"	1/2"	1"	3"	FG14 -71401	115.00

Solid Carbide General Purpose Fiberglass Routers Micro-grain K30 - End-Mill Cut



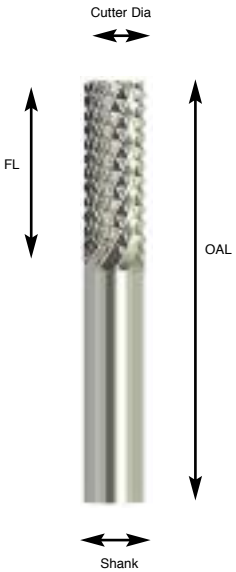
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	3/16"	1-1/2"	FG1 -70102	12.56
3/32"	1/8"	3/8"	1-1/2"	FG2 -70202	12.97
1/8"	1/8"	1/2"	1-1/2"	FG3 -70302	14.23
3/16"	3/16"	5/8"	2"	FG4 -70402	30.77
3/16"	1/4"	5/8"	2"	FG5 -70502	32.04
1/4"	1/4"	3/4"	2"	FG6 -70602	32.04
1/4"	1/4"	3/4"	2-1/2"	FG7 -70702	36.16
1/4"	1/4"	1"	2-1/2"	FG8 -70802	37.99
1/4"	1/4"	3/4"	3"	FG9 -70902	38.67
1/4"	1/4"	1"	3"	FG10 -71002	40.62
1/4"	1/4"	1-1/2"	3"	FG11 -71102	43.22
5/16"	5/16"	1"	2-1/2"	FG12 -71202	55.22
3/8"	3/8"	1"	2-1/2"	FG13 -71302	68.90
1/2"	1/2"	1"	3"	FG14 -71402	115.00

Solid Carbide General Purpose Fiberglass Routers Micro-grain K30 - No End-Cut



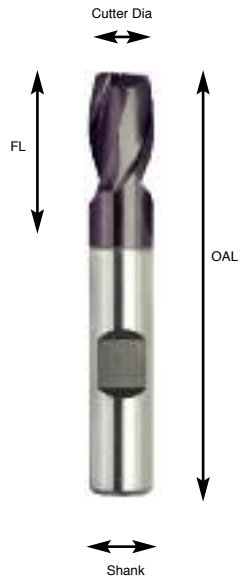
CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	3/16"	1-1/2"	FG1 -70100	12.56
3/32"	1/8"	3/8"	1-1/2"	FG2 -70200	12.97
1/8"	1/8"	1/2"	1-1/2"	FG3 -70300	14.23
3/16"	3/16"	5/8"	2"	FG4 -70400	30.77
3/16"	1/4"	5/8"	2"	FG5 -70500	32.04
1/4"	1/4"	3/4"	2"	FG6 -70600	32.04
1/4"	1/4"	3/4"	2-1/2"	FG7 -70700	36.16
1/4"	1/4"	1"	2-1/2"	FG8 -70800	37.99
1/4"	1/4"	3/4"	3"	FG9 -70900	38.67
1/4"	1/4"	1"	3"	FG10 -71000	40.62
1/4"	1/4"	1-1/2"	3"	FG11 -71100	43.22
5/16"	5/16"	1"	2-1/2"	FG12 -71200	55.22
3/8"	3/8"	1"	2-1/2"	FG13 -71300	68.90
1/2"	1/2"	1"	3"	FG14 -71400	115.00

Solid Carbide General Purpose Fiberglass Routers Micro-grain K30 - Burr End-Cut



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1/16"	1/8"	3/16"	1-1/2"	FG1 -70103	12.56
3/32"	1/8"	3/8"	1-1/2"	FG2 -70203	12.97
1/8"	1/8"	1/2"	1-1/2"	FG3 -70303	14.23
3/16"	3/16"	5/8"	2"	FG4 -70403	30.77
3/16"	1/4"	5/8"	2"	FG5 -70503	32.04
1/4"	1/4"	3/4"	2"	FG6 -70603	32.04
1/4"	1/4"	3/4"	2-1/2"	FG7 -70703	36.16
1/4"	1/4"	1"	2-1/2"	FG8 -70803	37.99
1/4"	1/4"	3/4"	3"	FG9 -70903	38.67
1/4"	1/4"	1"	3"	FG10 -71003	40.62
1/4"	1/4"	1-1/2"	3"	FG11 -72203	43.22
5/16"	5/16"	1"	2-1/2"	FG12 -71203	55.22
3/8"	3/8"	1"	2-1/2"	FG13 -71303	68.90
1/2"	1/2"	1"	3"	FG14 -71403	115.00

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 327 N - 30º Helix
2-Flute Square End Reg. Length-Finishing



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
4	6	7	51	6420 -45400	37.33
5	6	8	52	6420 -45401	37.33
6	6	8	52	6420 -45402	37.12
7	10	10	60	6420 -45403	51.46
8	10	11	61	6420 -45404	46.42
10	10	13	63	6420 -45405	51.46
12	12	16	73	6420 -45406	64.24
14	12	16	73	6420 -45408	81.85
16	16	19	79	6420 -45409	92.95
18	16	19	79	6420 -45410	118.06
20	20	22	88	6420 -45411	128.01

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 W - 45º Helix
3-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
4	6	11	55	6430 -45415	45.21
5	6	13	57	6430 -45417	45.21
6	6	13	57	6430 -45420	45.33
7	10	16	66	6430 -45423	55.79
8	10	19	69	6430 -45426	56.16
10	10	22	72	6430 -45429	60.18
12	12	26	83	6430 -45432	71.23
14	12	26	83	6430 -45438	100.04
16	16	32	92	6430 -45441	110.47
18	16	32	92	6430 -45444	144.22
20	20	38	104	6430 -45447	152.82

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 N - 30º Helix
3-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	7	51	6439 -45723	41.08
3	6	8	52	6439 -45453	41.08
4	6	11	55	6439 -45456	41.08
5	6	13	57	6439 -45459	41.08
6	6	13	57	6439 -45462	42.01
7	10	16	66	6439 -45463	58.98
8	10	19	69	6439 -45465	53.57
10	10	22	72	6439 -45468	63.50
12	12	26	83	6439 -45469	74.76
14	12	26	83	6439 -45471	104.06
16	16	32	92	6439 -45474	108.31
18	16	32	92	6439 -45475	140.92
20	20	38	104	6439 -45477	139.19
25	25	45	121	6439 -45478	226.47

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 N - 55º Helix
4-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
6	6	13	57	6604 -45479	59.18
8	10	19	69	6604 -45480	70.58
10	10	22	72	6604 -45276	79.38
12	12	26	83	6604 -45345	97.71
14	12	26	83	6604 -45396	130.02
16	16	32	92	6604 -45484	140.84
18	16	32	92	6604 -45495	187.52
20	20	38	104	6604 -45509	196.82

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 NR-F - 30º Helix - Fine 3-Flute Square End Reg. Length-Roughers

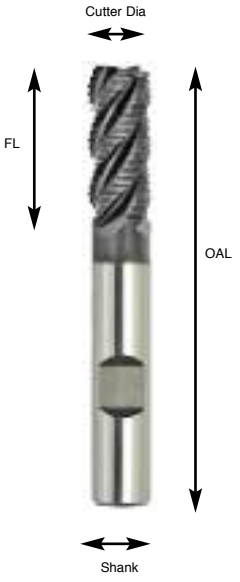
(Special End Mills for Stainless Steel)

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
4	6	11	55	6444 -21017	93.44
5	6	13	57	6444 -21018	93.44
6	6	13	57	6444 -21019	93.44
8	10	19	69	6444 -21020	99.45
10	10	22	72	6444 -21021	105.64
12	12	26	83	6444 -21022	114.73
14	12	26	83	6444 -21023	151.61
16	16	32	92	6444 -21024	163.71
18	16	32	92	6444 -21025	191.27
20	20	38	104	6444 -21026	228.79
25	25	45	121	6444 -21027	351.79
30	25	45	121	6444 -21028	457.31

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 NR-F - 45º Helix - Fine Multi-Flute Square End Reg. Length-Roughers

(Special End Mills for Stainless Steel)



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	6647 -29139	4	86.60
8	10	19	69	6647 -29141	4	93.83
10	10	22	72	6647 -29143	4	90.63
12	12	26	83	6647 -29144	4	116.71
14	12	26	83	6647 -29145	4	139.46
16	16	32	92	6647 -29146	5	171.59
18	16	32	92	6647 -29147	5	187.37
20	20	38	104	6647 -29148	5	232.79
25	25	45	121	6647 -29152	5	343.03

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 N - 30º Helix
Multi-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	6	7	51	6600 -45932	4	40.64
3	6	8	52	6600 -45481	4	40.64
4	6	11	55	6600 -45482	4	40.64
5	6	13	57	6600 -45483	4	40.64
6	6	13	57	6600 -45933	4	40.78
7	10	16	66	6600 -45496	4	54.85
8	10	19	69	6600 -45510	4	51.04
10	10	22	72	6600 -45522	4	56.30
12	12	26	83	6600 -45523	4	68.36
14	12	26	83	6600 -45525	4	85.77
16	16	32	92	6600 -45526	4	100.44
18	16	32	92	6600 -45528	4	131.11
20	20	38	104	6600 -45531	4	138.98
25	25	45	121	6600 -45534	6	228.57
32	32	53	133	6600 -45222	6	339.52

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 N - 30º Helix
Multi-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	24	68	6606 -45541	4	51.54
8	10	38	88	6606 -45544	4	67.63
10	10	45	95	6606 -45547	4	73.25
12	12	53	110	6606 -45550	4	91.85
14	12	53	110	6606 -45553	4	107.32
16	16	63	123	6606 -45555	4	131.67
18	16	63	123	6606 -45559	4	161.40
20	20	75	141	6606 -45562	4	185.36
25	25	90	166	6606 -45565	6	306.97
32	32	106	186	6606 -45726	6	453.86

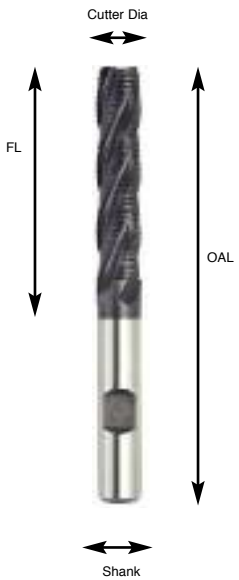
For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 NR-F - 30º Helix Fine
Multi-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	6644 -45529	4	76.36
8	10	19	69	6644 -45532	4	78.02
10	10	22	72	6644 -45535	5	82.86
12	12	26	83	6644 -45537	5	91.44
14	12	26	83	6644 -45538	5	104.06
16	16	32	92	6644 -45540	5	133.63
18	16	32	92	6644 -45543	5	146.69
20	20	38	104	6644 -45546	5	171.14
25	25	45	121	6644 -45549	5	268.10
32	32	53	133	6644 -45248	6	364.05

For technical information see page 200 - 201

Izarmax - High Performance PMX - *TiALN*
ASP 52 - DIN 844 NR-F - 30º Helix Fine
Multi-Flute Square End Long Length-Roughers



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	24	68	6696 -45558	4	109.68
8	10	38	88	6696 -45561	4	115.09
10	10	45	95	6696 -45564	4	115.09
12	12	53	110	6696 -45567	4	127.92
14	12	53	110	6696 -45568	4	144.59
16	16	63	123	6696 -45570	4	179.87
18	16	63	123	6696 -45571	4	202.81
20	20	75	141	6696 -45573	4	258.22
25	25	90	166	6696 -45574	5	397.66
32	32	106	186	6696 -45261	6	636.87

For technical information see page 200 - 201

Izar - HSCO 8% - M42 - Bright Finish
DIN 327 N - ISO 1641/1 - 30º Helix
2-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	4	48	4420 -44249	17.56
3	6	5	49	4420 -44255	17.56
4	6	7	51	4420 -44261	17.56
5	6	8	52	4420 -44267	17.56
6	6	8	52	4420 -44273	17.56
7	6	10	60	4420 -44279	29.53
8	10	11	61	4420 -44285	24.56
9	10	11	61	4420 -44291	30.55
10	10	13	63	4420 -44297	24.27
12	12	16	73	4420 -44306	32.00
14	12	16	73	4420 -44312	45.92
16	16	19	79	4420 -44318	45.61
18	16	19	79	4420 -44324	61.21
20	20	22	88	4420 -44330	72.74
25	25	26	102	4420 -44339	121.30

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - TiALN
DIN 327 N - ISO 1641/1 - 30º Helix
2-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	4	48	4420 -41613	34.15
3	6	5	49	4420 -41616	34.15
4	6	7	51	4420 -41619	34.15
5	6	8	52	4420 -41622	34.15
6	6	8	52	4420 -41625	33.15
7	6	10	60	4420 -41628	44.04
8	10	11	61	4420 -41631	39.86
9	10	11	61	4420 -41635	47.93
10	10	13	63	4420 -41638	43.09
12	12	16	73	4420 -41643	48.58
14	12	16	73	4420 -41646	67.98
16	16	19	79	4420 -41649	69.87
18	16	19	79	4420 -41652	92.29
20	20	22	88	4420 -41655	100.04
25	25	26	102	4420 -41661	168.26

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 327 N - ISO 1641/1 - 30º Helix
2-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	7	54	4426 -44357	27.73
3	6	8	56	4426 -44363	24.05
4	6	11	63	4426 -44366	24.05
5	6	13	68	4426 -44369	24.05
6	6	24	68	4426 -44372	24.05
7	10	16	80	4426 -44375	37.53
8	10	19	88	4426 -44378	34.66
9	10	19	88	4426 -44381	54.78
10	10	22	95	4426 -44384	37.53
12	12	26	110	4426 -44390	46.42
14	12	26	110	4426 -44393	55.43
16	16	32	123	4426 -44396	67.28
18	16	32	123	4426 -44399	86.32
20	20	38	141	4426 -44402	87.76
25	25	45	166	4426 -44408	175.17

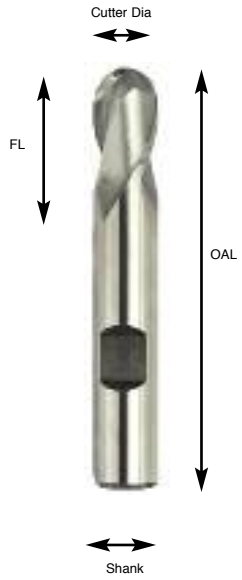
For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 327 N - ISO 1641/1 - 30º Helix
2-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	10	54	4426 -16074	42.74
3	6	12	56	4426 -45029	40.00
4	6	19	63	4426 -45030	41.37
5	6	24	68	4426 -45031	41.37
6	6	24	68	4426 -45032	41.37
7	10	16	80	4426 -17192	76.44
8	10	19	88	4426 -45034	71.60
9	10	19	88	4426 -15849	86.94
10	10	22	95	4426 -14538	69.28
12	12	26	110	4426 -14550	90.92
14	12	26	110	4426 -17194	98.49
16	16	32	123	4426 -17195	119.71
18	16	32	123	4426 -14562	155.70
20	20	38	141	4426 -17197	167.10
25	25	45	166	4426 -17199	270.68

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 327 N - 30º Helix
2-Flute Ball Nosed Reg. Length-Finishing



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	4	48	4422 -69658	35.30
3	6	5	49	4422 -69625	35.30
4	6	7	51	4422 -69628	35.30
5	6	8	52	4422 -69631	35.30
6	6	8	52	4422 -69634	35.30
8	10	11	61	4422 -69640	38.12
10	10	13	63	4422 -69646	38.34
12	12	16	73	4422 -69651	49.02
14	12	16	73	4422 -69654	63.96
16	16	19	79	4422 -69657	70.72
18	16	19	79	4422 -69660	87.05
20	20	22	88	4422 -69663	104.42
25	25	26	102	4422 -69669	146.03

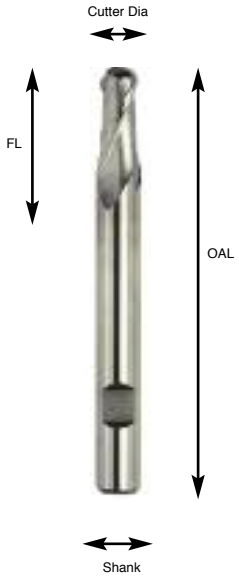
For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 327 N - 30º Helix
2-Flute Ball Nosed Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	4	48	4422 -17181	47.72
3	6	5	49	4422 -17182	47.72
4	6	7	51	4422 -15427	47.72
5	6	8	52	4422 -17156	47.72
6	6	8	52	4422 -15428	47.72
8	10	11	61	4422 -16191	53.47
10	10	13	63	4422 -17158	55.79
12	12	16	73	4422 -17159	66.17
14	12	16	73	4422 -17161	84.58
16	16	19	79	4422 -17163	95.83
18	16	19	79	4422 -18061	111.48
20	20	22	88	4422 -17180	130.95
25	25	26	102	4422 -18243	183.63

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
Izar Std. N - 30º Helix
2-Flute Ball Nosed Long Length-Finishing



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	8	56	4470 -45287	38.99
4	6	11	63	4470 -45290	38.99
5	6	13	68	4470 -45293	41.31
6	6	13	68	4470 -45296	41.45
8	10	19	88	4470 -45302	47.72
10	10	22	95	4470 -45308	51.71
12	12	26	110	4470 -45314	66.03
14	12	26	110	4470 -45317	86.38
16	16	32	123	4470 -45320	99.37
18	16	32	123	4470 -45323	120.07
20	20	38	141	4470 -45326	128.52
25	25	45	166	4470 -45332	262.33

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
Izar Std. N - 30º Helix
2-Flute Ball Nosed Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	8	56	4470 -18120	51.84
4	6	11	63	4470 -18121	51.84
5	6	13	68	4470 -18124	54.44
6	6	13	68	4470 -17252	55.15
8	10	19	88	4470 -17255	65.76
10	10	22	95	4470 -17257	86.51
12	12	26	110	4470 -17293	85.08
14	12	26	110	4470 -18130	108.68
16	16	32	123	4470 -18132	132.48
18	16	32	123	4470 -18133	154.28
20	20	38	141	4470 -18135	168.75
25	25	45	166	4470 -18139	273.79

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 N - 30º Helix
3-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	8	52	4439 -43149	22.69
4	6	11	55	4439 -43152	22.69
5	6	13	57	4439 -43154	22.69
6	6	13	57	4439 -43156	22.69
8	10	19	69	4439 -43160	28.67
10	10	22	72	4439 -43165	31.76
12	12	26	83	4439 -43168	39.92
14	12	26	83	4439 -43170	50.74
16	16	32	92	4439 -43172	56.66
18	16	32	92	4439 -43174	69.28
20	20	38	104	4439 -43176	81.27

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 N - 30º Helix
3-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	8	52	4439 -17604	36.96
4	6	11	55	4439 -17606	36.96
5	6	13	57	4439 -17221	36.96
6	6	13	57	4439 -17222	36.96
8	10	19	69	4439 -17612	44.47
10	10	22	72	4439 -17616	49.52
12	12	26	83	4439 -17617	59.33
14	12	26	83	4439 -17618	72.47
16	16	32	92	4439 -17620	82.27
18	16	32	92	4439 -17621	98.01
20	20	38	104	4439 -17622	113.01

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
Izar Std. N - 30º Helix - Throw Away
3-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
1	6	2	34	4435 -63477	10.29
1.5	6	3	34	4435 -63458	10.29
DIA 1mm & 1.5mm are 2 flutes					
2	6	4	35	4435 -63459	10.29
2.5	6	5	36	4435 -63460	10.29
3	6	5	36	4435 -63462	10.29
3.5	6	6	37	4435 -63463	10.29
4	6	7	38	4435 -63465	10.29
4.5	6	7	38	4435 -63466	10.29
5	6	8	39	4435 -63468	10.29
5.5	6	8	39	4435 -63469	10.29
6	6	8	39	4435 -63471	10.29
6.5	8	10	42	4435 -73768	19.01
7	8	10	42	4435 -63472	19.01
7.5	8	10	42	4435 -73770	19.01
8	8	11	43	4435 -63473	19.01
8.5	10	11	48	4435 -73771	21.82
9	10	11	48	4435 -63474	21.82
9.5	10	11	48	4435 -73773	21.82
10	10	13	50	4435 -63475	21.82

For technical information see page 202 - 205

3-Flute Throw Away Set

10 piece set
£102.53

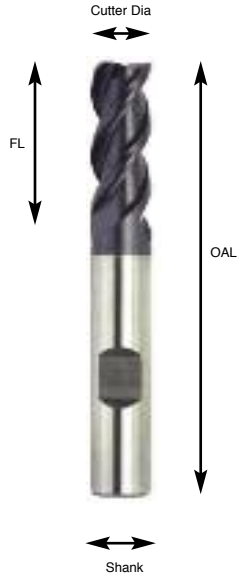
Izar - HSCO 8% - M42 - Bright Finish
DIN 844 W - ISO 1641 - 45º Helix - INOX
3-Flute Square End Reg. Length-Finishing

(Ideal For Use on Aluminium)

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	7	51	4430 -44477	20.31
3	6	8	52	4430 -44483	20.31
4	6	11	55	4430 -44489	20.31
5	6	13	57	4430 -44495	20.31
6	6	13	57	4430 -44501	20.31
7	10	16	66	4430 -44504	24.48
8	10	19	69	4430 -44507	24.84
9	10	19	69	4430 -44510	29.53
10	10	22	72	4430 -44513	29.47
12	12	26	83	4430 -44519	30.97
14	12	26	83	4430 -44525	45.28
16	16	32	92	4430 -44531	46.65
18	16	32	92	4430 -44534	59.64
20	20	38	104	4430 -44537	66.84
25	25	45	121	4430 -44543	121.79

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - TiALN
DIN 844 W - ISO 1641 - 45º Helix - INOX
3-Flute Square End Reg. Length-Finishing



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
2	6	7	51	4430 -41665	33.37
3	6	8	52	4430 -41668	33.37
4	6	11	55	4430 -41671	33.37
5	6	13	57	4430 -41676	33.37
6	6	13	57	4430 -41679	35.96
7	10	16	66	4430 -41683	45.92
8	10	19	69	4430 -41686	45.98
9	10	19	69	4430 -41691	53.34
10	10	22	72	4430 -41694	48.27
12	12	26	83	4430 -41698	53.62
14	12	26	83	4430 -41701	72.16
16	16	32	92	4430 -41704	79.02
18	16	32	92	4430 -41707	95.55
20	20	38	104	4430 -41710	107.37
25	25	45	121	4430 -41713	176.33

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 W - ISO 1641 - 45º Helix - INOX
3-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	12	56	4432 -77455	34.52
4	6	19	63	4432 -77457	34.52
5	6	24	68	4432 -77459	34.52
6	6	24	68	4432 -44549	34.52
8	10	38	88	4432 -44552	41.23
10	10	45	95	4432 -44555	43.67
12	12	53	110	4432 -44558	51.26
16	16	63	123	4432 -44564	67.78
18	16	63	123	4432 -44567	95.70
20	20	75	141	4432 -44570	98.49
25	25	90	166	4432 -44576	160.83

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 W - ISO 1641 - 45º Helix - INOX
3-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
3	6	12	56	4432 -18088	38.27
4	6	19	63	4432 -18093	38.77
5	6	24	68	4432 -18097	44.40
6	6	24	68	4432 -15049	47.72
8	10	38	88	4432 -15050	65.76
10	10	45	95	4432 -15051	71.23
12	12	53	110	4432 -15052	80.54
16	16	63	123	4432 -15046	132.32
18	16	63	123	4432 -18106	154.28
20	20	75	141	4432 -15047	149.49
25	25	90	166	4432 -18109	229.13

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - *Bright Finish*
DIN 844 WR - ISO 1641/1 - 40º Helix - Coarse
3-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
10	10	22	72	4447 -44747	75.40
12	12	26	83	4447 -44750	77.15
16	16	32	92	4447 -44756	109.10
20	20	38	104	4447 -44762	138.40
25	25	45	121	4447 -44768	189.90
30	25	45	121	4447 -40334	249.40

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - *Bright Finish*
DIN 844 WR - ISO 1641/1 - 40º Helix - Coarse
3-Flute Square End Long Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	PRICE £
10	10	45	95	4497 -78863	92.29
12	12	53	110	4497 -78864	101.23
16	16	63	123	4497 -78866	138.53
20	20	75	141	4497 -78868	171.59
25	25	90	166	4497 -40338	242.84
30	30	90	166	4497 -40342	344.12

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 N - ISO 1641 - 30º Helix
Multi-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	6	7	51	4600 -46277	4	19.07
3	6	8	52	4600 -46283	4	19.07
4	6	11	55	4600 -46289	4	19.07
5	6	13	57	4600 -46295	4	19.07
6	6	13	57	4600 -46301	4	19.07
7	10	16	66	4600 -46307	4	27.96
8	10	19	69	4600 -46313	4	23.33
9	10	19	69	4600 -46319	4	29.11
10	10	22	72	4600 -46325	4	26.72
12	12	26	83	4600 -46334	4	30.49
14	12	26	83	4600 -46340	4	42.60
16	16	32	92	4600 -46346	4	47.42
18	16	32	92	4600 -46352	4	58.32
20	20	38	104	4600 -46358	4	68.85
25	25	45	121	4600 -46364	6	118.06

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 N - ISO 1641 - 30º Helix
Multi-Flute Square End Reg. Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	6	7	51	4600 -41718	4	35.39
3	6	8	52	4600 -41721	4	35.39
4	6	11	55	4600 -41724	4	35.39
5	6	13	57	4600 -41727	4	35.39
6	6	13	57	4600 -41730	4	36.68
7	10	16	66	4600 -41732	4	46.56
8	10	19	69	4600 -41734	4	41.16
9	10	19	69	4600 -41736	4	49.02
10	10	22	72	4600 -41738	4	46.35
12	12	26	83	4600 -41741	4	51.89
14	12	26	83	4600 -41743	4	68.76
16	16	32	92	4600 -41745	4	77.22
18	16	32	92	4600 -41747	4	91.65
20	20	38	104	4600 -41749	4	106.00
25	25	45	121	4600 -41752	6	171.72

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 N - ISO 1641 - 30º Helix
Multi-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
3	6	12	56	4606 -46388	4	24.05
4	6	19	63	4606 -46391	4	24.05
5	6	24	68	4606 -46394	4	24.05
6	6	24	68	4606 -46397	4	24.05
8	10	38	88	4606 -46403	4	34.66
10	10	45	95	4606 -46409	4	37.53
12	12	53	110	4606 -46415	4	46.42
14	12	53	110	4606 -46418	4	55.43
16	16	63	123	4606 -46421	4	61.35
18	16	63	123	4606 -46424	4	86.32
20	20	75	141	4606 -46427	4	87.76
25	25	90	166	4606 -46433	6	175.17

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - TiALN
DIN 844 N - ISO 1641 - 30º Helix
Multi-Flute Square End Long Length-Finishing

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
3	6	12	56	4606 -17890	4	40.00
4	6	19	63	4606 -17651	4	41.37
5	6	24	68	4606 -17891	4	41.37
6	6	24	68	4606 -18149	4	41.37
8	10	38	88	4606 -18150	4	71.60
10	10	45	95	4606 -17260	4	69.28
12	12	53	110	4606 -15399	4	90.92
14	12	53	110	4606 -18152	4	98.49
16	16	63	123	4606 -15264	4	119.71
18	16	63	123	4606 -18153	4	155.70
20	20	75	141	4606 -17219	4	167.10
25	25	90	166	4606 -18154	6	270.68

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 NR-F - ISO 1641 - 30º Helix - Fine
Multi-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	4644 -46517	4	54.49
8	10	19	69	4644 -46523	4	54.49
10	10	22	72	4644 -46529	4	62.72
12	12	26	83	4644 -46532	4	70.95
14	12	26	83	4644 -46535	4	94.74
16	16	32	92	4644 -46538	4	100.76
18	16	32	92	4644 -46541	4	116.89
20	20	38	104	4644 -46544	4	119.05
25	25	45	121	4644 -52347	5	165.67
30	25	45	121	4644 -52362	5	234.32

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 NR-F - ISO 1641 - 30º Helix - Fine
Multi-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	4644 -41780	4	68.92
8	10	19	69	4644 -41782	4	68.92
10	10	22	72	4644 -41784	4	69.87
12	12	26	83	4644 -41786	4	77.43
14	12	26	83	4644 -41788	4	99.86
16	16	32	92	4644 -41790	4	111.94
18	16	32	92	4644 -41792	4	123.74
20	20	38	104	4644 -41794	4	138.16
25	25	45	121	4644 -41795	5	192.55
30	25	45	121	4644 -41796	5	266.72

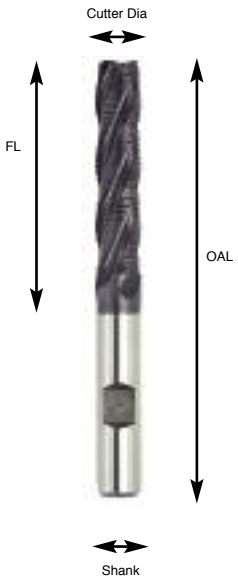
For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 NR-F - 30º Helix - Fine
Multi-Flute Square End Long Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
10	10	45	95	4696 -43272	4	80.32
12	12	53	110	4696 -43275	4	87.96
14	12	53	110	4696 -43276	4	113.14
16	16	63	123	4696 -43278	4	119.27
18	16	63	123	4696 -43281	4	145.26
20	20	75	141	4696 -43282	4	161.33
25	25	90	166	4696 -43287	5	241.77
30	25	90	166	4696 -43289	5	370.54

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 NR-F - 30º Helix - Fine
Multi-Flute Square End Long Length-Roughers



CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
10	10	45	95	4696 -18768	4	100.44
12	12	53	110	4696 -18770	4	109.97
14	12	53	110	4696 -17895	4	141.42
16	16	63	123	4696 -17896	4	149.09
18	16	63	123	4696 -18782	4	181.53
20	20	75	141	4696 -18778	4	191.18
25	25	90	166	4696 -18779	5	292.47
30	25	90	166	4696 -18780	5	437.19

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 NR - ISO 1641 - 30º Helix - Coarse
Multi-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	4640 -46457	4	50.97
8	10	19	69	4640 -46460	4	50.97
10	10	22	72	4640 -46463	4	54.78
12	12	26	83	4640 -46466	4	62.08
14	12	26	83	4640 -46469	4	76.78
16	16	32	92	4640 -46472	4	86.17
18	16	32	92	4640 -46475	4	96.85
20	20	38	104	4640 -46478	4	104.06
25	25	45	121	4640 -46484	5	149.29
32	32	53	133	4640 -46493	6	217.88

For technical information see page 202 - 205

Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 NR - ISO 1641 - 30º Helix - Coarse
Multi-Flute Square End Reg. Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6	6	13	57	4640 -41756	4	64.24
8	10	19	69	4640 -41758	4	64.24
10	10	22	72	4640 -41760	4	71.17
12	12	26	83	4640 -41762	4	80.67
14	12	26	83	4640 -41764	4	99.80
16	16	32	92	4640 -41766	4	109.97
18	16	32	92	4640 -41768	4	121.94
20	20	38	104	4640 -41770	4	133.40
25	25	45	121	4640 -41773	5	183.91
32	32	53	133	4640 -41777	6	268.83

For technical information see page 202 - 205

Izar - HSCO 8% - M42 - Bright Finish
DIN 844 NR - ISO 1641 - 30º Helix - Coarse
Multi-Flute Square End Long Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
10	10	45	95	4690 -46634	4	78.38
12	12	53	110	4690 -46637	4	85.80
14	12	53	110	4690 -46640	4	106.00
16	16	63	123	4690 -46643	4	116.25
18	16	63	123	4690 -46646	4	136.38
20	20	75	141	4690 -46649	4	153.40
25	25	90	166	4690 -46655	5	236.00
32	32	100	186	4490 -46661	6	319.75

Technical note
32mm Diameter tool is
Non Centre Cutting

For technical information see page 202 - 205

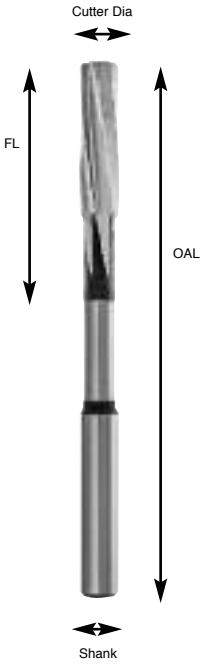
Izar - Performance HSCO 8% - M42 - *TiALN*
DIN 844 NR - ISO 1641 - 30º Helix - Coarse
Multi-Flute Square End Long Length-Roughers

CUTTER DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
10	10	45	95	4690 -43084	4	88.47
12	12	53	110	4690 -43086	4	98.22
14	12	53	110	4690 -43087	4	113.64
16	16	63	123	4690 -43089	4	135.37
18	16	63	123	4690 -43090	4	148.63
20	20	75	141	4690 -43092	4	177.58
25	25	90	166	4690 -18165	5	280.14
32	32	100	186	4690 -18180	6	421.31

Technical note
32mm Diameter tool is
Non Centre Cutting

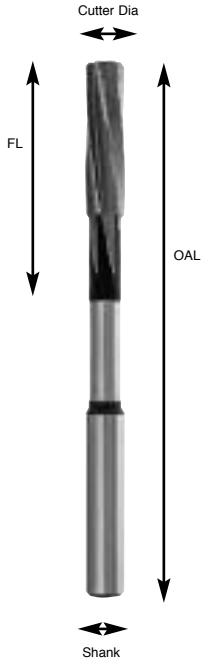
For technical information see page 202 - 205

Izar - HSSE 5% Co - *Bright Finish*
DIN 212 B - ISO 521- 10º Helix
Straight Shank Machine Reamers



DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	2	11	49	2060 -74421	4	37.51
2.1	2.1	11	49	2060 -20699	4	41.29
2.2	2.2	12	53	2060 -20700	4	41.29
2.3	2.3	12	53	2060 -20701	4	41.29
2.4	2.4	14	57	2060 -19768	4	41.29
2.5	2.5	14	57	2060 -74424	4	37.51
2.6	2.6	14	57	2060 -19769	4	41.29
2.7	2.7	15	61	2060 -20702	4	41.29
2.8	2.8	15	61	2060 -20703	4	41.29
2.9	2.9	15	61	2060 -20704	4	41.29
3	3	15	61	2060 -74427	6	37.51
3.1	3.1	16	65	2060 -20705	6	41.29
3.2	3.2	16	65	2060 -20706	6	41.29
3.3	3.3	16	65	2060 -19771	6	41.29
3.4	3.4	18	70	2060 -20707	6	41.29
3.5	3.5	18	70	2060 -74430	6	37.51
3.6	3.6	18	70	2060 -20709	6	41.29
3.7	3.7	18	70	2060 -20710	6	41.29
3.8	4	19	75	2060 -20711	6	41.29
3.9	4	19	75	2060 -20712	6	41.29
4	4	19	75	2060 -74433	6	37.51
4.1	4	19	75	2060 -20713	6	41.29
4.2	4	19	75	2060 -80961	6	41.29
4.3	4.5	21	80	2060 -20714	6	41.29
4.4	4.5	21	80	2060 -45603	6	41.29
4.5	4.5	21	80	2060 -75363	6	37.51
4.6	4.5	21	80	2060 -20715	6	41.29
4.7	5	21	80	2060 -80962	6	41.29
4.8	5	23	86	2060 -20716	6	41.29
4.9	5	23	86	2060 -20717	6	41.29
5	5	23	86	2060 -26989	6	37.51
5.1	5	23	86	2060 -20718	6	41.29
5.2	5	23	86	2060 -80963	6	41.29
5.3	5	23	86	2060 -20719	6	41.29
5.4	5.6	26	93	2060 -20721	6	41.29
5.5	5.6	26	93	2060 -75364	6	37.51
5.6	5.6	26	93	2060 -20724	6	45.22
5.7	5.6	26	93	2060 -80964	6	45.22
5.8	5.6	26	93	2060 -20725	6	45.22
5.9	5.6	26	93	2060 -20726	6	45.22
6	5.6	26	93	2060 -74436	6	41.30
6.1	6.3	28	101	2060 -20727	6	45.22
6.2	6.3	28	101	2060 -20728	6	45.22
6.3	6.3	28	101	2060 -20729	6	45.22
6.4	6.3	28	101	2060 -20730	6	45.22
6.5	6.3	28	101	2060 -74439	6	41.30
6.6	6.3	28	101	2060 -20731	6	45.22
6.7	6.3	28	101	2060 -20732	6	45.22
6.8	7.1	28	101	2060 -20733	6	45.22
6.9	7.1	28	101	2060 -20734	6	45.22
7	7.1	31	109	2060 -74442	6	41.30
7.1	7.1	31	109	2060 -20735	6	49.03
7.2	7.1	31	109	2060 -20736	6	49.03
7.3	7.1	31	109	2060 -20737	6	49.03
7.4	7.1	31	109	2060 -20739	6	49.03
7.5	7.1	31	109	2060 -74445	6	44.61
7.6	8	33	117	2060 -20745	6	49.03
7.7	8	33	117	2060 -20747	6	49.03
7.8	8	33	117	2060 -20748	6	49.03
7.9	8	33	117	2060 -20749	6	49.03
8	8	33	117	2060 -74448	6	49.70
8.1	8	33	117	2060 -20751	6	54.64
8.2	8	33	117	2060 -20753	6	54.64
8.3	8	33	117	2060 -20754	6	54.64
8.4	8	33	117	2060 -20755	6	54.64
8.5	8	33	117	2060 -74451	6	49.70
8.6	9	36	125	2060 -20757	6	60.18
8.7	9	36	125	2060 -20758	6	60.18
8.8	9	36	125	2060 -20760	6	60.18
8.9	9	36	125	2060 -20761	6	60.18
9	9	36	125	2060 -74930	6	54.72
9.1	9	36	125	2060 -20763	6	60.18
9.2	9	36	125	2060 -20764	6	60.18
9.3	9	36	125	2060 -20765	6	60.18
9.4	9	36	125	2060 -20766	6	60.18
9.5	9	36	125	2060 -74454	6	55.56
9.6	10	38	133	2060 -20767	6	60.18
9.7	10	38	133	2060 -20768	6	60.18
9.8	10	38	133	2060 -20769	6	60.18
9.9	10	38	133	2060 -20770	6	60.18
10	10	38	133	2060 -74933	6	55.56
11	10	41	142	2060 -74934	6	65.64
12	10	44	151	2060 -74457	6	64.17
13	10	44	151	2060 -74460	8	110.36
14	12.5	47	160	2060 -74463	8	105.51
15	12.5	50	162	2060 -74466	8	115.16
16	12.5	52	170	2060 -75160	8	123.23
17	14	54	175	2060 -74469	8	142.18
18	14	56	182	2060 -74935	8	148.30
19	16	58	189	2060 -74472	8	157.57
20	16	60	195	2060 -74475	8	158.58

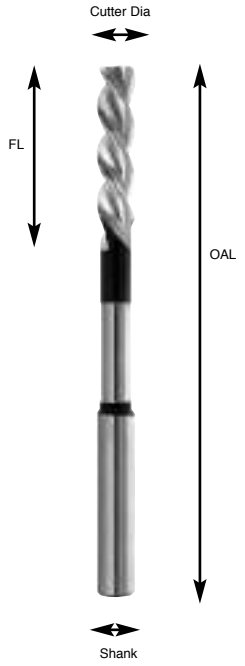
Izar - HSSE 5% Co - *TiALN*
DIN 212 B - ISO 521- 10º Helix
Straight Shank Machine Reamers



DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
2	2	11	49	2060 -56499	4	77.31
2.1	2.1	11	49	2060 -20795	4	80.90
2.2	2.2	12	53	2060 -20796	4	80.90
2.3	2.3	12	53	2060 -20797	4	80.90
2.4	2.4	14	57	2060 -20798	4	80.90
2.5	2.5	14	57	2060 -56502	4	77.31
2.6	2.6	14	57	2060 -20799	4	80.90
2.7	2.7	15	61	2060 -20800	4	80.90
2.8	2.8	15	61	2060 -20801	4	80.90
2.9	2.9	15	61	2060 -20802	4	80.90
3	3	15	61	2060 -56505	6	77.31
3.1	3.1	16	65	2060 -20803	6	84.48
3.2	3.2	16	65	2060 -20805	6	84.48
3.3	3.3	16	65	2060 -20806	6	84.48
3.4	3.4	18	70	2060 -20807	6	84.48
3.5	3.5	18	70	2060 -56508	6	80.93
3.6	3.6	18	70	2060 -20808	6	84.48
3.7	3.7	18	70	2060 -20809	6	84.48
3.8	4	19	75	2060 -20810	6	84.48
3.9	4	19	75	2060 -20811	6	84.48
4	4	19	75	2060 -56511	6	80.93
4.1	4	19	75	2060 -20812	6	88.07
4.2	4	19	75	2060 -20814	6	88.07
4.3	4.5	21	80	2060 -20815	6	88.07
4.4	4.5	21	80	2060 -20816	6	88.07
4.5	4.5	21	80	2060 -56514	6	84.48
4.6	4.5	21	80	2060 -20817	6	88.07
4.7	5	21	80	2060 -20818	6	88.07
4.8	5	23	86	2060 -20819	6	88.07
4.9	5	23	86	2060 -20820	6	88.07
5	5	23	86	2060 -10587	6	84.48
5.1	5	23	86	2060 -20821	6	90.17
5.2	5	23	86	2060 -20822	6	90.17
5.3	5	23	86	2060 -20823	6	90.17
5.4	5.6	26	93	2060 -20824	6	90.17
5.5	5.6	26	93	2060 -56517	6	84.48
5.6	5.6	26	93	2060 -20825	6	93.90
5.7	5.6	26	93	2060 -20826	6	93.90
5.8	5.6	26	93	2060 -20827	6	93.90
5.9	5.6	26	93	2060 -20828	6	93.90
6	5.6	26	93	2060 -56520	6	89.97
6.1	6.3	28	101	2060 -20829	6	97.48
6.2	6.3	28	101	2060 -20830	6	97.48
6.3	6.3	28	101	2060 -20832	6	97.48
6.4	6.3	28	101	2060 -20833	6	97.48
6.5	6.3	28	101	2060 -56523	6	93.58

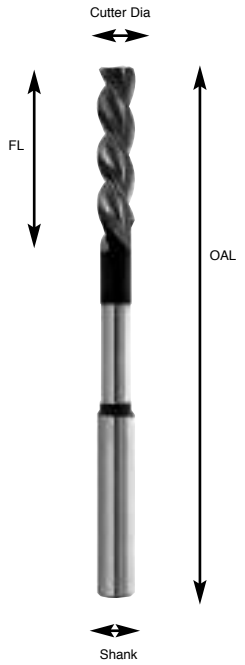
DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
6.6	6.3	28	101	2060 -20835	6	97.48
6.7	6.3	28	101	2060 -20836	6	97.48
6.8	7.1	28	101	2060 -20837	6	97.48
6.9	7.1	28	101	2060 -20838	6	97.48
7	7.1	31	109	2060 -56526	6	93.58
7.1	7.1	31	109	2060 -20839	6	105.22
7.2	7.1	31	109	2060 -20841	6	105.22
7.3	7.1	31	109	2060 -20842	6	105.22
7.4	7.1	31	109	2060 -20844	6	105.22
7.5	7.1	31	109	2060 -56529	6	100.98
7.6	8	33	117	2060 -20845	6	105.22
7.7	8	33	117	2060 -20847	6	105.22
7.8	8	33	117	2060 -20848	6	105.22
7.9	8	33	117	2060 -20849	6	105.22
8	8	33	117	2060 -56532	6	101.75
8.1	8	33	117	2060 -20850	6	116.23
8.2	8	33	117	2060 -20851	6	116.23
8.3	8	33	117	2060 -20852	6	116.23
8.4	8	33	117	2060 -20853	6	116.23
8.5	8	33	117	2060 -56535	6	111.49
8.6	9	36	125	2060 -20854	6	121.51
8.7	9	36	125	2060 -20856	6	121.51
8.8	9	36	125	2060 -20857	6	121.51
8.9	9	36	125	2060 -20859	6	121.51
9	9	36	125	2060 -56538	6	116.31
9.1	9	36	125	2060 -20860	6	124.09
9.2	9	36	125	2060 -20861	6	124.09
9.3	9	36	125	2060 -20862	6	124.09
9.4	9	36	125	2060 -20863	6	124.09
9.5	9	36	125	2060 -56541	6	119.66
9.6	10	38	133	2060 -20864	6	124.09
9.7	10	38	133	2060 -20865	6	124.09
9.8	10	38	133	2060 -20866	6	124.09
9.9	10	38	133	2060 -20868	6	124.09
10	10	38	133	2060 -56544	6	119.66
11	10	41	142	2060 -56547	6	134.89
12	10	44	151	2060 -56550	6	133.48
13	10	44	151	2060 -56553	8	184.15
14	12.5	47	160	2060 -56556	8	179.50
15	12.5	50	162	2060 -56559	8	198.02
16	12.5	52	170	2060 -56562	8	205.70
17	14	54	175	2060 -56565	8	239.13
18	14	56	182	2060 -56568	8	244.94
19	16	58	189	2060 -56571	8	262.99
20	16	60	195	2060 -56574	8	264.01

Izar - HSSE 5% Co - *Bright Finish*
DIN 212 E - ISO 521- 45º Helix
Straight Shank Machine Reamers



DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
3	3	15	61	2064 -40898	3	51.43
3.5	3.5	18	70	2064 -40901	3	51.43
4	4	19	75	2064 -40904	3	51.43
4.5	4.5	21	80	2064 -40907	3	52.33
5	5	23	86	2064 -40910	3	52.33
5.5	5.6	26	93	2064 -40913	3	52.33
6	5.6	26	93	2064 -40916	3	52.33
6.5	6.3	28	101	2064 -40919	3	53.33
7	7.1	31	109	2064 -40922	3	53.33
7.5	7.1	31	109	2064 -40925	3	54.32
8	8	33	117	2064 -40928	3	54.32
8.5	8	33	117	2064 -40931	3	57.61
9	9	36	125	2064 -40934	3	57.61
9.5	9	36	125	2064 -40937	3	59.98
10	10	38	133	2064 -40940	3	59.98
11	10	41	142	2064 -40946	3	75.03
12	10	44	151	2064 -40952	4	78.16
13	10	44	151	2064 -40958	4	100.37
14	12.5	47	160	2064 -40964	4	108.00
15	12.5	50	162	2064 -40970	4	145.09
16	12.5	52	170	2064 -40976	4	158.00

Izar - HSSE 5% Co - *TiALN*
DIN 212 E - ISO 521- 45º Helix
Straight Shank Machine Reamers



DIA	SHANK DIA	FL	OAL	PART NUMBER	No. of Flutes	PRICE £
3	3	15	61	2064 -56577	3	90.58
3.5	3.5	18	70	2064 -56580	3	94.15
4	4	19	75	2064 -56586	3	94.15
4.5	4.5	21	80	2064 -56589	3	98.64
5	5	23	86	2064 -56592	3	98.64
5.5	5.6	26	93	2064 -56595	3	100.69
6	5.6	26	93	2064 -56598	3	100.69
6.5	6.3	28	101	2064 -56601	3	105.20
7	7.1	31	109	2064 -56604	3	105.20
7.5	7.1	31	109	2064 -56607	3	139.14
8	8	33	117	2064 -56610	3	139.14
8.5	8	33	117	2064 -56613	3	119.00
9	9	36	125	2064 -56616	3	119.00
9.5	9	36	125	2064 -56619	3	123.89
10	10	38	133	2064 -56625	3	123.89
11	10	41	142	2064 -56631	3	143.79
12	10	44	151	2064 -56637	4	146.77
13	10	44	151	2064 -56643	4	174.67
14	12.5	47	160	2064 -56649	4	181.89
15	12.5	50	162	2064 -56655	4	229.97
16	12.5	52	170	2064 -56661	4	242.27

Izar - HSS - *Bright Finish*
DIN 334 A - ISO 3294 - 60º
Straight Shank Countersinks

CUTTER DIA	SHANK DIA	POINT	OAL	No. FL	PART NUMBER	PRICE £
8	8	1.6	48	5	2550 -42119	90.27
10	8	2	50	5	2550 -42122	97.29
12.5	8	2.5	52	5	2550 -42125	97.29
16	10	3.2	60	7	2550 -42128	97.29
20	10	4	64	7	2550 -42131	107.09
25	10	7	69	9	2550 -42134	127.77

Izar - HSSE - *Bright Finish*
Izar Std. - 90º
Straight Shank Countersinks

CUTTER DIA	SHANK DIA	OAL	APPLIC. min/max	PART NUMBER	PRICE £
10	6	45	2-5	2572 -69183	44.85
14	8	48	5-10	2572 -69181	59.65
21	10	65	10-15	2572 -69184	111.81
28	12	84	15-20	2572 -69187	213.54
35	15	102	20-25	2572 -69186	306.11

Izar - HSS - *Bright Finish*
DIN 335 C - 90º
Straight Shank Countersinks

CUTTER DIA	SHANK DIA	OAL	APPLIC. min/max	PART NUMBER	PRICE £
6	5	45	1/6	2573 -13281	26.17
8	6	48	1/8	2573 -13284	28.00
10	6	65	1/10	2573 -13286	31.21
12	8	84	2/12	2573 -13287	32.01
16	10	60	2/16	2573 -13290	37.58
20	10	63	2/20	2573 -13293	45.47
25	10	67	2/25	2573 -13294	53.47
30	12	71	3/30	2573 -13296	87.81

Izar - HSS - *Bright Finish*
DIN 335 C - 90º
Straight Shank Countersinks 3-Flute

CUTTER DIA	SHANK DIA	POINT	OAL	APPLIC. min/max	PART NUMBER	PRICE £
4.3	4	1.3	40	1.5 / 4.3	2575 -74653	31.88
5	4	1.5	40	5 / 5	2575 -74654	31.10
5.3	4	1.5	40	2 / 5.3	2575 -74655	31.88
5.8	5	1.5	45	2 / 5.8	2575 -74656	32.46
6	5	1.5	45	2 / 6	2575 -74657	32.46
6.3	5	1.5	45	2 / 6.3	2575 -74658	31.83
7	6	1.8	50	2 / 7	2575 -74659	31.88
7.3	6	1.8	50	2 / 7.3	2575 -74660	32.46
8	6	2	50	2.5 / 8	2575 -74661	33.75
8.3	6	2	50	2.5 / 8.3	2575 -74662	33.96
9.4	6	2.2	50	3 / 9.4	2575 -74663	35.51
10	6	2.5	50	3 / 10	2575 -74664	37.33
10.4	6	2.5	50	3 / 10.4	2575 -74665	44.21
11.5	8	2.8	56	3 / 11.4	2575 -74666	41.73
12.4	8	2.8	56	3 / 12.4	2575 -74667	42.52
13.4	8	2.9	56	3 / 13.4	2575 -74668	46.46
15	10	3.2	60	4 / 15	2575 -74669	53.25
16.5	10	3.2	60	4 / 16.5	2575 -74670	56.06
19	10	3.5	63	4 / 19	2575 -74671	78.98
20.5	10	3.5	63	4 / 20.5	2575 -74672	80.29
23	10	3.8	67	4 / 23	2575 -74673	99.49
25	10	3.8	67	4 / 25	2575 -74674	105.28
28	12	4	71	4.5 / 28	2575 -42714	148.02
30	12	4.2	71	4.5 / 30	2575 -12588	159.76
31	12	4.2	71	4.5 / 31	2575 -42715	159.76
40	15	5	80	5.5 / 40	2575 -11061	290.98

Izar - HSS - *Bright Finish*
DIN 347 - ISO 3294 - 120º
Straight Shank Countersinks

CUTTER DIA	SHANK DIA	POINT	OAL	No. FL	PART NUMBER	PRICE £
8	8	1.6	44	5	2580 -42170	88.85
10	8	2	46	5	2580 -42173	97.34
12.5	8	2.5	48	5	2580 -42176	97.34
16	10	3.2	56	7	2580 -42179	107.28
20	10	4	60	7	2580 -42182	125.97
25	10	7	65	9	2580 -42185	155.72

Izar - HSSE 8% Co. - *Bright Finish*
DIN 1833A - ISO 3859 - 45º & 60º
Dovetail Cutters - Plain Shank

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	ANGLE	PRICE £
16	12	4	60	8	4330 -58656	45º	141.46
20	12	5	63	8	4330 -58674	45º	150.81
25	12	6.3	67	10	4330 -58701	45º	184.28
32	16	8	71	12	4330 -58719	45º	206.34
16	12	6.3	60	8	4330 -58665	60º	141.46
20	12	8	63	8	4330 -58683	60º	150.81
25	12	10	67	10	4330 -58710	60º	184.28
32	16	12.5	71	12	4330 -58728	60º	206.34

Izar - Performance HSSE 8% Co.- *TiALN*
DIN 1833 A - ISO 3859 - 45º & 60º
Dovetail Cutters - Plain Shank

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	ANGLE	PRICE £
16	12	4	60	8	4330 -19628	45º	193.36
20	12	5	63	8	4330 -22407	45º	210.17
25	12	6.3	67	10	4330 -22405	45º	265.85
32	16	8	71	12	4330 -22406	45º	331.26
16	12	6.3	60	8	4330 -21549	60º	193.36
20	12	8	63	8	4330 -17857	60º	210.17
25	12	10	67	10	4330 -17923	60º	265.85
32	16	12.5	71	12	4330 -21469	60º	331.26

Izar - HSSE 8% Co. - *Bright Finish*
DIN 851 A A N - ISO 3337 - 10º
T-Slot Cutters

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	PRICE £
11	10	4	53.5	6	4800 -68868	161.64
12.5	10	6	57	6	4800 -57822	165.57
16	10	8	62	6	4800 -57831	182.28
18	12	8	70	8	4800 -57840	193.36
21	12	9	74	8	4800 -57849	212.41
25	16	11	82	8	4800 -57858	238.72
32	16	14	90	10	4800 -57867	299.81
40	25	18	108	10	4800 -57876	417.85

Izar - Performance - HSSE 8% Co. - *TiALN*
DIN 851 A A N - ISO 3337 - 10º
T-Slot Cutters

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	PRICE £
11	10	4	53.5	6	4800 -17164	201.27
12.5	10	6	57	6	4800 -17165	216.14
16	10	8	62	6	4800 -13120	240.08
18	12	8	70	8	4800 -17167	255.37
21	12	9	74	8	4800 -14929	305.04
25	16	11	82	8	4800 -15667	337.40
32	16	14	90	10	4800 -17168	432.87
40	25	18	108	10	4800 -17589	603.36

Izar - HSSE 8% Co. - *Bright Finish*
DIN 851 AB NR - ISO 3337 - 30º
T-Slot Roughing Cutters

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	PRICE £
16	10	8	62	4	4802 -77751	188.21
18	12	8	70	4	4802 -77753	201.39
21	12	9	74	5	4802 -77756	230.43
25	16	11	82	5	4802 -77757	268.84
32	16	14	90	6	4802 -77758	368.71
40	25	18	108	6	4802 -77759	537.96

Izar - Performance HSSE 8% Co. - *TiALN*
DIN 851 AB NR - ISO 3337 - 30º
T-Slot Roughing Cutters

CUTTER DIA	SHANK DIA	CUTTER WIDTH	OAL	No. FL	PART NUMBER	PRICE £
16	10	8	62	4	4802 -22012	233.58
18	12	8	70	4	4802 -22013	262.86
21	12	9	74	5	4802 -21074	324.59
25	16	11	82	5	4802 -21075	362.08
32	16	14	90	6	4802 -18925	498.74
40	25	18	108	6	4802 -18928	727.84

Izar Performance HSSE - *Bright Finish*
DIN 850 D N
Woodruff Cutters

CUTTER DIA	CUTTING EDGE	SHANK DIA	OAL	No. FL	PART NUMBER	PRICE £
4.5	1	6	50	6	4834 -22506	98.57
7.5	1.5	6	50	6	4834 -22507	101.49
7.5	2	6	50	6	4834 -22509	101.49
10.5	2	6	50	8	4834 -22521	109.21
10.5	2.5	6	50	8	4834 -22523	109.21
10.5	3	6	50	8	4834 -22510	109.21
13.5	3	10	56	8	4834 -22512	111.30
13.5	4	10	56	8	4834 -22513	111.30
16.5	3	10	56	8	4834 -22514	112.01
16.5	4	10	56	8	4834 -22515	112.01
16.5	5	10	56	8	4834 -22516	112.01
19.5	4	10	63	10	4834 -22517	129.46
19.5	5	10	63	10	4834 -22518	129.46
19.5	6	10	63	10	4834 -22519	129.46
22.5	5	10	63	10	4834 -22520	142.57
22.5	6	10	63	10	4834 -22522	142.57
22.5	8	10	63	10	4834 -22524	142.57
25.5	6	10	63	10	4834 -22525	163.51
28.5	6	10	63	10	4834 -22527	166.32
28.5	8	10	63	10	4834 -22528	166.32
28.5	10	12	71	10	4834 -22373	166.32
32.5	7	12	71	12	4834 -22374	209.12
32.5	8	12	71	12	4834 -22530	209.12
32.5	10	12	71	12	4834 -22531	209.12
45.5	10	12	71	14	4834 -22532	330.91

Izar - Performance HSSE - *TiALN*
DIN 850 D N
Woodruff Cutters

CUTTER DIA	CUTTING EDGE	SHANK DIA	OAL	No. FL	PART NUMBER	PRICE £
4.5	1	6	50	6	4834 -22533	116.68
7.5	1.5	6	50	6	4834 -22534	123.45
7.5	2	6	50	6	4834 -22536	123.45
10.5	2	6	50	8	4834 -22537	132.31
10.5	2.5	6	50	8	4834 -22539	132.19
10.5	3	6	50	8	4834 -22540	132.19
13.5	3	10	56	8	4834 -22542	139.06
13.5	4	10	56	8	4834 -22543	139.06
16.5	3	10	56	8	4834 -22545	149.17
16.5	4	10	56	8	4834 -22546	149.17
16.5	5	10	56	8	4834 -22547	149.17
19.5	4	10	63	10	4834 -22548	168.52
19.5	5	10	63	10	4834 -22549	168.52
19.5	6	10	63	10	4834 -22550	168.52
22.5	5	10	63	10	4834 -22551	195.96
22.5	6	10	63	10	4834 -22552	195.96
22.5	8	10	63	10	4834 -22553	195.96
25.5	6	10	63	10	4834 -22554	242.65
28.5	6	10	63	10	4834 -22555	247.87
28.5	8	10	63	10	4834 -22556	247.87
28.5	10	12	71	10	4834 -22357	247.87
32.5	7	12	71	12	4834 -22358	294.13
32.5	8	12	71	12	4834 -22560	294.13
32.5	10	12	71	12	4834 -22563	294.13
45.5	10	12	71	14	4834 -22564	490.51

Izar Performance HSSE 8% Co. - *Bright Finish*
DIN 6518 B N
Corner Rounding Cutters

CUTTER DIA	RADIUS	PILOT	HEAD LENGTH	SHANK DIA	OAL	No. FL	PART NUMBER	PRICE £
10	1	6	8	10	60	4	5080 -77762	76.57
10	1.6	6	8	10	60	4	5080 -77763	70.03
10	2	6	8	10	60	4	5080 -77764	60.81
11	2.5	6	8	10	60	4	5080 -77765	70.08
12	3	6	10	12	60	4	5080 -77766	70.08
14	4	6	10	12	60	4	5080 -77767	77.17
16	5	6	10	12	60	4	5080 -77768	89.04
20	6	8	12	16	67	4	5080 -77769	89.04
22	7	8	16	16	71	4	5080 -77770	120.99
24	8	8	16	16	71	4	5080 -77771	120.99
26	9	8	18	25	85	4	5080 -77772	157.06
28	10	8	18	25	85	4	5080 -77773	157.06
34	12	10	24	25	90	4	5080 -77774	174.06
41	12.5	16	28	25	100	6	5080 -77775	197.25
48	16	16	28	25	100	6	5080 -77776	332.21
56	20	16	32	35	112	6	5080 -77777	490.97

Izar Performance HSSE 8% Co. - *TALN*
DIN 6518 B N
Corner Rounding Cutters

CUTTER DIA	RADIUS	PILOT	HEAD LENGTH	SHANK DIA	OAL	No. FL	PART NUMBER	PRICE £
10	1	6	8	10	60	4	5080 -19925	105.12
10	1.6	6	8	10	60	4	5080 -19379	105.12
10	2	6	8	10	60	4	5080 -18048	90.21
11	2.5	6	8	10	60	4	5080 -19928	101.83
12	3	6	10	12	60	4	5080 -18049	101.83
14	4	6	10	12	60	4	5080 -18052	113.17
16	5	6	10	12	60	4	5080 -17591	129.72
20	6	8	12	16	67	4	5080 -18056	141.27
22	7	8	16	16	71	4	5080 -19934	190.70
24	8	8	16	16	71	4	5080 -17593	190.70
26	9	8	18	25	85	4	5080 -19946	256.94
28	10	8	18	25	85	4	5080 -19952	256.94
34	12	10	24	25	90	4	5080 -19953	286.87
41	12.5	16	28	25	100	6	5080 -19954	395.61
48	16	16	28	25	100	6	5080 -19956	530.67
56	20	16	32	35	112	6	5080 -21999	680.57

PRECISION STANDARDS
3 different precision levels are available

Precision Collets

Very economic, reliable with guaranteed accuracy to DIN 6499 (Class 2) (15-20 micron) Fully satisfies all general purpose machining.

Super Precision Collets

Fair costs with higher accuracy guaranteed to DIN 6499 (Class 1) (10 micron) Suitable for more precision works and improves tooling life due to it's guaranteed higher accuracy.

Ultra Precision TOPAC Collets

TOP level ACCURACY with guaranteed run out to 5 micron at reasonable cost. Suitable for very high precision, tight tolerance, high speed applications. Improves tooling life as well as machining performance in term of surface quality and precision. Enhanced outlook of the collets due to the high precision surface treatment.

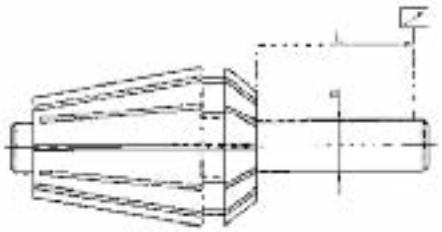
Super Precision Tapping Collets

Fair costs with higher accuracy guaranteed to DIN 6499 (Class 1) (10 micron) Suitable for more precision works and improves tooling life due to it's guaranteed higher accuracy.

Precision Tool Holders & Accessories

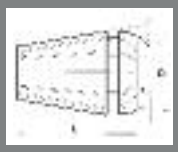
Standard tooling types - Chucks, Spanners, Locknuts, Pullstuds.

Ød	L	Precision	Super Precision	Super Precision	Ultra Precision
1 - 1.6	6	0.015	0.010	0.010	0.005
1.6 - 3	10	0.015	0.010	0.010	0.005
3 - 7	16	0.015	0.010	0.010	0.005
7 - 10	25	0.015	0.010	0.010	0.005
10 - 18	40	0.020	0.010	0.010	0.005
18 - 25	50	0.020	0.010	0.010	0.005
25 - 34	60	0.025	0.015	0.015	0.010



All gürkan Collets

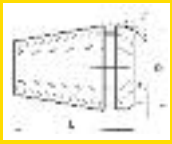
.. are guaranteed within the run out indicated for each level.
.. are 100% runout checked.
.. are not deformed when clamped to their minimum clamping diameter.



ER 8 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	8.5
L	13.5
α	8°
β	30°
CLAMPING RANGE	1.0-5.0
CLAMPING STEPS	0.5

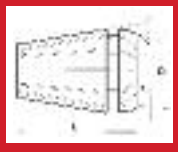
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER08 -0102	22.41
1.5 - 1.0	ER08 -0152	22.46
2.0 - 1.5	ER08 -0202	19.16
2.5 - 2.0	ER08 -0252	19.16
3.0 - 2.5	ER08 -0302	15.01
3.5 - 3.0	ER08 -0352	15.01
4.0 - 3.5	ER08 -0402	15.01
4.5 - 4.0	ER08 -0452	15.01
5.0 - 4.5	ER08 -0502	15.01



ER 8 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	8.5
L	13.5
α	8°
β	30°
CLAMPING RANGE	1.0-5.0
CLAMPING STEPS	0.5

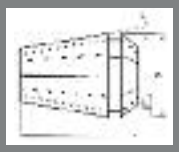
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER08 -0101	24.67
1.5 - 1.0	ER08 -0151	24.67
2.0 - 1.5	ER08 -0201	21.44
2.5 - 2.0	ER08 -0251	21.44
3.0 - 2.5	ER08 -0301	16.89
3.5 - 3.0	ER08 -0351	16.89
4.0 - 3.5	ER08 -0401	16.89
4.5 - 4.0	ER08 -0451	16.89
5.0 - 4.5	ER08 -0501	16.89



ER 8 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	8.5
L	13.5
α	8°
β	30°
CLAMPING RANGE	1.0-5.0
CLAMPING STEPS	0.5

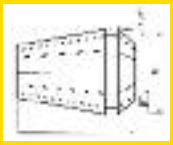
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER08 -010T	31.15
1.5 - 1.0	ER08 -015T	31.15
2.0 - 1.5	ER08 -020T	25.01
2.5 - 2.0	ER08 -025T	25.01
3.0 - 2.5	ER08 -030T	20.13
3.5 - 3.0	ER08 -035T	20.13
4.0 - 3.5	ER08 -040T	20.13
4.5 - 4.0	ER08 -045T	20.13
5.0 - 4.5	ER08 -050T	20.13



ER 11 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	11.5
L	18
α	8°
β	30°
CLAMPING RANGE	1.0-7.0
CLAMPING STEPS	0.5

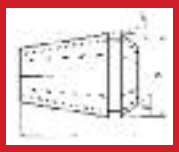
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER11 -0102	20.45
1.5 - 1.0	ER11 -0152	20.45
2.0 - 1.5	ER11 -0202	17.22
2.5 - 2.0	ER11 -0252	17.22
3.0 - 2.5	ER11 -0302	12.80
3.5 - 3.0	ER11 -0352	12.80
4.0 - 3.5	ER11 -0402	12.80
4.5 - 4.0	ER11 -0452	12.80
5.0 - 4.5	ER11 -0502	12.80
5.5 - 5.0	ER11 -0552	12.80
6.0 - 5.5	ER11 -0602	12.80
6.5 - 6.0	ER11 -0652	12.80
7.0 - 6.5	ER11 -0702	12.80



ER 11 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	11.5
L	18
α	8°
β	30°
CLAMPING RANGE	1.0-7.0
CLAMPING STEPS	0.5

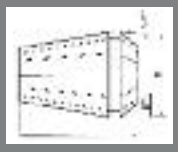
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER11 -0101	22.73
1.5 - 1.0	ER11 -0151	22.73
2.0 - 1.5	ER11 -0201	19.16
2.5 - 2.0	ER11 -0251	19.16
3.0 - 2.5	ER11 -0301	14.94
3.5 - 3.0	ER11 -0351	14.94
4.0 - 3.5	ER11 -0401	14.94
4.5 - 4.0	ER11 -0451	14.94
5.0 - 4.5	ER11 -0501	14.94
5.5 - 5.0	ER11 -0551	14.94
6.0 - 5.5	ER11 -0601	14.94
6.5 - 6.0	ER11 -0651	14.94
7.0 - 6.5	ER11 -0701	14.94



ER 11 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	11.5
L	18
α	8°
β	30°
CLAMPING RANGE	1.0-7.0
CLAMPING STEPS	0.5

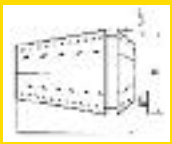
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER11 -010T	27.27
1.5 - 1.0	ER11 -015T	27.27
2.0 - 1.5	ER11 -020T	23.36
2.5 - 2.0	ER11 -025T	23.36
3.0 - 2.5	ER11 -030T	18.17
3.5 - 3.0	ER11 -035T	18.17
4.0 - 3.5	ER11 -040T	18.17
4.5 - 4.0	ER11 -045T	18.17
5.0 - 4.5	ER11 -050T	18.17
5.5 - 5.0	ER11 -055T	18.17
6.0 - 5.5	ER11 -060T	18.17
6.5 - 6.0	ER11 -065T	18.17
7.0 - 6.5	ER11 -070T	18.17



ER 16 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	17
L	27.5
α	8°
β	30°
CLAMPING RANGE	1.0-10.0
CLAMPING STEPS	1.0

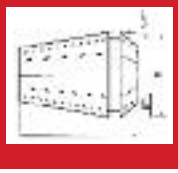
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER16 -0102	19.68
2.0 - 1.0	ER16 -0202	16.44
3.0 - 2.0	ER16 -0302	12.55
4.0 - 3.0	ER16 -0402	12.55
5.0 - 4.0	ER16 -0502	12.55
6.0 - 5.0	ER16 -0602	12.55
7.0 - 6.0	ER16 -0702	12.55
8.0 - 7.0	ER16 -0802	12.55
9.0 - 8.0	ER16 -0902	12.55
10.0 - 9.0	ER16 -1002	12.55



ER 16 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	17
L	27.5
α	8°
β	30°
CLAMPING RANGE	1.0-10.0
CLAMPING STEPS	1.0

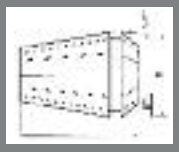
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER16 -0101	21.75
2.0 - 1.0	ER16 -0201	18.52
3.0 - 2.0	ER16 -0301	14.63
4.0 - 3.0	ER16 -0401	14.63
5.0 - 4.0	ER16 -0501	14.63
6.0 - 5.0	ER16 -0601	14.63
7.0 - 6.0	ER16 -0701	14.63
8.0 - 7.0	ER16 -0801	14.63
9.0 - 8.0	ER16 -0901	14.63
10.0 - 9.0	ER16 -1001	14.63



ER 16 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	17
L	27.5
α	8°
β	30°
CLAMPING RANGE	1.0-10.0
CLAMPING STEPS	1.0

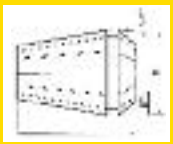
CLAMPING RANGE Ø	PART NUMBER	PRICE £
1.0 - 0.5	ER16 -010T	29.02
2.0 - 1.0	ER16 -020T	23.36
3.0 - 2.0	ER16 -030T	17.53
4.0 - 3.0	ER16 -040T	17.53
5.0 - 4.0	ER16 -050T	17.53
6.0 - 5.0	ER16 -060T	17.53
7.0 - 6.0	ER16 -070T	17.53
8.0 - 7.0	ER16 -080T	17.53
9.0 - 8.0	ER16 -090T	17.53
10.0 - 9.0	ER16 -100T	17.53



ER 20 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	21
L	31.5
α	8°
β	30°
CLAMPING RANGE	2.0-13.0
CLAMPING STEPS	1.0

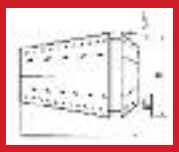
CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER20 -0202	17.40
3.0 - 2.0	ER20 -0302	12.80
4.0 - 3.0	ER20 -0402	12.80
5.0 - 4.0	ER20 -0502	12.80
6.0 - 5.0	ER20 -0602	12.80
7.0 - 6.0	ER20 -0702	12.80
8.0 - 7.0	ER20 -0802	12.80
9.0 - 8.0	ER20 -0902	12.80
10.0 - 9.0	ER20 -1002	12.80
11.0 - 10.0	ER20 -1102	12.80
12.0 - 11.0	ER20 -1202	12.80
13.0 - 12.0	ER20 -1302	12.80



ER 20 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	21
L	31.5
α	8°
β	30°
CLAMPING RANGE	2.0-13.0
CLAMPING STEPS	1.0

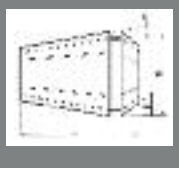
CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER20 -0201	20.45
3.0 - 2.0	ER20 -0301	15.58
4.0 - 3.0	ER20 -0401	15.58
5.0 - 4.0	ER20 -0501	15.58
6.0 - 5.0	ER20 -0601	15.58
7.0 - 6.0	ER20 -0701	15.58
8.0 - 7.0	ER20 -0801	15.58
9.0 - 8.0	ER20 -0901	15.58
10.0 - 9.0	ER20 -1001	15.58
11.0 - 10.0	ER20 -1101	15.58
12.0 - 11.0	ER20 -1201	15.58
13.0 - 12.0	ER20 -1301	15.58



ER 20 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	21
L	31.5
α	8°
β	30°
CLAMPING RANGE	2.0-13.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER20 -020T	24.03
3.0 - 2.0	ER20 -030T	17.53
4.0 - 3.0	ER20 -040T	17.53
5.0 - 4.0	ER20 -050T	17.53
6.0 - 5.0	ER20 -060T	17.53
7.0 - 6.0	ER20 -070T	17.53
8.0 - 7.0	ER20 -080T	17.53
9.0 - 8.0	ER20 -090T	17.53
10.0 - 9.0	ER20 -100T	17.53
11.0 - 10.0	ER20 -110T	17.53
12.0 - 11.0	ER20 -120T	17.53
13.0 - 12.0	ER20 -130T	17.53

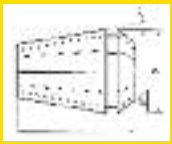


ER 25 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	26
L	34
α	8°
β	30°
CLAMPING RANGE	2.0-16.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER25 -0202	18.38
3.0 - 2.0	ER25 -0302	14.10
4.0 - 3.0	ER25 -0402	14.10
5.0 - 4.0	ER25 -0502	14.10
6.0 - 5.0	ER25 -0602	14.10
7.0 - 6.0	ER25 -0702	14.10
8.0 - 7.0	ER25 -0802	14.10
9.0 - 8.0	ER25 -0902	14.10
10.0 - 9.0	ER25 -1002	14.10
11.0 - 10.0	ER25 -1102	14.10

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER25 -1202	14.10
13.0 - 12.0	ER25 -1302	14.10
14.0 - 13.0	ER25 -1402	14.10
15.0 - 14.0	ER25 -1502	14.10
16.0 - 15.0	ER25 -1602	14.10

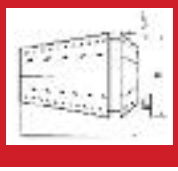


ER 25 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	26
L	34
α	8°
β	30°
CLAMPING RANGE	2.0-16.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER25 -0201	21.44
3.0 - 2.0	ER25 -0301	16.62
4.0 - 3.0	ER25 -0401	16.62
5.0 - 4.0	ER25 -0501	16.62
6.0 - 5.0	ER25 -0601	16.62
7.0 - 6.0	ER25 -0701	16.62
8.0 - 7.0	ER25 -0801	16.62
9.0 - 8.0	ER25 -0901	16.62
10.0 - 9.0	ER25 -1001	16.62
11.0 - 10.0	ER25 -1101	16.62

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER25 -1201	16.62
13.0 - 12.0	ER25 -1301	16.62
14.0 - 13.0	ER25 -1401	16.62
15.0 - 14.0	ER25 -1501	16.62
16.0 - 15.0	ER25 -1601	16.62

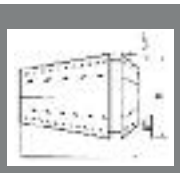


ER 25 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	26
L	34
α	8°
β	30°
CLAMPING RANGE	2.0-16.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
2.0 - 1.0	ER25 -020T	24.67
3.0 - 2.0	ER25 -030T	18.52
4.0 - 3.0	ER25 -040T	18.52
5.0 - 4.0	ER25 -050T	18.52
6.0 - 5.0	ER25 -060T	18.52
7.0 - 6.0	ER25 -070T	18.52
8.0 - 7.0	ER25 -080T	18.52
9.0 - 8.0	ER25 -090T	18.52
10.0 - 9.0	ER25 -100T	18.52
11.0 - 10.0	ER25 -110T	18.52

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER25 -120T	18.52
13.0 - 12.0	ER25 -130T	18.52
14.0 - 13.0	ER25 -140T	18.52
15.0 - 14.0	ER25 -150T	18.52
16.0 - 15.0	ER25 -160T	18.52

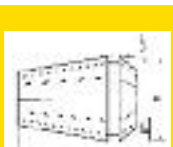


ER 32 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	33
L	40
α	8°
β	30°
CLAMPING RANGE	2.0-20.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER32 -0302	14.43
4.0 - 3.0	ER32 -0402	14.43
5.0 - 4.0	ER32 -0502	14.43
6.0 - 5.0	ER32 -0602	14.43
7.0 - 6.0	ER32 -0702	14.43
8.0 - 7.0	ER32 -0802	14.43
9.0 - 8.0	ER32 -0902	14.43
10.0 - 9.0	ER32 -1002	14.43
11.0 - 10.0	ER32 -1102	14.43

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER32 -1202	14.43
13.0 - 12.0	ER32 -1302	14.43
14.0 - 13.0	ER32 -1402	14.43
15.0 - 14.0	ER32 -1502	14.43
16.0 - 15.0	ER32 -1602	14.43
17.0 - 16.0	ER32 -1702	14.43
18.0 - 17.0	ER32 -1802	14.43
19.0 - 18.0	ER32 -1902	14.43
20.0 - 19.0	ER32 -2002	14.43

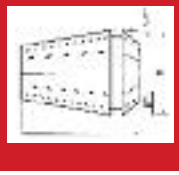


ER 32 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	33
L	40
α	8°
β	30°
CLAMPING RANGE	2.0-20.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER32 -0301	18.06
4.0 - 3.0	ER32 -0401	18.06
5.0 - 4.0	ER32 -0501	18.06
6.0 - 5.0	ER32 -0601	18.06
7.0 - 6.0	ER32 -0701	18.06
8.0 - 7.0	ER32 -0801	18.06
9.0 - 8.0	ER32 -0901	18.06
10.0 - 9.0	ER32 -1001	18.06
11.0 - 10.0	ER32 -1101	18.06

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER32 -1201	18.06
13.0 - 12.0	ER32 -1301	18.06
14.0 - 13.0	ER32 -1401	18.06
15.0 - 14.0	ER32 -1501	18.06
16.0 - 15.0	ER32 -1601	18.06
17.0 - 16.0	ER32 -1701	18.06
18.0 - 17.0	ER32 -1801	18.06
19.0 - 18.0	ER32 -1901	18.06
20.0 - 19.0	ER32 -2001	18.06

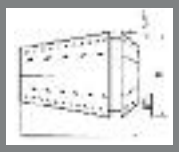


ER 32 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	33
L	40
α	8°
β	30°
CLAMPING RANGE	2.0-20.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER32 -030T	19.48
4.0 - 3.0	ER32 -040T	19.48
5.0 - 4.0	ER32 -050T	19.48
6.0 - 5.0	ER32 -060T	19.48
7.0 - 6.0	ER32 -070T	19.48
8.0 - 7.0	ER32 -080T	19.48
9.0 - 8.0	ER32 -090T	19.48
10.0 - 9.0	ER32 -100T	19.48
11.0 - 10.0	ER32 -110T	19.48

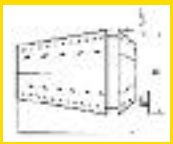
CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 11.0	ER32 -120T	19.48
13.0 - 12.0	ER32 -130T	19.48
14.0 - 13.0	ER32 -140T	19.48
15.0 - 14.0	ER32 -150T	19.48
16.0 - 15.0	ER32 -160T	19.48
17.0 - 16.0	ER32 -170T	19.48
18.0 - 17.0	ER32 -180T	19.48
19.0 - 18.0	ER32 -190T	19.48
20.0 - 19.0	ER32 -200T	19.48



ER 40 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

D	41
L	46
α	8°
β	30°
CLAMPING RANGE	3.0-26.0
CLAMPING STEPS	1.0

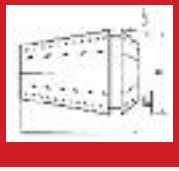
CLAMPING RANGE Ø	PART NUMBER	PRICE £	CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER40 -0302	21.63	15.0 - 14.0	ER40 -1502	17.61
4.0 - 3.0	ER40 -0402	17.61	16.0 - 15.0	ER40 -1602	17.61
5.0 - 4.0	ER40 -0502	17.61	17.0 - 16.0	ER40 -1702	17.61
6.0 - 5.0	ER40 -0602	17.61	18.0 - 17.0	ER40 -1802	17.61
7.0 - 6.0	ER40 -0702	17.61	19.0 - 18.0	ER40 -1902	17.61
8.0 - 7.0	ER40 -0802	17.61	20.0 - 19.0	ER40 -2002	17.61
9.0 - 8.0	ER40 -0902	17.61	21.0 - 20.0	ER40 -2102	17.61
10.0 - 9.0	ER40 -1002	17.61	22.0 - 21.0	ER40 -2202	17.61
11.0 - 10.0	ER40 -1102	17.61	23.0 - 22.0	ER40 -2302	17.61
12.0 - 11.0	ER40 -1202	17.61	24.0 - 23.0	ER40 -2402	17.61
13.0 - 12.0	ER40 -1302	17.61	25.0 - 24.0	ER40 -2502	17.61
14.0 - 13.0	ER40 -1402	17.61	26.0 - 25.0	ER40 -2602	17.61



ER 40 - Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

D	41
L	46
α	8°
β	30°
CLAMPING RANGE	3.0-26.0
CLAMPING STEPS	1.0

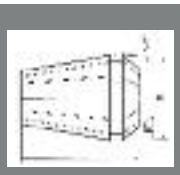
CLAMPING RANGE Ø	PART NUMBER	PRICE £	CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER40 -0301	25.96	15.0 - 14.0	ER40 -1501	21.75
4.0 - 3.0	ER40 -0401	21.75	16.0 - 15.0	ER40 -1601	21.75
5.0 - 4.0	ER40 -0501	21.75	17.0 - 16.0	ER40 -1701	21.75
6.0 - 5.0	ER40 -0601	21.75	18.0 - 17.0	ER40 -1801	21.75
7.0 - 6.0	ER40 -0701	21.75	19.0 - 18.0	ER40 -1901	21.75
8.0 - 7.0	ER40 -0801	21.75	20.0 - 19.0	ER40 -2001	21.75
9.0 - 8.0	ER40 -0901	21.75	21.0 - 20.0	ER40 -2101	21.75
10.0 - 9.0	ER40 -1001	21.75	22.0 - 21.0	ER40 -2201	21.75
11.0 - 10.0	ER40 -1101	21.75	23.0 - 22.0	ER40 -2301	21.75
12.0 - 11.0	ER40 -1201	21.75	24.0 - 23.0	ER40 -2401	21.75
13.0 - 12.0	ER40 -1301	21.75	25.0 - 24.0	ER40 -2501	21.75
14.0 - 13.0	ER40 -1401	21.75	26.0 - 25.0	ER40 -2601	21.75



ER 40 - Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

D	41
L	46
α	8°
β	30°
CLAMPING RANGE	3.0-26.0
CLAMPING STEPS	1.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £	CLAMPING RANGE Ø	PART NUMBER	PRICE £
3.0 - 2.0	ER40 -030T	27.83	15.0 - 14.0	ER40 -150T	23.36
4.0 - 3.0	ER40 -040T	23.36	16.0 - 15.0	ER40 -160T	23.36
5.0 - 4.0	ER40 -050T	23.36	17.0 - 16.0	ER40 -170T	23.36
6.0 - 5.0	ER40 -060T	23.36	18.0 - 17.0	ER40 -180T	23.36
7.0 - 6.0	ER40 -070T	23.36	19.0 - 18.0	ER40 -190T	23.36
8.0 - 7.0	ER40 -080T	23.36	20.0 - 19.0	ER40 -200T	23.36
9.0 - 8.0	ER40 -090T	23.36	21.0 - 20.0	ER40 -210T	23.36
10.0 - 9.0	ER40 -100T	23.36	22.0 - 21.0	ER40 -220T	23.36
11.0 - 10.0	ER40 -110T	23.36	23.0 - 22.0	ER40 -230T	23.36
12.0 - 11.0	ER40 -120T	23.36	24.0 - 23.0	ER40 -240T	23.36
13.0 - 12.0	ER40 -130T	23.36	25.0 - 24.0	ER40 -250T	23.36
14.0 - 13.0	ER40 -140T	23.36	26.0 - 25.0	ER40 -260T	23.36



ER 50 - Precision Collets
DIN 6499-B
15-20 Micron General Purpose

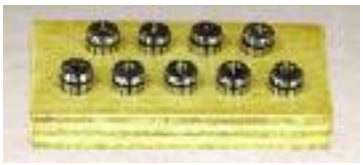
D	52
L	60
α	8°
β	30°
CLAMPING RANGE	12.0-34.0
CLAMPING STEPS	2.0

CLAMPING RANGE Ø	PART NUMBER	PRICE £
12.0 - 10.0	ER50 -1202	40.76
14.0 - 12.0	ER50 -1402	40.76
16.0 - 14.0	ER50 -1602	40.76
18.0 - 16.0	ER50 -1802	40.76
20.0 - 18.0	ER50 -2002	40.76
22.0 - 20.0	ER50 -2202	40.76
24.0 - 22.0	ER50 -2402	40.76
25.0 - 23.0	ER50 -2502	40.76
26.0 - 24.0	ER50 -2602	40.76
28.0 - 26.0	ER50 -2802	40.76
30.0 - 28.0	ER50 -3002	40.76
32.0 - 30.0	ER50 -3202	40.76
34.0 - 32.0	ER50 -3402	40.76

ER 8 - Collet Set - 9pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
9pcs ER8 collets Ø1 to 5mm in 0.5mm increment	ER08 -SET2	176.61

ER 8 - Collet Set - 9pcs
DIN 6499-B
10 Micron Higher Accuracy



CONTENT	PART NUMBER	PRICE £
9pcs ER8 collets Ø1 to 5mm in 0.5mm increment	ER08 -SET1	227.02

ER 8 - Collet Set - 9pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
9pcs ER8 collets Ø1 to 5mm in 0.5mm increment	ER08 -SETT	248.24

ER 11 - Collet Set - 13pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
13pcs ER11 collets Ø1 to 7mm in 0.5mm increment	ER11 -SET2	165.32

ER 11 - Collet Set - 13pcs
DIN 6499-B
10 Micron Higher Accuracy

CONTENT	PART NUMBER	PRICE £
13pcs ER11 collets Ø1 to 7mm in 0.5mm increment	ER11 -SET1	248.24

ER 11 - Collet Set - 13pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
13pcs ER11 collets Ø1 to 7mm in 0.5mm increment	ER11 -SETT	314.22

Tel: 01509 610300 • Fax: 01509 610400 • Email: sales@merlintools.ltd.uk •
www.merlintools.ltd.uk

ER 16 - Collet Set - 10pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
10pcs ER16 collets Ø1 to 10mm in 1.0mm increment	ER16 -SET2	119.58

ER 16 - Collet Set - 10pcs
DIN 6499-B
10 Micron Higher Accuracy

CONTENT	PART NUMBER	PRICE £
10pcs ER16 collets Ø1 to 10mm in 1.0mm increment	ER16 -SET1	186.34

ER 16 - Collet Set - 10pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
10pcs ER16 collets Ø1 to 10mm in 1.0mm increment	ER16 -SETT	224.23

ER 20 - Collet Set - 12pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
12pcs ER20 collets Ø2 to 13mm in 1.0mm increment	ER20 -SET2	155.26

ER 20 - Collet Set - 12pcs
DIN 6499-B
10 Micron Higher Accuracy

CONTENT	PART NUMBER	PRICE £
12pcs ER20 collets Ø2 to 13mm in 1.0mm increment	ER20 -SET1	197.63

ER 20 - Collet Set - 12pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
12pcs ER20 collets Ø2 to 13mm in 1.0mm increment	ER20 -SETT	248.56

ER 25 - Collet Set - 15pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
15pcs ER25 collets Ø2 to 16mm in 1.0mm increment	ER25 -SET2	181.61

ER 25 - Collet Set - 15pcs
DIN 6499-B
10 Micron Higher Accuracy

CONTENT	PART NUMBER	PRICE £
15pcs ER25 collets Ø2 to 16mm in 1.0mm increment	ER25 -SET1	275.29

ER 25 - Collet Set - 15pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
15pcs ER25 collets Ø2 to 16mm in 1.0mm increment	ER25 -SETT	341.02

ER 32 - Collet Set - 18pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
18pcs ER32 collets Ø3 to 20mm in 1.0mm increment	ER32 -SET2	235.39

ER 32 - Collet Set - 18pcs
DIN 6499-B
10 Micron Higher Accuracy

CONTENT	PART NUMBER	PRICE £
18pcs ER32 collets Ø3 to 20mm in 1.0mm increment	ER32 -SET1	329.54

ER 32 - Collet Set - 18pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
18pcs ER32 collets Ø3 to 20mm in 1.0mm increment	ER32 -SETT	395.46

ER 40 - Collet Set - 23pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
23pcs ER40 collets Ø4 to 26mm in 1.0mm increment	ER40 -SET2	385.17

Note: Sets start from ER40 4mm collet and do not include 3mm unless requested specially .

ER 40 - Collet Set - 23pcs
DIN 6499-B
10 Micron Higher Accuracy

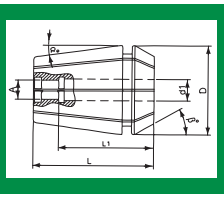
CONTENT	PART NUMBER	PRICE £
23pcs ER40 collets Ø4 to 26mm in 1.0mm increment	ER40 -SET1	538.00

ER 40 - Collet Set - 23pcs
TOPAC
5 Micron Top Accuracy

CONTENT	PART NUMBER	PRICE £
23pcs ER40 collets Ø4 to 26mm in 1.0mm increment	ER40 -SETT	645.45

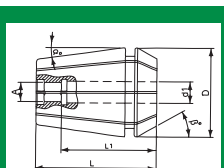
ER 50 - Collet Set - 12pcs
DIN 6499-B
15-20 Micron General Purpose

CONTENT	PART NUMBER	PRICE £
12pcs ER50 collets Ø12 to 34mm in 2.0mm increment	ER50 -SET2	474.16



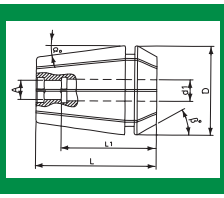
Tapping ER 16 - Super Precision Collets
DIN 371 & 376
10 Micron Higher Accuracy

	PART NUMBER	d1	SUITABLE DIN371	TAP SIZE DIN376	SQUARE A	L1	PRICE £
ER16 D=16.5/L=27.5	ERT16 -045	4.5	M4	M6	3.55	18	51.65
	ERT16 -060	6	M4,5-M5-M6	M8	5	18	51.65



Tapping ER 20 - Super Precision Collets
DIN 371 & 376
10 Micron Higher Accuracy

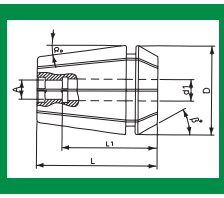
	PART NUMBER	d1	SUITABLE DIN371	TAP SIZE DIN376	SQUARE A	L1	PRICE £
ER20 D=20.5/L=32.5	ERT20 -045	4.5	M4	M6	3.55	18	49.06
	ERT20 -060	6	M4,5-M5-M6	M8	5	18	49.06
	ERT20 -080	8	M8	M11	6.3	22	49.06
	ERT20 -090	9	M9	M12	7.1	22	49.06
	ERT20 -100	10	M10		8	25	49.06



Tapping ER 25 - Super Precision Collets
DIN 371 & 376
10 Micron Higher Accuracy

	PART NUMBER	d1	SUITABLE DIN371	TAP SIZE DIN376	SQUARE A	L1	PRICE £
ER25 D=25.5/L=34	ERT25 -045	4.5	M4	M6	3.55	18	49.06
	ERT25 -060	6	M4,5-M5-M6	M8	5	18	49.06
	ERT25 -080	8	M8	M11	6.3	22	49.06
	ERT25 -090	9	M9	M12	7.1	22	49.06
	ERT25 -100	10	M10		8	25	49.06
	ERT25 -110	11		M14	9	25	49.06
	ERT25 -120	12	M12	M16	9	25	49.06

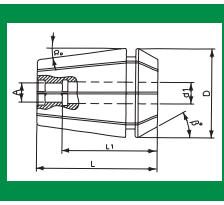
For taps to be used in standard ER chucks as well as tapping chucks. Hold taps according to the specific shank and square size.



Tapping ER 32 - Super Precision Collets
DIN 371 & 376
10 Micron Higher Accuracy

ER32
D=32.5/L=40

PART NUMBER	d1	SUITABLE DIN371	TAP SIZE DIN376	SQUARE A	L1	PRICE £
ERT32 -045	4.5	M4	M6	3.55	18	51.74
ERT32 -060	6	M4,5-M5-M6	M8	5	18	51.74
ERT32 -080	8	M8	M11	6.3	22	51.74
ERT32 -090	9	M9	M12	7.1	22	51.74
ERT32 -100	10	M10		8	25	51.74
ERT32 -110	11		M14	9	25	51.74
ERT32 -120	12	M12	M16	9	25	51.74
ERT32 -140	14		M18	11.2	25	51.74
ERT32 -160	16		M20	12.5	25	51.74

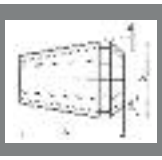


Tapping ER 40 - Super Precision Collets
DIN 371 & 376
10 Micron Higher Accuracy

ER40
D=40.5/L=46

PART NUMBER	d1	SUITABLE DIN371	TAP SIZE DIN376	SQUARE A	L1	PRICE £
ERT40 -060	6	M4,5-M5-M6	M8	5	18	58.29
ERT40 -080	8	M8	M11	6.3	22	58.29
ERT40 -090	9	M9	M12	7.1	22	58.29
ERT40 -100	10	M10		8	25	58.29
ERT40 -110	11		M14	9	25	58.29
ERT40 -120	12	M12	M16	9	25	58.29
ERT40 -140	14		M18	11.2	25	58.29
ERT40 -160	16		M20	12.5	25	58.29
ERT40 -180	18		M22-M24	14.5	33	58.29

For taps to be used in standard ER chucks as well as tapping chucks. Hold taps according to the specific shank and square size.



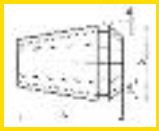
Through Coolant ER Precision Collets
DIN 6499-B
15-20 Micron General Purpose

CLAMPING Ømm	PART # ER 16	PRICE £	PART # ER 20	PRICE £
6	ERC16 -0602	32.39	ERC20 -0602	32.39
8	ERC16 -0802	32.39	ERC20 -0802	32.39
10	ERC16 -1002	32.39	ERC20 -1002	32.39
12			ERC20 -1202	32.39

ER 16 D=17 / L=27.5
ER 20 D=21 / L=32.5

CLAMPING Ømm	PART # ER 25	PRICE £	PART # ER 32	PRICE £	PART # ER 40	PRICE £
6	ERC25 -0602	33.62	ERC32 -0602	35.19	ERC40 -0602	39.15
8	ERC25 -0802	33.62	ERC32 -0802	35.19	ERC40 -0802	39.15
10	ERC25 -1002	33.62	ERC32 -1002	35.19	ERC40 -1002	39.15
12	ERC25 -1202	33.62	ERC32 -1202	35.19	ERC40 -1202	39.15
14	ERC25 -1402	33.62	ERC32 -1402	35.19	ERC40 -1402	39.15
16	ERC25 -1602	33.62	ERC32 -1602	35.19	ERC40 -1602	39.15
18			ERC32 -1802	35.19	ERC40 -1802	39.15
20			ERC32 -2002	35.19	ERC40 -2002	39.15
25					ERC40 -2502	39.15

ER 25 D=26 / L=34
ER 32 D=33 / L=40
ER 40 D=41 / L=46



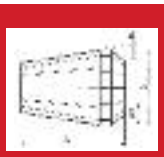
Through Coolant ER Super Precision Collets
DIN 6499-B
10 Micron Higher Accuracy

CLAMPING Ømm	PART # ER 16	PRICE £	PART # ER 20	PRICE £
6	ERC16 -0601	35.19	ERC20 -0601	35.25
8	ERC16 -0801	35.19	ERC20 -0801	35.25
10	ERC16 -1001	35.19	ERC20 -1001	35.25
12			ERC20 -1201	35.25

ER 16 D=17 / L=27.5
ER 20 D=21 / L=32.5

CLAMPING Ømm	PART # ER 25	PRICE £	PART # ER 32	PRICE £	PART # ER 40	PRICE £
6	ERC25 -0601	36.29	ERC32 -0601	37.90	ERC40 -0601	42.64
8	ERC25 -0801	36.29	ERC32 -0801	37.90	ERC40 -0801	42.64
10	ERC25 -1001	36.29	ERC32 -1001	37.90	ERC40 -1001	42.64
12	ERC25 -1201	36.29	ERC32 -1201	37.90	ERC40 -1201	42.64
14	ERC25 -1401	36.29	ERC32 -1401	37.90	ERC40 -1401	42.64
16	ERC25 -1601	36.29	ERC32 -1601	37.90	ERC40 -1601	42.64
18			ERC32 -1801	37.90	ERC40 -1801	42.64
20			ERC32 -2001	37.90	ERC40 -2001	42.64
25					ERC40 -2501	42.64

ER 25 D=26 / L=34
ER 32 D=33 / L=40
ER 40 D=41 / L=46



Through Coolant ER Ultra Precision Collets
TOPAC
5 Micron Top Accuracy

CLAMPING Ømm	PART # ER 16	PRICE £	PART # ER 20	PRICE £
6	ERC16 -060T	38.76	ERC20 -060T	38.76
8	ERC16 -080T	38.76	ERC20 -080T	38.76
10	ERC16 -100T	38.76	ERC20 -100T	38.76
12			ERC20 -120T	38.76

ER 16 D=17 / L=27.5
ER 20 D=21 / L=32.5

CLAMPING Ømm	PART # ER 25	PRICE £	PART # ER 32	PRICE £	PART # ER 40	PRICE £
6	ERC25 -060T	41.73	ERC32 -060T	42.72	ERC40 -060T	47.00
8	ERC25 -080T	41.73	ERC32 -080T	42.72	ERC40 -080T	47.00
10	ERC25 -100T	41.73	ERC32 -100T	42.72	ERC40 -100T	47.00
12	ERC25 -120T	41.73	ERC32 -120T	42.72	ERC40 -120T	47.00
14	ERC25 -140T	41.73	ERC32 -140T	42.72	ERC40 -140T	47.00
16	ERC25 -160T	41.73	ERC32 -160T	42.72	ERC40 -160T	47.00
18			ERC32 -180T	42.72	ERC40 -180T	47.00
20			ERC32 -200T	42.72	ERC40 -200T	47.00
25					ERC40 -250T	47.00

ER 25 D=26 / L=34
ER 32 D=33 / L=40
ER 40 D=41 / L=46

For internal coolant tools. Enables internal coolant tools to be used in standard ER toolholders.

The clamping capacity is only 0.5mm down to the nominal diameter (and not 1.0mm - clamping as the standard ER range)

ER Precision Collets - Imperial
DIN 6499-B 15-20 Micron General Purpose

CLAMPING Ø	PART # ER 11	PRICE £	PART # ER 16	PRICE £	PART # ER 20	PRICE £
1/8"	ER11 -03182	16.25	ER16 -03182	16.17	ER20 -03182	17.02
3/16"	ER11 -04762	16.25	ER16 -04762	16.17	ER20 -04762	17.02
1/4"	ER11 -06352	16.25	ER16 -06352	16.17	ER20 -06352	17.02
5/16"			ER16 -07942	16.17	ER20 -07942	17.02
3/8"			ER16 -09532	16.17	ER20 -09532	17.02
7/16"					ER20 -11112	17.02
1/2"					ER20 -12702	17.02
CLAMPING Ø	**PART # ER 25**	**PRICE £**	**PART # ER 32**	**PRICE £**	**PART # ER 40**	**PRICE £**
1/8"	ER25 -03182	18.06	ER32 -03182	19.36	ER40 -03182	23.71
3/16"	ER25 -04762	18.06	ER32 -04762	19.36	ER40 -04762	23.71
1/4"	ER25 -06352	18.06	ER32 -06352	19.36	ER40 -06352	23.71
5/16"	ER25 -07942	18.06	ER32 -07942	19.36	ER40 -07942	23.71
3/8"	ER25 -09532	18.06	ER32 -09532	19.36	ER40 -09532	23.71
7/16"	ER25 -11112	18.06	ER32 -11112	19.36	ER40 -11112	23.71
1/2"	ER25 -12702	18.06	ER32 -12702	19.36	ER40 -12702	23.71
9/16"	ER25 -14292	18.06	ER32 -14292	19.36	ER40 -14292	23.71
5/8"	ER25 -15882	18.06	ER32 -15882	19.36	ER40 -15882	23.71
3/4"			ER32 -19052	19.36	ER40 -19052	23.71
7/8"					ER40 -22232	23.71
1"					ER40 -25402	23.71

ER Super Precision Collets - Imperial
DIN 6499-B 10 Micron Higher Accuracy

CLAMPING Ø	PART # ER 11	PRICE £	PART # ER 16	PRICE £	PART # ER 20	PRICE £
1/8"	ER11 -03181	18.63	ER16 -03181	18.45	ER20 -03181	19.62
3/16"	ER11 -04761	18.63	ER16 -04761	18.45	ER20 -04761	19.62
1/4"	ER11 -06351	18.63	ER16 -06351	18.45	ER20 -06351	19.62
5/16"			ER16 -07941	18.45	ER20 -07941	19.62
3/8"			ER16 -09531	18.45	ER20 -09531	19.62
7/16"					ER20 -11111	19.62
1/2"					ER20 -12701	19.62
CLAMPING Ø	**PART # ER 25**	**PRICE £**	**PART # ER 32**	**PRICE £**	**PART # ER 40**	**PRICE £**
1/8"	ER25 -03181	21.11	ER32 -03181	22.67	ER40 -03181	32.59
3/16"	ER25 -04761	21.11	ER32 -04761	22.67	ER40 -04761	27.19
1/4"	ER25 -06351	21.11	ER32 -06351	22.67	ER40 -06351	27.19
5/16"	ER25 -07941	21.11	ER32 -07941	22.67	ER40 -07941	27.19
3/8"	ER25 -09531	21.11	ER32 -09531	22.67	ER40 -09531	27.19
7/16"	ER25 -11111	21.11	ER32 -11111	22.67	ER40 -11111	27.19
1/2"	ER25 -12701	21.11	ER32 -12701	22.67	ER40 -12701	27.19
9/16"	ER25 -14291	21.11	ER32 -14291	22.67	ER40 -14291	27.19
5/8"	ER25 -15881	21.11	ER32 -15881	22.67	ER40 -15881	27.19
3/4"			ER32 -19051	22.67	ER40 -19051	27.19
7/8"					ER40 -22231	27.19
1"					ER40 -25401	27.19

ER Ultra Precision Collets - Imperial
TOPAC 5 Micron Top Accuracy

Clamping capacity for imperial collets are the same as for the metric size ER collets.
That is for ER8 and ER11 clamping capacity down to 0.5mm (0.0197 inch) and for ER16-ER20-ER25-ER32-ER40 it is 1.0mm (0.0394 inch)

CLAMPING Ø	PART # ER 11	PRICE £	PART # ER 16	PRICE £	PART # ER 20	PRICE £
1/8"	ER11 -0318T	25.27	ER16 -0318T	24.22	ER20 -0318T	25.01
3/16"	ER11 -0476T	25.27	ER16 -0476T	24.22	ER20 -0476T	25.01
1/4"	ER11 -0635T	25.27	ER16 -0635T	24.22	ER20 -0635T	25.01
5/16"			ER16 -0794T	24.22	ER20 -0794T	25.01
3/8"			ER16 -0953T	24.22	ER20 -0953T	25.01
7/16"					ER20 -1111T	25.01
1/2"					ER20 -1270T	25.01
CLAMPING Ø	**PART # ER 25**	**PRICE £**	**PART # ER 32**	**PRICE £**	**PART # ER 40**	**PRICE £**
1/8"	ER25 -0318T	26.42	ER32 -0318T	27.19	ER40 -0318T	32.33
3/16"	ER25 -0476T	26.42	ER32 -0476T	27.19	ER40 -0476T	32.33
1/4"	ER25 -0635T	26.42	ER32 -0635T	27.19	ER40 -0635T	32.33
5/16"	ER25 -0794T	26.42	ER32 -0794T	27.19	ER40 -0794T	32.33
3/8"	ER25 -0953T	26.42	ER32 -0953T	27.19	ER40 -0953T	32.33
7/16"	ER25 -1111T	26.42	ER32 -1111T	27.19	ER40 -1111T	32.33
1/2"	ER25 -1270T	26.42	ER32 -1270T	27.19	ER40 -1270T	32.33
9/16"	ER25 -1429T	26.42	ER32 -1429T	27.19	ER40 -1429T	32.33
5/8"	ER25 -1588T	26.42	ER32 -1588T	27.19	ER40 -1588T	32.33
3/4"			ER32 -1905T	27.19	ER40 -1905T	32.33
7/8"					ER40 -2223T	32.33
1"					ER40 -2540T	32.33

ER 8 - Collet Set with Straight Shank Toolholder
TOPAC
5 Micron Top Accuracy

PART NUMBER	RANGE Ø	CONTENTS	PRICE £
ER8 -1295MSETT	1.0 - 5.0	9pcs ER8 collets Ø1 to 5mm 1mm increment 1pce Ø12 shank collet holder 1pce SPER08M spanner	381.46

ER 11 - Collet Set with Straight Shank Toolholder
TOPAC
5 Micron Top Accuracy

PART NUMBER	RANGE Ø	CONTENTS	PRICE £
ER11 -16115MSETT	1.0 - 7.0	13pcs ER11 collets Ø1 to 7mm 1mm increment 1pce Ø16 shank collet holder 1pce SPER11M spanner	450.11

ER 16 - Collet Set with Straight Shank Toolholder
TOPAC
5 Micron Top Accuracy

PART NUMBER	RANGE Ø	CONTENTS	PRICE £
ER16 -20130MSETT	1.0 - 10.0	10pcs ER16 collets Ø1 to 10mm 1mm increment 1pce Ø20 shank collet holder 1pce SPER16M spanner	368.00

ER 20 - Collet Set with Straight Shank Toolholder
TOPAC
5 Micron Top Accuracy

PART NUMBER	RANGE Ø	CONTENTS	PRICE £
ER20 -20140MSETT	2.0 - 13.0	12pcs ER20 collets Ø2 to 13mm 1mm increment 1pce Ø20 shank collet holder 1pce SPER20M spanner	394.48

ER 25 - Collet Set with Straight Shank Toolholder
TOPAC
5 Micron Top Accuracy

PART NUMBER	RANGE Ø	CONTENTS	PRICE £
ER25 -25145MSETT	2.0 - 16.0	15pcs ER25 collets Ø2 to 16mm 1mm increment 1pce Ø25 shank collet holder 1pce SPER25M spanner	490.88

Tel: 01509 610300 • Fax: 01509 610400 • Email: sales@merlintools.ltd.uk •
www.merlintools.ltd.uk

Precision Collet Set with Chuck
ER 25
15-20 Micron General Purpose

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
2.0 - 16.0	BT40 - ER25SET2	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce BT40 ER25 chuck 1pce SPER25S spanner	348.38
2.0 - 16.0	DIN40 - ER25SET2	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce DIN40(69871) ER25 chuck 1pce SPER25S spanner	348.38

Super Precision Collet Set with Chuck
ER 25
10 Micron Higher Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
2.0 - 16.0	BT40 - ER25SET1	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce BT40 ER25 chuck 1pce SPER25S spanner	395.12
2.0 - 16.0	DIN40 - ER25SET1	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce DIN40(69871) ER25 chuck 1pce SPER25S spanner	395.12

Ultra Precision Collet Set with Chuck
ER 25 TOPAC
5 Micron Top Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
2.0 - 16.0	BT40 - ER25SETT	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce BT40 ER25 chuck 1pce SPER25S spanner	463.49
2.0 - 16.0	DIN40 - ER25SETT	15pcs ER25 collets Ø2 to 16mm in 1mm increment 1pce DIN40(69871) ER25 chuck 1pce SPER25S spanner	463.49

Precision Collet Set with Chuck
ER 32
15-20 Micron General Purpose

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
3.0 - 20.0	BT40 - ER32SET2	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce BT40 ER32 chuck 1pce SPER25S spanner	402.98
3.0 - 20.0	DIN40 - ER32SET2	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce DIN40(69871) ER32 chuck 1pce SPER25S spanner	402.98
3.0 - 20.0	ISO40 - ER32SET2	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce ISO40(DIN2080) ER32 chuck 1pce SPER25S spanner	402.98

Super Precision Collet Set with Chuck
ER 32
10 Micron Higher Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
3.0 - 20.0	BT40 - ER32SET1	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce BT40 ER32 chuck 1pce SPER25S spanner	463.14
3.0 - 20.0	DIN40 - ER32SET1	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce DIN40(69871) ER32 chuck 1pce SPER25S spanner	463.14

Ultra Precision Collet Set with Chuck
ER 32 TOPAC
5 Micron Top Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
3.0 - 20.0	BT40 - ER32SETT	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce BT40 ER32 chuck 1pce SPER25S spanner	534.69
3.0 - 20.0	DIN40 - ER32SETT	18pcs ER32 collets Ø3 to 20mm in 1mm increment 1pce DIN40(69871) ER32 chuck 1pce SPER25S spanner	534.69

Precision Collet Set with Chuck
ER 40
15-20 Micron General Purpose

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 26.0	BT40 - ER40SET2	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce BT40 ER40 chuck 1pce SPER25S spanner	590.25
4.0 - 26.0	DIN40 - ER40SET2	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	590.25
4.0 - 26.0	ISO40 - ER40SET2	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce ISO40(DIN2080) ER40 chuck 1pce SPER25S spanner	590.25

Super Precision Collet Set with Chuck
ER 40
10 Micron Higher Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 26.0	BT40 - ER40SET1	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce BT40 ER40 chuck 1pce SPER25S spanner	703.22
4.0 - 26.0	DIN40 - ER40SET1	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	703.22

Ultra Precision Collet Set with Chuck
ER 40 TOPAC
5 Micron Top Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 26.0	BT40 - ER40SETT	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce BT40 ER40 chuck 1pce SPER25S spanner	818.74
4.0 - 26.0	DIN40 - ER40SETT	23pcs ER40 collets Ø4 to 26mm in 1mm increment 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	818.74

Precision Collet ECO Set with Chuck
ER 40
15-20 Micron General Purpose

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 25.0	BT40 - ER40SETE2	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce BT40 ER40 chuck 1pce SPER25S spanner	378.42
4.0 - 25.0	DIN40 - ER40SETE2	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	378.42
4.0 - 25.0	ISO40 - ER40SETE2	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce ISO40(DIN2080) ER40 chuck 1pce SPER25S spanner	378.42

Super Precision Collet ECO Set with Chuck
ER 40
10 Micron Higher Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 25.0	BT40 - ER40SETE1	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce BT40 ER40 chuck 1pce SPER25S spanner	402.98
4.0 - 25.0	DIN40 - ER40SETE1	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	402.98

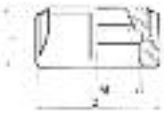
Ultra Precision Collet ECO Set with Chuck
ER 40 TOPAC
5 Micron Top Accuracy

CLAMPING RANGE Ø	PART NUMBER	CONTENTS	PRICE £
4.0 - 25.0	BT40 - ER40SETET	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce BT40 ER40 chuck 1pce SPER25S spanner	445.30
4.0 - 25.0	DIN40 - ER40SETET	12pcs ER40 collets Ø4-5-6-8-10-12-14-16-18-20-22-25 1pce DIN40(69871) ER40 chuck 1pce SPER25S spanner	445.30

ECO = Economical

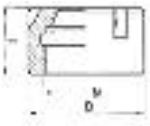
Locknuts
ER Standard

ER TYPE	PART NUMBER	D	L	M	PRICE £
ER 16	NER - 16S	32	17.5	M 22 x 1.5	19.41
ER 20	NER - 20S	35	19	M 25 x 1.5	19.41
ER 25	NER - 25S	42	20	M 32 x 1.5	20.65
ER 32	NER - 32S	50	22.5	M 40 x 1.5	20.65
ER 40	NER - 40S	63	25.5	M 50 x 1.5	28.12
ER 50	NER - 50S	78	35	M 64 x 2.0	45.11



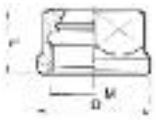
Locknuts
ER Mini

ER TYPE	PART NUMBER	D	L	M	PRICE £
ER 8 mini	NER - 08M	12	11	M 10 x 0.75	19.41
ER 11 mini	NER - 11M	16	11.8	M 13 x 0.75	19.41
ER 16 mini	NER - 16M	22	19	M 19 x 1	19.41
ER 20 mini	NER - 20M	28	19	M 24 x 1	19.41
ER 25 mini	NER - 25M	35	20	M 30 x 1	19.41



Locknuts
ER Hexagon

ER TYPE	PART NUMBER	D	L	M	PRICE £
ER 11	NER - 11H	19	13.5	M 14 x 0.75	19.41
ER 16	NER - 16H	28	17	M 22 x 1.5	19.41
ER 20	NER - 20H	34	19	M 25 x 1.5	19.41



Spanners
ER Standard

ER TYPE	PART NUMBER	PRICE £
ER 16	SPER - 16S	11.63
ER 20	SPER - 20S	11.63
ER 25	SPER - 25S	12.87
ER 32	SPER - 32S	14.16
ER 40	SPER - 40S	16.81
ER 50	SPER - 50S	32.33

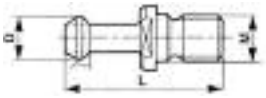
Spanners
ER Mini

ER TYPE	PART NUMBER	PRICE £
ER 8	SPER - 08M	13.97
ER 11	SPER - 11M	13.97
ER 16	SPER - 16M	13.97
ER 20	SPER - 20M	16.81
ER 25	SPER - 25M	18.06

Spanners
ER Hexagon

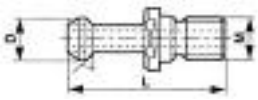
ER TYPE	PART NUMBER	PRICE £
ER 11	SPER - 11H	9.82
ER 16	SPER - 16H	10.33
ER 20	SPER - 20H	10.98

Pull Studs
Type BT - Without internal coolant



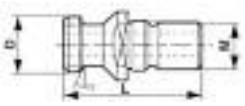
PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PSBT -4045	M16	15	60	BT40	45°	10.53
PSBT -4060	M16	15	60	BT40	60°	10.53
PSBT -4090	M16	15	60	BT40	90°	10.53
PSBT -5045	M24	23	85	BT50	45°	15.53

Pull Studs
Type BT - With internal coolant



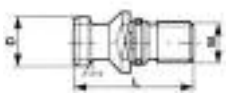
PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PSBT -4045B	M16	15	60	BT40	45°	10.53
PSBT -5045B	M24	23	85	BT50	45°	15.53

Pull Studs
Type 69872A - With internal coolant



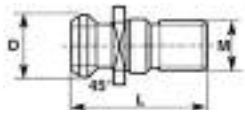
PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PS -698724A	M16	19	54	DIN40 (69871)	15°	10.53
PS -698725A	M24	28	74	DIN50 (69871)	15°	15.53

Pull Studs
Type 69872B - Without internal coolant



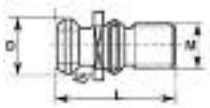
PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PS -698724B	M16	19	54	DIN40 (69871)	15°	10.53
PS -698725B	M24	28	74	DIN50 (69871)	15°	15.53

Pull Studs
Type 7388-2 - With internal coolant

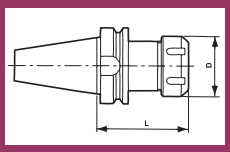


PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PS -738841	M16	18.9	44.5	DIN40 (69871)	45°	10.53
PS -738851	M24	29.1	66.5	DIN50 (69871)	45°	15.53

Pull Studs
Type 7388-2 - Without internal coolant

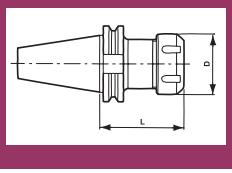


PART NUMBER	M	D	L	TOOL HOLDER TYPE	α	PRICE £
PS -738840	M16	18.9	44.5	DIN40 (69871)	45°	10.53
PS -738850	M24	29.1	66.5	DIN50 (69871)	45°	15.53



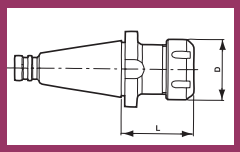
Precision Collet Chucks Type ER
MAS 403 BT
BT40 - BT50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER BT40	L	DIA D	COLLET TYPE Ø CLAMPING RANGE	PRICE £
BT40 - ER16	70	32	ER16 Ø1 - 10mm	71.16
BT40 - ER16 - 100	100	32	ER16 Ø1 - 10mm	106.34
BT40 - ER20	70	35	ER20 Ø2 - 13mm	71.16
BT40 - ER20 - 100	100	35	ER20 Ø2 - 13mm	106.34
BT40 - ER25	70	42	ER25 Ø2 - 16mm	71.16
BT40 - ER25 - 100	100	42	ER25 Ø2 - 16mm	106.34
BT40 - ER32	70	50	ER32 Ø3 - 20mm	71.16
BT40 - ER32 - 100	100	50	ER32 Ø3 - 20mm	106.34
BT40 - ER40	70	63	ER40 Ø4 - 26mm	78.09
BT40 - ER40 - 100	100	63	ER40 Ø4 - 26mm	113.63
BT50				
BT50 - ER32	80	50	ER32 Ø2 - 20mm	135.40
BT50 - ER40	80	63	ER40 Ø4 - 26mm	142.67
BT50 - ER50	100	78	ER50 Ø12 -34mm	224.16



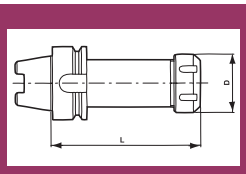
Precision Collet Chucks Type ER
DIN 69871
DIN 40 - DIN 50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER DIN 40	L	DIA D	COLLET TYPE Ø CLAMPING RANGE	PRICE £
DIN40 - ER16	70	32	ER16 Ø1 - 10mm	71.16
DIN40 - ER16 - 100	100	32	ER16 Ø1 - 10mm	106.34
DIN40 - ER20	70	35	ER20 Ø2 - 13mm	71.16
DIN40 - ER20 - 100	100	35	ER20 Ø2 - 13mm	106.34
DIN40 - ER25	70	42	ER25 Ø2 - 16mm	71.16
DIN40 - ER25 - 100	100	42	ER25 Ø2 - 16mm	106.34
DIN40 - ER32	70	50	ER32 Ø3 - 20mm	71.16
DIN40 - ER32 - 100	100	50	ER32 Ø3 - 20mm	106.34
DIN40 - ER40	80	63	ER40 Ø4 - 26mm	78.09
DIN40 - ER40 - 100	100	63	ER40 Ø4 - 26mm	113.63
DIN 50				
DIN50 - ER32	80	50	ER32 Ø3 - 20mm	135.40
DIN50 - ER40	80	63	ER40 Ø4 - 26mm	142.67



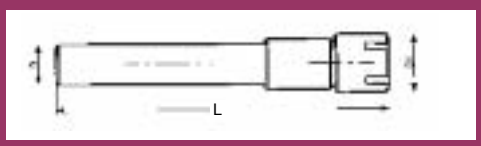
Precision Collet Chucks Type ER
DIN 2080 (ISO)
ISO 40 - ISO 50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER ISO40	L	DIA D	COLLET TYPE Ø CLAMPING RANGE	PRICE £
ISO40 - ER32	80	50	ER32 Ø2 - 20mm	79.21
ISO40 - ER40	80	63	ER40 Ø4 - 26mm	79.21
ISO50				
ISO50 - ER40	80	63	ER40 Ø4 - 26mm	121.98



Precision Collet Chucks Type ER
DIN 69893
HSK 63
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER	L	DIA D	COLLET TYPE Ø CLAMPING RANGE	PRICE £
HSK63 - ER16	100	32	ER16 Ø1 - 10mm	174.92
HSK63 - ER25	100	42	ER25 Ø2 - 16mm	174.92
HSK63 - ER32	100	50	ER32 Ø3 - 20mm	174.92



Precision ER Straight Shank Collet Holders

PART NUMBER ER8	D	D1	L	COLLET TYPE Ø CLAMPING RANGE	PRICE £
ER08 - 10095M	10	12	95	ER8 Ø1 - 5mm	77.40
ER08 - 12095M	12	12	95	ER8 Ø1 - 5mm	77.40

ER11					
ER11 - 16115M	16	16	115	ER11 Ø1 - 7mm	77.40
ER11 - 16115H	16	19	115	ER11 Ø1 - 7mm	77.40

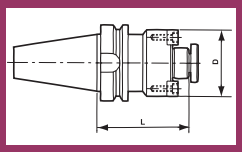
ER16					
ER16 - 20130M	20	22	130	ER16 Ø1 - 10mm	77.40
ER16 - 20130H	20	28	130	ER16 Ø1 - 10mm	77.40
ER16 - 20130S	20	32	130	ER16 Ø1 - 10mm	77.40

ER20					
ER20 - 20140M	20	28	140	ER20 Ø2 - 13mm	77.40
ER20 - 20140H	20	34	140	ER20 Ø2 - 13mm	77.40
ER20 - 20140S	20	35	140	ER20 Ø2 - 13mm	77.40
ER20 - 25110H	25	34	110	ER20 Ø2 - 13mm	77.40
ER20 - 25110S	25	35	110	ER20 Ø2 - 13mm	77.40

ER25					
ER25 - 25145M	25	35	145	ER25 Ø2 - 16mm	77.40
ER25 - 32105S	32	42	105	ER25 Ø2 - 16mm	77.40

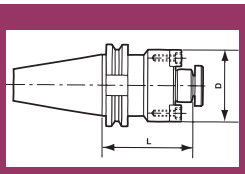
ER32					
ER32 - 32110S	32	50	110	ER32 Ø3 - 20mm	77.40
ER32 - 40110S	40	50	110	ER32 Ø3 - 20mm	77.40

Suffix on the codes shows:
M = WITH ER MINI LOCKNUT
H = WITH HEXAGON LOCKNUT
S = WITH ER STANDARD LOCKNUT



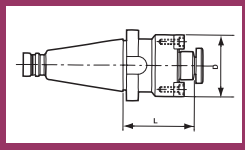
Precision Face Mill Adaptors
MAS 403 BT
BT40 - BT50

PART NUMBER BT40	D	D1	L	PRICE £
BT40 - FM16	16	38	50	79.66
BT40 - FM22	22	48	55	79.66
BT40 - FM27	27	58	55	79.66
BT40 - FM32	32	66	60	87.57
BT40 - FM40	40	80	60	94.09
BT50				
BT50 - FM22	22	48	95	137.33
BT50 - FM27	27	58	100	137.33
BT50 - FM32	32	66	100	142.89
BT50 - FM40	40	80	100	152.31



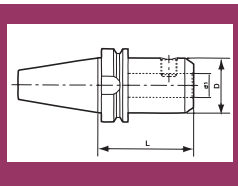
Precision Face Mill Adaptors
DIN 69871
DIN 40 - DIN 50

PART NUMBER DIN 40	D	D1	L	PRICE £
DIN40 - FM16	16	38	50	79.66
DIN40 - FM22	22	48	55	79.66
DIN40 - FM27	27	58	55	79.66
DIN40 - FM32	32	66	60	87.57
DIN40 - FM40	40	80	60	94.09
DIN 50				
DIN50 - FM22	22	48	65	137.33
DIN50 - FM27	27	58	70	137.33
DIN50 - FM32	32	66	75	142.89
DIN50 - FM40	40	80	75	152.31



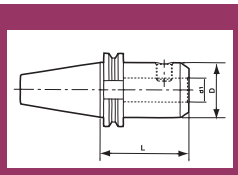
Precision Face Mill Adaptors
DIN 2080 (ISO)
ISO 40 - ISO 50

PART NUMBER ISO40	D	D1	L	PRICE £
ISO40 - FM22	22	48	35	79.63
ISO40 - FM27	27	58	35	79.63
ISO40 - FM32	32	66	35	87.56
ISO40 - FM40	40	80	35	94.07
ISO50				
ISO50 - FM27	27	58	45	137.33
ISO50 - FM32	32	66	45	142.89
ISO50 - FM40	40	80	45	152.31



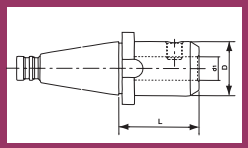
Precision Weldon Adaptors
MAS 403 BT
BT40 - BT50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER BT40	D1	D	L	PRICE £
BT40 - W12	12	42	65	71.16
BT40 - W16	16	48	70	71.16
BT40 - W20	20	52	70	71.16
BT40 - W25	25	65	100	79.66
BT40 - W32	32	72	100	87.57
BT40 - W40	40	80	120	113.63
BT50				
BT50 - W20	20	52	80	137.33
BT50 - W25	25	65	100	152.31
BT50 - W32	32	72	105	159.57
BT50 - W40	40	80	120	175.44



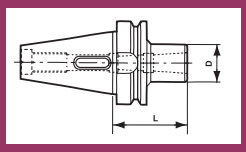
Precision Weldon Adaptors
DIN 69871
DIN 40 - DIN 50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER DIN 40	D1	D	L	PRICE £
DIN40 - W12	12	42	50	71.16
DIN40 - W16	16	48	63	71.16
DIN40 - W20	20	52	63	71.16
DIN40 - W25	25	65	100	79.66
DIN40 - W32	32	72	100	87.57
DIN40 - W40	40	80	120	113.63
DIN 50				
DIN50 - W25	25	65	80	152.31
DIN50 - W32	32	72	100	175.44
DIN50 - W40	40	80	112	175.44



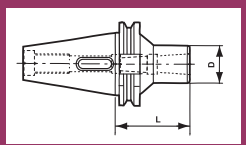
Precision Weldon Adaptors
DIN 2080 (ISO)
ISO 40 - ISO 50
Pre-balanced AD/B - G6.3 12,000 RPM

PART NUMBER ISO40	D1	D	L	PRICE £
ISO40 - W20	20	52	63	71.35
ISO40 - W25	25	65	80	80.20
ISO40 - W32	32	72	80	87.70
ISO50				
ISO50 - W25	25	65	80	114.42
ISO50 - W32	32	72	80	120.87



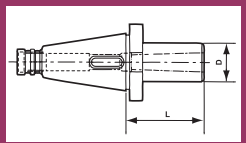
Precision Morse Taper Adaptors
MAS 403 BT
BT40 - BT50
AD/B

PART NUMBER BT40	D1	L	PRICE £
BT40 - MT1	25	50	71.16
BT40 - MT2	32	50	71.16
BT40 - MT3	40	70	71.16
BT40 - MT4	48	95	80.50
BT50			
BT50 - MT2	32	60	136.61
BT50 - MT3	40	65	136.61
BT50 - MT4	48	95	143.06



Precision Morse Taper Adaptors
DIN 69871
DIN 40 - DIN 50
AD/B

PART NUMBER DIN 40	D1	L	PRICE £
DIN40 - MT1	25	50	71.16
DIN40 - MT2	32	50	71.16
DIN40 - MT3	40	70	71.16
DIN40 - MT4	48	95	75.26
DIN 50			
DIN50 - MT3	40	65	114.43
DIN50 - MT4	48	95	121.55



Precision Morse Taper Adaptors
DIN 2080 (ISO)
ISO 40 - ISO 50
AD/B

PART NUMBER ISO40	D1	L	PRICE £
ISO40 - MT2	32	50	71.16
ISO40 - MT3	40	65	71.16
ISO50			
ISO50 - MT3	40	65	113.91
ISO50 - MT4	48	70	122.51

Tapping Precision Chucks
Straight Shank
ER 20

TAP SIZES	PART NUMBER	DETAILS	PRICE £
M3-M16	KT20 -ER20	Shank Ø20mm Overall Length 150mm Collet Type : ER20 (2-13mm)	275.55

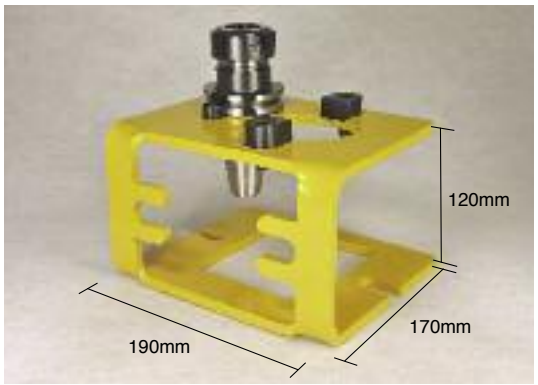
Suitable for standard ER20 collets as well as ER20 tapping collets.

Tapping Precision Chucks
BT40 Shank
ER 32

TAP SIZES	PART NUMBER	DETAILS	PRICE £
M3-M27	KTBT40 -ER32	Taper BT40 Collet Type : ER20 (3-20mm)	389.01

Suitable for standard ER32 collets as well as ER32 tapping collets.

Tool Clamping Stand



TAPERS TO BE STORED	PART NUMBER	PRICE £
BT40-BT50 (DIN69871) DIN40-DIN50 (DIN2080) ISO40-ISO50	TBA -4050	184.03

All mentioned 40 and 50 taper holders can be clamped in the same stand.

Technical Information
Material Grouping

Material Group	Material Type	hardness (HB)	tensile Strength (N/mm^2)	B. S.	EN & other standards
Steel					
A1	Magnetic Soft	<120	<400	230M07, 050A12	EN1, EN2 Leadloy
A2	Structural, case carburising	<200	<700	060A35, 080M40 4360-50B	EN3A, 4, 6, 7, 8, 32 EN207, S62
A3	Plain Carbon	<250	<850	080M46, 080A62	EN9, 10, 43, S7
A4	Alloyed	250 - 350	<850	708M40/42, 817M40 534A99, BM2, BT42	EN16, 17, 19(R,S) EN31, S2-10-1-8 (Soft
A5	Alloyed	350	850 - 1200	B01, BM2, BT42 826M40, 830M31	EN24, 25, 26(T,U,V) S95, S97. S98 (annealed)
A6	Alloyed			801 826M40, 830M31	EN25, 26, 27 (W,X.Z) S97, S98 (H&T)
B1	Alloyed - hardened 48 - 55 HRc			B01, BD3, BH13	
B2	Alloyed - hardened 55 - 60 HRc			BM2, BH13	
B3	Alloyed - hardenend > 60 HRc				
Stainless Steel					
C1	Free machining	<250	<850	303 S21 416 S37	EN56 EN60
C2	Austenitic	<250	<850	304 S15, 321 S17 316 S, 320 S12	EN80, EN58 + C EN58J, 316
C3	Ferritic + Austenitic, Ferretic, Martensitic	<300	<1000	317 S16, 316 S16	EN 58 b,e,j,T Duplex alloys
Cast Iron					
D1	Lameller graphite	<150	<500	grade 150, grade 400	Grey cast iron sof
D2	Lameller graphite	150 - 300	500 - 1000	grade 200, grade 400	Grey cast iron hard
D3	Nodular graphite, malleable	<200	<700	420/12, P440/7 700/2, 30g/72	S.G. iron Mehanite Black & White Heart
D4	Nodular graphite, malleable	200 - 300	700 - 1000	420/12, p440/7 700/2, 30g/72	S.G. iron Mehanite Black & White Heart
Titanium					
E1	Unalloyed	<200	<700	TA1-9	Ti 99.0
E2	Alloyed	<270	<900	TA10-14, TA17, TA28	Ti-2AL
E3	Alloyed	270 - 350	900 - 1250	TA10-13, TA28	Ti AL
Nickel					
F1	Unalloyed	<150	<500	NA11, NA12	Nickel 200, Nickle 270
F2	Alloyed	<270	<900	HR203 3027-76	
F3	Alloyed	270 - 350	900 - 1260	HR8 HR401, 601	Inconel 718, Waspalloy, Nimonic 80, Rene 41
Copper					
G1	Unalloyed	<100	<350	C101	Commercially Pure
G2	B - brass, bronze	<200	<700	CZ120, CZ109, PB104	2.1030, 2.1080
G3	¥ - brass	<200	<700	CZ108, CZ106	
G4	High strength bronze	<470	<1500	AB1 type	Ampco 18, Ampco 26
Aluminium/Magnesium					
H1	Al, Mg, unalloyed	<100	<350	LMO, 1b (1050A)	Magnesium, Extruded Aluminium
H2	Al alloyed, Si<0.5%	<150	<500	LM5, 10, 12 N4 (5251)	Low silicon wrought & cast aluminiu
H3	Al alloyed, Si>0.5-<10%	<120	<400	LM2, 4, 16, 18, 21, 22, 24, 25, 26, 27, L109	Silicon Aluminiu
H4	Al alloyed, Si>10%, Whisker reinforced, Mg	<120	<400	LM6, 12, 13, 20, 28, 29, 30	High Silicon Aluminium
Plastics					
I1	Thermoplastics			Polystyrene, Nylon, PVC Cellulose Acrtate & Nitrare	Nylon, Hostalen Makrolon
I2	Thermosetting			Ebonite, Tufnol, Bakelite	Bakelite, Pertinax
I3	Reinforced plastics			Kevlar, Printed Circuit Board	CFK, GFK, AFK
Cermet					
J1	Cermet (metal ceramics)				

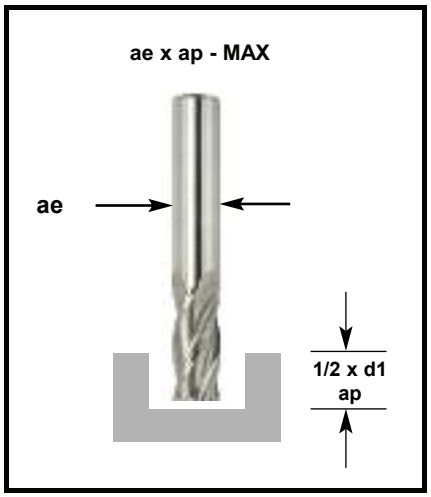
Suggested Technical Information
Solid Carbide

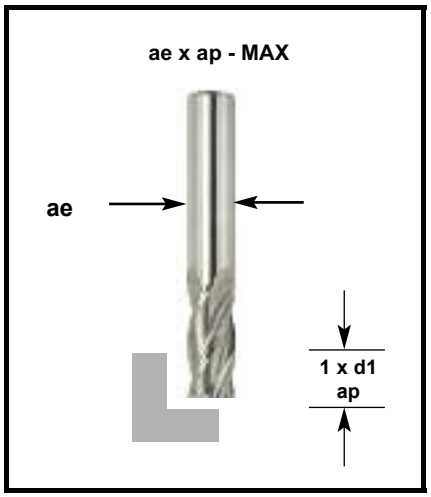
Page No.	8,16,21	9,17,22	10,18,23	34,38	35,39	36,40	8,16,21	9,17,22	10,18,23	43	61
Page No.	24,27,31,81	25,28,32	26,29,33	41,42		41,42	24,27,31,14	25,28,32	26,29,33,15		
Series	211,216	311,316	411,416	221	321	421	214,219	314,319	414,419	650	625
Series	211S,216S	311S,316S	411S,416S	236	336	436	214S,219S	314S,319S	414S,419S		
Series	251,261,112	351,361	451,469	222,226		444,446	259,269,214R	359,369	459,469,414R		
Material Group	**Surface Speed vc m/min**										
A1	80 - 120	80 - 120	80 - 120	50 - 70	50 - 70	50 - 70	160 - 240	160 - 240	160 - 240		100 - 150
A2	80 - 120	80 - 120	80 - 120	50 - 70	50 - 70	50 - 70	160 - 240	160 - 240	160 - 240		100 - 150
A3	60 - 80	60 - 80	60 - 80	35 - 50	35 - 50	35 - 50	120 - 160	120 - 160	120 - 160		60 - 80
A4	60 - 80	60 - 80	60 - 80	35 - 50	35 - 50	35 - 50	120 - 160	120 - 160	120 - 160		60 - 80
A5	40 - 60	40 - 60	40 - 60	25 - 35	25 - 35	25 - 35	80 - 120	80 - 160	80 - 160		40 - 60
A6	20 - 40	20 - 40	20 - 40	15 - 20	15 - 20	15 - 20	40 - 80	40 - 80	40 - 80		20 - 40
B1							40 - 80	40 - 80	40 - 80		
B2							40 - 80	40 - 80	40 - 80		
B3											
C1	40 - 80	40 - 80	40 - 80	25 - 50	25 - 50	25 - 50	80 - 160	80 - 160	80 - 160	50 - 100	40 - 80
C2	30 - 50	30 - 50	30 - 50	20 - 30	20 - 30	20 - 30	60 - 100	60 - 100	60 - 100	40 - 60	30 - 50
C3	25 - 40	25 - 40	25 - 40	15 - 25	15 - 25	15 - 25	50 - 80	50 - 80	50 - 80	35 - 55	25 - 40
D1	50 - 80	50 - 80	50 - 80	35 - 60	35 - 60	35 - 60	100 - 160	100 - 160	100 - 160		50 - 80
D2	40 - 70	40 - 70	40 - 70	30 - 50	30 - 50	30 - 50	80 - 140	80 - 140	80 - 140		40 - 70
D3	35 - 50	35 - 50	35 - 50	25 - 35	25 - 35	25 - 35	70 - 100	70 - 100	70 - 100		35 - 50
D4	25 - 40	25 - 40	25 - 40	20 - 30	20 - 30	20 - 30	50 - 80	50 - 80	50 - 80		25 - 40
E1	60 - 100	60 - 100	60 - 100	35 - 60	35 - 60	35 - 60	120 - 200	120 - 200	120 - 200	80 - 130	60 - 100
E2	40 - 60	40 - 60	40 - 60	25 - 35	25 - 35	25 - 35	80 - 120	80 - 120	80 - 120	50 - 80	40 - 60
E3	20 - 30	20 - 30	20 - 30	15 - 20	15 - 20	15 - 20	40 - 60	40 - 60	40 - 60	25 - 40	20 - 30
F1	60 - 100	60 - 100	60 - 100	35 - 60	35 - 60	35 - 60	120 - 200	120 - 200	120 - 200	80 - 130	60 - 100
F2	30 - 60	30 - 60	30 - 60	20 - 35	20 - 35	20 - 35	60 - 120	60 - 120	60 - 120	40 - 80	30 - 60
F3	20 - 50	20 - 50	20 - 50	15 - 30	15 - 30	15 - 30	40 - 100	40 - 100	40 - 100	25 - 70	20 - 50
G1	100 - 200	100 - 200	100 - 200	60 - 120	60 - 120	60 - 120	200 - 400	200 - 400	200 - 400		125 - 250
G2	130 - 170	130 - 170	130 - 170	100 - 120	100 - 120	100 - 120	260 - 340	260 - 340	260 - 340	200 - 260	
G3	130 - 170	130 - 170	130 - 170	100 - 120	100 - 120	100 - 120	260 - 340	260 - 340	260 - 340	200 - 260	
G4	20 - 50	25 - 50	25 - 50	20 - 35	20 - 35	20 - 35	40 - 100	50 - 100	50 - 100	40 - 80	
H1	50 - 450	150 - 450		100 - 300	100 - 300						180 - 550
H2	150 - 450	150 - 450		100 - 300	100 - 300						180 - 550
H3	40 - 80	40 - 80		30 - 60	30 - 60						50 - 100
H4	35 - 50	35 - 50		25 - 35							50 - 100
I1	80 - 160	80 - 160		60 - 120	60 - 120						125 - 250
I2	70 - 130	70 - 130		50 - 100	50 - 100						
I3	70 - 130	70 - 130		50 - 100	50 - 100						
J1	4 - 8	4 - 8	4 - 8				8 - 16	8 - 16	8 - 16		

Suggested Technical Information
Solid Carbide

RPM= $\frac{vc \times 1000}{dia \times \pi}$

fr=fz x zx RPM





Material	Feed per tooth chart (fz)										
Group	0.4-1mm	1-2mm	3mm	4mm	5mm	6mm	7-8mm	9-10mm	11-15mm	16-20mm	25mm
A1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A5	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
A6	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B3											
C1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
D1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
D4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
G1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G4	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
H1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
H2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.950	0.130	0.150
H3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
H4	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
I1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
I2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
I3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
J1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130

Note: Series 222, 226, 444, 446 metal removal rates to suit application

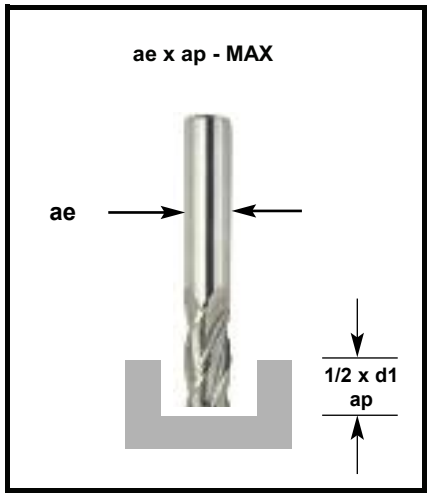
Suggested Technical Information
Solid Carbide

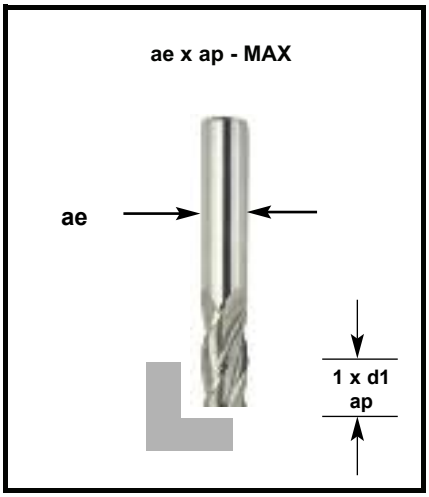
Page No.	43	44	44	45	44, 62 thru 67	46	46	47, 49	48	48	47, 49
Series	659	525	520	660	665,691,692 693,694,695 696,697,698	670	675	530, 603	600	609	539, 699
Material Group	**Surface Speed vc m/min**										
A1	80 - 240	150 - 450	80 - 120	80 - 120	160 - 240	80 - 120	120 - 360	80 - 120	80 - 120	160 - 240	160 - 240
A2	80 - 240	150 - 450	80 - 120	80 - 120	160 - 240	80 - 120	120 - 360	80 - 120	80 - 120	160 - 240	160 - 240
A3	60 - 120	100 - 300	60 - 80	60 - 80	120 - 160	60 - 80	80 - 240	60 - 80	60 - 80	120 - 160	120 - 160
A4		100 - 300	60 - 80	60 - 80	120 - 160	60 - 80	80 - 240	60 - 80	60 - 80	120 - 160	120 - 160
A5		100 - 200	40 - 60	40 - 60	80 - 120	40 - 60	60 - 200	40 - 60	40 - 60	80 - 120	80 - 120
A6		100 - 200	20 - 40	20 - 40	40 - 80	20 - 40	40 - 200	20 - 40	20 - 40	40 - 80	40 - 80
B1		100 - 200			40 - 80		40 - 200			40 - 80	
B2		100 - 200			40 - 80		40 - 200			40 - 80	
B3		100 - 200					40 - 200				
C1	50 - 150	80 - 240	40 - 80	40 - 80	80 - 160	40 - 80	80 - 200	40 - 80	40 - 80	80 - 160	80 - 160
C2	40 - 120	60 - 180	30 - 50	30 - 50	60 - 100	30 - 50	50 - 150	30 - 50	30 - 50	60 - 100	60 - 100
C3	35 - 105	30 - 90	25 - 40	25 - 40	50 - 80	25 - 40	40 - 120	25 - 40	25 - 40	50 - 80	50 - 80
D1		65 - 200	50 - 80	50 - 80	100 - 160	50 - 80	80 - 240	50 - 80	50 - 80	100 - 160	100 - 160
D2		55 - 170	40 - 70	40 - 70	80 - 140	40 - 70	70 - 120	40 - 70	40 - 70	80 - 140	80 - 140
D3		45 - 140	35 - 50	35 - 50	70 - 100	35 - 50	50 - 150	35 - 50	35 - 50	70 - 100	70 - 100
D4		35 - 100	25 - 40	25 - 40	50 - 80	25 - 40	40 - 120	25 - 40	25 - 40	50 - 80	50 - 80
E1	80 - 240	100 - 300	60 - 100	60 - 100	120 - 200	60 - 100	100 - 300	60 - 100	60 - 100	120 - 200	120 - 200
E2	50 - 150	80 - 240	40 - 60	40 - 60	80 - 120	40 - 60	60 - 180	40 - 60	40 - 60	80 - 120	80 - 120
E3	40 - 120	40 - 120	20 - 30	20 - 30	40 - 60	20 - 30	30 - 90	20 - 30	20 - 30	40 - 60	40 - 60
F1	120 - 360	100 - 300	60 - 100	60 - 100	120 - 200	60 - 100	100 - 300	60 - 100	60 - 100	120 - 200	120 - 200
F2	60 - 180	80 - 240	30 - 60	30 - 60	60 - 120	30 - 60	60 - 180	30 - 60	30 - 60	60 - 120	60 - 120
F3	25 - 75	40 - 120	20 - 50	20 - 50	40 - 100	20 - 50	50 - 150	20 - 50	20 - 50	40 - 100	40 - 100
G1	200 - 300					100 - 200	200 - 600	100 - 200			200 - 400
G2	200 - 300					130 - 170	170 - 500	130 - 170			260 - 340
G3	200 - 300					130 - 170	170 - 500	130 - 170			260 - 340
G4	40 - 120					20 - 50	50 - 150	20 - 50			40 - 100
H1						50 - 450		50 - 450			100 - 900
H2						150 - 450		150 - 450			300 - 900
H3						40 - 80		40 - 80			80 - 160
H4						35 - 50		35 - 50			70 - 100
I1						80 - 160		80 - 160			160 - 320
I2						70 - 130		70 - 130			140 - 260
I3						70 - 130	70 - 210	70 - 130			140 - 260
J1						4 - 8	8 - 24	4 - 8			8 - 16

Suggested Technical Information
Solid Carbide

RPM= $\frac{vc \times 1000}{dia \times \pi}$

fr=fz x z xRPM





Material	Feed per tooth chart (fz)										
Group	0.4-1mm	1-2mm	3mm	4mm	5mm	6mm	7-8mm	9-10mm	11-15mm	16-20mm	25mm
A1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A5	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
A6	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
C1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
D1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
D4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
G1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G4	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
H1	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H2	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H3	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H4	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
I1	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
I2	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
I3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
J1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130

Suggested Technical Information
Solid Carbide



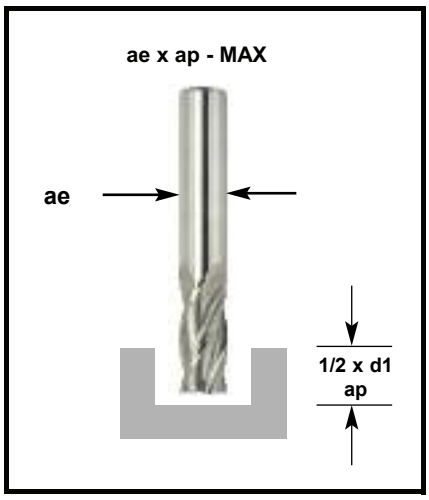


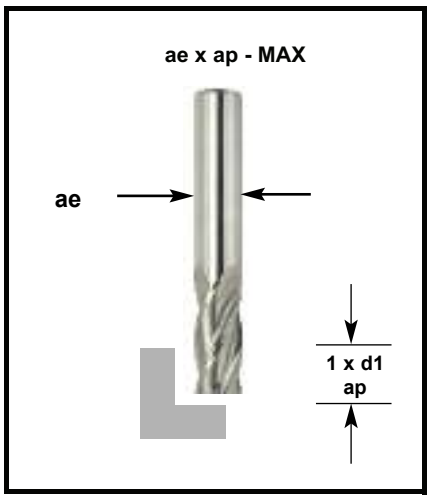

Page No. Series	50 thru 59 254,254R,255R,257 255,355,356,356R 357,357R,256, 258,260	68 & 69 680 610R,620R profile only	69 690 profile and slots	34 229	35 329	36 429
Material Group	**Surface Speed vc m/min**					
A1		150 - 450	150 - 450	100 - 140	100 - 140	100 - 140
A2		150 - 450	150 - 450	100 - 140	100 - 140	100 - 140
A3		100 - 300	100 - 300	70 - 100	70 - 100	70 - 100
A4		100 - 300	100 - 300	70 - 100	70 - 100	70 - 100
A5		100 - 200	100 - 200	50 - 70	50 - 70	50 - 70
A6		100 - 200	100 - 200	30 - 50	30 - 50	30 - 50
B1		100 - 200	100 - 200	30 - 50	30 - 50	30 - 50
B2		100 - 200	100 - 200	30 - 50	30 - 50	30 - 50
B3		100 - 200	100 - 200			
C1		80 - 240	80 - 240	50 - 100	50 - 100	50 - 100
C2		60 - 180	60 - 180	40 - 60	40 - 60	40 - 60
C3		30 - 90	30 - 90	30 - 50	30 - 50	30 - 50
D1		65 - 200	65 - 200	70 - 120	70 - 120	70 - 120
D2		55 - 170	55 - 170	60 - 100	60 - 100	60 - 100
D3		45 - 140	45 - 140	50 - 70	50 - 70	50 - 70
D4		35 - 100	35 - 100	40 - 60	40 - 60	40 - 60
E1		100 - 300	100 - 300	70 - 120	70 - 120	70 - 120
E2		80 - 240	80 - 240	50 - 70	50 - 70	50 - 70
E3		40 - 120	40 - 120	30 - 40	30 - 40	30 - 40
F1		100 - 300	100 - 300	70 - 120	70 - 120	70 - 120
F2		80 - 240	80 - 240	40 - 70	40 - 70	40 - 70
F3		40 - 120	40 - 120	30 - 60	30 - 60	30 - 60
G1				120 - 240	120 - 240	120 - 240
G2				200 - 240	200 - 240	200 - 240
G3				200 - 240	200 - 240	200 - 240
G4				40 - 70	40 - 70	40 - 70
H1	450 - 1350					
H2	450 - 1350					
H3	300 - 100					
H4	100 - 450					
I1	200 - 600					
I2	100 - 300					
I3						
J1						

Suggested Technical Information
Solid Carbide

RPM= $\frac{vc \times 1000}{dia \times \pi}$

fr=fz x z xRPM





Material Group	Feed per tooth chart (fz)										
	0.4-1mm	1-2mm	3mm	4mm	5mm	6mm	7-8mm	9-10mm	11-15mm	16-20mm	25mm
A1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
A5	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
A6	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
B3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.060	0.100
C1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
C3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
D1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
D3	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
D4	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E2	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130
E3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F1	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F2	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
F3	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
G1	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
G4	0.008	0.010	0.013	0.016	0.018	0.022	0.030	0.038	0.052	0.075	0.100
H1	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H2	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H3	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
H4	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
I1	0.024	0.036	0.044	0.054	0.070	0.090	0.120	0.150	0.190	0.260	0.300
I2	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
I3	0.012	0.018	0.022	0.027	0.035	0.045	0.060	0.075	0.095	0.130	0.150
J1	0.010	0.014	0.017	0.021	0.025	0.030	0.045	0.055	0.070	0.090	0.130

Note: Series 255XL, 257XL metal removal rates to suit application

Suggested Technical Information
Solid Carbide Drills

Page No. Series	91 203	90 103	92 104	93 105	78 106*	80 109*
Material Group	**Surface Speed vc m/min**					
A1	70 - 100	70 - 100	70 - 100	70 - 100	70 - 100	70 - 100
A2	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90
A3	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90
A4	60 - 80	60 - 80	60 - 80	60 - 80	60 - 80	60 - 80
A5	40 - 50	40 - 50	40 - 50	40 - 50	40 - 50	40 - 50
A6	40 - 50	40 - 50	40 - 50	40 - 50	40 - 50	40 - 50
B1						
B2						
B3						
C1			35 - 70		35 - 70	35 - 70
C2			30 - 60		30 - 60	30 - 60
C3			20 - 30			
D1	60 - 30	60 - 30	60 - 90	60 - 90	60 - 90	60 - 90
D2	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90	60 - 90
D3	40 - 70	40 - 70	40 - 70	40 - 70	40 - 70	40 - 70
D4	40 - 70	40 - 70	40 - 70	40 - 70	40 - 70	40 - 70
E1			40 - 50	40 - 50	40 - 50	40 - 50
E2			30 - 40	30 - 40	30 - 40	30 - 40
E3			20 - 30	20 - 30	20 - 30	20 - 30
F1			30 - 50	30 - 60	30 - 60	30 - 60
F2			20 - 40	20 - 40	20 - 40	20 - 40
F3			15 - 25	15 - 25	15 - 25	15 - 25
G1	100 - 450	100 - 450		100 - 450	100 - 450	100 - 450
G2	100 - 400	100 - 400		100 - 450	100 - 450	100 - 450
G3	100 - 400	100 - 400		100 - 400	100 - 400	100 - 400
G4				40 - 100	40 - 100	40 - 100
H1	100 - 300	100 - 300		100 - 300	100 - 300	100 - 300
H2	100 - 300	100 - 300		100 - 300	100 - 300	100 - 300
H3	75 - 150	75 - 150		75 - 150	75 - 150	75 - 150
H4	50 - 70	50 - 70		50 - 70	50 - 70	50 - 70
I1	40 - 80	40 - 80			40 - 80	40 - 80
I2	80 - 120	80 - 120			80 - 120	80 - 120
I3						
J1						

Suggested Technical Information
Solid Carbide Drills

$$RPM = \frac{vc \times 1000}{dia \times \pi}$$

fr=f/rev xRPM

***f numbers not applicable**

Material Group	Feed per rev (f mm)										
	1-2mm	3mm	4mm	5mm	6mm	7-8mm	9-10mm	11-12mm	13mm	14-16	20mm
A1	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
A2	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
A3	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
A4	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
A5	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
A6	0.027	0.030	0.038	0.045	0.054	0.070	0.095	0.110	0.125	0.160	0.200
B1											
B2											
B3											
C1	0.032	0.045	0.053	0.060	0.074	0.090	0.120	0.143	0.165	0.190	0.230
C2	0.032	0.045	0.053	0.060	0.074	0.090	0.120	0.143	0.165	0.190	0.230
C3	0.032	0.045	0.053	0.060	0.074	0.090	0.120	0.143	0.165	0.190	0.230
D1	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
D2	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
D3	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
D4	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
E1	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
E2	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
E3	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
F1	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
F2	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
F3	0.040	0.055	0.065	0.075	0.090	0.110	0.133	0.160	0.180	0.220	0.280
G1	0.055	0.100	0.120	0.130	0.150	0.190	0.240	0.280	0.300	0.350	0.400
G2	0.055	0.100	0.120	0.130	0.150	0.190	0.240	0.280	0.300	0.350	0.400
G3	0.055	0.100	0.120	0.130	0.150	0.190	0.240	0.280	0.300	0.350	0.400
G4	0.055	0.100	0.120	0.130	0.150	0.190	0.240	0.280	0.300	0.350	0.400
H1	0.063	0.115	0.135	0.150	0.185	0.220	0.278	0.320	0.350	0.400	0.450
H2	0.063	0.115	0.135	0.150	0.185	0.220	0.278	0.320	0.350	0.400	0.450
H3	0.063	0.115	0.135	0.150	0.185	0.220	0.278	0.320	0.350	0.400	0.450
H4	0.063	0.115	0.135	0.150	0.185	0.220	0.278	0.320	0.350	0.400	0.450
I1	0.080	0.180	0.220	0.260	0.350	0.420	0.520	0.600	0.650	0.750	0.850
I2	0.055	0.100	0.120	0.130	0.150	0.190	0.240	0.370	0.400	0.500	0.600
I3											
J1											

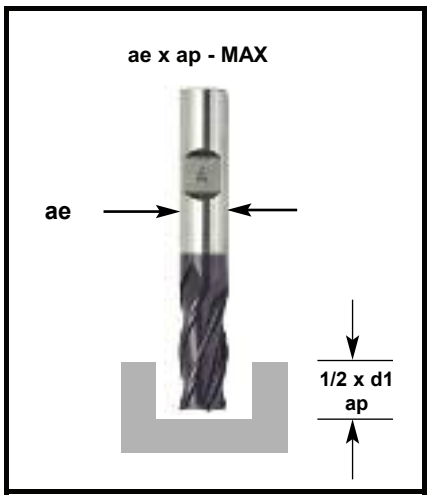
Suggested Technical Information
Izarmax ASP 52

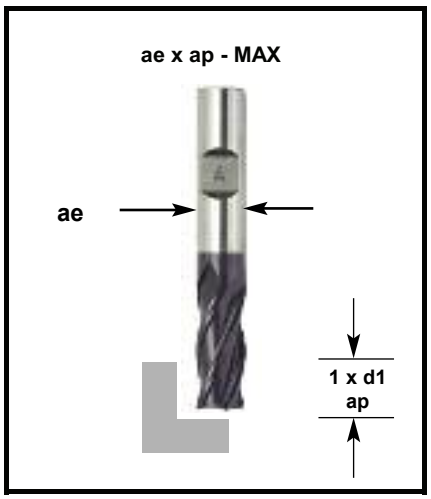
Page No.	126	127	126	127	129	130	129	130	128
Series	6420	6439	6430	6604	6600	6644	6606	6696	6444 6647
Material Group	**Surface Speed vc m/min**								
A1	55 - 85	55 - 85	55 - 85	55 - 85	55 - 85	55 - 85	55 - 85	55 - 85	55 - 85
A2	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75
A3	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75	45 - 75
A4	45 - 65	45 - 65	45 - 65	45 - 65	45 - 65	45 - 65	45 - 65	45 - 65	45 - 65
A5	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35
A6	20 - 35	20 - 35		20 - 35	20 - 35	20 - 35	20 - 35	20 - 35	20 - 35
B1									
B2									
B3									
C1	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
C2	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
C3	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
D1	35 - 55	35 - 55		35 - 55	35 - 55	35 - 55	35 - 55	35 - 55	35 - 55
D2	30 - 45	30 - 45		30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
D3	35 - 55	35 - 55		35 - 55	35 - 55	35 - 55	35 - 55	35 - 55	35 - 55
D4	30 - 45	30 - 45		30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
E1	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
E2	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
E3	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35
F1	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45	30 - 45
F2	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35
F3	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35	15 - 35
G1	110 - 210	110 - 210	110 - 210	110 - 210	110 - 210		110 - 210		
G2	90 - 190	90 - 190	90 - 190	90 - 190	90 - 190		90 - 190		
G3	90 - 190	90 - 190	90 - 190	90 - 190	90 - 190		90 - 190		
G4									
H1	290 - 420	290 - 420	290 - 420	290 - 420	290 - 420		290 - 420		
H2	210 - 280	210 - 280	210 - 280	210 - 280	210 - 280		210 - 280		
H3	210 - 280	210 - 280	210 - 280	210 - 280	210 - 280		210 - 280		
H4	90 - 170	90 - 170	90 - 170	90 - 170	90 - 170		90 - 170		
I1	300 - 450	300 - 450	300 - 450	300 - 450	300 - 450		300 - 450		
I2									
I3									
J1									

Suggested Technical Information
Izarmax ASP 52

RPM= $\frac{vc \times 1000}{dia \times \pi}$

fr=fz x z xRPM





Material Group	Feed per tooth chart (fz)										
	2-4mm	5-6mm	7-8mm	9-10mm	12mm	14-16mm	18-20mm	25mm	30-32mm	40mm	50mm
A1	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
A2	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
A3	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
A4	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
A5	0.012	0.025	0.030	0.052	0.052	0.075	0.075	0.075	0.075	0.075	0.075
A6	0.012	0.025	0.030	0.052	0.052	0.075	0.075	0.075	0.075	0.075	0.075
B1											
B2											
B3											
C1	0.012	0.025	0.030	0.052	0.052	0.075	0.075	0.075	0.075	0.075	0.075
C2	0.012	0.025	0.030	0.052	0.052	0.075	0.075	0.075	0.075	0.075	0.075
C3	0.012	0.025	0.030	0.052	0.052	0.075	0.075	0.075	0.075	0.075	0.075
D1	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
D2	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
D3	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
D4	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
E1	0.025	0.042	0.062	0.077	0.092	0.127	0.150	0.150	0.150	0.150	0.150
E2	0.025	0.042	0.062	0.077	0.092	0.127	0.150	0.150	0.150	0.150	0.150
E3	0.014	0.021	0.029	0.044	0.054	0.081	0.104	0.104	0.104	0.104	0.104
F1	0.014	0.021	0.029	0.044	0.054	0.081	0.104	0.104	0.104	0.104	0.104
F2	0.014	0.021	0.029	0.044	0.054	0.081	0.104	0.104	0.104	0.104	0.104
F3	0.014	0.021	0.029	0.044	0.054	0.081	0.104	0.104	0.104	0.104	0.104
G1	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
G2	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
G3	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
G4											
H1	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
H2	0.025	0.042	0.062	0.077	0.092	0.127	0.150	0.150	0.150	0.150	0.150
H3	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
H4	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
I1	0.020	0.030	0.035	0.058	0.069	0.115	0.115	0.115	0.115	0.115	0.115
I2											
I3											
J1											

Note: On 55º Helix endmill 6604 max radial cut = D x 0.05
Note: For LONG SERIES cutters fz = fz x 0.5

Suggested Technical Information
Izar HSCo 8% Cobalt

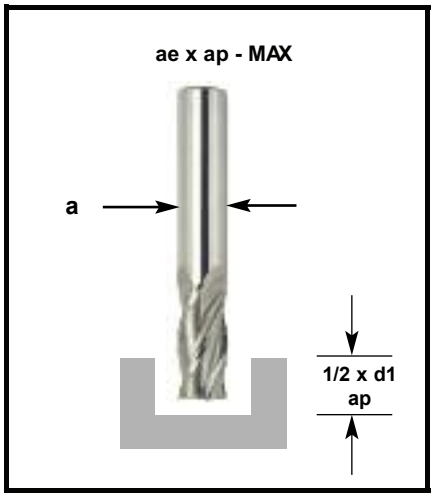
Page No. / Series	131 4420	132 4426	133 4422	134 4470	135 4439	136 4435	137 4430	138 4432	139 4447	139 4497
Material Group	**Surface Speed vc m/min**									
A1	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40		
A2	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30		
A3	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30		
A4	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25		
A5	10 - 15	10 - 15	10 - 15	10 - 15						
A6	10 - 15	10 - 15	10 - 15	10 - 15						
B1										
B2										
B3										
C1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20		
C2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20		
C3	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20		
D1	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30		
D2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20		
D3	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30		
D4	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20		
E1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
E2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
E3	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
F1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
F2	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
F3	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
G1	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100	60 - 100
G2	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90
G3	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90	50 - 90
G4	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50	30 - 50
H1	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200	160 - 200
H2	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150
H3	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150	100 - 150
H4	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80	50 - 80
I1	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250	200 - 250
I2										
I3										
J1										

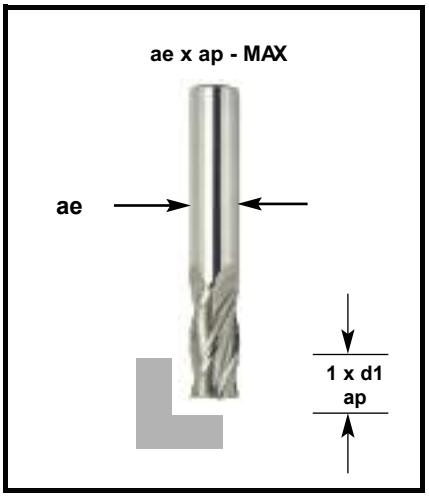
For TiALN coated endmills, cutting speed should be increased 50% to 75%

Suggested Technical Information
Izar HSCo 8% Cobalt

$$RPM = \frac{vc \times 1000}{dia \times \pi}$$

$$fr = fz \times z \times RPM$$





Material Group	Feed per tooth chart (fz)										
	2-4mm	5-6mm	7-8mm	9-10mm	12mm	14-16mm	18-20mm	25mm	30-32mm	40mm	50mm
A1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A5	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
A6	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
B1											
B2											
B3											
C1	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
C2	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
C3	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
D1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
E1	0.025	0.042	0.062	0.067	0.08	0.110	0.130	0.130	0.130	0.130	0.130
E2	0.025	0.042	0.062	0.067	0.08	0.110	0.130	0.130	0.130	0.130	0.130
E3	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F1	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F2	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F3	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
G1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H2	0.025	0.042	0.062	0.067	0.080	0.110	0.130	0.130	0.130	0.130	0.130
H3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
I1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
I2											
I3											
J1											

Note: For LONG SERIES cutters fz = fz x 0.5

Suggested Technical Information
Izar HSCo 8% Cobalt

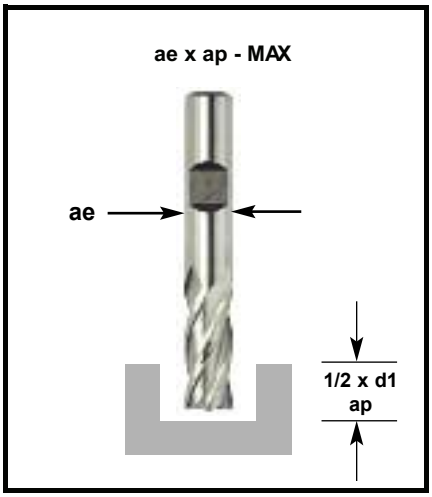
Page No.	140	141	142	143	144	145
Series	4600	4606	4644	4696	4640	4690
Material Group	**Surface Speed vc m/min**					
A1	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40	30 - 40
A2	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30
A3	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30
A4	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25	20 - 25
A5	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15
A6	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15
B1						
B2						
B3						
C1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
C2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
C3	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
D1	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
D2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
D3	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
D4	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
E1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
E2	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
E3	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
F1	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
F2	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
F3	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15	8 - 15
G1	60 - 100	60 - 100			60 - 100	60 - 100
G2	50 - 90	50 - 90			50 - 90	50 - 90
G3	50 - 90	50 - 90			50 - 90	50 - 90
G4	30 - 50	30 - 50			30 - 50	30 - 50
H1	160 - 200	160 - 200			160 - 200	160 - 200
H2	100 - 150	100 - 150			100 - 150	100 - 150
H3	100 - 150	100 - 150			100 - 150	100 - 150
H4	50 - 80	50 - 80			50 - 80	50 - 80
I1	200 - 250	200 - 250			200 - 250	200 - 250
I2						
I3						
J1						

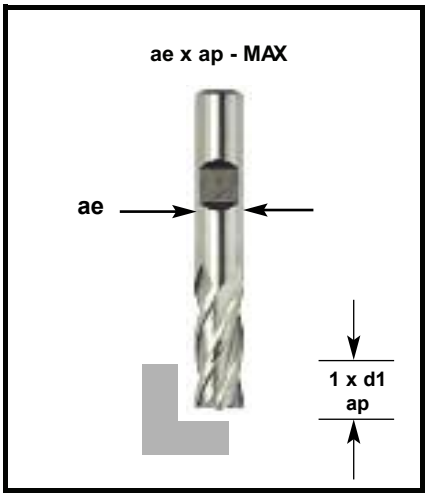
For TiALN coated endmills, cutting speed should be increased 50% to 75%

Suggested Technical Information
Izar HSCo 8% Cobalt

RPM= vc x 1000 / dia x π

fr=fz x z xRPM





Material Group	Feed per tooth chart (fz)										
	2-4mm	5-6mm	7-8mm	9-10mm	12mm	14-16mm	18-20mm	25mm	30-32mm	40mm	50mm
A1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
A5	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
A6	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
B1											
B2											
B3											
C1	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
C2	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
C3	0.012	0.025	0.030	0.045	0.045	0.065	0.065	0.065	0.065	0.065	0.065
D1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
D4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
E1	0.025	0.042	0.062	0.067	0.08	0.110	0.130	0.130	0.130	0.130	0.130
E2	0.025	0.042	0.062	0.067	0.08	0.110	0.130	0.130	0.130	0.130	0.130
E3	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F1	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F2	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
F3	0.014	0.021	0.029	0.038	0.047	0.07	0.090	0.090	0.090	0.090	0.090
G1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G2	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
G4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H2	0.025	0.042	0.062	0.067	0.080	0.110	0.130	0.130	0.130	0.130	0.130
H3	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
H4	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
I1	0.020	0.030	0.035	0.050	0.060	0.100	0.100	0.100	0.100	0.100	0.100
I2											
I3											
J1											

Note: For LONG SERIES cutters fz = fz x 0.5

Suggested Technical Information
3xD, 5xD, 8xD Drills

Page No	84		85		86		87		88	
Series	123		133		125		135		138	
Material Group	**vc m/min**	**feed code**	**vc m/min**	**feed code**	**vc m/min**	**feed code**	**vc m/min**	**feed code**	**vc m/min**	**feed code**
A1	130	**7**	145	**7**	130	**7**	145	**7**	145	**6**
A2	110	**6**	120	**6**	110	**6**	120	**6**	120	**5**
A3	145	**8**	170	**8**	145	**8**	170	**8**	170	**7**
A4	110	**8**	145	**8**	110	**7**	145	**8**	145	**7**
A5	100	**7**	105	**7**	100	**6**	105	**7**	105	**6**
A6	85	**5**	85	**5**	85	**5**	85	**5**	85	**4**
B1	45	**3**	55	**3**	45	**3**	55	**3**	55	**2**
B2	25	**2**	35	**2**	25	**2**	35	**2**	35	**1**
C1	55	**4**	60	**5**	55	**4**	60	**5**	60	**4**
C2	45	**4**	55	**5**	45	**4**	55	**5**	55	**4**
C3	45	**3**	45	**5**	45	**3**	45	**5**	45	**4**
D1	195	**8**	210	**9**	195	**8**	210	**9**	210	**8**
D2	155	**8**	160	**9**	155	**8**	160	**9**	195	**8**
D3	155	**7**	140	**9**	145	**7**	140	**9**	160	**8**
D4	125	**7**	130	**8**	125	**7**	130	**8**	130	**7**
E1	40	**4**	45	**4**	40	**4**	45	**4**	40	**3**
E2	40	**4**	45	**4**	40	**4**	45	**4**	40	**3**
E3	35	**3**	40	**3**	35	**3**	40	**3**	40	**2**
G1	105	**7**	125	**7**	105	**7**	125	**7**	125	**6**
G2	270	**8**	325	**8**	270	**8**	325	**8**	325	**7**
G3	180	**7**	220	**7**	180	**7**	220	**7**	220	**6**
G4	80	**5**	90	**6**	80	**5**	90	**6**	90	**5**
H1	260	**9**	310	**9**	260	**9**	310	**9**	240	**7**
H2	220	**9**	260	**9**	220	**8**	260	**9**	220	**8**
H3	180	**8**	220	**9**	170	**8**	220	**9**	200	**8**
H4	260	**8**	280	**8**	260	**8**	280	**8**	280	**7**

Diameter	**Feed Rate Code f(mm/rev)**									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
3mm	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.16	
4mm	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.20	
5mm	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	
6mm	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	
8mm	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.32	
10mm	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.40	
12mm	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	
16mm	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.60	
20mm	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.60	0.60	

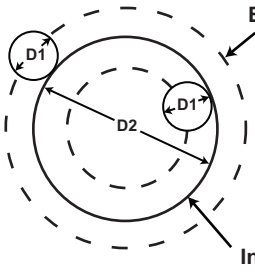
Suggested Technical Information
Solid Carbide Thread Mills

Page No	94	94	95	95	96	96
Series	920	930	960	970	940	950

Technical Information Solid Carbide Thread Mills - AlTiN Coated

	Feed mm/ per Flute by Shank Diameter						
Specification	SMPM	6mm	8mm	10mm	12mm	16mm	20mm
Steel	75-180	0.013	0.015	0.018	0.025	0.038	0.045
Stainless Steel	45-150	0.013	0.015	0.018	0.025	0.038	0.045
Aluminimum	250+	0.02	0.03	0.038	0.05	0.064	0.075
Titanium	25-40	0.01	0.013	0.018	0.018	0.02	0.02
Brass	150-250	0.02	0.03	0.038	0.05	0.064	0.075
Cast Iron	75-150	0.013	0.018	0.018	0.025	0.038	0.045

Feed Rate Compensation



D1 = Tool Cutting Diameter
D2 = Thread Diameter

$$\text{Internal} = \frac{D2-D1}{D2}$$

$$\text{External} = \frac{D2+D1}{D2}$$

To obtain the correct feed rate for the centerline of the tool, multipy the desired feed rate at the cutting edge by the appropriate factor.

This chart shows suggested speed and feed information only. This information should be used as a starting point only and a guideline for calculation of your own formulas.
Material variations, part and tool fixturing, coolant flow and the actual cutting conditions of your specific job may impact our suggested speed and feed recommendations.

Conversion Chart
inch - millimetres

mm	Frac	Inch	mm	Frac	Inch	mm	Frac	Inch	mm	Frac	Inch	mm	Frac	Inch
.30		.0118	2.6		.1024	6.747	17/64	.2656	11.1		.4370	17.25		.6791
.35		.0138	2.65		.1043	6.75		.2657	11.112	7/16	.4375	17.462	11/16	.6875
.38		.0150	2.7		.1063	6.8		.2677	11.2		.4409	17.5		.6890
.397	1/64	.0156	2.75		.1083	6.9		.2717	11.25		.4429	17.75		.6988
.40		.0157	2.778	7/64	.1094	7.00		.2756	11.3		.4449	17.859	45/64	.7031
.42		.0165	2.8		.1102	7.1		.2795	11.4		.4488	18.00		.7087
.45		.0177	2.85		.1122	7.144	9/32	.2812	11.5		.4528	18.25		.7185
.5		.0197	2.9		.1142	7.2		.2835	11.509	29/64	.4531	18.256	23/32	.7188
.52		.0205	2.95		.1161	7.25		.2854	11.6		.4567	18.5		.7283
.55		.0217	3.00		.1181	7.3		.2874	11.7		.4606	18.653	47/64	.7344
.58		.0228	3.1		.1220	7.4		.2913	11.75		.4626	18.75		.7382
.6		.0236	3.175	1/8	.1250	7.5		.2953	11.8		.4646	19.00		.7480
.62		.0244	3.2		.1260	7.541	19/64	.2969	11.9		.4685	19.050	3/4	.7500
.65		.0256	3.25		.1280	7.6		.2992	11.906	15/32	.4688	19.25		.7579
.68		.0268	3.3		.1299	7.7		.3031	12.00		.4724	19.447	49/64	.7656
.7		.0276	3.4		.1339	7.75		.3051	12.1		.4764	19.5		.7677
.72		.0283	3.5		.1378	7.8		.3071	12.2		.4803	19.75		.7776
.75		.0295	3.572	9/64	.1406	7.9		.3110	12.25		.4823	19.844	25/32	.7812
.78		.0307	3.6		.1417	7.938	5/16	.3125	12.3		.4843	20.00		.7874
.794	1/32	.0312	3.7		.1457	8.00		.3150	12.303	31/64	.4844	20.241	51/64	.7969
.8		.0315	3.75		.1476	8.1		.3189	12.4		.4882	20.25		.7972
.85		.0335	3.8		.1496	8.2		.3228	12.5		.4921	20.422		.8040
.88		.0346	3.9		.1535	8.25		.3248	12.6		.4961	20.5		.8071
.9		.0354	3.969	5/32	.1562	8.3		.3268	12.7	1/2	.5000	20.638	13/16	.8125
.92		.0362	4.00		.1575	8.334	21/64	.3281	12.75		.5020	20.75		.8169
.95		.0374	4.1		.1614	8.4		.3307	12.8		.5039	21.00		.8268
.98		.0386	4.2		.1654	8.5		.3346	12.9		.5079	21.034	53/64	.8281
1.00		.0394	4.25		.1673	8.6		.3386	13.00		.5118	21.25		.8366
1.05		.0413	4.3		.1693	8.7		.3425	13.097	33/64	.5156	21.431	27/32	.8438
1.1		.0433	4.366	11/64	.1719	8.731	11/32	.3438	13.1		.5157	21.5		.8465
1.15		.0453	4.4		.1732	8.75		.3445	13.2		.5197	21.75		.8563
1.191	3/64	.0469	4.5		.1772	8.8		.3465	13.25		.5217	21.828	55/64	.8594
1.2		.0472	4.6		.1811	8.9		.3504	13.3		.5236	22.00		.8661
1.25		.0492	4.7		.1850	9.00		.3543	13.4		.5276	22.225	7/8	.8750
1.3		.0512	4.75		.1870	9.1		.3583	13.494	17/32	.5312	22.25		.8760
1.35		.0531	4.762	3/16	.1875	9.128	23/64	.3594	13.5		.5315	22.5		.8858
1.4		.0551	4.8		.1890	9.2		.3622	13.6		.5354	22.622	57/64	.8906
1.45		.0571	4.9		.1929	9.25		.3642	13.7		.5394	22.75		.8957
1.5		.0591	5.00		.1969	9.3		.3661	13.75		.5413	23.00		.9055
1.55		.0610	5.1		.2008	9.4		.3701	13.8		.5433	23.019	29/32	.9062
1.588	1/16	.0625	5.159	13/64	.2031	9.5		.3740	13.891	35/64	.5469	23.25		.9154
1.6		.0630	5.2		.2047	9.525	3/8	.3750	13.9		.5472	23.416	59/64	.9219
1.65		.0650	5.25		.2067	9.6		.3780	14.00		.5512	23.5		.9252
1.7		.0669	5.3		.2087	9.7		.3819	14.25		.5610	23.75		.9350
1.75		.0689	5.4		.2126	9.75		.3839	14.288	9/16	.5625	23.812	15/16	.9375
1.8		.0709	5.5		.2165	9.8		.3858	14.5		.5709	24.00		.9449
1.85		.0728	5.556	7/32	.2188	9.9		.3898	14.684	37/64	.5781	24.209	61/64	.9531
1.9		.0748	5.6		.2205	9.922	25/64	.3906	14.75		.5807	24.25		.9547
1.95		.0768	5.7		.2244	10.00		.3937	15.00		.5906	24.5		.9646
1.984	5/64	.0781	5.75		.2264	10.1		.3976	15.081	19/32	.5938	24.606	31/32	.9688
2.00		.0787	5.8		.2283	10.2		.4016	15.25		.6004	24.75		.9744
2.05		.0807	5.9		.2323	10.25		.4035	15.478	39/64	.6094	25.00		.9843
2.1		.0827	5.953	15/64	.2344	10.3		.4055	15.5		.6102	25.003	63/64	.9844
2.15		.0846	6.00		.2362	10.319	13/32	.4062	15.75		.6201	25.25		.9941
2.2		.0866	6.1		.2402	10.4		.4094	15.875	5/8	.6250	25.400	1	1.0000
2.25		.0886	6.2		.2441	10.5		.4134	16.00		.6299			
2.3		.0906	6.25		.2461	10.6		.4173	16.25		.6398			
2.35		.0925	6.3		.2480	10.7		.4213	16.272	41/64	.6406			
2.381	3/32	.0938	6.350	1/4	.2500	10.716	27/64	.4219	16.5		.6496			
2.4		.0945	6.4		.2520	10.75		.4232	16.669	21/32	.6562			
2.45		.0965	6.5		.2559	10.8		.4252	16.75		.6594			
2.5		.0984	6.6		.2598	10.9		.4291	17.00		.6693			
2.55		.1004	6.7		.2638	11.00		.4331	17.066	43/64	.6719			

Modification & Specials Service

The services below are available on a quick turnaround
PRICE ON APPLICATION

- **Non-Standard Diameters**
- **Special Form Cutters**
- **Full Regrind**
- **Corner Rads**
- **Shank Flats**
- **Step Drills**
- **Chamfers**
- **Angles**
- **Re- Coat**

Also available are box sets
PRICE ON APPLICATION

IZAR Drill sets

IZAR ASP 52

Burr sets

NOTES

MERLIN TOOLS LIMITED

(Hereinafter referred to as "The Company")

All orders are subject to our Conditions of Sale as detailed below:

1. All quotations given and all sales made are upon the express condition that, although the goods supplied are of sound commercial quality and every care has been taken in manufacture, there is no guarantee as to their suitability for any specific purpose, even if that purpose is known to The Company. The buyer must therefore satisfy himself that the goods conform to his requirements before use.

2. The Company's liability is respect of goods furnished shall be limited to the purchase price of the goods in respect of which damages are claimed.

3. The buyer shall inspect the goods furnished immediately after delivery. The buyer shall give to the seller immediate written notice of any claim that any of the goods are not of stated quality and the buyer's failure to give notice of any claim within fourteen days from date of advice of despatch or delivery shall constitute an unqualified acceptance of such goods by the buyer. Slight imperfections in colour, appearance and measurements are not to be the subject of complaint. If the purchaser wishes to make a complaint on a later date because of defects hidden at the time of receipt despite a careful examination, the purchaser has a right to demand alteration, substitution, further delivery from the Company's Works if any defect is found by the Company.

4. Owing to fluctuations in the cost of raw materials and labour it may be necessary to alter prices. Every effort will be made to keep customers informed. No responsibility will be accepted for such alterations and prices charged will be those current at time of despatch.

5. Payment terms are strictly nett at the end of the month following month of invoice.

6. The title and ownership of the goods supplied would only be transferred to the purchaser when the amount has been paid in full. Nothing shall prevent the buyer reselling or transferring the goods to a third party in the ordinary course of business, but in such event the buyer will be deemed to sell or transfer the goods as agents for us, and will be deemed to receive and hold any price received thereof for the account of ourselves. The buyer undertakes to pay to us all monies received by the buyer in respect of any sale or transfer of the goods to a third party, until the price of goods sold by us to the buyer has been paid in full.

7. The Company reserves the right to select the means of transportation. Any extra cost incurred by reason of using such other means of transport as the buyer shall select shall be paid by the buyer.

8. In the event of the buyer not receiving the goods within fourteen days of receipt of an advice note he shall notify the Company in writing. Shortages or damages must be reported to the Carrier and to The Company within three days.

9. Any date given for delivery is to be considered as approximate only and cannot be guaranteed. The Company cannot be made responsible for any delays due to strikes, lockouts, accidents on land or on sea, government interference or for any other unforeseen circumstances and no claims for damage or compensation will be accepted.

10. In the event that The Company is compelled to withdraw from any contract due to circumstances mentioned in paragraph 9 this does not affect the right to demand payment in respect of all deliveries made before the date on which the contract is cancelled.

11. Orders accepted by us cannot be cancelled except with out consent in writing and on terms that will indemnify against loss. Only in exceptional circumstances and subject to our specific written agreement in each instance, will we accept back for credit goods already delivered. If returned goods are accepted in these circumstances they will be subject to a handling charge.

12. Special nonstandard products cannot be cancelled, exchanged or credited. We reserve the right to over or under produce each item by up to 10%.

13. Any dispute arising hereunder shall be referred to arbitration by an arbitrator to be mutually agreed between the parties or failing agreement to any arbitrator to be appointed by the President of the Law Society.

Terms of Trading

All UK orders are subject to our Terms of trading as detailed below:

- Orders valued at over £100 nett are Carriage Paid.
- No minimum order value.
    1. Orders up to £99.99 nett will incur carriage charge of £5.75
    2. Orders requiring Royal Mail Special Delivery guaranteed next working day before 1.00pm is carriage at cost starting from £7.50 depending upon weight. This must be specified when ordering.
- A redirection charge of £3.25 plus VAT will be made where items are sent direct to a Distributor's End User.

Merlin Tools

distributed by

MER/CT/04/12

MerlinTools Limited Unit 21 North Road, Business Park, Loughborough, Leicestershire LE11 1LE
Tel: +44 (0) 1509 610300 Fax: +44 (0) 1509 610400 Email: sales@merlintools.ltd.uk www.merlintools.ltd.uk