

HSS DRILLS

WIERTŁA HSS



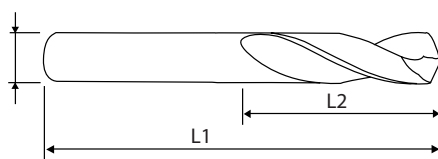
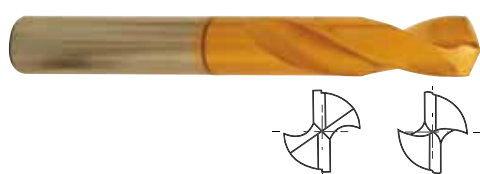
TABLE OF CONTENTS
Spis treści

HSS DRILLS СВЁРЛА HSS4

044			 4
079			 6
045			 9
046			 10
047	DIN 338		 12
048	DIN 338		 13
049	DIN 338		 14
051	DIN 338		 15
005	DIN 1897		 18
016	DIN 338		 19
056	DIN 338		 21
001	DIN 338		 23
009	DIN 338		 25
026	DIN 340		 27
003	DIN 1869/1		 28
057	DIN 338		 29
008	DIN 338		 30
007	DIN 338		 31
058	DIN 1897		 32
078	DIN 338		 33
059	DIN 340		 34
062	DIN 338		 35
063	DIN 340		 36
031	DIN 1869/1		 37
064	DIN 341		 38
065			 39
025	DIN 345		 40
023	DIN 345		 41
066	DIN 341		 43
024	DIN 1869/1		 44
NAP090			 46
NAP120			 47
NAP142			 48
NAW500RA	DIN 333		 49
NAW510RA	DIN 333		 50
NAW600RA	DIN 333		 52
NAW600LA	DIN 333		 53
NAW610RB	DIN 333		 54
NAW610LB	DIN 333		 55
NAW620RR	DIN 333		 56
NAW620LA	DIN 333		 57
NAW630RR	DIN 333		 58

CUTTING CONDITIONS СВЁРЛА HSS59

044



Tool material: P-HSS-Co
 Materiał narzędzia
Shank Tolerance: h7
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 25°
 Kąt spirali
Point Angle: 130°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				○

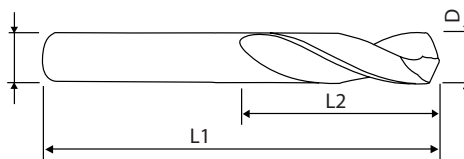
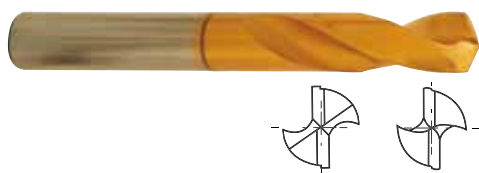
● First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0440200	2	44	12
0440205	2.05	44	12
0440210	2.1	44	12
0440215	2.15	45	13
0440220	2.2	45	13
0440225	2.25	45	13
0440230	2.3	45	13
0440235	2.35	45	13
0440240	2.4	46	14
0440245	2.45	46	14
0440250	2.5	46	14
0440255	2.55	46	14
0440260	2.6	46	14
0440265	2.65	46	14
0440270	2.7	48	16
0440275	2.75	48	16
0440280	2.8	48	16
0440285	2.85	48	16
0440290	2.9	48	16
0440295	2.95	48	16
0440300	3	48	16
0440305	3.05	50	18
0440310	3.1	50	18
0440315	3.15	50	18
0440320	3.2	50	18
0440325	3.25	50	18
0440330	3.3	50	18
0440335	3.35	50	18
0440340	3.4	52	20
0440345	3.45	52	20
0440350	3.5	52	20
0440355	3.55	52	20
0440360	3.6	52	20
0440365	3.65	52	20
0440370	3.7	52	20
0440375	3.75	52	20
0440380	3.8	54	22
0440385	3.85	54	22
0440390	3.9	54	22
0440395	3.95	54	22

TIZ CODE KOD TIZ	D	L1	L2
0440400	4	54	22
0440405	4.05	66	22
0440410	4.1	66	22
0440415	4.15	66	22
0440420	4.2	66	22
0440425	4.25	66	22
0440430	4.3	68	24
0440435	4.35	68	24
0440440	4.4	68	24
0440445	4.45	68	24
0440450	4.5	68	24
0440455	4.55	68	24
0440460	4.6	68	24
0440465	4.65	68	24
0440470	4.7	68	24
0440475	4.75	68	24
0440480	4.8	70	26
0440485	4.85	70	26
0440490	4.9	70	26
0440495	4.95	70	26
0440500	5	70	26
0440505	5.05	70	26
0440510	5.1	70	26
0440515	5.15	70	26
0440520	5.2	70	26
0440525	5.25	70	26
0440530	5.3	70	26
0440535	5.35	72	28
0440540	5.4	72	28
0440545	5.45	72	28
0440550	5.5	72	28
0440555	5.55	72	28
0440560	5.6	72	28
0440565	5.65	72	28
0440570	5.7	72	28
0440575	5.75	72	28
0440580	5.8	72	28
0440585	5.85	72	28
0440590	5.9	72	28
0440595	5.95	72	28

TIZ CODE KOD TIZ	D	L1	L2
0440600	6	72	28
0440610	6.1	75	31
0440620	6.2	75	31
0440630	6.3	75	31
0440640	6.4	75	31
0440650	6.5	75	31
0440655	6.55	75	31
0440660	6.6	75	31
0440665	6.65	75	31
0440670	6.7	75	31
0440680	6.8	78	34
0440690	6.9	78	34
0440700	7	78	34
0440710	7.1	78	34
0440720	7.2	78	34
0440730	7.3	78	34
0440735	7.35	78	34
0440740	7.4	78	34
0440750	7.5	78	34
0440755	7.55	81	37
0440760	7.6	81	37
0440765	7.65	81	37
0440770	7.7	81	37
0440780	7.8	81	37
0440790	7.9	81	37
0440800	8	81	37
0440810	8.1	87	37
0440820	8.2	87	37
0440830	8.3	87	37
0440835	8.35	87	37
0440840	8.4	87	37
0440850	8.5	87	37
0440855	8.55	90	40
0440860	8.6	90	40
0440865	8.65	90	40
0440870	8.7	90	40
0440880	8.8	90	40
0440890	8.9	90	40
0440900	9	90	40
0440910	9.1	90	40

044



Tool material: P-HSS-Co
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 25°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy

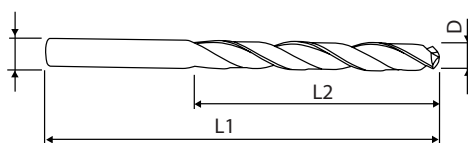
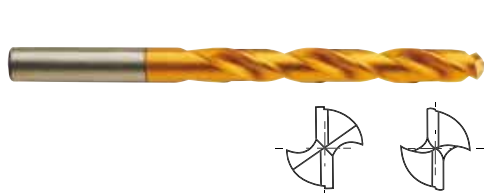
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				○

● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0440920	9.2	90	40
0440925	9.25	90	40
0440930	9.3	90	40
0440935	9.35	90	40
0440940	9.4	90	40
0440945	9.45	90	40
0440950	9.5	90	40
0440955	9.55	93	43
0440960	9.6	93	43
0440965	9.65	93	43
0440970	9.7	93	43
0440980	9.8	93	43
0440990	9.9	93	43
0440995	9.95	93	43
0441000	10	93	43
0441010	10.1	100	43
0441020	10.2	100	43
0441025	10.25	100	43
0441030	10.3	100	43
0441035	10.35	100	43
0441040	10.4	100	43
0441050	10.5	100	43
0441055	10.55	100	43
0441060	10.6	100	43
0441065	10.65	104	47
0441070	10.7	104	47
0441080	10.8	104	47
0441090	10.9	104	47
0441095	10.95	104	47
0441100	11	104	47
0441110	11.1	104	47
0441120	11.2	104	47
0441125	11.25	104	47
0441130	11.3	104	47
0441135	11.35	104	47
0441140	11.4	104	47
0441150	11.5	104	47
0441155	11.55	104	47
0441160	11.6	104	47
0441170	11.7	104	47

TIZ CODE KOD TIZ	D	L1	L2
0441180	11.8	104	47
0441190	11.9	108	51
0441200	12	108	51
0441210	12.1	108	51
0441220	12.2	108	51
0441230	12.3	108	51
0441240	12.4	108	51
0441250	12.5	108	51
0441260	12.6	108	51
0441270	12.7	108	51
0441280	12.8	108	51
0441290	12.9	108	51
0441300	13	108	51

079



Tool material: P-HSS-Co
Materiał narzędzia
Shank Tolerance: h6; h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 25°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				○

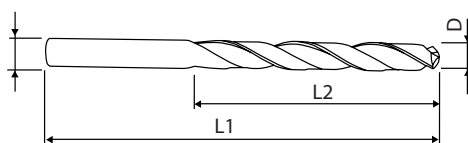
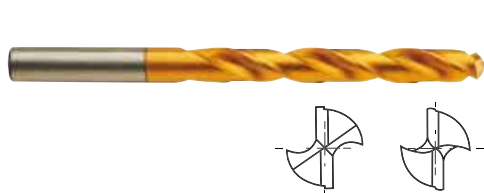
● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0790200	2	56	24
790205	2.05	56	24
0790210	2.1	56	24
0790215	2.15	59	27
0790220	2.2	59	27
0790225	2.25	59	27
0790230	2.3	59	27
0790235	2.35	59	27
0790240	2.4	62	30
0790245	2.45	62	30
0790250	2.5	62	30
0790255	2.55	62	30
0790260	2.6	62	30
0790265	2.65	62	30
0790270	2.7	65	33
0790275	2.75	65	33
0790280	2.8	65	33
0790285	2.85	65	33
0790290	2.9	65	33
0790295	2.95	65	33
0790300	3	65	33
0790305	3.05	68	36
0790310	3.1	68	36
0790315	3.15	68	36
0790320	3.2	68	36
0790325	3.25	68	36
0790330	3.3	68	36
0790335	3.35	68	36
0790340	3.4	71	39
0790345	3.45	71	39
0790350	3.5	71	39
0790355	3.55	71	39
0790360	3.6	71	39
0790365	3.65	71	39
0790370	3.7	71	39
0790375	3.75	71	39
0790380	3.8	75	43
0790385	3.85	75	43
0790390	3.9	75	43
0790395	3.95	75	43

TIZ CODE KOD TIZ	D	L1	L2
0790400	4	75	43
0790405	4.05	87	43
0790410	4.1	87	43
0790415	4.15	87	43
0790420	4.2	87	43
0790425	4.25	87	43
0790430	4.3	91	47
0790435	4.35	91	47
0790440	4.4	91	47
0790445	4.45	91	47
0790450	4.5	91	47
0790455	4.55	91	47
0790460	4.6	91	47
0790465	4.65	91	47
0790470	4.7	91	47
0790475	4.75	91	47
0790480	4.8	96	52
0790485	4.85	96	52
0790490	4.9	96	52
0790495	4.95	96	52
0790500	5	96	52
0790505	5.05	96	52
0790510	5.1	96	52
0790515	5.15	96	52
0790520	5.2	96	52
0790525	5.25	96	52
0790530	5.3	96	52
0790535	5.35	101	57
0790540	5.4	101	57
0790545	5.45	101	57
0790550	5.5	101	57
0790555	5.55	101	57
0790560	5.6	101	57
0790565	5.65	101	57
0790570	5.7	101	57
0790575	5.75	101	57
0790580	5.8	101	57
0790585	5.85	101	57
0790590	5.9	101	57
0790595	5.95	101	57

TIZ CODE KOD TIZ	D	L1	L2
0790600	6	101	57
0790605	6.05	107	63
0790610	6.1	107	63
0790615	6.15	107	63
0790620	6.2	107	63
0790625	6.25	107	63
0790630	6.3	107	63
0790635	6.35	107	63
0790640	6.4	107	63
0790645	6.45	107	63
0790650	6.5	107	63
0790655	6.55	107	63
0790660	6.6	107	63
0790665	6.65	107	63
0790670	6.7	107	63
0790675	6.75	113	69
0790680	6.8	113	69
0790685	6.85	113	69
0790690	6.9	113	69
0790695	6.95	113	69
0790700	7	113	69
0790705	7.05	113	69
0790710	7.1	113	69
0790715	7.15	113	69
0790720	7.2	113	69
0790725	7.25	113	69
0790730	7.3	113	69
0790735	7.35	113	69
0790740	7.4	113	69
0790745	7.45	113	69
0790750	7.5	113	69
0790755	7.55	119	75
0790760	7.6	119	75
0790765	7.65	119	75
0790770	7.7	119	75
0790775	7.75	119	75
0790780	7.8	119	75
0790785	7.85	119	75
0790790	7.9	119	75
0790795	7.95	119	75

079



Tool material: P-HSS-Co
Materiał narzędzia

Shank Tolerance: h6; h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 25°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				○

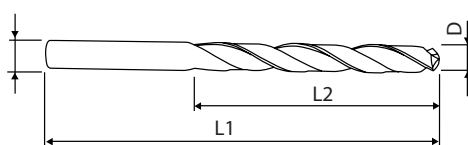
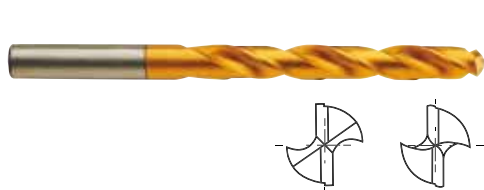
● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0790800	8	119	75
0790805	8.05	125	75
0790810	8.1	125	75
0790815	8.15	125	75
0790820	8.2	125	75
0790825	8.25	125	75
0790830	8.3	125	75
0790835	8.35	125	75
0790840	8.4	125	75
0790845	8.45	125	75
0790850	8.5	125	75
0790855	8.55	131	81
0790860	8.6	131	81
0790865	8.65	131	81
0790870	8.7	131	81
0790875	8.75	131	81
0790880	8.8	131	81
0790885	8.85	131	81
0790890	8.9	131	81
0790895	8.95	131	81
0790900	9	131	81
0790905	9.05	131	81
0790910	9.1	131	81
0790915	9.15	131	81
0790920	9.2	131	81
0790925	9.25	131	81
0790930	9.3	131	81
0790935	9.35	131	81
0790940	9.4	131	81
0790945	9.45	131	81
0790950	9.5	131	81
0790955	9.55	137	87
0790960	9.6	137	87
0790965	9.65	137	87
0790970	9.7	137	87
0790975	9.75	137	87
0790980	9.8	137	87
0790985	9.85	137	87
0790990	9.9	137	87
0790995	9.95	137	87

TIZ CODE KOD TIZ	D	L1	L2
0791000	10	137	87
0791005	10.05	144	87
0791010	10.1	144	87
0791015	10.15	144	87
0791020	10.2	144	87
0791025	10.25	144	87
0791030	10.3	144	87
0791035	10.35	144	87
0791040	10.4	144	87
0791045	10.45	144	87
0791050	10.5	144	87
0791055	10.55	144	87
0791060	10.6	144	87
0791065	10.65	151	94
0791070	10.7	151	94
0791075	10.75	151	94
0791080	10.8	151	94
0791085	10.85	151	94
0791090	10.9	151	94
0791095	10.95	151	94
0791100	11	151	94
0791105	11.05	151	94
0791110	11.1	151	94
0791115	11.15	151	94
0791120	11.2	151	94
0791125	11.25	151	94
0791130	11.3	151	94
0791135	11.35	151	94
0791140	11.4	151	94
0791145	11.45	151	94
0791150	11.5	151	94
0791155	11.55	151	94
0791160	11.6	151	94
0791165	11.65	151	94
0791170	11.7	151	94
0791175	11.75	151	94
0791180	11.8	151	94
0791185	11.85	158	101
0791190	11.9	158	101
0791195	11.95	158	101

TIZ CODE KOD TIZ	D	L1	L2
0791200	12	158	101
0791210	12.1	158	101
0791220	12.2	158	101
0791230	12.3	158	101
0791240	12.4	158	101
0791250	12.5	158	101
0791260	12.6	158	101
0791270	12.7	158	101
0791280	12.8	158	101
0791290	12.9	158	101
0791300	13	158	101
0791350	13.5	150	90
0791400	14	150	90
0791410	14.1	155	95
0791450	14.5	155	95
0791500	15	161	95
0791550	15.5	166	100
0791560	15.6	166	100
0791600	16	166	100
0791650	16.5	172	106
0791700	17	172	106
0791750	17.5	178	112
0791760	17.6	178	112
0791800	18	178	112
0791850	18.5	184	118
0791900	19	194	118
0791950	19.5	201	125
0791960	19.6	201	125
0792000	20	201	125
0792050	20.5	204	128
0792100	21	204	128
0792110	21.1	204	128
0792150	21.5	208	132
0792200	22	208	132
0792250	22.5	212	136
0792300	23	212	136
0792350	23.5	212	136
0792400	24	220	140
0792450	24.5	220	140
0792500	25	220	140

079



Tool material: P-HSS-Co
 Materiał narzędzia

Shank Tolerance: h6; h7
 Tolerancja uchwyty

Drill Tolerance: h8
 Tolerancja wiertła

Helix angle: 25°
 Kąt spirali

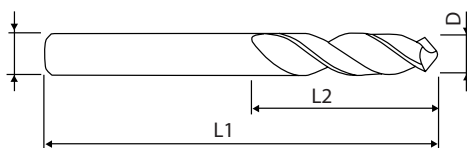
Point Angle: 130°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				○

● First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0792550	25.5	225	145
0792600	26	225	145
0792650	26.5	225	145
0792700	27	230	150
0792800	28	230	150
0792900	29	235	155
0793000	30	235	155
0793100	31	240	160
0793200	32	245	165

045



Tool material: HSS EX
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 38°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy
120°
> 4mm

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●					●		○	○			○

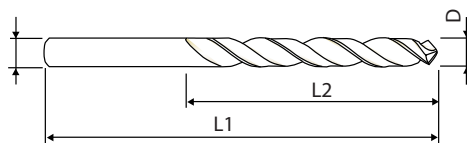
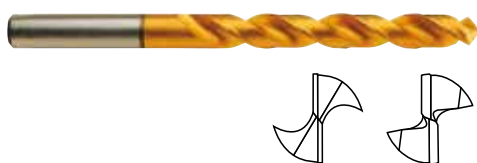
● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0450210	2.1	44	12
0450220	2.2	45	13
0450230	2.3	45	13
0450240	2.4	46	14
0450250	2.5	46	14
0450260	2.6	46	14
0450270	2.7	48	16
0450280	2.8	48	16
0450290	2.9	48	16
0450300	3	48	16
0450310	3.1	50	18
0450320	3.2	50	18
0450330	3.3	50	18
0450340	3.4	52	20
0450350	3.5	52	20
0450360	3.6	52	20
0450370	3.7	52	20
0450380	3.8	54	22
0450390	3.9	54	22
0450400	4	54	22
0450410	4.1	66	22
0450420	4.2	66	22
0450430	4.3	68	24
0450440	4.4	68	24
0450450	4.5	68	24
0450460	4.6	68	24
0450470	4.7	68	24
0450480	4.8	70	26
0450490	4.9	70	26
0450500	5	70	26
0450510	5.1	70	26
0450520	5.2	70	26
0450530	5.3	70	26
0450540	5.4	72	28
0450550	5.5	72	28
0450560	5.6	72	28
0450570	5.7	72	28
0450580	5.8	72	28
0450590	5.9	72	28
0450600	6	72	28

TIZ CODE KOD TIZ	D	L1	L2
0450610	6.1	75	31
0450620	6.2	75	31
0450630	6.3	75	31
0450640	6.4	75	31
0450650	6.5	75	31
0450660	6.6	75	31
0450670	6.7	75	31
0450680	6.8	78	34
0450690	6.9	78	34
0450700	7	78	34
0450710	7.1	78	34
0450720	7.2	78	34
0450730	7.3	78	34
0450740	7.4	78	34
0450750	7.5	78	34
0450760	7.6	81	37
0450770	7.7	81	37
0450780	7.8	81	37
0450790	7.9	81	37
0450800	8	81	37
0450810	8.1	87	37
0450820	8.2	87	37
0450830	8.3	87	37
0450840	8.4	87	37
0450850	8.5	87	37
0450860	8.6	90	40
0450870	8.7	90	40
0450880	8.8	90	40
0450890	8.9	90	40
0450900	9	90	40
0450910	9.1	90	40
0450920	9.2	90	40
0450930	9.3	90	40
0450940	9.4	90	40
0450950	9.5	90	40
0450960	9.6	93	43
0450970	9.7	93	43
0450980	9.8	93	43
0450990	9.9	93	43
0451000	10	93	43

TIZ CODE KOD TIZ	D	L1	L2
0451010	10.1	100	43
0451020	10.2	100	43
0451030	10.3	100	43
0451040	10.4	100	43
0451050	10.5	100	43
0451060	10.6	100	43
0451070	10.7	104	47
0451080	10.8	104	47
0451090	10.9	104	47
0451100	11	104	47
0451110	11.1	104	47
0451120	11.2	104	47
0451130	11.3	104	47
0451140	11.4	104	47
0451150	11.5	104	47
0451160	11.6	104	47
0451170	11.7	104	47
0451180	11.8	104	47
0451190	11.9	108	51
0451200	12	108	51
0451210	12.1	108	51
0451220	12.2	108	51
0451230	12.3	108	51
0451240	12.4	108	51
0451250	12.5	108	51
0451260	12.6	108	51
0451270	12.7	108	51
0451280	12.8	108	51
0451290	12.9	108	51
0451300	13	108	51

046



Tool material: HSS EX
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 38°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy
< 4mm
120°
> 4mm

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●					●		○	○			○

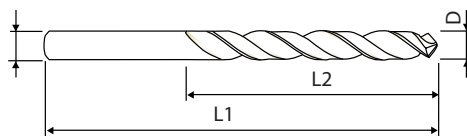
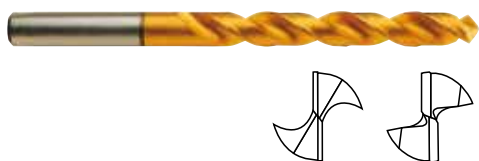
● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0460200	2	56	24
0460210	2.1	56	24
0460220	2.2	59	27
0460230	2.3	59	27
0460240	2.4	62	30
0460250	2.5	62	30
0460260	2.6	62	30
0460270	2.7	65	33
0460280	2.8	65	33
0460290	2.9	65	33
0460300	3	65	33
0460310	3.1	68	36
0460320	3.2	68	36
0460330	3.3	68	36
0460340	3.4	71	39
0460350	3.5	71	39
0460360	3.6	71	39
0460370	3.7	71	39
0460380	3.8	75	43
0460390	3.9	75	43
0460400	4	75	43
0460410	4.1	87	43
0460420	4.2	87	43
0460430	4.3	91	47
0460440	4.4	91	47
0460450	4.5	91	47
0460460	4.6	91	47
0460470	4.7	91	47
0460480	4.8	96	52
0460490	4.9	96	52
0460500	5	96	52
0460510	5.1	96	52
0460520	5.2	96	52
0460530	5.3	96	52
0460540	5.4	101	57
0460550	5.5	101	57
0460560	5.6	101	57
0460570	5.7	101	57
0460580	5.8	101	57
0460590	5.9	101	57

TIZ CODE KOD TIZ	D	L1	L2
0460600	6	101	57
0460610	6.1	107	63
0460620	6.2	107	63
0460630	6.3	107	63
0460640	6.4	107	63
0460650	6.5	107	63
0460660	6.6	107	63
0460670	6.7	107	63
0460680	6.8	113	69
0460690	6.9	113	69
0460700	7	113	69
0460710	7.1	113	69
0460720	7.2	113	69
0460730	7.3	113	69
0460740	7.4	113	69
0460750	7.5	113	69
0460760	7.6	119	75
0460770	7.7	119	75
0460780	7.8	119	75
0460790	7.9	119	75
0460800	8	119	75
0460810	8.1	125	75
0460820	8.2	125	75
0460830	8.3	125	75
0460840	8.4	125	75
0460850	8.5	125	75
0460860	8.6	131	81
0460870	8.7	131	81
0460880	8.8	131	81
0460890	8.9	131	81
0460900	9	131	81
0460910	9.1	131	81
0460920	9.2	131	81
0460930	9.3	131	81
0460940	9.4	131	81
0460950	9.5	131	81
0460960	9.6	137	87
0460970	9.7	137	87
0460980	9.8	137	87
0460990	9.9	137	87

TIZ CODE KOD TIZ	D	L1	L2
0461000	10	137	87
0461010	10.1	144	87
0461020	10.2	144	87
0461030	10.3	144	87
0461040	10.4	144	87
0461050	10.5	144	87
0461060	10.6	144	87
0461070	10.7	151	94
0461080	10.8	151	94
0461090	10.9	151	94
0461100	11	151	94
0461110	11.1	151	94
0461120	11.2	151	94
0461130	11.3	151	94
0461140	11.4	151	94
0461150	11.5	151	94
0461160	11.6	151	94
0461170	11.7	151	94
0461180	11.8	151	94
0461190	11.9	158	101
0461200	12	158	101
0461210	12.1	158	101
0461220	12.2	158	101
0461230	12.3	158	101
0461240	12.4	158	101
0461250	12.5	158	101
0461260	12.6	158	101
0461270	12.7	158	101
0461280	12.8	158	101
0461290	12.9	158	101
0461300	13	158	101
0461350	13.5	166	106
0461400	14	166	106
0461410	14.1	169	109
0461450	14.5	169	109
0461500	15	169	109
0461550	15.5	172	112
0461560	15.6	172	112
0461600	16	172	112
0461650	16.5	181	115

046



Tool material: HSS EX
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 38°
Kąt spirali

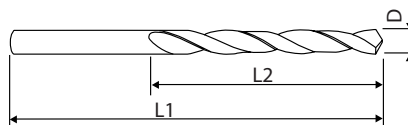
Point Angle: 130°
Kąt wierzchołkowy
120°
> 4mm

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●					●		○	○			○

- First choice / Pierwszy wybór
- Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0461700	17	181	115
0461750	17.5	184	118
0461760	17.6	184	118
0461800	18	184	118
0461850	18.5	188	122
0461900	19	188	122
0461950	19.5	191	125
0461960	19.6	191	125
0462000	20	191	125

047 DIN 338



Tool material: HSS
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 30°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○		○				○

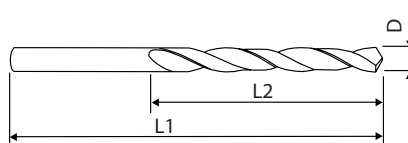
● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0470100	1	34	12
0470110	1.1	36	14
0470120	1.2	38	16
0470130	1.3	38	16
0470140	1.4	40	18
0470150	1.5	40	18
0470160	1.6	43	20
0470170	1.7	43	20
0470180	1.8	46	22
0470190	1.9	46	22
0470200	2	49	24
0470210	2.1	49	24
0470220	2.2	53	27
0470230	2.3	53	27
0470240	2.4	57	30
0470250	2.5	57	30
0470260	2.6	57	30
0470270	2.7	61	33
0470280	2.8	61	33
0470290	2.9	61	33
0470300	3	61	33
0470310	3.1	65	36
0470320	3.2	65	36
0470330	3.3	65	36
0470340	3.4	70	39
0470350	3.5	70	39
0470360	3.6	70	39
0470370	3.7	70	39
0470380	3.8	75	43
0470390	3.9	75	43
0470400	4	75	43
0470410	4.1	75	43
0470420	4.2	75	43
0470430	4.3	80	47
0470440	4.4	80	47
0470450	4.5	80	47
0470460	4.6	80	47
0470470	4.7	80	47
0470480	4.8	86	52
0470490	4.9	86	52
0470500	5	86	52

TIZ CODE KOD TIZ	D	L1	L2
0470510	5.1	86	52
0470520	5.2	86	52
0470530	5.3	86	52
0470540	5.4	93	57
0470550	5.5	93	57
0470560	5.6	93	57
0470570	5.7	93	57
0470580	5.8	93	57
0470590	5.9	93	57
0470600	6	93	57
0470610	6.1	101	63
0470620	6.2	101	63
0470630	6.3	101	63
0470640	6.4	101	63
0470650	6.5	101	63
0470660	6.6	101	63
0470670	6.7	101	63
0470680	6.8	109	69
0470690	6.9	109	69
0470700	7	109	69
0470710	7.1	109	69
0470720	7.2	109	69
0470730	7.3	109	69
0470740	7.4	109	69
0470750	7.5	109	69
0470760	7.6	117	75
0470770	7.7	117	75
0470780	7.8	117	75
0470790	7.9	117	75
0470800	8	117	75
0470810	8.1	117	75
0470820	8.2	117	75
0470830	8.3	117	75
0470840	8.4	117	75
0470850	8.5	117	75
0470860	8.6	125	81
0470870	8.7	125	81
0470880	8.8	125	81
0470890	8.9	125	81
0470900	9	125	81
0470910	9.1	125	81

TIZ CODE KOD TIZ	D	L1	L2
0470920	9.2	125	81
0470930	9.3	125	81
0470940	9.4	125	81
0470950	9.5	125	81
0470960	9.6	133	87
0470970	9.7	133	87
0470980	9.8	133	87
0470990	9.9	133	87
0471000	10	133	87
0471010	10.1	133	87
0471020	10.2	133	87
0471030	10.3	133	87
0471040	10.4	133	87
0471050	10.5	133	87
0471060	10.6	133	87
0471070	10.7	142	94
0471080	10.8	142	94
0471090	10.9	142	94
0471100	11	142	94
0471110	11.1	142	94
0471120	11.2	142	94
0471130	11.3	142	94
0471140	11.4	142	94
0471150	11.5	142	94
0471160	11.6	142	94
0471170	11.7	142	94
0471180	11.8	142	94
0471190	11.9	151	101
0471200	12	151	101
0471210	12.1	151	101
0471220	12.2	151	101
0471230	12.3	151	101
0471240	12.4	151	101
0471250	12.5	151	101
0471260	12.6	151	101
0471270	12.7	151	101
0471280	12.8	151	101
0471290	12.9	151	101
0471300	13	151	101

048 DIN 338



Tool material: HSS
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 30°
Kąt spirali

Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○		○				○

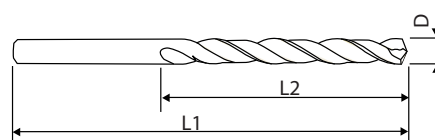
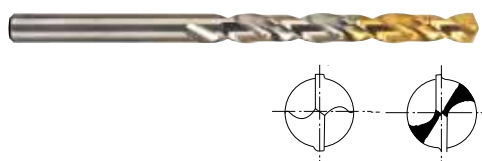
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0480160	1.6	43	20
0480170	1.7	43	20
0480180	1.8	46	22
0480190	1.9	46	22
0480200	2	49	24
0480210	2.1	49	24
0480220	2.2	53	27
0480230	2.3	53	27
0480240	2.4	57	30
0480250	2.5	57	30
0480260	2.6	57	30
0480270	2.7	61	33
0480280	2.8	61	33
0480290	2.9	61	33
0480300	3	61	33
0480310	3.1	65	36
0480320	3.2	65	36
0480330	3.3	65	36
0480340	3.4	70	39
0480350	3.5	70	39
0480360	3.6	70	39
0480370	3.7	70	39
0480380	3.8	75	43
0480390	3.9	75	43
0480400	4	75	43
0480410	4.1	75	43
0480420	4.2	75	43
0480430	4.3	80	47
0480440	4.4	80	47
0480450	4.5	80	47
0480460	4.6	80	47
0480470	4.7	80	47
0480480	4.8	86	52
0480490	4.9	86	52
0480500	5	86	52
0480510	5.1	86	52
0480520	5.2	86	52
0480530	5.3	86	52
0480540	5.4	93	57
0480550	5.5	93	57

TIZ CODE KOD TIZ	D	L1	L2
0480560	5.6	93	57
0480570	5.7	93	57
0480580	5.8	93	57
0480590	5.9	93	57
0480600	6	93	57
0480610	6.1	101	63
0480620	6.2	101	63
0480630	6.3	101	63
0480640	6.4	101	63
0480650	6.5	101	63
0480660	6.6	101	63
0480670	6.7	101	63
0480680	6.8	109	69
0480690	6.9	109	69
0480700	7	109	69
0480710	7.1	109	69
0480720	7.2	109	69
0480730	7.3	109	69
0480740	7.4	109	69
0480750	7.5	109	69
0480760	7.6	117	75
0480770	7.7	117	75
0480780	7.8	117	75
0480790	7.9	117	75
0480800	8	117	75
0480810	8.1	117	75
0480820	8.2	117	75
0480830	8.3	117	75
0480840	8.4	117	75
0480850	8.5	117	75
0480860	8.6	125	81
0480870	8.7	125	81
0480880	8.8	125	81
0480890	8.9	125	81
0480900	9	125	81
0480910	9.1	125	81
0480920	9.2	125	81
0480930	9.3	125	81
0480940	9.4	125	81
0480950	9.5	125	81

TIZ CODE KOD TIZ	D	L1	L2
0480960	9.6	133	87
0480970	9.7	133	87
0480980	9.8	133	87
0480990	9.9	133	87
0481000	10	133	87
0481010	10.1	133	87
0481020	10.2	133	87
0481030	10.3	133	87
0481040	10.4	133	87
0481050	10.5	133	87
0481060	10.6	133	87
0481070	10.7	142	94
0481080	10.8	142	94
0481090	10.9	142	94
0481100	11	142	94
0481110	11.1	142	94
0481120	11.2	142	94
0481130	11.3	142	94
0481140	11.4	142	94
0481150	11.5	142	94
0481160	11.6	142	94
0481170	11.7	142	94
0481180	11.8	142	94
0481190	11.9	151	101
0481200	12	151	101
0481210	12.1	151	101
0481220	12.2	151	101
0481230	12.3	151	101
0481240	12.4	151	101
0481250	12.5	151	101
0481260	12.6	151	101
0481270	12.7	151	101
0481280	12.8	151	101
0481290	12.9	151	101
0481300	13	151	101

049 DIN 338



Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 33°
Kąt spirali
Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○		○				○

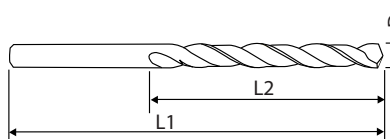
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0490100	1	34	12
0490110	1.1	36	14
0490120	1.2	38	16
0490130	1.3	38	16
0490140	1.4	40	18
0490150	1.5	40	18
0490160	1.6	43	20
0490170	1.7	43	20
0490180	1.8	46	22
0490190	1.9	46	22
0490200	2	49	24
0490210	2.1	49	24
0490220	2.2	53	27
0490230	2.3	53	27
0490240	2.4	57	30
0490250	2.5	57	30
0490260	2.6	57	30
0490270	2.7	61	33
0490280	2.8	61	33
0490290	2.9	61	33
0490300	3	61	33
0490310	3.1	65	36
0490320	3.2	65	36
0490330	3.3	65	36
0490340	3.4	70	39
0490350	3.5	70	39
0490360	3.6	70	39
0490370	3.7	70	39
0490380	3.8	75	43
0490390	3.9	75	43
0490400	4	75	43
0490410	4.1	75	43
0490420	4.2	75	43
0490430	4.3	80	47
0490440	4.4	80	47
0490450	4.5	80	47
0490460	4.6	80	47
0490470	4.7	80	47
0490480	4.8	86	52
0490490	4.9	86	52
0490500	5	86	52

TIZ CODE KOD TIZ	D	L1	L2
0490510	5.1	86	52
0490520	5.2	86	52
0490530	5.3	86	52
0490540	5.4	93	57
0490550	5.5	93	57
0490560	5.6	93	57
0490570	5.7	93	57
0490580	5.8	93	57
0490590	5.9	93	57
0490600	6	93	57
0490610	6.1	101	63
0490620	6.2	101	63
0490630	6.3	101	63
0490640	6.4	101	63
0490650	6.5	101	63
0490660	6.6	101	63
0490670	6.7	101	63
0490680	6.8	109	69
0490690	6.9	109	69
0490700	7	109	69
0490710	7.1	109	69
0490720	7.2	109	69
0490730	7.3	109	69
0490740	7.4	109	69
0490750	7.5	109	69
0490760	7.6	117	75
0490770	7.7	117	75
0490780	7.8	117	75
0490790	7.9	117	75
0490800	8	117	75
0490810	8.1	117	75
0490820	8.2	117	75
0490830	8.3	117	75
0490840	8.4	117	75
0490850	8.5	117	75
0490860	8.6	125	81
0490870	8.7	125	81
0490880	8.8	125	81
0490890	8.9	125	81
0490900	9	125	81
0490910	9.1	125	81

TIZ CODE KOD TIZ	D	L1	L2
0490920	9.2	125	81
0490930	9.3	125	81
0490940	9.4	125	81
0490950	9.5	125	81
0490960	9.6	133	87
0490970	9.7	133	87
0490980	9.8	133	87
0490990	9.9	133	87
0491000	10	133	87
0491010	10.1	133	87
0491020	10.2	133	87
0491030	10.3	133	87
0491040	10.4	133	87
0491050	10.5	133	87
0491060	10.6	133	87
0491070	10.7	142	94
0491080	10.8	142	94
0491090	10.9	142	94
0491100	11	142	94
0491110	11.1	142	94
0491120	11.2	142	94
0491130	11.3	142	94
0491140	11.4	142	94
0491150	11.5	142	94
0491160	11.6	142	94
0491170	11.7	142	94
0491180	11.8	142	94
0491190	11.9	151	101
0491200	12	151	101
0491210	12.1	151	101
0491220	12.2	151	101
0491230	12.3	151	101
0491240	12.4	151	101
0491250	12.5	151	101
0491260	12.6	151	101
0491270	12.7	151	101
0491280	12.8	151	101
0491290	12.9	151	101
0491300	13	151	101

051 DIN 338



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 33°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

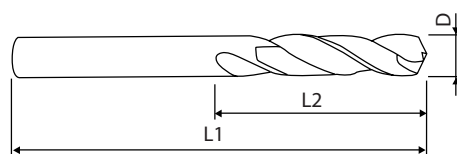
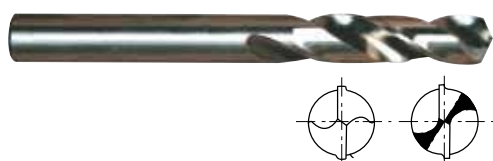
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0510200	2	49	24
0510210	2.1	49	24
0510220	2.2	53	27
0510230	2.3	53	27
0510240	2.4	57	30
0510250	2.5	57	30
0510260	2.6	57	30
0510270	2.7	61	33
0510280	2.8	61	33
0510290	2.9	61	33
0510300	3	61	33
0510310	3.1	65	36
0510320	3.2	65	36
0510330	3.3	65	36
0510340	3.4	70	39
0510350	3.5	70	39
0510360	3.6	70	39
0510370	3.7	70	39
0510380	3.8	75	43
0510390	3.9	75	43
0510400	4	75	43
0510410	4.1	75	43
0510420	4.2	75	43
0510430	4.3	80	47
0510440	4.4	80	47
0510450	4.5	80	47
0510460	4.6	80	47
0510470	4.7	80	47
0510480	4.8	86	52
0510490	4.9	86	52
0510500	5	86	52
0510510	5.1	86	52
0510520	5.2	86	52
0510530	5.3	86	52
0510540	5.4	93	57
0510550	5.5	93	57
0510560	5.6	93	57
0510570	5.7	93	57
0510580	5.8	93	57
0510590	5.9	93	57

TIZ CODE KOD TIZ	D	L1	L2
0510600	6	93	57
0510610	6.1	101	63
0510620	6.2	101	63
0510630	6.3	101	63
0510640	6.4	101	63
0510650	6.5	101	63
0510660	6.6	101	63
0510670	6.7	101	63
0510680	6.8	109	69
0510690	6.9	109	69
0510700	7	109	69
0510710	7.1	109	69
0510720	7.2	109	69
0510730	7.3	109	69
0510740	7.4	109	69
0510750	7.5	109	69
0510760	7.6	117	75
0510770	7.7	117	75
0510780	7.8	117	75
0510790	7.9	117	75
0510800	8	117	75
0510810	8.1	117	75
0510820	8.2	117	75
0510830	8.3	117	75
0510840	8.4	117	75
0510850	8.5	117	75
0510860	8.6	125	81
0510870	8.7	125	81
0510880	8.8	125	81
0510890	8.9	125	81
0510900	9	125	81
0510910	9.1	125	81
0510920	9.2	125	81
0510930	9.3	125	81
0510940	9.4	125	81
0510950	9.5	125	81
0510960	9.6	133	87
0510970	9.7	133	87
0510980	9.8	133	87
0510990	9.9	133	87

TIZ CODE KOD TIZ	D	L1	L2
0511000	10	133	87
0511010	10.1	133	87
0511020	10.2	133	87
0511030	10.3	133	87
0511040	10.4	133	87
0511050	10.5	133	87
0511060	10.6	133	87
0511070	10.7	142	94
0511080	10.8	142	94
0511090	10.9	142	94
0511100	11	142	94
0511110	11.1	142	94
0511120	11.2	142	94
0511130	11.3	142	94
0511140	11.4	142	94
0511150	11.5	142	94
0511160	11.6	142	94
0511170	11.7	142	94
0511180	11.8	142	94
0511190	11.9	151	101
0511200	12	151	101
0511210	12.1	151	101
0511220	12.2	151	101
0511230	12.3	151	101
0511240	12.4	151	101
0511250	12.5	151	101
0511260	12.6	151	101
0511270	12.7	151	101
0511280	12.8	151	101
0511290	12.9	151	101
0511300	13	151	101

004 DIN 1897



Tool material: HSS-Co8
 Materiał narzędzia
Shank Tolerance: h7
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 33°
 Kąt spirali
Point Angle: 135°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

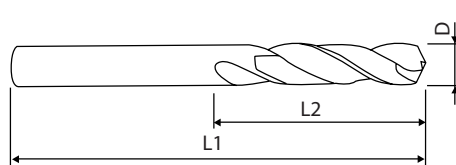
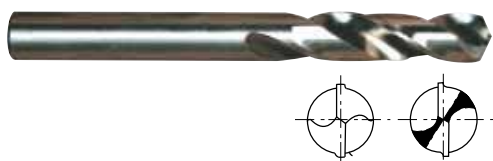
● First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0040100	1	26	6
0040110	1.1	28	7
0040120	1.2	30	8
0040125	1.25	30	8
0040130	1.3	30	8
0040140	1.4	32	9
0040150	1.5	32	9
0040160	1.6	34	10
0040170	1.7	34	10
0040175	1.75	36	11
0040180	1.8	36	11
0040190	1.9	36	11
0040200	2	38	12
0040210	2.1	38	12
0040220	2.2	40	13
0040255	2.55	40	13
0040230	2.3	40	13
0040240	2.4	43	14
0040250	2.5	43	14
0040260	2.6	43	14
0040270	2.7	46	16
0040275	2.75	46	16
0040280	2.8	46	16
0040290	2.9	46	16
0040300	3	46	16
0040310	3.1	49	18
0040320	3.2	49	18
0040325	3.25	49	18
0040330	3.3	49	18
0040340	3.4	52	20
0040350	3.5	52	20
0040360	3.6	52	20
0040370	3.7	52	20
0040375	3.75	52	20
0040380	3.8	55	22
0040390	3.9	55	22
0040400	4	55	22
0040410	4.1	55	22
0040420	4.2	55	22
0040425	4.25	55	22

TIZ CODE KOD TIZ	D	L1	L2
0040430	4.3	58	24
0040440	4.4	58	24
0040450	4.5	58	24
0040460	4.6	58	24
0040465	4.65	58	24
0040470	4.7	58	24
0040475	4.75	58	24
0040480	4.8	62	26
0040490	4.9	62	26
0040500	5	62	26
0040510	5.1	62	26
0040520	5.2	62	26
0040525	5.25	62	26
0040530	5.3	62	26
0040540	5.4	66	28
0040550	5.5	66	28
0040555	5.55	66	28
0040560	5.6	66	28
0040570	5.7	66	28
0040575	5.75	66	28
0040580	5.8	66	28
0040590	5.9	66	28
0040600	6	66	28
0040610	6.1	70	31
0040620	6.2	70	31
0040625	6.25	70	31
0040630	6.3	70	31
0040640	6.4	70	31
0040650	6.5	70	31
0040660	6.6	70	31
0040670	6.7	70	31
0040675	6.75	74	34
0040680	6.8	74	34
0040690	6.9	74	34
0040700	7	74	34
0040710	7.1	74	34
0040720	7.2	74	34
0040725	7.25	74	34
0040730	7.3	74	34
0040740	7.4	74	34

TIZ CODE KOD TIZ	D	L1	L2
0040745	7.45	74	34
0040750	7.5	74	34
0040760	7.6	79	37
0040770	7.7	79	37
0040775	7.75	79	37
0040780	7.8	79	37
0040790	7.9	79	37
0040800	8	79	37
0040810	8.1	79	37
0040820	8.2	79	37
0040825	8.25	79	37
0040830	8.3	79	37
0040840	8.4	79	37
0040850	8.5	79	37
0040860	8.6	84	40
0040870	8.7	84	40
0040875	8.75	84	40
0040880	8.8	84	40
0040890	8.9	84	40
0040900	9	84	40
0040910	9.1	84	40
0040920	9.2	84	40
0040925	9.25	84	40
0040930	9.3	84	40
0040935	9.35	84	40
0040940	9.4	84	40
0040950	9.5	84	40
0040960	9.6	89	43
0040970	9.7	89	43
0040975	9.75	89	43
0040980	9.8	89	43
0040990	9.9	89	43
0041000	10	89	43
0041020	10.2	89	43
0041025	10.25	89	43
0041050	10.5	89	43
0041075	10.75	95	47

004 DIN 1897



Tool material: HSS-Co8
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 33°
Kąt spirali

Point Angle: 135°
Kąt wierzchołkowy

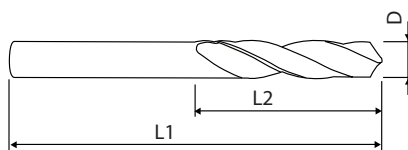
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0041100	11	95	47
0041125	11.25	95	47
0041150	11.5	95	47
0041175	11.75	95	47
0041180	11.8	95	47
0041200	12	102	51
0041225	12.25	102	51
0041250	12.5	102	51
0041275	12.75	102	51
0041300	13	102	51
0041325	13.25	107	54
0041350	13.5	107	54
0041375	13.75	107	54
0041380	13.8	107	54
0041400	14	107	54
0041425	14.25	111	56
0041450	14.5	111	56
0041475	14.75	111	56
0041500	15	111	56
0041525	15.25	115	58
0041550	15.5	115	58
0041575	15.75	115	58
0041600	16	115	58
0041625	16.25	119	60
0041650	16.5	119	60
0041675	16.75	119	60
0041700	17	119	60
0041725	17.25	123	62
0041750	17.5	123	62
0041775	17.75	123	62
0041800	18	123	62
0041825	18.25	127	64
0041850	18.5	127	64
0041875	18.75	127	64
0041900	19	127	64
0041925	19.25	131	66
0041950	19.5	131	66
0041975	19.75	131	66
0042000	20	131	66
0042050	20.5	136	68

TIZ CODE KOD TIZ	D	L1	L2
0042100	21	136	68
0042150	21.5	141	70
0042200	22	141	70
0042250	22.5	146	72
0042300	23	146	72
0042350	23.5	146	72
0042400	24	151	75
0042450	24.5	151	75
0042500	25	151	75
0042600	26	156	78
0042700	27	162	81
0042800	28	162	81
0042900	29	168	84
0043000	30	168	84
0043100	31	174	87

005 DIN 1897



Tool material: HSS
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 20-30°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

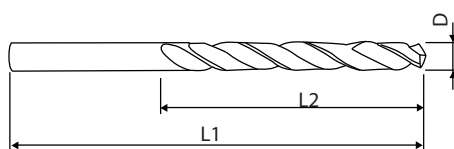
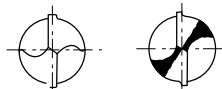
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0050100	1	26	6
0050110	1.1	28	7
0050120	1.2	30	8
0050125	1.25	30	8
0050130	1.3	30	8
0050140	1.4	32	9
0050150	1.5	32	9
0050160	1.6	34	9
0050170	1.7	34	10
0050175	1.75	36	11
0050180	1.8	36	11
0050190	1.9	36	11
0050200	2	38	12
0050210	2.1	38	12
0050220	2.2	40	13
0050225	2.25	40	13
0050230	2.3	40	13
0050240	2.4	43	14
0050250	2.5	43	14
0050260	2.6	43	14
0050270	2.7	46	16
0050275	2.75	46	16
0050280	2.8	46	16
0050290	2.9	46	16
0050300	3	46	16
0050310	3.1	49	18
0050320	3.2	49	18
0050325	3.25	49	18
0050330	3.3	49	18
0050340	3.4	52	20
0050350	3.5	52	20
0050360	3.6	52	20
0050370	3.7	52	20
0050375	3.75	52	20
0050380	3.8	55	22
0050390	3.9	55	22
0050400	4	55	22
0050410	4.1	55	22
0050420	4.2	55	22
0050425	4.25	55	22
0050430	4.3	58	24

TIZ CODE KOD TIZ	D	L1	L2
0050440	4.4	58	24
0050450	4.5	58	24
0050460	4.6	58	24
0050470	4.7	58	24
0050475	4.75	58	24
0050480	4.8	62	26
0050490	4.9	62	26
0050500	5	62	26
0050510	5.1	62	26
0050520	5.2	62	26
0050525	5.25	62	26
0050530	5.3	62	26
0050540	5.4	66	28
0050550	5.5	66	28
0050560	5.6	66	28
0050570	5.7	66	28
0050575	5.75	66	28
0050580	5.8	66	28
0050590	5.9	66	28
0050600	6	66	28
0050610	6.1	70	31
0050620	6.2	70	31
0050625	6.25	70	31
0050630	6.3	70	31
0050640	6.4	70	31
0050650	6.5	70	31
0050660	6.6	70	31
0050670	6.7	70	31
0050675	6.75	74	34
0050680	6.8	74	34
0050690	6.9	74	34
0050700	7	74	34
0050710	7.1	74	34
0050720	7.2	74	34
0050725	7.25	74	34
0050730	7.3	74	34
0050740	7.4	74	34
0050750	7.5	74	34
0050760	7.6	79	37
0050770	7.7	79	37
0050775	7.75	79	37

TIZ CODE KOD TIZ	D	L1	L2
0050780	7.8	79	37
0050790	7.9	79	37
0050800	8	79	37
0050810	8.1	79	37
0050820	8.2	79	37
0050825	8.25	79	37
0050830	8.3	79	37
0050840	8.4	79	37
0050850	8.5	79	37
0050860	8.6	84	40
0050870	8.7	84	40
0050875	8.75	84	40
0050880	8.8	84	40
0050890	8.9	84	40
0050900	9	84	40
0050910	9.1	84	40
0050920	9.2	84	40
0050925	9.25	84	40
0050930	9.3	84	40
0050940	9.4	84	40
0050950	9.5	84	40
0050960	9.6	89	43
0050970	9.7	89	43
0050975	9.75	89	43
0050980	9.8	89	43
0050990	9.9	89	43
0051000	10	89	43
0051025	10.25	89	43
0051050	10.5	89	43
0051075	10.75	95	47
0051100	11	95	47
0051125	11.25	95	47
0051150	11.5	95	47
0051175	11.75	95	47
0051200	12	102	51
0051225	12.25	102	51
0051250	12.5	102	51
0051275	12.75	102	51
0051300	13	102	51

016 DIN 338



Tool material: HSS-Co8
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 33°
Kąt spirali

Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				●	○	○				○

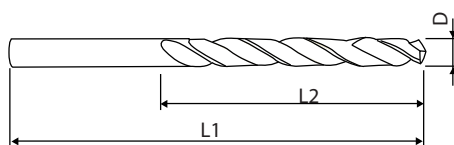
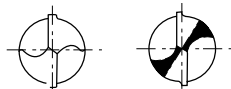
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0160100	1	34	12
0160110	1.1	36	14
0160120	1.2	38	16
0160125	1.25	38	16
0160130	1.3	38	16
0160140	1.4	40	18
0160150	1.5	40	18
0160160	1.6	43	20
0160170	1.7	43	20
0160175	1.75	46	22
0160180	1.8	46	22
0160190	1.9	46	22
0160200	2	49	24
0160210	2.1	49	24
0160220	2.2	53	27
0160225	2.25	53	27
0160230	2.3	53	27
0160240	2.4	57	30
0160250	2.5	57	30
0160260	2.6	57	30
0160270	2.7	61	33
0160275	2.75	61	33
0160280	2.8	61	33
0160290	2.9	61	33
0160300	3	61	33
0160310	3.1	65	36
0160320	3.2	65	36
0160325	3.25	65	36
0160330	3.3	65	36
0160340	3.4	70	39
0160350	3.5	70	39
0160360	3.6	70	39
0160370	3.7	70	39
0160375	3.75	70	39
0160380	3.8	75	43
0160390	3.9	75	43
0160400	4	75	43
0160410	4.1	75	43
0160420	4.2	75	43
0160425	4.25	75	43

TIZ CODE KOD TIZ	D	L1	L2
0160430	4.3	80	47
0160440	4.4	80	47
0160450	4.5	80	47
0160460	4.6	80	47
0160470	4.7	80	47
0160475	4.75	80	47
0160480	4.8	86	52
0160490	4.9	86	52
0160500	5	86	52
0160510	5.1	86	52
0160520	5.2	86	52
0160525	5.25	86	52
0160530	5.3	86	52
0160540	5.4	93	57
0160550	5.5	93	57
0160560	5.6	93	57
0160570	5.7	93	57
0160575	5.75	93	57
0160580	5.8	93	57
0160590	5.9	93	57
0160600	6	93	57
0160610	6.1	101	63
0160620	6.2	101	63
0160625	6.25	101	63
0160630	6.3	101	63
0160640	6.4	101	63
0160650	6.5	101	63
0160660	6.6	101	63
0160670	6.7	101	63
0160675	6.75	109	69
0160680	6.8	109	69
0160690	6.9	109	69
0160700	7	109	69
0160710	7.1	109	69
0160720	7.2	109	69
0160725	7.25	109	69
0160730	7.3	109	69
0160740	7.4	109	69
0160750	7.5	109	69
0160760	7.6	117	75

TIZ CODE KOD TIZ	D	L1	L2
0160770	7.7	117	75
0160775	7.75	117	75
0160780	7.8	117	75
0160790	7.9	117	75
0160800	8	117	75
0160810	8.1	117	75
0160820	8.2	117	75
0160825	8.25	117	75
0160830	8.3	117	75
0160840	8.4	117	75
0160850	8.5	117	75
0160860	8.6	125	81
0160870	8.7	125	81
0160875	8.75	125	81
0160880	8.8	125	81
0160890	8.9	125	81
0160900	9	125	81
0160910	9.1	125	81
0160920	9.2	125	81
0160925	9.25	125	81
0160930	9.3	125	81
0160940	9.4	125	81
0160950	9.5	125	81
0160960	9.6	133	87
0160970	9.7	133	87
0160975	9.75	133	87
0160980	9.8	133	87
0160990	9.9	133	87
0161000	10	133	87
0161020	10.2	133	87
0161050	10.5	133	87
0161100	11	142	94
0161150	11.5	142	94
0161200	12	151	101
0161250	12.5	151	101
0161300	13	151	101
0161350	13.5	160	108
0161400	14	160	108
0161450	14.5	169	114
0161500	15	169	114

016 DIN 338



Tool material: HSS-Co8
 Materiał narzędzia

Shank Tolerance: h7
 Tolerancja uchwyty

Drill Tolerance: h8
 Tolerancja wiertła

Helix angle: 33°
 Kąt spirali

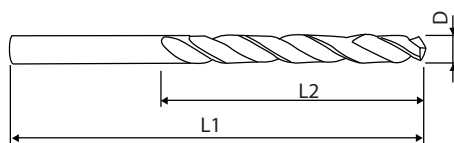
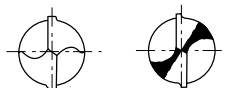
Point Angle: 135°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				●	○	○				○

- First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0161550	15.5	178	120
0161600	16	178	120
0161650	16.5	184	125
0161700	17	184	125
0161750	17.5	191	130
0161800	18	191	130
0161850	18.5	198	135
0161900	19	198	135
0161950	19.5	205	140
0162000	20	205	140

056 DIN 338



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 33°
Kąt spirali

Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				●	○	○				○

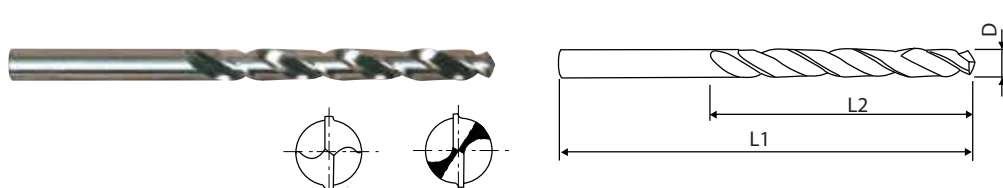
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0560100	1	34	12
0560110	1.1	36	14
0560120	1.2	38	16
0560125	1.25	38	16
0560130	1.3	38	16
0560140	1.4	40	18
0560150	1.5	40	18
0560160	1.6	43	20
0560170	1.7	43	20
0560175	1.75	46	22
0560180	1.8	46	22
0560190	1.9	46	22
0560200	2	49	24
0560210	2.1	49	24
0560220	2.2	53	27
0560225	2.25	53	27
0560230	2.3	53	27
0560240	2.4	57	30
0560250	2.5	57	30
0560260	2.6	57	30
0560270	2.7	61	33
0560275	2.75	61	33
0560280	2.8	61	33
0560290	2.9	61	33
0560300	3	61	33
0560310	3.1	65	36
0560320	3.2	65	36
0560325	3.25	65	36
0560330	3.3	65	36
0560340	3.4	70	39
0560350	3.5	70	39
0560360	3.6	70	39
0560370	3.7	70	39
0560375	3.75	70	39
0560380	3.8	75	43
0560390	3.9	75	43
0560400	4	75	43
0560410	4.1	75	43
0560420	4.2	75	43
0560425	4.25	75	43

TIZ CODE KOD TIZ	D	L1	L2
0560430	4.3	80	47
0560440	4.4	80	47
0560450	4.5	80	47
0560460	4.6	80	47
0560470	4.7	80	47
0560475	4.75	80	47
0560480	4.8	86	52
0560490	4.9	86	52
0560500	5	86	52
0560510	5.1	86	52
0560520	5.2	86	52
0560525	5.25	86	52
0560530	5.3	86	52
0560540	5.4	93	57
0560550	5.5	93	57
0560560	5.6	93	57
0560570	5.7	93	57
0560575	5.75	93	57
0560580	5.8	93	57
0560590	5.9	93	57
0560600	6	93	57
0560610	6.1	101	63
0560620	6.2	101	63
0560625	6.25	101	63
0560630	6.3	101	63
0560640	6.4	101	63
0560650	6.5	101	63
0560660	6.6	101	63
0560670	6.7	101	63
0560675	6.75	109	69
0560680	6.8	109	69
0560690	6.9	109	69
0560700	7	109	69
0560710	7.1	109	69
0560720	7.2	109	69
0560725	7.25	109	69
0560730	7.3	109	69
0560740	7.4	109	69
0560750	7.5	109	69
0560760	7.6	117	75

TIZ CODE KOD TIZ	D	L1	L2
0560770	7.7	117	75
0560775	7.75	117	75
0560780	7.8	117	75
0560790	7.9	117	75
0560800	8	117	75
0560810	8.1	117	75
0560820	8.2	117	75
0560825	8.25	117	75
0560830	8.3	117	75
0560840	8.4	117	75
0560850	8.5	117	75
0560860	8.6	125	81
0560870	8.7	125	81
0560875	8.75	125	81
0560880	8.8	125	81
0560890	8.9	125	81
0560900	9	125	81
0560910	9.1	125	81
0560920	9.2	125	81
0560925	9.25	125	81
0560930	9.3	125	81
0560940	9.4	125	81
0560950	9.5	125	81
0560960	9.6	133	87
0560970	9.7	133	87
0560975	9.75	133	87
0560980	9.8	133	87
0560990	9.9	133	87
0561000	10	133	87
0561020	10.2	133	87
0561050	10.5	133	87
0561100	11	142	94
0561150	11.5	142	94
0561200	12	151	101
0561250	12.5	151	101
0561300	13	151	101
0561350	13.5	160	108
0561400	14	160	108
0561450	14.5	169	114
0561500	15	169	114

056 DIN 338



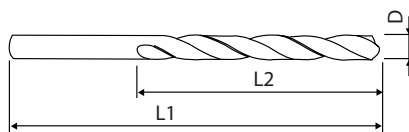
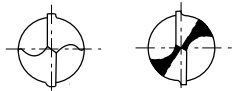
Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 33°
Kąt spirali
Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				●	○	○				○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0561550	15.5	178	120
0561600	16	178	120
0561650	16.5	184	125
0561700	17	184	125
0561750	17.5	191	130
0561800	18	191	130
0561850	18.5	198	135
0561900	19	198	135
0561950	19.5	205	140
0562000	20	205	140

001 DIN 338



Tool material: HSS
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 20-30°
Kąt spirali

Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

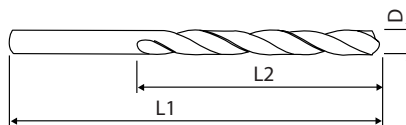
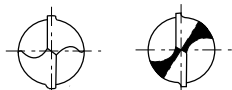
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0010030	0.3	19	3
0010040	0.4	20	5
0010050	0.5	22	6
0010060	0.6	24	7
0010070	0.7	28	9
0010080	0.8	30	10
0010090	0.9	32	11
0010100	1	34	12
0010105	1.05	34	12
0010110	1.1	36	14
0010115	1.15	36	14
0010120	1.2	38	16
0010125	1.25	38	16
0010130	1.3	38	16
0010135	1.35	40	18
0010140	1.4	40	18
0010145	1.45	40	18
0010150	1.5	40	18
0010155	1.55	43	20
0010160	1.6	43	20
0010165	1.65	43	20
0010170	1.7	43	20
0010175	1.75	46	22
0010180	1.8	46	22
0010185	1.85	46	22
0010190	1.9	46	22
0010195	1.95	49	24
0010200	2	49	24
0010205	2.05	49	24
0010210	2.1	49	24
0010215	2.15	53	27
0010220	2.2	53	27
0010225	2.25	53	27
0010230	2.3	53	27
0010235	2.35	53	27
0010240	2.4	57	30
0010245	2.45	57	30
0010250	2.5	57	30
0010255	2.55	57	30
0010260	2.6	57	30

TIZ CODE KOD TIZ	D	L1	L2
0010265	2.65	57	30
0010270	2.7	61	33
0010275	2.75	61	33
0010280	2.8	61	33
0010285	2.85	61	33
0010290	2.9	61	33
0010295	2.95	61	33
0010300	3	61	33
0010305	3.05	65	36
0010310	3.1	65	36
0010315	3.15	65	36
0010320	3.2	65	36
0010325	3.25	65	36
0010330	3.3	65	36
0010335	3.35	65	36
0010340	3.4	70	39
0010345	3.45	70	39
0010350	3.5	70	39
0010355	3.55	70	39
0010360	3.6	70	39
0010365	3.65	70	39
0010370	3.7	70	39
0010375	3.75	70	39
0010380	3.8	75	43
0010385	3.85	75	43
0010390	3.9	75	43
0010395	3.95	75	43
0010400	4	75	43
0010405	4.05	75	43
0010410	4.1	75	43
0010415	4.15	75	43
0010420	4.2	75	43
0010425	4.25	75	43
0010430	4.3	80	47
0010435	4.35	80	47
0010440	4.4	80	47
0010445	4.45	80	47
0010450	4.5	80	47
0010455	4.55	80	47
0010460	4.6	80	47

TIZ CODE KOD TIZ	D	L1	L2
0010465	4.65	80	47
0010470	4.7	80	47
0010475	4.75	80	47
0010480	4.8	86	52
0010485	4.85	86	52
0010490	4.9	86	52
0010495	4.95	86	52
0010500	5	86	52
0010505	5.05	86	52
0010510	5.1	86	52
0010515	5.15	86	52
0010520	5.2	86	52
0010525	5.25	86	52
0010530	5.3	86	52
0010535	5.35	93	57
0010540	5.4	93	57
0010545	5.45	93	57
0010550	5.5	93	57
0010555	5.55	93	57
0010560	5.6	93	57
0010565	5.65	93	57
0010570	5.7	93	57
0010575	5.75	93	57
0010580	5.8	93	57
0010585	5.85	93	57
0010590	5.9	93	57
0010595	5.95	93	57
0010600	6	93	57
0010605	6.05	101	63
0010610	6.1	101	63
0010615	6.15	101	63
0010620	6.2	101	63
0010625	6.25	101	63
0010630	6.3	101	63
0010635	6.35	101	63
0010640	6.4	101	63
0010645	6.45	101	63
0010650	6.5	101	63
0010655	6.55	101	63
0010660	6.6	101	63

001 DIN 338



Tool material: HSS
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 20-30°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

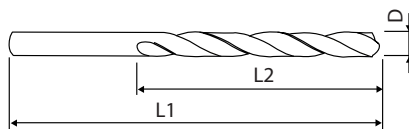
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0010665	6.65	101	63
0010670	6.7	101	63
0010675	6.75	109	69
0010680	6.8	109	69
0010685	6.85	109	69
0010690	6.9	109	69
0010695	6.95	109	69
0010700	7	109	69
0010705	7.05	109	69
0010710	7.1	109	69
0010715	7.15	109	69
0010720	7.2	109	69
0010725	7.25	109	69
0010730	7.3	109	69
0010735	7.35	109	69
0010740	7.4	109	69
0010745	7.45	109	69
0010750	7.5	109	69
0010755	7.55	117	75
0010760	7.6	117	75
0010765	7.65	117	75
0010770	7.7	117	75
0010775	7.75	117	75
0010780	7.8	117	75
0010785	7.85	117	75
0010790	7.9	117	75
0010795	7.95	117	75
0010800	8	117	75
0010810	8.1	117	75
0010820	8.2	117	75
0010825	8.25	117	75
0010830	8.3	117	75
0010840	8.4	117	75
0010850	8.5	117	75
0010860	8.6	125	81
0010870	8.7	125	81
0010875	8.75	125	81
0010880	8.8	125	81
0010890	8.9	125	81
0010900	9	125	81

TIZ CODE KOD TIZ	D	L1	L2
0010910	9.1	125	81
0010920	9.2	125	81
0010925	9.25	125	81
0010930	9.3	125	81
0010940	9.4	125	81
0010950	9.5	125	81
0010960	9.6	133	87
0010970	9.7	133	87
0010975	9.75	133	87
0010980	9.8	133	87
0010990	9.9	133	87
0011000	10	133	87
0011010	10.1	133	87
0011020	10.2	133	87
0011025	10.25	133	87
0011030	10.3	133	87
0011040	10.4	133	87
0011050	10.5	133	87
0011060	10.6	133	87
0011070	10.7	142	94
0011075	10.75	142	94
0011080	10.8	142	94
0011090	10.9	142	94
0011100	11	142	94
0011110	11.1	142	94
0011120	11.2	142	94
0011125	11.25	142	94
0011130	11.3	142	94
0011140	11.4	142	94
0011150	11.5	142	94
0011160	11.6	142	94
0011170	11.7	142	94
0011175	11.75	142	94
0011180	11.8	142	94
0011190	11.9	151	101
0011200	12	151	101
0011210	12.1	151	101
0011220	12.2	151	101
0011225	12.25	151	101
0011230	12.3	151	101

TIZ CODE KOD TIZ	D	L1	L2
0011240	12.4	151	101
0011250	12.5	151	101
0011260	12.6	151	101
0011270	12.7	151	101
0011275	12.75	151	101
0011280	12.8	151	101
0011290	12.9	151	101
0011300	13	151	101
0011325	13.25	160	108
0011350	13.5	160	108
0011375	13.75	160	108
0011400	14	160	108
0011425	14.25	169	114
0011450	14.5	169	114
0011475	14.75	169	114
0011500	15	169	114
0011525	15.25	178	120
0011550	15.5	178	120
0011575	15.75	178	120
0011600	16	178	120
0011625	16.25	184	125
0011650	16.5	184	125
0011675	16.75	184	125
0011700	17	184	125
0011725	17.25	191	130
0011750	17.5	191	130
0011775	17.75	191	130
0011800	18	191	130
0011825	18.25	198	135
0011850	18.5	198	135
0011875	18.75	198	135
0011900	19	198	135
0011925	19.25	205	140
0011950	19.5	205	140
0011975	19.75	205	140
0012000	20	205	140

009 DIN 338



Tool material: HSS
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 20-30°
Kąt spirali

Point Angle: 118°
Kąt wierzchołkowy

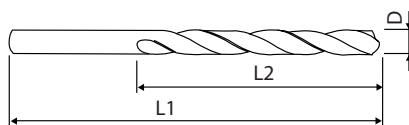
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2
0090200	2	2	49	24
0090210	2.1	2.1	49	24
0090220	2.2	2.2	53	27
0090230	2.3	2.3	53	27
0090240	2.4	2.4	57	30
0090250	2.5	2.5	57	30
0090260	2.6	2.6	57	30
0090270	2.7	2.7	61	33
0090280	2.8	2.8	61	33
0090290	2.9	2.9	61	33
0090300	3	3	61	33
0090310	3.1	3.1	65	36
0090320	3.2	3.2	65	36
0090330	3.3	3.3	65	36
0090340	3.4	3.4	70	39
0090350	3.5	3.5	70	39
0090360	3.6	3.6	70	39
0090370	3.7	3.7	70	39
0090380	3.8	3.8	75	43
0090390	3.9	3.9	75	43
0090400	4	4	75	43
0090410	4.1	4.1	75	43
0090420	4.2	4.2	75	43
0090430	4.3	4.3	80	47
0090440	4.4	4.4	80	47
0090450	4.5	4.5	80	47
0090460	4.6	4.6	80	47
0090470	4.7	4.7	80	47
0090480	4.8	4.8	86	52
0090490	4.9	4.9	86	52
0090500	5	5	86	52
0090510	5.1	5.1	86	52
0090520	5.2	5.3	86	52
0090530	5.3	5.3	86	52
0090540	5.4	5.4	93	57
0090550	5.5	5.5	93	57
0090560	5.6	5.6	93	57
0090570	5.7	5.7	93	57
0090580	5.8	5.8	93	57
0090590	5.9	5.9	93	57

TIZ CODE KOD TIZ	D	D2	L1	L2
0090600	6	6	93	57
0090610	6.1	6.1	101	63
0090620	6.2	6.2	101	63
0090630	6.3	6.3	101	63
0090640	6.4	6.4	101	63
0090650	6.5	6.5	101	63
0090660	6.6	6.6	101	63
0090670	6.7	6.7	101	63
0090680	6.8	6.8	109	69
0090690	6.9	6.9	109	69
0090700	7	7	109	69
0090710	7.1	7.1	109	69
0090720	7.2	7.2	109	69
0090730	7.3	7.3	109	69
0090740	7.4	7.4	109	69
0090750	7.5	7.5	109	69
0090760	7.6	7.6	117	75
0090770	7.7	7.7	117	75
0090780	7.8	7.8	117	75
0090790	7.9	7.9	117	75
0090800	8	8	117	75
0090810	8.1	8.1	117	75
0090820	8.2	8.2	117	75
0090830	8.3	8.3	117	75
0090840	8.4	8.4	117	75
0090850	8.5	8.5	117	75
0090860	8.6	8.6	125	81
0090870	8.7	8.7	125	81
0090880	8.8	8.8	125	81
0090890	8.9	8.9	125	81
0090900	9	9	125	81
0090910	9.1	9.1	125	81
0090920	9.2	9.2	125	81
0090930	9.3	9.3	125	81
0090940	9.4	9.4	125	81
0090950	9.5	9.5	125	81
0090960	9.6	9.6	133	87
0090970	9.7	9.7	133	87
0090980	9.8	9.8	133	87
0090990	9.9	9.9	133	87

009 DIN 338



Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h7
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 20-30°
 Kąt spirali
Point Angle: 118°
 Kąt wierzchołkowy

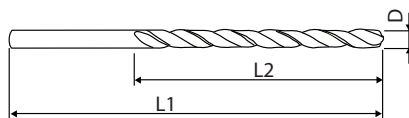
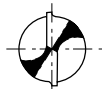
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

- First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2
0091000	10	10	133	87
0091010	10.1	10.1	133	87
0091020	10.2	10.2	133	87
0091030	10.3	10.3	133	87
0091040	10.4	10.4	133	87
0091050	10.5	10.5	133	87
0091060	10.6	10.6	133	87
0091070	10.7	10.7	142	94
0091080	10.8	10.8	142	94
0091090	10.9	10.9	142	94
0091100	11	11	142	94
0091110	11.1	11.1	142	94
0091120	11.2	11.2	142	94
0091130	11.3	11.3	142	94
0091140	11.4	11.4	142	94
0091150	11.5	11.5	142	94
0091160	11.6	11.6	142	94
0091170	11.7	11.7	142	94
0091180	11.8	11.8	142	94
0091190	11.9	11.9	151	101
0091200	12	12	151	101
0091210	12.1	12.1	151	101
0091220	12.2	12.2	151	101
0091230	12.3	12.3	151	101
0091240	12.4	12.4	151	101
0091250	12.5	12.5	151	101
0091260	12.6	12.6	151	101
0091270	12.7	12.7	151	101
0091280	12.8	12.8	151	101
0091290	12.9	12.9	151	101
0091300	13	13	151	101
0091320	13.2	13.2	151	101
0091330	13.3	13.3	160	108
0091350	13.5	13.5	160	108
0091400	14	14	160	108
0091450	14.5	14.5	169	114
0091500	15	15	169	114
0091550	15.5	15.5	178	120
0091600	16	16	178	120
0091650	16.5	16.5	184	125

TIZ CODE KOD TIZ	D	D2	L1	L2
0091700	17	17	184	125
0091750	17.5	17.5	191	130
0091800	18	18	191	130
0091850	18.5	18.5	198	135
0091900	19	19	198	135
0091950	19.5	19.5	205	140
0092000	20	20	205	140

026 DIN 340



Tool material: HSS-Co8
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 33°
Kąt spirali

Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				●	○	○				○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

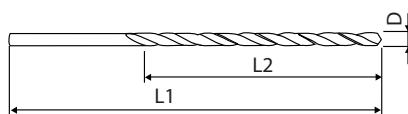
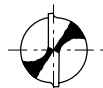
TIZ CODE KOD TIZ	D2	L1	L2
0260200	2	85	56
0260210	2.1	85	56
0260220	2.2	90	59
0260230	2.3	90	59
0260240	2.4	95	62
0260250	2.5	95	62
0260260	2.6	95	62
0260270	2.7	100	66
0260280	2.8	100	66
0260290	2.9	100	66
0260300	3	100	66
0260310	3.1	106	69
0260320	3.2	106	69
0260330	3.3	106	69
0260340	3.4	112	73
0260350	3.5	112	73
0260360	3.6	112	73
0260370	3.7	112	73
0260380	3.8	119	78
0260390	3.9	119	78
0260400	4	119	78
0260410	4.1	119	78
0260420	4.2	119	78
0260430	4.3	126	82
0260440	4.4	126	82
0260450	4.5	126	82
0260460	4.6	126	82
0260470	4.7	126	82
0260480	4.8	132	87
0260490	4.9	132	87
0260500	5	132	87
0260510	5.1	132	87
0260520	5.2	132	87
0260530	5.3	132	87
0260540	5.4	139	91
0260550	5.5	139	91
0260560	5.6	139	91
0260570	5.7	139	91
0260580	5.8	139	91
0260590	5.9	139	91

TIZ CODE KOD TIZ	D2	L1	L2
0260600	6	139	91
0260610	6.1	148	97
0260620	6.2	148	97
0260630	6.3	148	97
0260640	6.4	148	97
0260650	6.5	148	97
0260660	6.6	148	97
0260670	6.7	148	97
0260680	6.8	156	102
0260690	6.9	156	102
0260700	7	156	102
0260710	7.1	156	102
0260720	7.2	156	102
0260730	7.3	156	102
0260740	7.4	156	102
0260750	7.5	156	102
0260760	7.6	165	109
0260770	7.7	165	109
0260780	7.8	165	109
0260790	7.9	165	109
0260800	8	165	109
0260810	8.1	165	109
0260820	8.2	165	109
0260830	8.3	165	109
0260840	8.4	165	109
0260850	8.5	165	109
0260860	8.6	175	115
0260870	8.7	175	115
0260880	8.8	175	115
0260890	8.9	175	115
0260900	9	175	115
0260910	9.1	175	115
0260920	9.2	175	115
0260930	9.3	175	115
0260940	9.4	175	115
0260950	9.5	175	115
0260960	9.6	184	121
0260970	9.7	184	121
0260980	9.8	184	121
0260990	9.9	184	121

TIZ CODE KOD TIZ	D2	L1	L2
0261000	10	184	121
0261020	10.2	184	121
0261050	10.5	184	121
0261080	10.8	195	128
0261100	11	195	128
0261120	11.2	195	128
0261150	11.5	195	128
0261180	11.8	195	128
0261200	12	205	134

003 DIN 1869/1

ЭКСТРА ДЛИННЫЕ



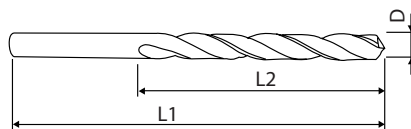
Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h7
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 20-30°
 Kąt spirali
Point Angle: 118°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

- First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0030200	2	125	85
0030250	2.5	140	95
0030300	3	150	100
0030350	3.5	165	115
0030400	4	175	120
0030450	4.5	185	125
0030500	5	195	135
0030550	5.5	205	140
0030600	6	205	140
0030650	6.5	215	150
0030700	7	225	155
0030750	7.5	225	155
0030800	8	240	165
0030850	8.5	240	165
0030900	9	250	175
0030950	9.5	250	175
0031000	10	265	185
0031050	10.5	265	185
0031100	11	280	195
0031150	11.5	280	195
0031200	12	295	205
0031250	12.5	295	205
0031300	13	295	205

057 DIN 338



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 20-30°
Kąt spirali

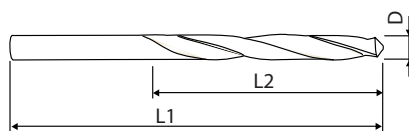
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○				○

● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0570150	1.5	40	18
0570175	1.75	46	22
0570200	2	49	24
0570225	2.25	53	27
0570250	2.5	57	30
0570275	2.75	61	33
0570300	3	61	33
0570325	3.25	65	36
0570350	3.5	70	39
0570375	3.75	70	39
0570400	4	75	43
0570425	4.25	75	43
0570450	4.5	80	47
0570475	4.75	80	47
0570500	5	86	52
0570525	5.25	86	52
0570550	5.5	93	57
0570575	5.75	93	57
0570600	6	93	57
0570625	6.25	101	63
0570650	6.5	101	63
0570675	6.75	109	69
0570700	7	109	69
0570725	7.25	109	69
0570750	7.5	109	69
0570775	7.75	117	75
0570800	8	117	75
0570825	8.25	117	75
0570850	8.5	117	75
0570875	8.75	125	81
0570900	9	125	81
0570925	9.25	125	81
0570950	9.5	125	81
0570975	9.75	133	87
0571000	10	133	87
0571050	10.5	133	87
0571100	11	142	94
0571150	11.5	142	94
0571200	12	151	101
0571250	12.5	151	101
0571300	13	151	101

008 DIN 338



Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h7
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 15-20°
 Kąt spirali
Point Angle: 118°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania										•		

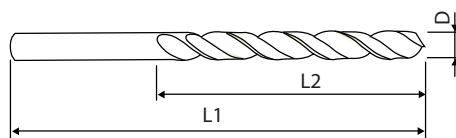
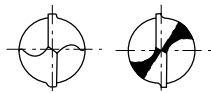
- First choice / Pierwszy wybór
- Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0080150	1.5	40	18
0080160	1.6	43	20
0080170	1.7	43	20
0080180	1.8	46	22
0080190	1.9	46	22
0080200	2	49	24
0080210	2.1	49	24
0080220	2.2	53	27
0080230	2.3	53	27
0080240	2.4	57	30
0080250	2.5	57	30
0080260	2.6	57	30
0080270	2.7	61	33
0080280	2.8	61	33
0080290	2.9	61	33
0080300	3	61	33
0080310	3.1	65	36
0080320	3.2	65	36
0080330	3.3	65	36
0080340	3.4	70	39
0080350	3.5	70	39
0080360	3.6	70	39
0080370	3.7	70	39
0080380	3.8	75	43
0080390	3.9	75	43
0080400	4	75	43
0080410	4.1	75	43
0080420	4.2	75	43
0080430	4.3	80	47
0080440	4.4	80	47
0080450	4.5	80	47
0080460	4.6	80	47
0080470	4.7	80	47
0080480	4.8	86	52
0080490	4.9	86	52
0080500	5	86	52
0080510	5.1	86	52
0080520	5.2	86	52
0080530	5.3	86	52
0080540	5.4	93	57

TIZ CODE KOD TIZ	D	L1	L2
0080550	5.5	93	57
0080560	5.6	93	57
0080570	5.7	93	57
0080580	5.8	93	57
0080590	5.9	93	57
0080600	6	93	57
0080610	6.1	101	63
0080620	6.2	101	63
0080630	6.3	101	63
0080640	6.4	101	63
0080650	6.5	101	63
0080660	6.6	101	63
0080670	6.7	101	63
0080680	6.8	109	69
0080690	6.9	109	69
0080700	7	109	69
0080710	7.1	109	69
0080720	7.2	109	69
0080730	7.3	109	69
0080740	7.4	109	69
0080750	7.5	109	69
0080760	7.6	117	75
0080770	7.7	117	75
0080780	7.8	117	75
0080790	7.9	117	75
0080800	8	117	75
0080810	8.1	117	75
0080820	8.2	117	75
0080830	8.3	117	75
0080840	8.4	117	75
0080850	8.5	117	75
0080860	8.6	125	81
0080870	8.7	125	81
0080880	8.8	125	81
0080890	8.9	125	81
0080900	9	125	81
0080910	9.1	125	81
0080920	9.2	125	81
0080930	9.3	125	81
0080940	9.4	125	81

TIZ CODE KOD TIZ	D	L1	L2
0080950	9.5	125	81
0080960	9.6	133	87
0080970	9.7	133	87
0080980	9.8	133	87
0080990	9.9	133	87
0081000	10	133	87
0081050	10.5	133	87
0081100	11	142	94
0081150	11.5	142	94
0081200	12	151	101
0081250	12.5	151	101
0081300	13	151	101

007 DIN 338



Tool material: HSS
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 38°
Kąt spirali

Point Angle: 135°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania								●		○		

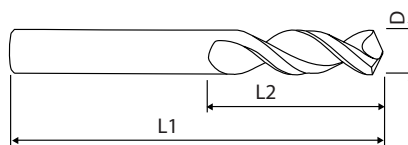
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0070150	1.5	40	18
0070160	1.6	43	20
0070170	1.7	43	20
0070180	1.8	46	22
0070190	1.9	46	22
0070200	2	49	24
0070210	2.1	49	24
0070220	2.2	53	27
0070230	2.3	53	27
0070240	2.4	57	30
0070250	2.5	57	30
0070260	2.6	57	30
0070270	2.7	61	33
0070280	2.8	61	33
0070290	2.9	61	33
0070300	3	61	33
0070310	3.1	65	36
0070320	3.2	65	36
0070330	3.3	65	36
0070340	3.4	70	39
0070350	3.5	70	39
0070360	3.6	70	39
0070370	3.7	70	39
0070380	3.8	75	43
0070390	3.9	75	43
0070400	4	75	43
0070410	4.1	75	43
0070420	4.2	75	43
0070430	4.3	80	47
0070440	4.4	80	47
0070450	4.5	80	47
0070460	4.6	80	47
0070470	4.7	80	47
0070480	4.8	86	52
0070490	4.9	86	52
0070500	5	86	52
0070510	5.1	86	52
0070520	5.2	86	52
0070530	5.3	86	52
0070540	5.4	93	57

TIZ CODE KOD TIZ	D	L1	L2
0070550	5.5	93	57
0070560	5.6	93	57
0070570	5.7	93	57
0070580	5.8	93	57
0070590	5.9	93	57
0070600	6	93	57
0070610	6.1	101	63
0070620	6.2	101	63
0070630	6.3	101	63
0070640	6.4	101	63
0070650	6.5	101	63
0070660	6.6	101	63
0070670	6.7	101	63
0070680	6.8	109	69
0070690	6.9	109	69
0070700	7	109	69
0070710	7.1	109	69
0070720	7.2	109	69
0070730	7.3	109	69
0070740	7.4	109	69
0070750	7.5	109	69
0070760	7.6	117	75
0070770	7.7	117	75
0070780	7.8	117	75
0070790	7.9	117	75
0070800	8	117	75
0070810	8.1	117	75
0070820	8.2	117	75
0070830	8.3	117	75
0070840	8.4	117	75
0070850	8.5	117	75
0070860	8.6	125	81
0070870	8.7	125	81
0070880	8.8	125	81
0070890	8.9	125	81
0070900	9	125	81
0070910	9.1	125	81
0070920	9.2	125	81
0070930	9.3	125	81
0070940	9.4	125	81

TIZ CODE KOD TIZ	D	L1	L2
0070950	9.5	125	81
0070960	9.6	133	87
0070970	9.7	133	87
0070980	9.8	133	87
0070990	9.9	133	87
0071000	10	133	87
0071050	10.5	133	87
0071100	11	142	94
0071150	11.5	142	94
0071200	12	151	101
0071250	12.5	151	101
0071300	13	151	101

058 DIN 1897



Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 42°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

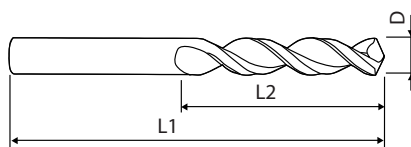
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0580200	2	38	12
0580210	2.1	38	12
0580220	2.2	40	13
0580230	2.3	40	13
0580240	2.4	43	14
0580250	2.5	43	14
0580260	2.6	43	14
0580270	2.7	46	16
0580280	2.8	46	16
0580290	2.9	46	16
0580300	3	46	16
0580310	3.1	49	18
0580320	3.2	49	18
0580330	3.3	49	18
0580340	3.4	52	20
0580350	3.5	52	20
0580360	3.6	52	20
0580370	3.7	52	20
0580380	3.8	55	22
0580390	3.9	55	22
0580400	4	55	22
0580410	4.1	55	22
0580420	4.2	55	22
0580430	4.3	58	24
0580440	4.4	58	24
0580450	4.5	58	24
0580460	4.6	58	24
0580470	4.7	58	24
0580480	4.8	62	26
0580490	4.9	62	26
0580500	5	62	26
0580510	5.1	62	26
0580520	5.2	62	26
0580530	5.3	66	26
0580540	5.4	66	28
0580550	5.5	66	28
0580560	5.6	66	28
0580570	5.7	66	28
0580580	5.8	66	28
0580590	5.9	66	28

TIZ CODE KOD TIZ	D	L1	L2
0580600	6	66	28
0580610	6.1	70	31
0580620	6.2	70	31
0580630	6.3	70	31
0580640	6.4	70	31
0580650	6.5	70	31
0580660	6.6	70	31
0580670	6.7	70	31
0580680	6.8	74	34
0580690	6.9	74	34
0580700	7	74	34
0580710	7.1	74	34
0580720	7.2	74	34
0580730	7.3	74	34
0580740	7.4	74	34
0580750	7.5	74	34
0580760	7.6	79	37
0580770	7.7	79	37
0580780	7.8	79	37
0580790	7.9	79	37
0580800	8	79	37
0580810	8.1	79	37
0580820	8.2	79	37
0580830	8.3	79	37
0580840	8.4	79	37
0580850	8.5	79	37
0580860	8.6	84	40
0580870	8.7	84	40
0580880	8.8	84	40
0580890	8.9	84	40
0580900	9	84	40
0580910	9.1	84	40
0580920	9.2	84	40
0580930	9.3	84	40
0580940	9.4	84	40
0580950	9.5	84	40
0580960	9.6	89	43
0580970	9.7	89	43
0580980	9.8	89	43
0580990	9.9	89	43

TIZ CODE KOD TIZ	D	L1	L2
0581000	10	89	43
0581020	10.2	89	43
0581050	10.5	89	43
0581080	10.8	95	47
0581100	11	95	47
0581120	11.2	95	47
0581150	11.5	95	47
0581180	11.8	95	47
0581200	12	102	51
0581250	12.5	102	51
0581300	13	102	51
0581350	13.5	107	54
0581400	14	107	54
0581450	14.5	111	56
0581500	15	111	56
0581550	15.5	115	58
0581600	16	115	58
0581650	16.5	119	60
0581700	17	119	60
0581750	17.5	123	62
0581800	18	123	62
0581850	18.5	127	64
0581900	19	127	64
0581950	19.5	131	66
0582000	20	131	66

078 DIN 338



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 42°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

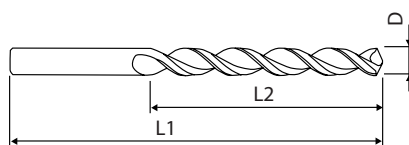
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0780200	2	49	24
0780210	2.1	49	24
0780220	2.2	53	27
0780230	2.3	53	27
0780240	2.4	57	30
0780250	2.5	57	30
0780260	2.6	57	30
0780270	2.7	61	33
0780280	2.8	61	33
0780290	2.9	61	33
0780300	3	61	33
0780310	3.1	65	36
0780320	3.2	65	36
0780330	3.3	65	36
0780340	3.4	70	39
0780350	3.5	70	39
0780360	3.6	70	39
0780370	3.7	70	39
0780380	3.8	75	43
0780390	3.9	75	43
0780400	4	75	43
0780410	4.1	75	43
0780420	4.2	75	43
0780430	4.3	80	47
0780440	4.4	80	47
0780450	4.5	80	47
0780460	4.6	80	47
0780470	4.7	80	47
0780480	4.8	86	52
0780490	4.9	86	52
0780500	5	86	52
0780510	5.1	86	52
0780520	5.2	86	52
0780530	5.3	86	52
0780540	5.4	93	57
0780550	5.5	93	57
0780560	5.6	93	57
0780570	5.7	93	57
0780580	5.8	93	57
0780590	5.9	93	57

TIZ CODE KOD TIZ	D	L1	L2
0780600	6	93	57
0780610	6.1	101	63
0780620	6.2	101	63
0780630	6.3	101	63
0780640	6.4	101	63
0780650	6.5	101	63
0780660	6.6	101	63
0780670	6.7	101	63
0780680	6.8	109	69
0780690	6.9	109	69
0780700	7	109	69
0780710	7.1	109	69
0780720	7.2	109	69
0780730	7.3	109	69
0780740	7.4	109	69
0780750	7.5	109	69
0780760	7.6	117	75
0780770	7.7	117	75
0780780	7.8	117	75
0780790	7.9	117	75
0780800	8	117	75
0780810	8.1	117	75
0780820	8.2	117	75
0780830	8.3	117	75
0780840	8.4	117	75
0780850	8.5	117	75
0780860	8.6	125	81
0780870	8.7	125	81
0780880	8.8	125	81
0780890	8.9	125	81
0780900	9	125	81
0780910	9.1	125	81
0780920	9.2	125	81
0780930	9.3	125	81
0780940	9.4	125	81
0780950	9.5	125	81
0780960	9.6	133	87
0780970	9.7	133	87
0780980	9.8	133	87
0780990	9.9	133	87

TIZ CODE KOD TIZ	D	L1	L2
0781000	10	133	87
0781020	10.2	133	87
0781050	10.5	133	87
0781100	11	142	94
0781120	11.2	142	94
0781150	11.5	142	94
0781200	12	151	101
0781250	12.5	151	101
0781300	13	151	101
0781350	13.5	160	108
0781400	14	160	108
0781450	14.5	169	114
0781500	15	169	114
0781550	15.5	178	120
0781600	16	178	120

059 DIN 340



Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 42°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

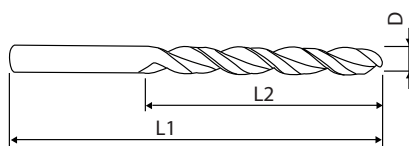
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0590200	2	85	56
0590210	2.1	85	56
0590220	2.2	90	59
0590230	2.3	90	59
0590240	2.4	95	62
0590250	2.5	95	62
0590260	2.6	95	62
0590270	2.7	100	66
0590280	2.8	100	66
0590290	2.9	100	66
0590300	3	100	66
0590310	3.1	106	69
0590320	3.2	106	69
0590330	3.3	106	69
0590340	3.4	112	73
0590350	3.5	112	73
0590360	3.6	112	73
0590370	3.7	112	73
0590380	3.8	119	78
0590390	3.9	119	78
0590400	4	119	78
0590410	4.1	119	78
0590420	4.2	119	78
0590430	4.3	126	82
0590440	4.4	126	82
0590450	4.5	126	82
0590460	4.6	126	82
0590470	4.7	126	82
0590480	4.8	132	87
0590490	4.9	132	87
0590500	5	132	87
0590510	5.1	132	87
0590520	5.2	132	87
0590530	5.3	132	87
0590540	5.4	139	91
0590550	5.5	139	91
0590560	5.6	139	91
0590570	5.7	139	91
0590580	5.8	139	91
0590590	5.9	139	91

TIZ CODE KOD TIZ	D	L1	L2
0590600	6	139	91
0590610	6.1	148	97
0590620	6.2	148	97
0590630	6.3	148	97
0590640	6.4	148	97
0590650	6.5	148	97
0590660	6.6	148	97
0590670	6.7	148	97
0590680	6.8	156	102
0590690	6.9	156	102
0590700	7	156	102
0590710	7.1	156	102
0590720	7.2	156	102
0590730	7.3	156	102
0590740	7.4	156	102
0590750	7.5	156	102
0590760	7.6	165	109
0590770	7.7	165	109
0590780	7.8	165	109
0590790	7.9	165	109
0590800	8	165	109
0590810	8.1	165	109
0590820	8.2	165	109
0590830	8.3	165	109
0590840	8.4	165	109
0590850	8.5	165	109
0590860	8.6	175	115
0590870	8.7	175	115
0590880	8.8	175	115
0590890	8.9	175	115
0590900	9	175	115
0590910	9.1	175	115
0590920	9.2	175	115
0590930	9.3	175	115
0590940	9.4	175	115
0590950	9.5	175	115
0590960	9.6	184	121
0590970	9.7	184	121
0590980	9.8	184	121
0590990	9.9	184	121

TIZ CODE KOD TIZ	D	L1	L2
0591000	10	184	121
0591020	10.2	184	121
0591050	10.5	184	121
0591100	11	195	128
0591150	11.5	195	128
0591200	12	205	134

062 DIN 338



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 38°
Kąt spirali

Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

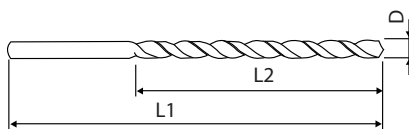
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0620200	2	49	24
0620210	2.1	49	24
0620220	2.2	53	27
0620230	2.3	53	27
0620240	2.4	57	30
0620250	2.5	57	30
0620260	2.6	57	30
0620270	2.7	61	33
0620280	2.8	61	33
0620290	2.9	61	33
0620300	3	61	33
0620310	3.1	65	36
0620320	3.2	65	36
0620330	3.3	65	36
0620340	3.4	70	39
0620350	3.5	70	39
0620360	3.6	70	39
0620370	3.7	70	39
0620380	3.8	75	43
0620390	3.9	75	43
0620400	4	75	43
0620410	4.1	75	43
0620420	4.2	75	43
0620430	4.3	80	47
0620440	4.4	80	47
0620450	4.5	80	47
0620460	4.6	80	47
0620470	4.7	80	47
0620480	4.8	86	52
0620490	4.9	86	52
0620500	5	86	52
0620510	5.1	86	52
0620520	5.2	86	52
0620530	5.3	86	52
0620540	5.4	93	57
0620550	5.5	93	57
0620560	5.6	93	57
0620570	5.7	93	57
0620580	5.8	93	57
0620590	5.9	93	57

TIZ CODE KOD TIZ	D	L1	L2
0620600	6	93	57
0620610	6.1	101	63
0620620	6.2	101	63
0620630	6.3	101	63
0620640	6.4	101	63
0620650	6.5	101	63
0620660	6.6	101	63
0620670	6.7	101	63
0620680	6.8	109	69
0620690	6.9	109	69
0620700	7	109	69
0620710	7.1	109	69
0620720	7.2	109	69
0620730	7.3	109	69
0620740	7.4	109	69
0620750	7.5	109	69
0620760	7.6	117	75
0620770	7.7	117	75
0620780	7.8	117	75
0620790	7.9	117	75
0620800	8	117	75
0620810	8.1	117	75
0620820	8.2	117	75
0620830	8.3	117	75
0620840	8.4	117	75
0620850	8.5	117	75
0620860	8.6	125	81
0620870	8.7	125	81
0620880	8.8	125	81
0620890	8.9	125	81
0620900	9	125	81
0620910	9.1	125	81
0620920	9.2	125	81
0620930	9.3	125	81
0620940	9.4	125	81
0620950	9.5	125	81
0620960	9.6	133	87
0620970	9.7	133	87
0620980	9.8	133	87
0620990	9.9	133	87

TIZ CODE KOD TIZ	D	L1	L2
0621000	10	133	87
0621010	10.1	133	87
0621020	10.2	133	87
0621050	10.5	133	87
0621080	10.8	142	94
0621100	11	142	94
0621120	11.2	142	94
0621150	11.5	142	94
0621180	11.8	142	94
0621200	12	151	101
0621220	12.2	151	101
0621250	12.5	151	101
0621280	12.8	151	101
0621300	13	151	101

063 DIN 340



Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 38°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy

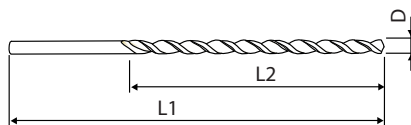
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0630200	2	85	56
0630210	2.1	85	56
0630220	2.2	90	59
0630230	2.3	90	59
0630240	2.4	95	62
0630250	2.5	95	62
0630260	2.6	95	62
0630270	2.7	100	66
0630280	2.8	100	66
0630290	2.9	100	66
0630300	3	100	66
0630310	3.1	106	69
0630320	3.2	106	69
0630330	3.3	106	69
0630340	3.4	112	73
0630350	3.5	112	73
0630360	3.6	112	73
0630370	3.7	112	73
0630380	3.8	119	78
0630390	3.9	119	78
0630400	4	119	78
0630420	4.2	119	78
0630450	4.5	126	82
0630480	4.8	132	87
0630500	5	132	87
0630520	5.2	132	87
0630550	5.5	139	91
0630580	5.8	139	91
0630600	6	139	91
0630620	6.2	148	97
0630650	6.5	148	97
0630680	6.8	156	102
0630700	7	156	102
0630720	7.2	156	102
0630750	7.5	156	102
0630780	7.8	165	109
0630800	8	165	109
0630820	8.2	165	109
0630850	8.5	165	109
0630900	9	175	115

TIZ CODE KOD TIZ	D	L1	L2
0630950	9.5	175	115
0630980	9.8	184	121
0631000	10	184	121
0631050	10.5	184	121
0631100	11	195	128
0631150	11.5	195	128
0631200	12	205	134
0631250	12.5	205	134
0631300	13	205	134

031 DIN 1869/2



Tool material: HSS-E
Materiał narzędzia

Shank Tolerance: h7
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 38°
Kąt spirali

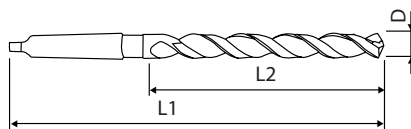
Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0310200	2	125	85
0310250	2.5	140	95
0310300	3	150	100
0310350	3.5	165	115
0310400	4	175	120
0310450	4.5	185	125
0310500	5	195	135
0310550	5.5	205	140
0310600	6	205	140
0310650	6.5	215	150
0310700	7	225	155
0310750	7.5	225	155
0310800	8	240	165
0310850	8.5	240	165
0310900	9	250	175
0310950	9.5	250	175
0311000	10	250	175
0311050	10.5	265	185
0310301	3	190	130
0310351	3.5	210	145
0310401	4	220	150
0310451	4.5	235	160
0310501	5	245	170
0310551	5.5	260	180
0310601	6	260	180
0310651	6.5	275	190
0310701	7	290	200
0310751	7.5	290	200
0310801	8	305	210
0310851	8.5	305	210
0310901	9	320	220
0310951	9.5	320	220
0311001	10	340	235
0311021	10.2	340	235
0310402	4	280	190
0310502	5	315	210
0310602	6	330	225
0310802	8	390	265
0311002	10	430	295

064 DIN 341



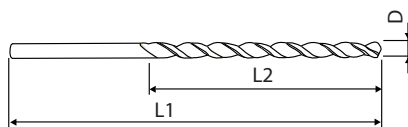
Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: MT 1-3
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 38°
Kąt spirali
Point Angle: 130°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0641300	13	215	134	1
0641350	13.5	223	142	1
0641400	14	223	142	1
0641450	14.5	245	147	2
0641500	15	245	147	2
0641550	15.5	251	153	2
0641600	16	251	153	2
0641650	16.5	257	159	2
0641700	17	257	159	2
0641750	17.5	263	165	2
0641800	18	263	165	2
0641850	18.5	269	171	2
0641900	19	269	171	2
0641950	19.5	275	177	2
0642000	20	275	177	2
0642100	21	282	184	2
0642200	22	289	191	2
0642300	23	296	198	2
0642400	24	327	206	3
0642500	25	327	206	3

065



Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: h7
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 38°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●					○	●				

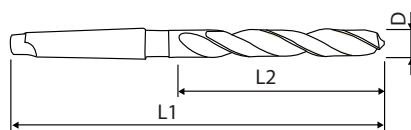
- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
0650201	2	75	40
0650211	2.1	75	40
0650202	2	100	50
0650212	2.1	100	50
0650252	2.5	100	50
0650272	2.7	100	50
0650302	3	100	50
0650332	3.3	100	50
0650352	3.5	100	50
0650203	2	150	75
0650213	2.1	150	75
0650253	2.5	150	75
0650273	2.7	150	75
0650303	3	150	75
0650333	3.3	150	75
0650353	3.5	150	75
0650403	4	150	75
0650423	4.2	150	75
0650453	4.5	150	75
0650503	5	150	75
0650533	5.3	150	75
0650553	5.5	150	75
0650603	6	150	75
0650304	3	200	100
0650334	3.3	200	100
0650354	3.5	200	100
0650404	4	200	100
0650424	4.2	200	100
0650454	4.5	200	100
0650504	5	200	100
0650534	5.3	200	100
0650554	5.5	200	100
0650604	6	200	100
0650654	6.5	200	100
0650684	6.8	200	100
0650704	7	200	100
0650754	7.5	200	100
0650804	8	200	100
0650854	8.5	200	100
0650884	8.8	200	100

TIZ CODE KOD TIZ	D	L1	L2
0650904	9	200	100
0650954	9.5	200	100
0651004	10	200	100
0650405	4	250	150
0650425	4.2	250	150
0650455	4.5	250	150
0650505	5	250	150
0650535	5.3	250	150
0650555	5.5	250	150
0650605	6	250	150
0650655	6.5	250	150
0650685	6.8	250	150
0650705	7	250	150
0650755	7.5	250	150
0650805	8	250	150
0650855	8.5	250	150
0650885	8.8	250	150
0650905	9	250	150
0650955	9.5	250	150
0651005	10	250	150
0651035	10.3	250	150
0651055	10.5	250	150
0651105	11	250	150
0651155	11.5	250	150
0651205	12	250	150
0651255	12.5	250	150
0651305	13	250	150
0650506	5	300	180
0650536	5.3	300	180
0650556	5.5	300	180
0650606	6	300	180
0650656	6.5	300	180
0650686	6.8	300	180
0650706	7	300	180
0650756	7.5	300	180
0650806	8	300	180
0650856	8.5	300	180
0650886	8.8	300	180
0650906	9	300	180
0650956	9.5	300	180

TIZ CODE KOD TIZ	D	L1	L2
0651006	10	300	180
0651036	10.3	300	180
0651056	10.5	300	180
0651106	11	300	180
0651156	11.5	300	180
0651206	12	300	180
0651256	12.5	300	180
0651306	13	300	180

025 DIN 345



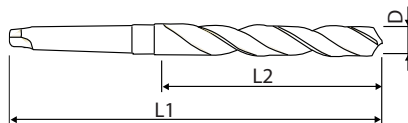
Tool material: HSS-E
Materiał narzędzia
Shank Tolerance: MT 1-3
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 30°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0251300	13	182	101	1
0251350	13.5	189	108	1
0251400	14	189	108	1
0251450	14.5	212	114	2
0251500	15	212	114	2
0251550	15.5	218	120	2
0251600	16	218	120	2
0251650	16.5	223	125	2
0251700	17	223	125	2
0251750	17.5	228	130	2
0251800	18	228	130	2
0251850	18.5	233	135	2
0251900	19	233	135	2
0251950	19.5	238	140	2
0252000	20	238	140	2
0252050	20.5	243	145	2
0252100	21	243	145	2
0252150	21.5	248	150	2
0252200	22	248	150	2
0252250	22.5	253	155	2
0252300	23	253	155	2
0252350	23.5	276	155	3
0252400	24	281	160	3
0252450	24.5	281	160	3
0252500	25	281	160	3
0252550	25.5	286	165	3
0252600	26	286	165	3
0252650	26.5	286	165	3
0252700	27	291	170	3
0252750	27.5	291	170	3
0252800	28	291	170	3
0252850	28.5	296	175	3
0252900	29	296	175	3
0252950	29.5	296	175	3
0253000	30	296	175	3

023 DIN 345



Tool material: HSS
Materiał narzędzia

Shank Tolerance: MT 1-5
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 30°
Kąt spirali

Point Angle: 118°
Kąt wierzchołkowy

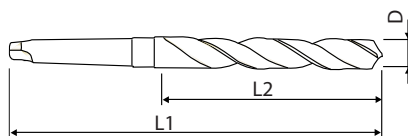
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0230500	5	133	52	1
0230550	5.5	138	57	1
0230600	6	138	57	1
0230650	6.5	144	63	1
0230700	7	150	69	1
0230750	7.5	150	69	1
0230800	8	156	75	1
0230850	8.5	156	75	1
0230900	9	162	81	1
0230950	9.5	162	81	1
0231000	10	168	87	1
0231050	10.5	168	87	1
0231100	11	175	94	1
0231150	11.5	175	94	1
0231200	12	182	101	1
0231250	12.5	182	101	1
0231300	13	182	101	1
0231320	13.2	182	101	1
0231325	13.25	189	108	1
0231350	13.5	189	108	1
0231375	13.75	189	108	1
0231380	13.8	189	108	1
0231400	14	189	108	1
0231425	14.25	212	114	2
0231450	14.5	212	114	2
0231475	14.75	212	114	2
0231500	15	212	114	2
0231525	15.25	218	120	2
0231550	15.5	218	120	2
0231575	15.75	218	120	2
0231600	16	218	120	2
0231625	16.25	223	125	2
0231650	16.5	223	125	2
0231675	16.75	223	125	2
0231700	17	223	125	2
0231725	17.25	228	130	2
0231750	17.5	228	130	2
0231775	17.75	228	130	2
0231800	18	228	130	2
0231825	18.25	233	135	2

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0231850	18.5	233	135	2
0231875	18.75	233	135	2
0231900	19	233	135	2
0231925	19.25	238	140	2
0231950	19.5	238	140	2
0231975	19.75	238	140	2
0232000	20	238	140	2
0232025	20.25	243	145	2
0232050	20.5	243	145	2
0232075	20.75	243	145	2
0232100	21	243	145	2
0232125	21.25	248	150	2
0232150	21.5	248	150	2
0232175	21.75	248	150	2
0232200	22	248	150	2
0232225	22.25	248	150	2
0232250	22.5	253	155	2
0232275	22.75	253	155	2
0232300	23	253	155	2
0232325	23.25	276	155	3
0232350	23.5	276	155	3
0232375	23.75	281	160	3
0232400	24	281	160	3
0232425	24.25	281	160	3
0232450	24.5	281	160	3
0232475	24.75	281	160	3
0232500	25	281	160	3
0232525	25.25	286	165	3
0232550	25.5	286	165	3
0232575	25.75	286	165	3
0232600	26	286	165	3
0232625	26.25	286	165	3
0232650	26.5	286	165	3
0232675	26.75	291	170	3
0232700	27	291	170	3
0232725	27.25	291	170	3
0232750	27.5	291	170	3
0232775	27.75	291	170	3
0232800	28	291	170	3
0232825	28.25	296	175	3

023 DIN 345



Tool material: HSS
Materiał narzędzia
Shank Tolerance: MT 1-5
Tolerancja uchwyty
Drill Tolerance: h8
Tolerancja wiertła
Helix angle: 30°
Kąt spirali
Point Angle: 118°
Kąt wierzchołkowy

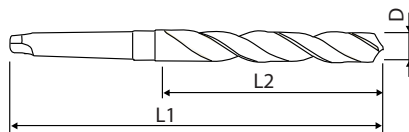
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

● First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0232850	28.5	296	175	3
0232875	28.75	296	175	3
0232900	29	296	175	3
0232925	29.25	296	175	3
0232950	29.5	296	175	3
0232975	29.75	296	175	3
0233000	30	296	175	3
0233025	30.25	301	180	3
0233050	30.5	301	180	3
0233075	30.75	301	180	3
0233100	31	301	180	3
0233125	31.25	301	180	3
0233150	31.5	301	180	3
0233175	31.75	306	185	3
0233200	32	334	185	4
0233250	32.5	334	185	4
0233300	33	334	185	4
0233350	33.5	334	185	4
0233400	34	339	190	4
0233450	34.5	339	190	4
0233500	35	339	190	4
0233550	35.5	339	190	4
0233600	36	344	195	4
0233650	36.5	344	195	4
0233700	37	344	195	4
0233750	37.5	344	195	4
0233800	38	349	200	4
0233850	38.5	349	200	4
0233900	39	349	200	4
0233950	39.5	349	200	4
0234000	40	349	200	4
0234050	40.5	354	205	4
0234100	41	354	205	4
0234150	41.5	354	205	4
0234200	42	354	205	4
0234250	42.5	354	205	4
0234300	43	359	210	4
0234350	43.5	359	210	4
0234400	44	359	210	4
0234450	44.5	359	210	4

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0234500	45	359	210	4
0234550	45.5	364	215	4
0234600	46	364	215	4
0234650	46.5	364	215	4
0234700	47	364	215	4
0234750	47.5	364	215	4
0234800	48	369	220	4
0234850	48.5	369	220	4
0234900	49	369	220	4
0234950	49.5	369	220	4
0235000	50	369	220	4
0235050	50.5	374	225	4
0235100	51	412	225	5
0235200	52	412	225	5
0235300	53	412	225	5
0235400	54	417	230	5
0235500	55	417	230	5
0235600	56	417	230	5
0235700	57	422	235	5
0235800	58	422	235	5
0235900	59	422	235	5
0236000	60	422	235	5

066 DIN 341



Tool material: HSS
Materiał narzędzia

Shank Tolerance: MT 1-3
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 30°
Kąt spirali

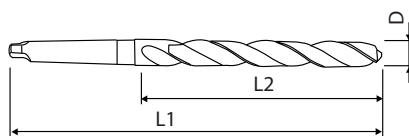
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0661300	13	215	134	1
0661350	13.5	223	142	1
0661400	14	223	142	1
0661450	14.5	245	147	2
0661500	15	245	147	2
0661550	15.5	251	153	2
0661600	16	251	153	2
0661650	16.5	257	159	2
0661700	17	257	159	2
0661750	17.5	263	165	2
0661800	18	263	165	2
0661850	18.5	269	171	2
0661900	19	269	171	2
0661950	19.5	275	177	2
0662000	20	275	177	2
0662100	21	282	184	2
0662200	22	289	191	2
0662300	23	296	198	2
0662400	24	327	206	3
0662500	25	327	206	3
0662600	26	335	214	3
0662700	27	343	222	3
0662800	28	343	222	3
0662900	29	351	230	3
0663000	30	351	230	3

024 DIN 1869/1



Tool material: HSS
 Materiał narzędzia
Shank Tolerance: MT 1-4
 Tolerancja uchwyty
Drill Tolerance: h8
 Tolerancja wiertła
Helix angle: 30°
 Kąt spirali
Point Angle: 118°
 Kąt wierzchołkowy

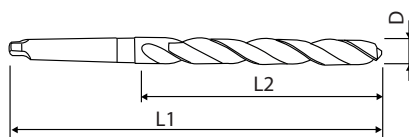
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

● First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0241300	13	310	205	1
0241350	13.5	325	220	1
0241400	14	325	220	1
0241450	14.5	340	220	2
0241500	15	340	220	2
0241550	15.5	355	230	2
0241600	16	355	230	2
0241650	16.5	355	230	2
0241700	17	355	230	2
0241750	17.5	370	245	2
0241800	18	370	245	2
0241850	18.5	370	245	2
0241900	19	370	245	2
0241950	19.5	385	260	2
0242000	20	385	260	2
0242050	20.5	385	260	2
0242100	21	385	260	2
0242150	21.5	405	270	2
0242200	22	405	270	2
0242250	22.5	405	270	2
0242300	23	405	270	2
0242350	23.5	425	270	3
0242400	24	440	290	3
0242450	24.5	440	290	3
0242500	25	440	290	3
0242550	25.5	440	290	3
0242600	26	440	290	3
0242650	26.5	440	290	3
0242700	27	460	305	3
0242750	27.5	460	305	3
0242800	28	460	305	3
0242850	28.5	460	305	3
0242900	29	460	305	3
0242950	29.5	460	305	3
0243000	30	460	305	3
0243050	30.5	480	320	3
0243100	31	480	320	3
0243200	32	505	320	4
0243300	33	505	320	4
0243400	34	530	340	4

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0243500	35	530	340	4
0243600	36	530	340	4
0243700	37	530	340	4
0243800	38	555	360	4
0243900	39	555	360	4
0244000	40	555	360	4
0244100	41	555	360	4
0244200	42	555	360	4
0244300	43	585	385	4
0244400	44	585	385	4
0244500	45	585	385	4
0244600	46	585	385	4
0244700	47	585	385	4
0244800	48	605	405	4
0244900	49	605	405	4
0245000	50	605	405	4
0241301	13	395	260	1
0241351	13.5	410	275	1
0241401	14	410	275	1
0241451	14.5	425	275	2
0241501	15	425	275	2
0241551	15.5	445	295	2
0241601	16	445	295	2
0241651	16.5	445	295	2
0241701	17	445	295	2
0241751	17.5	465	310	2
0241801	18	465	310	2
0241851	18.5	465	310	2
0241901	19	465	310	2
0241951	19.5	490	325	2
0242001	20	490	325	2
0242051	20.5	490	325	2
0242101	21	490	325	2
0242151	21.5	515	345	2
0242201	22	515	345	2
0242251	22.5	515	345	2
0242301	23	515	345	2
0242351	23.5	535	345	3
0242401	24	555	365	3
0242451	24.5	555	365	3

024 DIN 1869/1



Tool material: HSS
Materiał narzędzia

Shank Tolerance: MT 1-4
Tolerancja uchwyty

Drill Tolerance: h8
Tolerancja wiertła

Helix angle: 30°
Kąt spirali

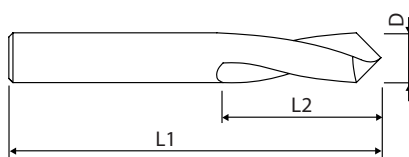
Point Angle: 118°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●	○			○	○	○				

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2	Morse T Stożek Morse'a
0242501	25	555	365	3
0242551	25.5	555	365	3
0242601	26	555	365	3
0242651	26.5	555	365	3
0242701	27	580	385	3
0242751	27.5	580	385	3
0242801	28	580	385	3
0242851	28.5	580	385	3
0242901	29	580	385	3
0242951	29.5	580	385	3
0243001	30	580	385	3
0243101	31	610	410	3
0243201	32	635	410	4
0243301	33	635	410	4
0243401	34	665	430	4
0243501	35	665	430	4
0243601	36	665	430	4
0243701	37	665	430	4
0243801	38	695	460	4
0243901	39	695	460	4
0244001	40	695	460	4
0244101	41	695	460	4
0244201	42	695	460	4
0244301	43	735	490	4
0244401	44	735	490	4
0244501	45	735	490	4
0244601	46	735	490	4
0244701	47	735	490	4
0244801	48	765	510	4
0244901	49	765	510	4
0245001	50	765	510	4

NAP090



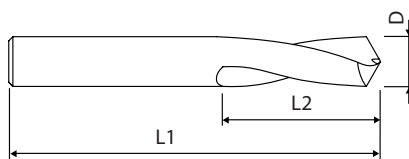
Tool material: HSS-Co8
 Materiał narzędzia
Shank Tolerance: h6
 Tolerancja uchwyty
Drill Tolerance: h6
 Tolerancja wiertła
Point Angle: 90°
 Kąt wierzchołkowy
Class: NC
 Klasa

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○		○		○		

- First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2
NAP0900300	3		46	12
NAP0900400	4		55	12
NAP0900500	5		60	15
NAP0900600	6		66	20
NAP0900800	8		79	25
NAP0901000	10		89	25
NAP0901200	12		102	30
NAP0901600	16		115	35
NAP0902000	20		131	40
NAP0900301	3		80	12
NAP0900401	4		100	12
NAP0900501	5		120	15
NAP0900601	6		140	20
NAP0900801	8		140	25
NAP0901001	10		170	25
NAP0901201	12		170	30
NAP0901601	16		200	35
NAP0902001	20		200	40

NAP120



Tool material: HSS-Co8
Materiał narzędzia

Shank Tolerance: h6
Tolerancja uchwyty

Drill Tolerance: h6
Tolerancja wiertła

Point Angle: 120°
Kąt wierzchołkowy

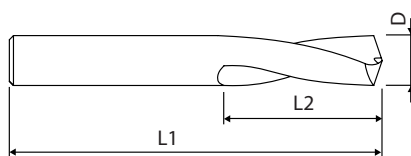
Class: NC
Klasa

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○		○		○		

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	L1	L2
NAP1200300	3	46	12
NAP1200400	4	55	12
NAP1200500	5	60	15
NAP1200600	6	66	20
NAP1200800	8	79	25
NAP1201000	10	89	25
NAP1201200	12	102	30
NAP1201600	16	115	35
NAP1202000	20	131	40
NAP1200601	6	140	20
NAP1200801	8	140	25
NAP1201001	10	170	25
NAP1201201	12	170	30

NAP142

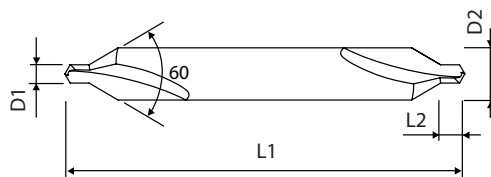


Tool material: HSS-Co8
 Materiał narzędzia
Shank Tolerance: h6
 Tolerancja uchwyty
Drill Tolerance: h6
 Tolerancja wiertła
Point Angle: 142°
 Kąt wierzchołkowy
Class: NC
 Klasa

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	•	•				○		○		○		

TIZ CODE KOD TIZ	D	L1	L2
NAP1420300	3	46	12
NAP1420400	4	55	12
NAP1420500	5	60	15
NAP1420600	6	66	20
NAP1420800	8	79	25
NAP1421000	10	89	25
NAP1421200	12	102	30
NAP1421600	16	115	35
NAP1422000	20	131	40
NAP1420601	6	140	20
NAP1420801	8	140	25
NAP1421001	10	170	25
NAP1421201	12	170	30

NAW500RA DIN 333

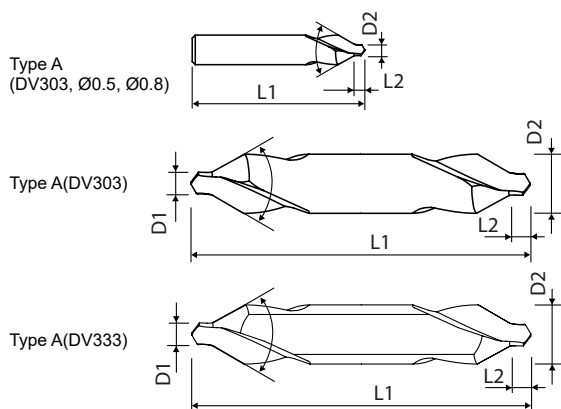
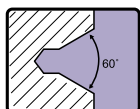


Tool material: HSS EX
Materiał narzędzia
Shank Tolerance: h8
Tolerancja uchwyty
Drill Tolerance: k12
Tolerancja wiertła
Point Angle: 120°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	•	•				○	○	○	○	○		○

TIZ CODE KOD TIZ	D1	D2	L1	L2
NAW500RA0050	0.5	3.15	25	0.8
NAW500RA0080	0.8	3.15	25	1.1
NAW500RA0100	1	3.15	31.5	1.3
NAW500RA0125	1.25	3.15	31.5	1.6
NAW500RA0160	1.6	4	35.5	2
NAW500RA0200	2	5	40	2.5
NAW500RA0250	2.5	6.3	45	3.1
NAW500RA0315	3.15	8	50	3.9
NAW500RA0400	4	10	56	5
NAW500RA0500	5	12.5	63	6.3
NAW500RA0630	6.3	16	71	8

NAW510RA DIN 333



Tool material: HSS EX
Materiał narzędzia

Shank Tolerance: h8
Tolerancja uchwyty

Drill Tolerance: k12
Tolerancja wiertła

Point Angle: 120°
Kąt wierzchołkowy

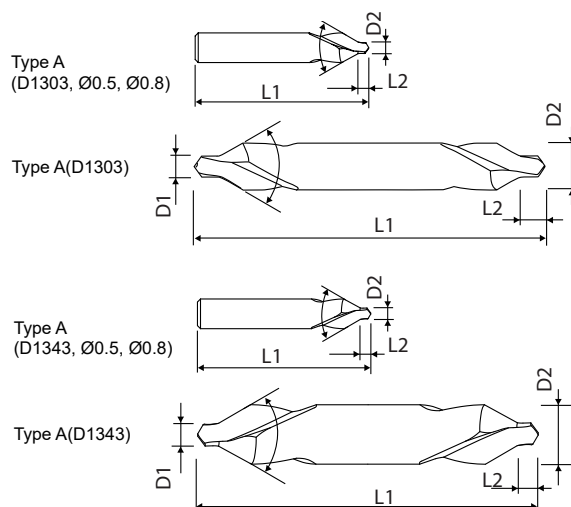
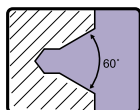
ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D1	D2	L1	L2
NAW510RA0160	1.6	4	35.5	2
NAW510RA0200	2	5	40	2.5
NAW510RA0250	2.5	6.3	45	3.1
NAW510RA0315	3.15	8	50	3.9
NAW510RA0400	4	10	56	5
NAW510RA0500	5	12.5	63	6.3
NAW510RA0630	6.3	16	71	8
NAW510RA0101	1	4	120	1.3
NAW510RA0161	1.6	5	120	2
NAW510RA0201	2	6	120	2.5
NAW510RA0251	2.5	8	120	3.1
NAW510RA0311	3.15	10	120	3.9
NAW510RA0401	4	12	120	5
NAW510RA0501	5	14	120	6.3

NAW600RA DIN 333

ЦЕНТРОВОЧНЫЕ СВЁРЛА ИЗ БЫСТРОРЕЖУЩЕЙ СТАЛИ / ФОРМА А



Tool material: HSS
Materiał narzędzia

Shank Tolerance: h8
Tolerancja uchwyty

Drill Tolerance: k12
Tolerancja wiertła

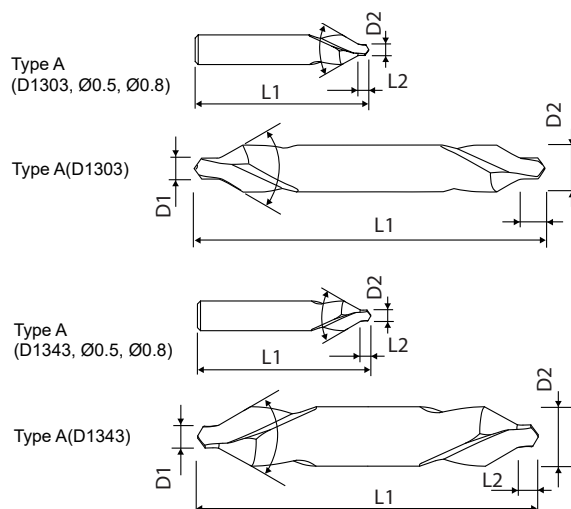
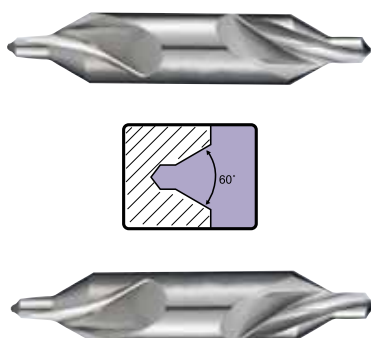
Point Angle: 120°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D1	D2	L1	L2
NAW600RA0050	0.5	3.15	25	0.8
NAW600RA0080	0.8	3.15	25	1.1
NAW600RA0100	1	3.15	31.5	1.3
NAW600RA0125	1.25	3.15	31.5	1.6
NAW600RA0160	1.6	4	35.5	2
NAW600RA0200	2	5	40	2.5
NAW600RA0250	2.5	6.3	45	3.1
NAW600RA0315	3.15	8	50	3.9
NAW600RA0400	4	10	56	5
NAW600RA0500	5	12.5	63	6.3
NAW600RA0630	6.3	16	71	8
NAW600RA0800	8	20	80	10.1
NAW600RA1000	10	25	100	12.8

NAW600LA DIN 333



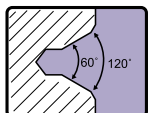
Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h8
 Tolerancja uchwyty
Drill Tolerance: k12
 Tolerancja wiertła
Point Angle: 120°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

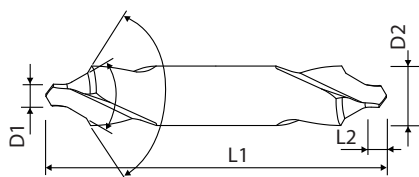
● First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D1	D2	L1	L2
NAW600LA0050	0.5	3.15	25	0.8
NAW600LA0080	0.8	3.15	25	1.1
NAW600LA0100	1	3.15	31.5	1.3
NAW600LA0125	1.25	3.15	31.5	1.6
NAW600LA0160	1.6	4	35.5	2
NAW600LA0200	2	5	40	2.5
NAW600LA0250	2.5	6.3	45	3.1
NAW600LA0315	3.15	8	50	3.9
NAW600LA0400	4	10	56	5
NAW600LA0500	5	12.5	63	6.3
NAW600LA0630	6.3	16	71	8
NAW600LA0800	8	20	80	10.1

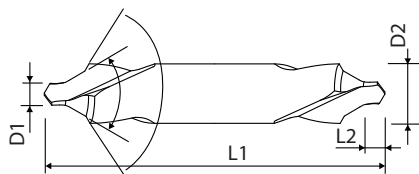
NAW610RB DIN 333



Type B(D1313)



Type B(D1353)



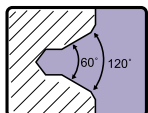
Tool material: HSS
Materiał narzędzia
Shank Tolerance: h8
Tolerancja uchwyty
Drill Tolerance: k12
Tolerancja wiertła
Point Angle: 120°
Kąt wierchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

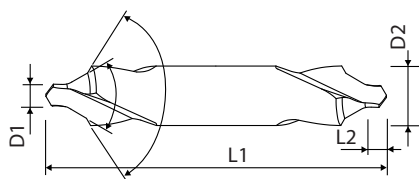
- First choice / Pierwszy wybór
- Second choice / Drugi wybór

TIZ CODE KOD TIZ	D1	D2	L1	L2
NAW610RB0100	1	4	35.5	1.3
NAW610RB0125	1.25	5	40	1.6
NAW610RB0160	1.6	6.3	45	2
NAW610RB0200	2	8	50	2.5
NAW610RB0250	2.5	10	55	3.1
NAW610RB0315	3.15	11.2	60	3.9
NAW610RB0400	4	14	67	5
NAW610RB0500	5	18	75	6.3
NAW610RB0630	6.3	20	80	8

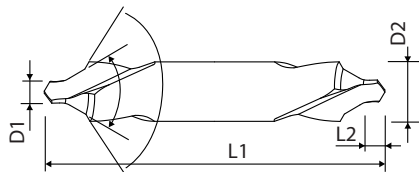
NAW610LB DIN 333



Type B(D1313)



Type B(D1353)



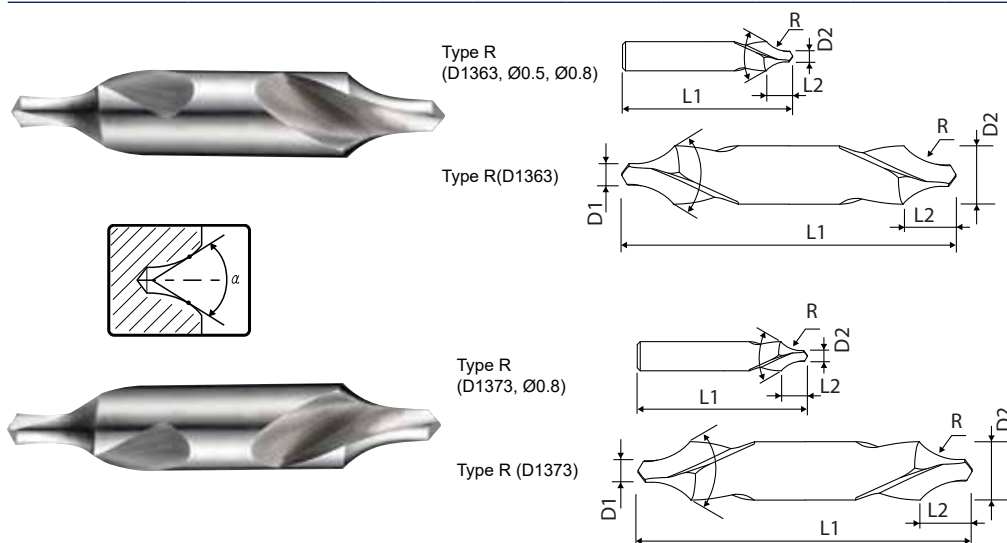
Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h8
 Tolerancja uchwyty
Drill Tolerance: k12
 Tolerancja wiertła
Point Angle: 120°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

- First choice / Pierwszy wybór
- Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2
NAW610LB0200	2	8	50	2.5
NAW610LB0250	2.5	10	55	3.1
NAW610LB0315	3.15	11.2	60	3.9
NAW610LB0400	4	14	67	5
NAW610LB0630	6.3	20	80	8
NAW630RR0500	5	12.5	63	13.2
NAW630RR0630	6.3	16	71	17

NAW620RR DIN 333



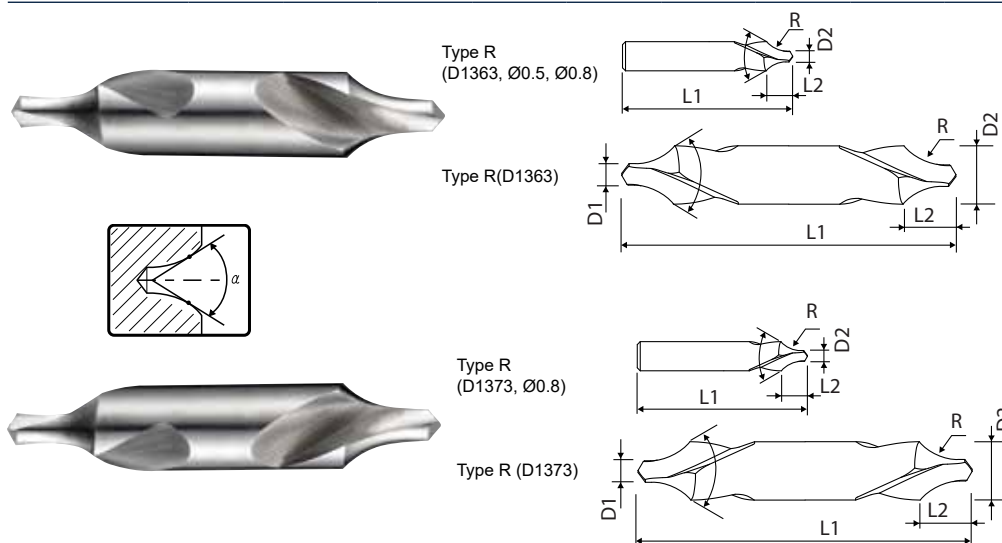
Tool material: HSS
Materiał narzędzia
Shank Tolerance: h8
Tolerancja uchwyty
Drill Tolerance: k12
Tolerancja wiertła
Point Angle: 120°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

- First choice / Pierwszy wybór
○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2	R
NAW620RR0050	0.5	3.15	25	2.12	1.25
NAW620RR0080	0.8	3.15	25	2.65	2
NAW620RR0100	1	3.15	31.5	3	2.5
NAW620RR0125	1.25	3.15	31.5	3.35	3.15
NAW620RR0160	1.6	4	35.5	4.25	4
NAW620RR0200	2	5	40	5.3	5
NAW620RR0250	2.5	6.3	45	6.7	6.3
NAW620RR0315	3.15	8	50	8.5	8
NAW620RR0400	4	10	56	10.6	10
NAW620RR0500	5	12.5	63	13.2	12.5
NAW620RR0630	6.3	16	71	17	16
NAW620RR0800	8	20	80	21.2	20

NAW620LA DIN 333



Tool material: HSS
 Materiał narzędzia
Shank Tolerance: h8
 Tolerancja uchwyty
Drill Tolerance: k12
 Tolerancja wiertła
Point Angle: 120°
 Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

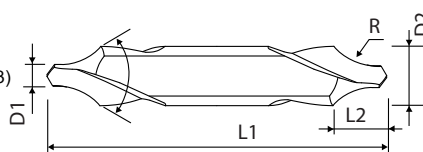
- First choice / Pierwszy wybór
 ○ Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2	R

NAW630RR DIN 333



Type R (DV383)


Tool material: HSS EX
Materiał narzędzia

Shank Tolerance: h8
Tolerancja uchwyty

Drill Tolerance: k12
Tolerancja wiertła

Point Angle: 120°
Kąt wierzchołkowy

ISO	P			H		M	K	N				S
Material Materiał	<225 HB	Alloy Steels	30-45 HRc	45-55 HRc	45-55 HRc	INOX	CAST IRON	Al	Cu	Cu ZN	CFRP	Ti
Application Zastosowania	●	●				○	○	○	○	○		○

- First choice / Pierwszy wybór
- Second choice / Drugi wybór

TIZ CODE KOD TIZ	D	D2	L1	L2	R
NAW630RR0160	1.6	4	35.5	4.25	4
NAW630RR0200	2	5	40	5.3	5
NAW630RR0250	2.5	6.3	45	6.7	6.3
NAW630RR0315	3.15	8	50	8.5	8
NAW630RR0400	4	10	56	10.6	10
NAW630RR0500	5	12.5	63	13.2	12.5
NAW630RR0630	6.3	16	71	17	16

CUTTING CONDITIONS
 Parametry skrawania

044
079

Work Material Materiał	CARBON STEELS Stal węglowa		ALLOY STEELS (SCM-SNC-SNCM) Stopy stali		TOOL STEELS ALLOY STEELS (SKD1) Stal narzędziowa, stopy stali		CAST IRON TOOL STEELS Żeliwo, stal narzędziowa		ALUMINUM ALLOYS, MAGNE- SIUM ALLOYS Stopy aluminium, stopy magnezu	
Drilling Speed Prędkość wiercenia	20 ~ 25 m/min		20 ~ 25 m/min		8 ~ 13 m/min		35 ~ 40 m/min		80 ~ 100 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S	N	S
2	4200	0.08	3600	0.08	1750	0.08	5800	0.11	10500	0.16
3	2900	0.13	2500	0.13	1170	0.13	4000	0.14	10500	0.25
4	2100	0.14	1900	0.14	880	0.14	3000	0.17	8000	0.3
5	1700	0.16	1500	0.16	700	0.16	2400	0.2	6500	0.36
6	1300	0.17	1300	0.17	580	0.17	2100	0.23	5200	0.42
8	1000	0.21	950	0.21	440	0.21	1500	0.26	4200	0.47
10	850	0.25	750	0.25	350	0.25	1100	0.32	3400	0.56
12	700	0.3	650	0.3	290	0.3	1000	0.38	2700	0.67
14	550	0.35	500	0.35	250	0.35	850	0.4	2400	0.72
16	520	0.38	470	0.38	220	0.38	750	0.42	2100	0.77
18	450	0.44	420	0.44	195	0.44	700	0.45	1900	0.8
20	400	0.45	350	0.45	175	0.45	600	0.51	1600	0.87
22	370	0.5	340	0.5	160	0.5	550	0.52	1500	0.95
24	350	0.54	300	0.54	145	0.54	500	0.58	1400	1
26	320	0.58	280	0.58	135	0.58	450	0.6	1300	1.05
28	300	0.62	260	0.62	125	0.62	420	0.63	1200	1.1
30	280	0.66	240	0.66	115	0.66	400	0.74	1100	1.15
32	260	0.7	230	0.7	110	0.7	380	0.74	950	1.2

CUTTING CONDITIONS
Parametry skrawania

045
046

Work Material Materiał	STAINLESS STEELS (SUS304, 200) Stal nierdzewna		STAINLESS STEELS (SUS420, 440) Stal nierdzewna		ALUMINUM & ALUMINIUM ALLOYS Aluminium i stopy aluminium	
Drilling Speed Prędkość wiercenia	13 ~ 18 m/min		15 ~ 20 m/min		70 ~ 90 m/min	
Diameter Średnica	N	S	N	S	N	S
2	2600	0.03	3100	0.07	11000	0.09
3	1800	0.04	2100	0.08	7350	0.13
4	1300	0.06	1600	0.1	7050	0.18
5	1050	0.08	1250	0.15	5500	0.22
6	900	0.09	1050	0.18	4600	0.26
8	650	0.12	800	0.24	3500	0.34
10	550	0.15	630	0.3	2800	0.4
12	450	0.18	530	0.36	2300	0.5
14	400	0.33	450	0.44	2050	0.55
16	350	0.36	390	0.48	1750	0.62
18	300	0.39	350	0.5	1600	0.7
20	260	0.43	320	0.53	1450	0.75

Work Material Materiał	PLASTICS, COPPER, COPPER ALLOYS Plastiki, miedź, stopy miedzi		MILD STEELS, LOW CARBON STEELS Miękka stal, stal niskowęglowa	
Drilling Speed Prędkość wiercenia	30 ~ 35 m/min		30 ~ 40 m/min	
Diameter Średnica	N	S	N	S
2	5600	0.06	6300	0.08
3	3750	0.08	4200	0.13
4	2800	0.1	3200	0.14
5	2250	0.13	2500	0.16
6	1850	0.15	2100	0.18
8	1350	0.2	1550	0.22
10	1100	0.25	1250	0.26
12	950	0.3	1050	0.32
14	800	0.33	900	0.36
16	700	0.35	790	0.4
18	620	0.4	700	0.45
20	560	0.4	620	0.47

CUTTING CONDITIONS
 Parametry skrawania

047 DIN 338
048 DIN 338
049 DIN 338

Work Material Materiał	CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		ALLOY STEELS Stopy stali		STAINLESS STEELS Stal nierdzewna	
Hardness Twardość			~ HRC23		~ HRC23 ~ 34		HRC23	
Strength Siła	~ 570 N/mm2		~ 830 N/mm2		810 ~ 1110 N/mm2		~ 830 N/mm2	
Drilling Speed Prędkość wiercenia	35 ~ 45 m/min		30 ~ 40 m/min		20 ~ 25 m/min		20 ~ 25 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
1	14000	0.02	12500	0.02	7700	0.02	7000	0.02
2	7000	0.06	6100	0.06	3850	0.06	3500	0.06
3	4650	0.1	4100	0.08	2550	0.08	2350	0.08
4	3500	0.11	3050	0.11	1950	0.1	1750	0.1
5	2800	0.12	2450	0.11	1550	0.1	1400	0.1
6	2350	0.14	2050	0.13	1300	0.12	1150	0.12
7	2000	0.16	1750	0.15	1100	0.14	1000	0.14
8	1750	0.18	1550	0.18	960	0.15	875	0.15
9	1550	0.2	1350	0.22	855	0.18	780	0.18
10	1400	0.21	1250	0.22	770	0.18	700	0.18
11	1250	0.22	1100	0.22	700	0.18	650	0.18
12	1150	0.23	1000	0.22	650	0.2	585	0.2
13	1050	0.23	950	0.22	595	0.2	540	0.2

Work Material Materiał	TITANIUM ALLOYS Stopy tytanu		ALUMINUM ALLOYS, ZINC ALLOYS Stopy aluminium, stopy cynku		MAGNESIUM ALLOYS Stopy magnezu магниеиые сплавы	
Hardness Twardość	~ 410 N/mm2					
Drilling Speed Prędkość wiercenia	20 ~ 25 m/min		85 ~ 95 m/min		30 ~ 35 m/min	
Diameter Średnica	N	S	N	S	N	S
1	8050	0.02	30000	0.02	11500	0.03
2	4050	0.06	15000	0.06	5800	0.09
3	2700	0.08	9900	0.1	3850	0.13
4	2000	0.09	7450	0.11	2900	0.15
5	1600	0.1	5950	0.12	2300	0.17
6	1350	0.12	4950	0.14	1950	0.19
7	1150	0.14	4250	0.16	1650	0.22
8	1000	0.15	3700	0.18	1450	0.24
9	895	0.17	3300	0.2	1280	0.27
10	805	0.18	3000	0.23	1150	0.29
11	730	0.18	2700	0.23	1050	0.3
12	670	0.2	2480	0.23	960	0.31
13	620	0.2	2300	0.23	890	0.31

CUTTING CONDITIONS
 Parametry skrawania

051 DIN 338

Work Material Materiał	CARBON STEELS ALLOY STEELS Stal węglowa, stopy stali		TOOL STEELS HARDENED STEELS Stal narzędziowa, stal utwardzana		SOFT GREY CAST IRON Miękkie szare żeliwo		HARD GREY CAST IRON Twarde szare żeliwo	
Hardness Twardość	HRc15 ~ 30		HRc20 ~ 40					
Strength Siła	700 ~ 1000 N/mm ²		800 ~ 1200 N/mm ²					
Drilling Speed Prędkość wiercenia	23 ~ 28 m/min		15 ~ 20 m/min		40 ~ 50 m/min		25 ~ 30 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
1	8750	0.02	6300	0.02	16000	0.02	9800	0.02
2	4400	0.06	3150	0.06	7900	0.07	4900	0.07
3	2900	0.08	2100	0.08	5250	0.11	3250	0.11
4	2200	0.09	1600	0.09	3950	0.14	2450	0.14
5	1750	0.1	1250	0.1	3150	0.14	1950	0.14
6	1450	0.12	1050	0.12	2650	0.18	1650	0.18
7	1250	0.14	900	0.14	2250	0.2	1400	0.2
8	1100	0.15	790	0.15	1950	0.22	1250	0.22
9	975	0.17	700	0.17	1750	0.24	1100	0.24
10	875	0.18	630	0.18	1600	0.28	980	0.28
11	800	0.2	575	0.2	1450	0.28	890	0.28
12	730	0.2	525	0.2	1300	0.28	815	0.28
13	675	0.2	485	0.2	1200	0.28	755	0.28

CUTTING CONDITIONS
 Parametry skrawania

005	DIN 1897	009	DIN 338	026	DIN 340
004	DIN 1897	016	DIN 338	003	DIN 1869
001	DIN 338	056	DIN 338		

Work Material Materiał	CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		ALLOY STEELS Stopy stali	
Hardness Twardość			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34	
Strength Siła	- 570 N/mm2		~ 830 N/mm2		830 ~ 950 N/mm2		830 ~ 1110 N/mm2	
Drilling Speed Prędkość wiercenia	22 ~ 27 m/min		15 ~ 20 m/min		10 ~ 15 m/min		15 ~ 20 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2.5	3380	0.025	2550	0.025	1900	0.015	2380	0.02
3	2700	0.05	2000	0.05	1500	0.025	1880	0.05
5	1700	0.063	1280	0.063	960	0.038	1190	0.063
8	1050	0.13	780	0.13	590	0.076	730	0.13
11	750	0.15	560	0.15	425	0.076	520	0.18
19	440	0.23	330	0.23	255	0.13	300	0.23
31	260	0.28	195	0.28	145	0.18	180	0.28

Work Material Materiał	ALLOY STEELS Stopy stali		STAINLESS STEELS Stal nierdzewna		TITANIUM ALLOYS Stopy tytanu		TOOL STEELS Stal narzędziowa	
Hardness Twardość	HRc34 ~ 38		HRc23					
Strength Siła	1110 ~ 1260 N/mm2		830 N/mm2		410 N/mm2		- 270 N/mm2	
Drilling Speed Prędkość wiercenia	8 ~ 12 m/min		15 ~ 20 m/min		8 ~ 12 m/min		20 ~ 25 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2.5	1400	0.015	2550	0.025	1400	0.02	3180	0.042
3	1100	0.02	2000	0.05	1100	0.025	2500	0.05
5	700	0.025	1280	0.063	700	0.038	1590	0.063
8	430	0.038	780	0.13	430	0.076	970	0.13
11	310	0.05	560	0.15	430	0.076	700	0.18
19	180	0.05	330	0.23	180	0.13	440	0.23
31	107	0.076	195	0.28	107	0.18	240	0.3

CUTTING CONDITIONS
Parametry skrawania

005	DIN 1897	009	DIN 338	026	DIN 340
004	DIN 1897	016	DIN 338	003	DIN 1869
001	DIN 338	056	DIN 338		

Work Material Materiał	CAST IRON Żeliwo		ALUMINUM ALLOYS Stopy aluminium		MAGNESIUM ALLOYS Stopy magnezu		ZINC ALLOYS Stopy cynku	
Hardness Twardość	~ HRc21							
Strength Siła	~ 800 N/mm2							
Drilling Speed Prędkość wiercenia	15 ~ 20 m/min		45 ~ 50 m/min		55 ~ 65 m/min		40 ~ 50 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2.5	2250	0.025	6400	0.038	8600	0.038	6400	0.038
3	2000	0.05	5000	0.063	6800	0.063	5000	0.063
5	1280	0.063	3200	0.076	4300	0.076	3200	0.076
8	780	0.13	2000	0.18	2600	0.18	2000	0.18
11	560	0.15	1400	0.2	1900	0.2	1400	0.2
19	330	0.23	820	0.3	1100	0.3	820	0.3
31	195	0.28	490	0.38	660	0.38	490	0.38

Work Material Materiał	PLASTICS Пластики пластики	
Drilling Speed Prędkość wiercenia	20 ~ 25 m/min	
Diameter Średnica	N	S
2.5	3380	0.025
3	2700	0.05
5	1700	0.063
8	1050	0.13
11	750	0.15
19	440	0.23
31	260	0.28

CUTTING CONDITIONS
 Parametry skrawania

057 **DIN 338**

Work Material Materiał	CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		ALLOY STEELS Stopy stali	
Hardness Twardość			~ HRc23		~ HRc23 ~ 28		HRc23 ~ 34	
Strength Siła	~ 570 N/mm2		~ 830 N/mm2		830 ~ 950 N/mm2		830 ~ 1110 N/mm2	
Drilling Speed Prędkość wiercenia	25 ~ 30 m/min		20 ~ 25 m/min		15 ~ 20 m/min		18 ~ 23 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2	5000	0.03	3750	0.03	2850	0.02	3500	0.02
3	3750	0.04	2810	0.04	2150	0.02	2625	0.04
4	2500	0.06	1870	0.06	1450	0.03	1750	0.06
5	2085	0.07	1560	0.07	1205	0.04	1460	0.07
6	1670	0.08	1250	0.08	960	0.05	1170	0.09
7	1460	0.1	1095	0.1	840	0.06	1025	0.11
8	1250	0.13	940	0.13	720	0.08	880	0.13
9	1125	0.14	845	0.14	645	0.08	790	0.15
10	1000	0.14	750	0.14	570	0.08	700	0.16
11	925	0.15	685	0.15	525	0.08	640	0.18
12	850	0.16	620	0.16	480	0.08	580	0.19
13	785	0.17	575	0.17	445	0.09	540	0.2

Work Material Materiał	ALLOY STEELS Stopy stali		STAINLESS STEELS Stal nierdzewna		CAST IRON Żeliwo	
Hardness Twardość	HRc34 ~ 38		HRc23		HRc21	
Strength Siła	1110 ~ 1260 N/mm2		830 N/mm2		800 N/mm2	
Drilling Speed Prędkość wiercenia	10 ~ 15 m/min		27 ~ 33 m/min		27 ~ 33 m/min	
Diameter Średnica	N	S	N	S	N	S
2	2070	0.02	5000	0.03	5000	0.03
3	1560	0.02	3750	0.04	3750	0.04
4	1050	0.02	2500	0.06	2500	0.06
5	870	0.03	2085	0.07	2085	0.07
6	690	0.03	1670	0.08	1670	0.08
7	605	0.03	1460	0.1	1460	0.1
8	520	0.04	1250	0.13	1250	0.13
9	465	0.04	1125	0.14	1125	0.14
10	410	0.05	1000	0.14	1000	0.14
11	380	0.05	925	0.15	925	0.15
12	350	0.05	850	0.16	850	0.16
13	325	0.05	785	0.17	785	0.17

CUTTING CONDITIONS
Parametry skrawania

008 DIN 338

Work Material Materiał	BRASS Mosiądz		BRONZE Bronz	
Drilling Speed Prędkość wiercenia	45 ~ 55 m/min		30 ~ 35 m/min	
Diameter Średnica	N	S	N	S
2	8750	0.08	5688	0.052
3	5850	0.1	3803	0.065
4	4400	0.12	2860	0.078
5	3500	0.14	2275	0.091
6	2900	0.16	1885	0.104
7	2500	0.18	1625	0.117
8	2200	0.2	1430	0.13
9	1950	0.22	1268	0.143
10	1750	0.25	1138	0.163
11	1600	0.27	1040	0.176
12	1450	0.29	943	0.189
13	1350	0.32	878	0.208

007 DIN 338

Work Material Materiał	LONG CHIP ALUMI- NUM ALLOYS Stopy aluminium (krótkie wióry)		SHORT CHIP ALUMI- NUM ALLOYS Stopy aluminium (długie wióry) (слив- ная стружка)	
Drilling Speed Prędkość wiercenia	40 ~ 50 m/min		30 ~ 35 m/min	
Diameter Średnica	N	S	N	S
2	7950	0.08	5550	0.06
3	5300	0.1	3700	0.07
4	4000	0.12	2800	0.08
5	3200	0.14	2230	0.09
6	2650	0.16	1850	0.1
7	2250	0.18	1600	0.11
8	2000	0.2	1400	0.12
9	1750	0.22	1250	0.14
10	1600	0.25	1100	0.16
11	1450	0.28	1000	0.18
12	1330	0.32	930	0.2
13	1220	0.35	860	0.22

065

Work Material Materiał	CARBON STEELS ALLOY STEELS Stal węglowa, stopy stali		SOFT GREY CAST IRON Miękie szare żeliwo		ALUMINUM ALLOY Stopy aluminium		ALLOY STEELS Stopy stali	
Hardness Twardość	HRc15 ~ 30						HRc23	
Strength Siła	700 ~ 1000 N/mm2						~ 830 N/mm2	
Drilling Speed Prędkość wiercenia	13 ~ 18 m/min		25 ~ 30 m/min		45 ~ 55 m/min		20 ~ 25 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2	2630	0.03	4200	0.06	8700	0.04	7000	0.02
2.5	2100	0.04	3300	0.08	6950	0.05	3500	0.06
3	1680	0.05	2630	0.1	5800	0.06	2350	0.08
4	1310	0.06	2100	0.13	4300	0.08	1750	0.1
5	1050	0.06	1680	0.13	3500	0.1	1400	0.1
6	840	0.08	1310	0.16	2900	0.12	1150	0.12
8	660	0.1	1050	0.2	2200	0.16	1000	0.14
10	530	0.13	840	0.25	1750	0.2	875	0.15
13	420	0.13	660	0.25	1350	0.26	780	0.18
10	1400	0.21	1250	0.22	770	0.18	700	0.18
11	1250	0.22	1100	0.22	700	0.18	650	0.18
12	1150	0.23	1000	0.22	650	0.2	585	0.2
13	1050	0.23	950	0.22	595	0.2	540	0.2

CUTTING CONDITIONS
 Parametry skrawania

058 DIN 1897 **062** DIN 338 **064** DIN 341
078 DIN 338 **063** DIN 340
059 DIN 340 **031** DIN 1869

Work Material Materiał	CARBON STEELS ALLOY STEELS Stal węglowa, stopy stali		TOOL STEELS HARDENED STEELS Stal narzędziowa, stal utwardzana		SOFT GREY CAST IRON Miękkie szare żeliwo		HARD GREY CAST IRON Twarde szare żeliwo	
Hardness Twardość	HRc15 ~ 30		HRc20 ~ 40					
Strength Siła	700 ~ 1000 N/mm2		800 ~ 1200 N/mm2					
Drilling Speed Prędkość wiercenia	13 ~ 18 m/min		8 ~ 13 m/min		20 ~ 25 m/min		7 ~ 12 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
2	2630	0.03	2100	0.025	4200	0.06	1680	0.05
2.5	2100	0.04	1680	0.03	3300	0.08	1310	0.06
3	1680	0.05	1310	0.04	2630	0.1	1050	0.08
4	1310	0.06	1050	0.05	2100	0.13	840	0.1
5	1050	0.06	840	0.05	1680	0.13	660	0.1
6	840	0.08	660	0.06	1310	0.16	530	0.13
8	660	0.1	530	0.08	1050	0.2	420	0.17
10	530	0.13	420	0.1	840	0.25	330	0.21
13	420	0.13	330	0.1	660	0.25	260	0.21
16	330	0.15	260	0.13	530	0.3	210	0.25
20	260	0.2	210	0.15	420	0.4	170	0.3
25	210	0.25	170	0.2	330	0.5	130	0.5
30	170	0.25	130	0.2	260	0.5	110	0.5

CUTTING CONDITIONS
 Parametry skrawania

025 DIN 345

Work Material Materiał	CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		ALLOY STEELS Stopy stali	
Hardness Twardość			~ HRc23		HRc23 ~ 28		HRc23 ~ 34	
Strength Siła	~ 570 N/mm2		~ 830 N/mm2		830 ~ 950 N/mm2		830 ~ 1110 N/mm2	
Drilling Speed Prędkość wiercenia	27 ~ 32 m/min		20 ~ 25 m/min		13 ~ 18 m/min		17 ~ 22 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
13	785	0.17	575	0.17	445	0.09	540	0.2
14	720	0.18	530	0.18	410	0.1	500	0.2
16	635	0.2	475	0.2	365	0.11	445	0.22
18	550	0.22	420	0.22	320	0.12	390	0.23
20	500	0.23	380	0.23	290	0.13	355	0.23
22	450	0.24	340	0.24	260	0.14	320	0.23
24	420	0.25	320	0.25	240	0.15	295	0.23
26	390	0.26	300	0.26	220	0.16	270	0.23
28	360	0.27	275	0.27	205	0.17	250	0.23
30	330	0.28	250	0.28	190	0.18	230	0.23

Work Material Materiał	ALLOY STEELS Stopy stali		STAINLESS STEELS Stal nierdzewna		CAST IRON Żeliwo	
Hardness Twardość	HRc34~ 38		HRc23		HRc21	
Strength Siła	1110 ~ 1260 N/mm2		830 N/mm2		800 N/mm2	
Drilling Speed Prędkość wiercenia	8 ~ 13 m/min		27 ~ 32 m/min		27 ~ 32 m/min	
Diameter Średnica	N	S	N	S	N	S
13	325	0.05	785	0.17	785	0.17
14	300	0.05	720	0.18	720	0.18
16	265	0.05	635	0.2	635	0.2
18	230	0.05	550	0.22	550	0.22
20	210	0.06	500	0.23	500	0.23
22	190	0.06	450	0.24	450	0.24
24	175	0.07	420	0.25	420	0.25
26	160	0.07	390	0.26	390	0.26
28	150	0.07	360	0.27	360	0.27
30	140	0.08	330	0.28	330	0.28

CUTTING CONDITIONS
 Parametry skrawania

023 DIN 345
066 DIN 341
024 DIN 1869

Work Material Materiał	CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa		CARBON STEELS Stal węglowa	
Hardness Twardość			~ HRc23		~ HRc23 ~ 28	
Strength Siła	- 570 N/mm2		~ 830 N/mm2		830 ~ 950 N/mm2	
Drilling Speed Prędkość wiercenia	20 ~ 25 m/min		18 ~ 22 m/min		10 ~ 15 m/min	
Diameter Średnica	N	S	N	S	N	S
13	645	0.17	480	0.17	370	0.09
19	440	0.23	330	0.23	255	0.13
32	260	0.28	195	0.28	145	0.18
50	165	0.33	125	0.33	93	0.2
60	140	0.4	105	0.4	78	0.23

Work Material Materiał	ALLOY STEELS Stopy stali		ALLOY STEELS Stopy stali		STAINLESS STEELS Stal nierdzewna	
Hardness Twardość	HRc23 ~ 34		HRc34 ~ 38		HRc23	
Strength Siła	830 ~ 1110 N/mm2		1110 ~ 1260 N/mm2		830 N/mm2	
Drilling Speed Prędkość wiercenia	13 ~ 18 m/min		8 ~ 12 m/min		15 ~ 20 m/min	
Diameter Średnica	N	S	N	S	N	S
13	440	0.17	265	0.05	480	0.17
19	300	0.23	180	0.05	330	0.23
32	180	0.28	107	0.08	195	0.28
50	115	0.33	68	0.08	125	0.33
60	95	0.4	57	0.1	105	0.4

CUTTING CONDITIONS
Parametry skrawania

023 DIN 345
066 DIN 341
024 DIN 1869

Work Material Materiał	TITANIUM ALLOYS Stopy tytanu		TOOL STEELS Stal narzędziowa		CAST IRON Żeliwo	
Hardness Twardość					~ HRc21	
Strength Siła	410 N/mm2		~ 270 N/mm2		~ 800 N/mm2	
Drilling Speed Prędkość wiercenia	8 ~ 12 m/min		20 ~ 25 m/min		15 ~ 20 m/min	
Diameter Średnica	N	S	N	S	N	S
13	265	0.09	645	0.17	480	0.17
19	180	0.13	440	0.23	330	0.23
32	107	0.18	240	0.3	195	0.28
50	68	0.2	150	0.43	125	0.33
60	57	0.23	125	0.48	105	0.4

Work Material Materiał	ALUMINUM ALLOYS Stopy aluminium		MAGNESIUM ALLOYS Stopy magnezu магние- вые сплавы		ZINC ALLOYS Stopy cynku		PLASTICS Plстики	
Drilling Speed Prędkość wiercenia	40 ~ 50 m/min		55 ~ 65 m/min		40 ~ 50 m/min		20 ~ 25 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
13	1200	0.26	1600	0.26	1200	0.26	645	0.17
19	820	0.3	1100	0.3	820	0.3	440	0.23
32	490	0.38	660	0.38	490	0.38	260	0.28
50	310	0.46	415	0.46	310	0.46	165	0.33
60	260	0.5	345	0.5	260	0.5	140	0.4

NAW500RA DIN 333 **NAW600RA** DIN 333 **NAW610LB** DIN 333
NAW510RA DIN 333 **NAW600LA** DIN 333 **NAW620RR** DIN 333
NAW510RA DIN 333 **NAW610RB** DIN 333 **NAW630RR** DIN 333

Work Material Materiał	MILD STEEL miękka stal		ALLOY STEELS Stopy stali				STAINLESS STEEL Stal nierdzewna	
Hardness Twardość	< 700 N/mm2		HRc 23		~		HRc 32	
Diameter Średnica	Speed Prędkość	Feed Posuw	Speed	Feed Posuw	Speed	Feed Posuw	Speed	Feed Posuw
2	30 ~ 45	0.02~0.05	25 ~ 30	0.02~0.05	15 ~ 25	0.01~0.03	6 ~ 10	0.01~0.03
3		0.06		0.06		0.04		0.04
6		0.08		0.08		0.06		0.06
10		0.15		0.15		0.1		0.1

CUTTING CONDITIONS
 Parametry skrawania

NAP090
NAP090
NAP120
NAP120
NAP142
NAP142

Work Material Materiał	CARBON STEELS Stal węglowa		ALLOY STEELS Stopy stali		ALLOY STEELS, TOOL STEELS, HARDENED STEELS Stopy stali, stal narzędziowa		STAINLESS STEELS Stal nierdzewna	
Drilling Speed Prędkość wiercenia	18 ~ 23 m/min		15 ~ 20 m/min		8 ~ 12 m/min		8 ~ 12 m/min	
Diameter Średnica	N	S	N	S	N	S	N	S
3	2460	0.06	2110	0.06	1080	0.06	940	0.06
4	1850	0.07	1580	0.07	800	0.07	700	0.07
5	1510	0.08	1300	0.08	670	0.08	580	0.08
6	1170	0.09	1030	0.09	540	0.09	460	0.09
8	880	0.11	790	0.11	400	0.11	350	0.11
10	700	0.12	630	0.12	320	0.12	290	0.12
12	590	0.14	530	0.14	260	0.14	240	0.14
16	460	0.2	400	0.2	200	0.2	180	0.2
20	350	0.24	320	0.24	150	0.24	140	0.24

Work Material Materiał	ALUMINUM & ALUMI- NIUM ALLOYS Aluminium i stopy aluminium	
Drilling Speed Prędkość wiercenia	55 ~ 65 m/min	
Diameter Średnica	N	S
3	7040	0.14
4	5280	0.15
5	4400	0.17
6	3520	0.19
8	2640	0.22
10	2110	0.25
12	1760	0.28
16	1320	0.33
20	1060	0.45



tiz@tiz.pl
(+48 22) 423-33-14
(+48 22) 423-33-15

www.tizimplements.eu