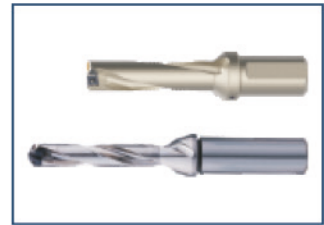


DRILLING TOOL

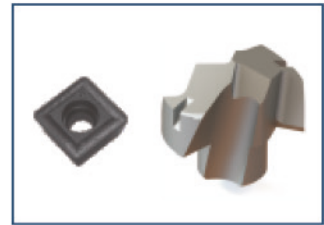
INDEXABLE DRILLING CUTTERS

142,146



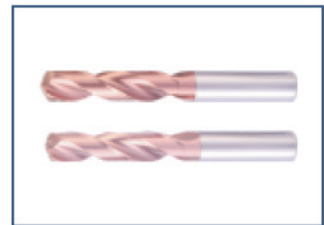
SOLID CARBIDE INSERT FOR DRILL

139,147



SOLID CARBIDE TWIST DRILLS

148



SPEEDY DRILL WITH QUICK RELEASE CARBIDE CUTTING HEAD

High performance.

High productivity.

High precision

Features:

- Optimised geometries carbide cutting head for quality surface by drilling of mild steel, alloy steel and cast iron.
- Self-lock setting system without screws make cutting head can be changed directly from toolholder and no need to take toolholder out from machine.
- Internal coolant for cooling and efficient chip evacuation, result in high speed and smooth cutting as well as extending insert lifetime.
- Right hand cutting

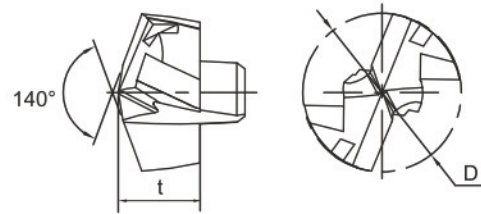


SOLID CARBIDE CUTTING HEAD

- Made of solid carbide with modern coating and precision ground point for maximum performance and very high feed rates.
- Can be changed very easily even while mounted in the machine due to easy-to-handle quick change coupling.
- High efficient chip evacuation properly for various material due to optimised chip flute..Special surface treatment lead to very high performance and long lifetime..Standard style with 140° point angle.

STYLE HAGN

- Universal use for cutting steel and cast iron.
- better for cutting depth not more than 5D.



Order No.	Size D (mm)	t (mm)
HAGN-120	12	7
HAGN-121	12.1	7
HAGN-122	12.2	7
HAGN-123	12.3	7
HAGN-124	12.4	7
HAGN-125	12.5	7
HAGN-126	12.6	7
HAGN-127	12.7	7
HAGN-128	12.8	7
HAGN-129	12.9	7
HAGN-130	13	7.6
HAGN-131	13.1	7.6
HAGN-132	13.2	7.6
HAGN-133	13.3	7.6
HAGN-134	13.4	7.6
HAGN-135	13.5	7.6
HAGN-136	13.6	7.6
HAGN-137	13.7	7.6
HAGN-138	13.8	7.6
HAGN-139	13.9	7.6

Order No.	Size D (mm)	t (mm)
HAGN-140	14	8.1
HAGN-141	14.1	8.1
HAGN-142	14.2	8.1
HAGN-143	14.3	8.1
HAGN-144	14.4	8.1
HAGN-145	14.5	8.1
HAGN-146	14.6	8.1
HAGN-147	14.7	8.1
HAGN-148	14.8	8.1
HAGN-149	14.9	8.1
HAGN-150	15	8.7
HAGN-151	15.1	8.7
HAGN-152	15.2	8.7
HAGN-153	15.3	8.7
HAGN-154	15.4	8.7
HAGN-155	15.5	8.7
HAGN-156	15.6	8.7
HAGN-157	15.7	8.7
HAGN-158	15.8	8.7
HAGN-159	15.9	8.7

Order No.	Size D (mm)	t (mm)
HAGN-160	16	9.3
HAGN-161	16.1	9.3
HAGN-162	16.2	9.3
HAGN-163	16.3	9.3
HAGN-164	16.4	9.3
HAGN-165	16.5	9.3
HAGN-166	16.6	9.3
HAGN-167	16.7	9.3
HAGN-168	16.8	9.3
HAGN-169	16.9	9.3
HAGN-170	17	9.9
HAGN-171	17.1	9.9
HAGN-172	17.2	9.9
HAGN-173	17.3	9.9
HAGN-174	17.4	9.9
HAGN-175	17.5	9.9
HAGN-176	17.6	9.9
HAGN-177	17.7	9.9
HAGN-178	17.8	9.9
HAGN-179	17.9	9.9

Order No.	Size D (mm)	t (mm)
HAGN-180	18	10.5
HAGN-181	18.1	10.5
HAGN-182	18.2	10.5
HAGN-183	18.3	10.5
HAGN-184	18.4	10.5
HAGN-185	18.5	10.5
HAGN-186	18.6	10.5
HAGN-187	18.7	10.5
HAGN-188	18.8	10.5
HAGN-189	18.9	10.5
HAGN-190	19	11
HAGN-191	19.1	11
HAGN-192	19.2	11
HAGN-193	19.3	11
HAGN-194	19.4	11
HAGN-195	19.5	11
HAGN-196	19.6	11
HAGN-197	19.7	11
HAGN-198	19.8	11
HAGN-199	19.9	11

Order No.	Size D (mm)	t (mm)
HAGN-200	20	11.6
HAGN-201	20.1	11.6
HAGN-202	20.2	11.6
HAGN-203	20.3	11.6
HAGN-204	20.4	11.6
HAGN-205	20.5	11.6
HAGN-206	20.6	11.6
HAGN-207	20.7	11.6
HAGN-208	20.8	11.6
HAGN-209	20.9	11.6
HAGN-210	21	12.1
HAGN-211	21.1	12.1
HAGN-212	21.2	12.1
HAGN-213	21.3	12.1
HAGN-214	21.4	12.1
HAGN-215	21.5	12.1
HAGN-216	21.6	12.1
HAGN-217	21.7	12.1
HAGN-218	21.8	12.1
HAGN-219	21.9	12.1

Order No.	Size D (mm)	t (mm)
HAGN-220	22	12.7
HAGN-221	22.1	12.7
HAGN-222	22.2	12.7
HAGN-223	22.3	12.7
HAGN-224	22.4	12.7
HAGN-225	22.5	12.7
HAGN-226	22.6	12.7
HAGN-227	22.7	12.7
HAGN-228	22.8	12.7
HAGN-229	22.9	12.7
HAGN-230	23	13.3
HAGN-231	23.1	13.3
HAGN-232	23.2	13.3
HAGN-233	23.3	13.3
HAGN-234	23.4	13.3
HAGN-235	23.5	13.3
HAGN-236	23.6	13.3
HAGN-237	23.7	13.3
HAGN-238	23.8	13.3
HAGN-239	23.9	13.3

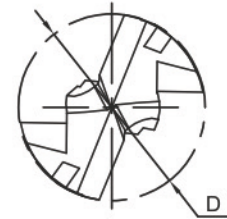
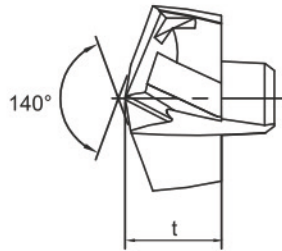
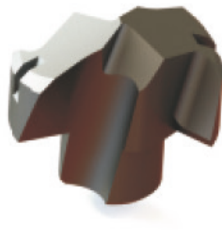
Order No.	Size D (mm)	t (mm)
HAGN-240	24	13.9
HAGN-241	24.1	13.9
HAGN-242	24.2	13.9
HAGN-243	24.3	13.9
HAGN-244	24.4	13.9
HAGN-245	24.5	13.9
HAGN-246	24.6	13.9
HAGN-247	24.7	13.9
HAGN-248	24.8	13.9
HAGN-249	24.9	13.9
HAGN-250	25	14.5
HAGN-251	25.1	14.5
HAGN-252	25.2	14.5
HAGN-253	25.3	14.5
HAGN-254	25.4	14.5
HAGN-255	25.5	14.5
HAGN-256	25.6	14.5
HAGN-257	25.7	14.5
HAGN-258	25.8	14.5
HAGN-259	25.9	14.5

SOLID CARBIDE CUTTING HEAD

- Made of solid carbide with modern coating and precision ground point for maximum performance and very high feed rates.
- Can be changed very easily even while mounted in the machine due to easy-to-handle quick change coupling.
- High efficient chip evacuation properly for various material due to optimised chip flute..Special surface treatment lead to very high performance and long lifetime..Standard style with 140° point angle.

STYLE HAGC

- Special design for cutting cast iron.
- better for cutting depth not more than 5D



Order No.	Size D (mm)	t (mm)
HAGC-120	12	7
HAGC-121	12.1	7
HAGC-122	12.2	7
HAGC-123	12.3	7
HAGC-124	12.4	7
HAGC-125	12.5	7
HAGC-126	12.6	7
HAGC-127	12.7	7
HAGC-128	12.8	7
HAGC-129	12.9	7
HAGC-130	13	7.6
HAGC-131	13.1	7.6
HAGC-132	13.2	7.6
HAGC-133	13.3	7.6
HAGC-134	13.4	7.6
HAGC-135	13.5	7.6
HAGC-136	13.6	7.6
HAGC-137	13.7	7.6
HAGC-138	13.8	7.6
HAGC-139	13.9	7.6

Order No.	Size D (mm)	t (mm)
HAGC-140	14	8.1
HAGC-141	14.1	8.1
HAGC-142	14.2	8.1
HAGC-143	14.3	8.1
HAGC-144	14.4	8.1
HAGC-145	14.5	8.1
HAGC-146	14.6	8.1
HAGC-147	14.7	8.1
HAGC-148	14.8	8.1
HAGC-149	14.9	8.1
HAGC-150	15	8.7
HAGC-151	15.1	8.7
HAGC-152	15.2	8.7
HAGC-153	15.3	8.7
HAGC-154	15.4	8.7
HAGC-155	15.5	8.7
HAGC-156	15.6	8.7
HAGC-157	15.7	8.7
HAGC-158	15.8	8.7
HAGC-159	15.9	8.7

Order No.	Size D (mm)	t (mm)
HAGC-160	16	9.3
HAGC-161	16.1	9.3
HAGC-162	16.2	9.3
HAGC-163	16.3	9.3
HAGC-164	16.4	9.3
HAGC-165	16.5	9.3
HAGC-166	16.6	9.3
HAGC-167	16.7	9.3
HAGC-168	16.8	9.3
HAGC-169	16.9	9.3
HAGC-170	17	9.9
HAGC-171	17.1	9.9
HAGC-172	17.2	9.9
HAGC-173	17.3	9.9
HAGC-174	17.4	9.9
HAGC-175	17.5	9.9
HAGC-176	17.6	9.9
HAGC-177	17.7	9.9
HAGC-178	17.8	9.9
HAGC-179	17.9	9.9

Order No.	Size D (mm)	t (mm)
HAGC-180	18	10.5
HAGC-181	18.1	10.5
HAGC-182	18.2	10.5
HAGC-183	18.3	10.5
HAGC-184	18.4	10.5
HAGC-185	18.5	10.5
HAGC-186	18.6	10.5
HAGC-187	18.7	10.5
HAGC-188	18.8	10.5
HAGC-189	18.9	10.5
HAGC-190	19	11
HAGC-191	19.1	11
HAGC-192	19.2	11
HAGC-193	19.3	11
HAGC-194	19.4	11
HAGC-195	19.5	11
HAGC-196	19.6	11
HAGC-197	19.7	11
HAGC-198	19.8	11
HAGC-199	19.9	11

Order No.	Size D (mm)	t (mm)
HAGC-200	20	11.6
HAGC-201	20.1	11.6
HAGC-202	20.2	11.6
HAGC-203	20.3	11.6
HAGC-204	20.4	11.6
HAGC-205	20.5	11.6
HAGC-206	20.6	11.6
HAGC-207	20.7	11.6
HAGC-208	20.8	11.6
HAGC-209	20.9	11.6
HAGC-210	21	12.1
HAGC-211	21.1	12.1
HAGC-212	21.2	12.1
HAGC-213	21.3	12.1
HAGC-214	21.4	12.1
HAGC-215	21.5	12.1
HAGC-216	21.6	12.1
HAGC-217	21.7	12.1
HAGC-218	21.8	12.1
HAGC-219	21.9	12.1

Order No.	Size D (mm)	t (mm)
HAGC-220	22	12.7
HAGC-221	22.1	12.7
HAGC-222	22.2	12.7
HAGC-223	22.3	12.7
HAGC-224	22.4	12.7
HAGC-225	22.5	12.7
HAGC-226	22.6	12.7
HAGC-227	22.7	12.7
HAGC-228	22.8	12.7
HAGC-229	22.9	12.7
HAGC-230	23	13.3
HAGC-231	23.1	13.3
HAGC-232	23.2	13.3
HAGC-233	23.3	13.3
HAGC-234	23.4	13.3
HAGC-235	23.5	13.3
HAGC-236	23.6	13.3
HAGC-237	23.7	13.3
HAGC-238	23.8	13.3
HAGC-239	23.9	13.3

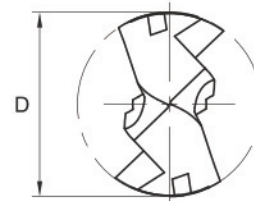
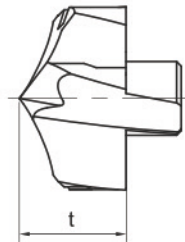
Order No.	Size D (mm)	t (mm)
HAGC-240	24	13.9
HAGC-241	24.1	13.9
HAGC-242	24.2	13.9
HAGC-243	24.3	13.9
HAGC-244	24.4	13.9
HAGC-245	24.5	13.9
HAGC-246	24.6	13.9
HAGC-247	24.7	13.9
HAGC-248	24.8	13.9
HAGC-249	24.9	13.9
HAGC-250	25	14.5
HAGC-251	25.1	14.5
HAGC-252	25.2	14.5
HAGC-253	25.3	14.5
HAGC-254	25.4	14.5
HAGC-255	25.5	14.5
HAGC-256	25.6	14.5
HAGC-257	25.7	14.5
HAGC-258	25.8	14.5
HAGC-259	25.9	14.5

SOLID CARBIDE CUTTING HEAD

- Made of solid carbide with modern coating and precision ground point for maximum performance and very high feed rates.
- Can be changed very easily even while mounted in the machine due to easy-to-handle quick change coupling.
- High efficient chip evacuation properly for various material due to optimised chip flute..Special surface treatment lead to very high performance and long lifetime..Standard style with 140° point angle.

STYLE HAGP

- Special desing cutting milled steel and alloy steel.
- Suitable for cutting depth more than 5D due to better Self-centering point.



Order No.	Size D (mm)	t (mm)
HAGP-120	12	7
HAGP-121	12.1	7
HAGP-122	12.2	7
HAGP-123	12.3	7
HAGP-124	12.4	7
HAGP-125	12.5	7
HAGP-126	12.6	7
HAGP-127	12.7	7
HAGP-128	12.8	7
HAGP-129	12.9	7
HAGP-130	13	7.6
HAGP-131	13.1	7.6
HAGP-132	13.2	7.6
HAGP-133	13.3	7.6
HAGP-134	13.4	7.6
HAGP-135	13.5	7.6
HAGP-136	13.6	7.6
HAGP-137	13.7	7.6
HAGP-138	13.8	7.6
HAGP-139	13.9	7.6

Order No.	Size D (mm)	t (mm)
HAGP-140	14	8.1
HAGP-141	14.1	8.1
HAGP-142	14.2	8.1
HAGP-143	14.3	8.1
HAGP-144	14.4	8.1
HAGP-145	14.5	8.1
HAGP-146	14.6	8.1
HAGP-147	14.7	8.1
HAGP-148	14.8	8.1
HAGP-149	14.9	8.1
HAGP-150	15	8.7
HAGP-151	15.1	8.7
HAGP-152	15.2	8.7
HAGP-153	15.3	8.7
HAGP-154	15.4	8.7
HAGP-155	15.5	8.7
HAGP-156	15.6	8.7
HAGP-157	15.7	8.7
HAGP-158	15.8	8.7
HAGP-159	15.9	8.7

Order No.	Size D (mm)	t (mm)
HAGP-160	16	9.3
HAGP-161	16.1	9.3
HAGP-162	16.2	9.3
HAGP-163	16.3	9.3
HAGP-164	16.4	9.3
HAGP-165	16.5	9.3
HAGP-166	16.6	9.3
HAGP-167	16.7	9.3
HAGP-168	16.8	9.3
HAGP-169	16.9	9.3
HAGP-170	17	9.9
HAGP-171	17.1	9.9
HAGP-172	17.2	9.9
HAGP-173	17.3	9.9
HAGP-174	17.4	9.9
HAGP-175	17.5	9.9
HAGP-176	17.6	9.9
HAGP-177	17.7	9.9
HAGP-178	17.8	9.9
HAGP-179	17.9	9.9

Order No.	Size D (mm)	t (mm)
HAGP-180	18	10.5
HAGP-181	18.1	10.5
HAGP-182	18.2	10.5
HAGP-183	18.3	10.5
HAGP-184	18.4	10.5
HAGP-185	18.5	10.5
HAGP-186	18.6	10.5
HAGP-187	18.7	10.5
HAGP-188	18.8	10.5
HAGP-189	18.9	10.5
HAGP-190	19	11
HAGP-191	19.1	11
HAGP-192	19.2	11
HAGP-193	19.3	11
HAGP-194	19.4	11
HAGP-195	19.5	11
HAGP-196	19.6	11
HAGP-197	19.7	11
HAGP-198	19.8	11
HAGP-199	19.9	11

Order No.	Size D (mm)	t (mm)
HAGP-200	20	11.6
HAGP-201	20.1	11.6
HAGP-202	20.2	11.6
HAGP-203	20.3	11.6
HAGP-204	20.4	11.6
HAGP-205	20.5	11.6
HAGP-206	20.6	11.6
HAGP-207	20.7	11.6
HAGP-208	20.8	11.6
HAGP-209	20.9	11.6
HAGP-210	21	12.1
HAGP-211	21.1	12.1
HAGP-212	21.2	12.1
HAGP-213	21.3	12.1
HAGP-214	21.4	12.1
HAGP-215	21.5	12.1
HAGP-216	21.6	12.1
HAGP-217	21.7	12.1
HAGP-218	21.8	12.1
HAGP-219	21.9	12.1

Order No.	Size D (mm)	t (mm)
HAGP-220	22	12.7
HAGP-221	22.1	12.7
HAGP-222	22.2	12.7
HAGP-223	22.3	12.7
HAGP-224	22.4	12.7
HAGP-225	22.5	12.7
HAGP-226	22.6	12.7
HAGP-227	22.7	12.7
HAGP-228	22.8	12.7
HAGP-229	22.9	12.7
HAGP-230	23	13.3
HAGP-231	23.1	13.3
HAGP-232	23.2	13.3
HAGP-233	23.3	13.3
HAGP-234	23.4	13.3
HAGP-235	23.5	13.3
HAGP-236	23.6	13.3
HAGP-237	23.7	13.3
HAGP-238	23.8	13.3
HAGP-239	23.9	13.3

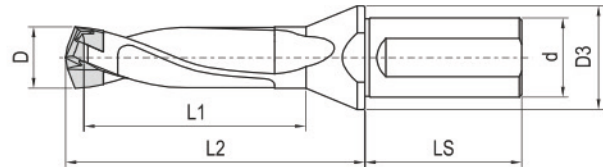
Order No.	Size D (mm)	t (mm)
HAGP-240	24	13.9
HAGP-241	24.1	13.9
HAGP-242	24.2	13.9
HAGP-243	24.3	13.9
HAGP-244	24.4	13.9
HAGP-245	24.5	13.9
HAGP-246	24.6	13.9
HAGP-247	24.7	13.9
HAGP-248	24.8	13.9
HAGP-249	24.9	13.9
HAGP-250	25	14.5
HAGP-251	25.1	14.5
HAGP-252	25.2	14.5
HAGP-253	25.3	14.5
HAGP-254	25.4	14.5
HAGP-255	25.5	14.5
HAGP-256	25.6	14.5
HAGP-257	25.7	14.5
HAGP-258	25.8	14.5
HAGP-259	25.9	14.5

DRILLING CUTTER

DRILLING TOOLHOLDER

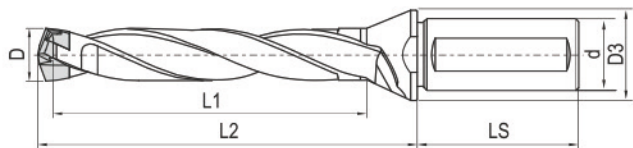
- Made of high quality alloy steel
- Round shank with flat according to ISO9766
- With coolant hole design for high speed and smooth cutting.
- Quality polished flute for chip moving quickly.
- Supplied with assembly key and without carbide cutting head.

Drilling depth : Dx3



Order No.	For Cutting Dia.(mm)	Size(mm)						Key
		d	D3	L1	L2	LS	D	
103D-025	12.0-12.9	16	20	37	54.5	48	12	#2
103D-030	13.0-13.9	16	20	41	58.1	48	13	#2
103D-035	14.0-14.9	16	20	44	63.6	48	14	#2
103D-040	15.0-15.9	20	25	45	68.7	50	15	#2
103D-045	16.0-16.9	20	25	48	73.3	50	16	#2
103D-050	17.0-17.9	20	25	51	77.9	50	17	#3
103D-055	18.0-18.9	25	32	54	82.5	56	18	#3
103D-060	19.0-19.9	25	32	57	87	56	19	#3
103D-065	20.0-20.9	25	32	60	91.6	56	20	#3
103D-070	21.0-21.9	25	32	63	96.2	56	21	#4
103D-075	22.0-22.9	25	32	66	100.8	56	22	#4
103D-080	23.0-23.9	32	42	69	105.4	60	23	#4
103D-085	24.0-24.9	32	42	72	109.9	60	24	#4
103D-090	25.0-26.0	32	42	75	114.5	60	25	#4

Drilling depth : Dx5

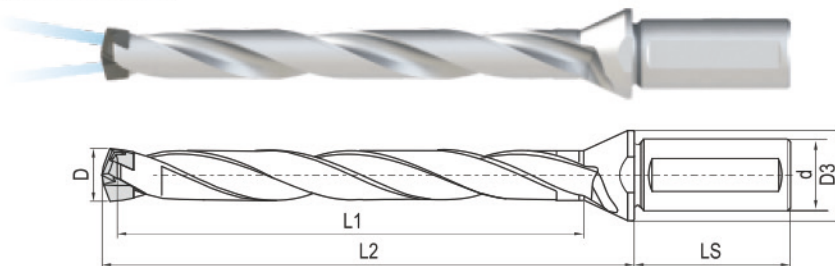


Order No.	For Cutting Dia.(mm)	Size(mm)						Key
		d	D3	L1	L2	LS	D	
105D-025	12.0-12.9	16	20	62	79.5	48	12	#2
105D-030	13.0-13.9	16	20	68	85.1	48	13	#2
105D-035	14.0-14.9	16	20	73	92.7	48	14	#2
105D-040	15.0-15.9	20	25	75	98.7	50	15	#2
105D-045	16.0-16.9	20	25	80	105.3	50	16	#2
105D-050	17.0-17.9	20	25	85	111.9	50	17	#3
105D-055	18.0-18.9	25	32	90	118.5	56	18	#3
105D-060	19.0-19.9	25	32	95	125	56	19	#3
105D-065	20.0-20.9	25	32	100	131.6	56	20	#3
105D-070	21.0-21.9	25	32	105	138.2	56	21	#4
105D-075	22.0-22.9	25	32	110	144.8	56	22	#4
105D-080	23.0-23.9	32	42	115	151.4	60	23	#4
105D-085	24.0-24.9	32	42	120	158	60	24	#4
105D-090	25.0-26.0	32	42	125	164.5	60	25	#4

DRILLING TOOLHOLDER

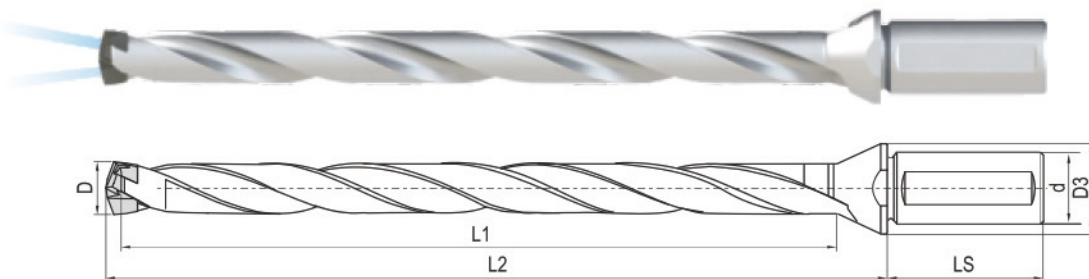
- Made of high quality alloy steel
- Round shank with flat according to ISO9766
- With coolant hole design for high speed and smooth cutting.
- Quality polished flute for chip moving quickly.
- Supplied with assembly key and without carbide cutting head.

Drilling depth : Dx8



Order No.	For Cutting Dia.(mm)	Size(mm)						Key
		d	D3	L1	L2	LS	D	
108D-025	12.0-12.9	16	20	100	117	48	12	#2
108D-030	13.0-13.9	16	20	108	125.5	48	13	#2
108D-035	14.0-14.9	16	20	116	136.2	48	14	#2
108D-040	15.0-15.9	20	25	120	143.7	50	15	#2
108D-045	16.0-16.9	20	25	128	153.3	50	16	#2
108D-050	17.0-17.9	20	25	136	162.9	50	17	#3
108D-055	18.0-18.9	25	32	144	172.5	56	18	#3
108D-060	19.0-19.9	25	32	152	182	56	19	#3
108D-065	20.0-20.9	25	32	160	191.6	56	20	#3
108D-070	21.0-21.9	25	32	168	201.2	56	21	#4
108D-075	22.0-22.9	25	32	176	210.8	56	22	#4
108D-080	23.0-23.9	32	42	184	220.4	60	23	#4
108D-085	24.0-24.9	32	42	192	230	60	24	#4
108D-090	25.0-26.0	32	42	200	239.5	60	25	#4

Drilling depth : Dx12

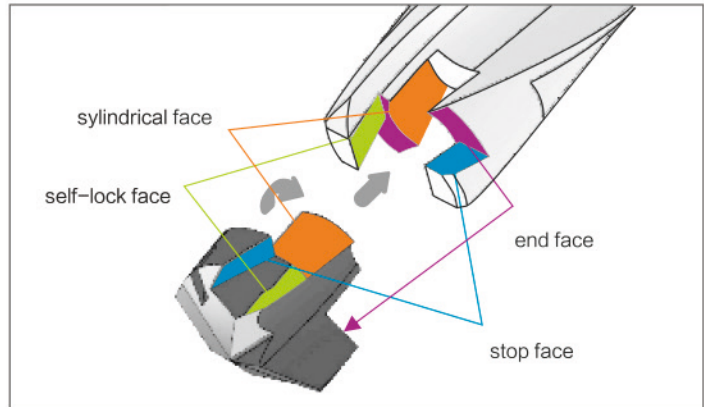
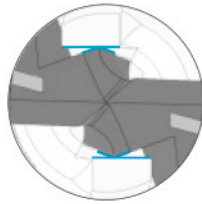


Order No.	For Cutting Dia.(mm)	Size(mm)						Key
		d	D3	L1	L2	LS	D	
112D-025	12.0-12.9	16	20	150	167	48	12	#2
112D-030	13.0-13.9	16	20	162	179	48	13	#2
112D-035	14.0-14.9	16	20	174	194	48	14	#2
112D-040	15.0-15.9	20	25	180	210	50	15	#2
112D-045	16.0-16.9	20	25	192	224	50	16	#2
112D-050	17.0-17.9	20	25	204	238	50	17	#3
112D-055	18.0-18.9	25	32	216	252	56	18	#3
112D-060	19.0-19.9	25	32	228	266	56	19	#3
112D-065	20.0-20.9	25	32	240	280	56	20	#3
112D-070	21.0-21.9	25	32	252	294	56	21	#4
112D-075	22.0-23.0	25	32	264	308	56	22	#4

DRILLING CUTTER

INNOVATION SELF-LOCKED CLAMPING SYSTEM

- Centering by cylindrical fuses
- The cutting head can be self-locked with toolholder due to its seat elastic deformation.
- Axial drill force is transferred to toolholder by end faces.
- Drill torque is transferred to toolholder by stop faces.



HOW TO ATTACH CUTTING HEADS



- Fix drill holder on adapter, for insert exchange, fix adapter on Tool tightening fixture.



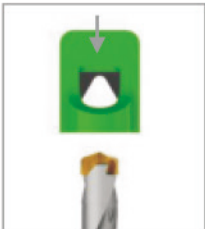
- Clean the top groove of drill holer



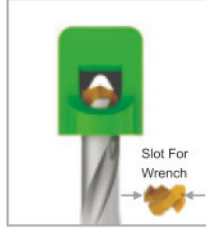
- Put insert into drill holer



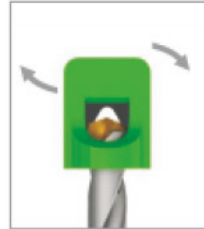
- Turn slightly in a clockwise direction.



- Set the wrench properly



- Make sure the wrench fits with insert's slot



- Turn the wrench in a clockwise direction slowly

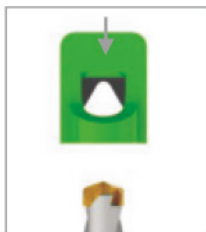


- Complete

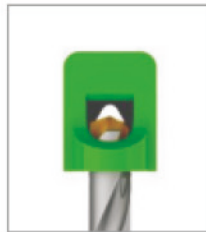
HOW TO DETACH CUTTING HEADS



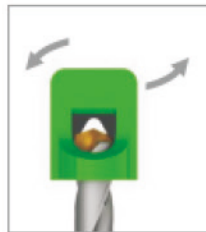
- Remove the dust&chip from insert.



- Set the wrench properly.



- Make sure the wrench fits with insert's slot.



- Turn the wrench in a counterclockwise direction slowly.

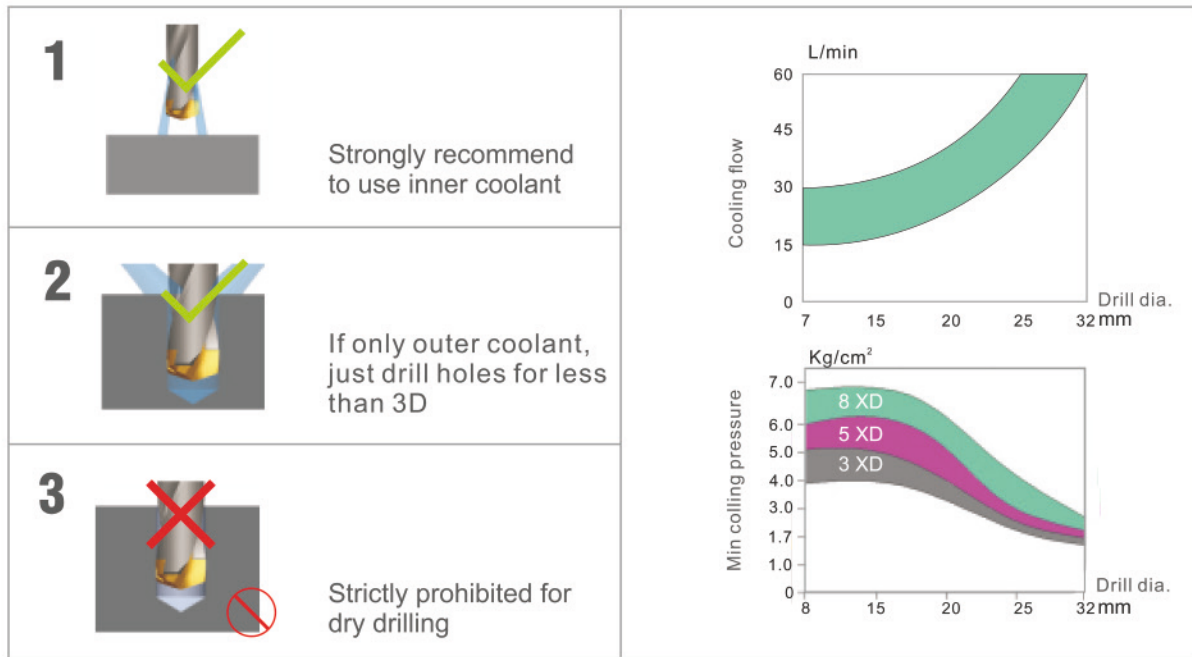


- Once Self-Lock is released, the insert can be turned by finger easily.



- Remove insert from toolholder.

Coolant



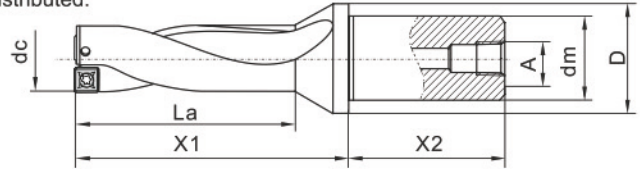
Recommended cutting data:

Workpiece material	Alloy treatment and status		Hardness (HB)	Cutting speed Vc(m/min)	Feed rate fz(mm/rev.)						
					D<10	10<=D<11.9	12<=D<13.9	14<=D<15.9	16<=D<19.9	20<=D<25.9	
P	Mild steel	annealed <0.25%C	125	80-140	0.12	0.15	0.18	0.20	0.25	0.25	
		tempered >=0.25%-0.55%C	190-250	80-120	0.17	0.21	0.24	0.27	0.35	0.35	
		tempered >=0.55%	220	70-110	0.22	0.28	0.30	0.35	0.45	0.45	
	Lower alloy steel	annealed		200	70-120						
		tempered		275	70-110	0.12	0.14	0.16	0.18	0.23	0.25
		tempered		300	50-90	0.18	0.21	0.24	0.26	0.31	0.35
		tempered		350	40-70	0.25	0.28	0.32	0.35	0.40	0.45
Higher alloy steel	annealed		200	50-90	0.12	0.12	0.15	0.18	0.20	0.22	
	tempered		325	40-80	0.16	0.17	0.20	0.23	0.25	0.27	
M	Stainless steel	annealed ferritic/martensitic	200	40-70	0.20	0.22	0.25	0.28	0.30	0.33	
		quenching martensitic	240	40-70	0.10	0.12	0.14	0.16	0.16	0.18	
		quenching austenitic	180	30-70	0.12	0.15	0.17	0.20	0.21	0.24	
K	Grey cast iron	ferritic	160	90-160							
		pearlitic	250	80-140							
	Nodular cast iron	ferritic	180	90-180	0.15	0.18	0.20	0.24	0.26	0.30	
		pearlitic	260	80-140	0.22	0.20	0.25	0.30	0.35	0.35	
					0.30	0.27	0.32	0.37	0.45	0.37	
	Malleable cast iron	ferritic	130	90-160							
pearlitic		230	80-140		0.35	0.40	0.45	0.55	0.60		

Lower cutting speed and feed rate should be used for tool holders of 8D or 12D

INDEXABLE DRILLING CUTTERS

- Variable helix improve chip evacuation.
- Internal coolant and High feed rates.
- Made of quality alloy steel.
- Straight shank with flat for driving
- Insert pockets precisely positioned to keep cutting forces low and evenly distributed.



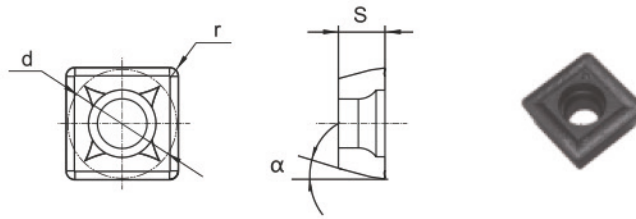
3xD drill

Order No.	Model	Size(mm)							Insert	Screw	Torx wrench
		Diameter dc(mm)	Cutting depth La(mm)	Shank dia.Dm(mm)	Flang dia.D(mm)	Length to Flange X1(mm)	Shank Length X2(mm)	Coolant thread hole A			
266-16-314	ISS14A-3D	14	47	20	28	64	50	1/8-27 NPT	SXMT040204	C020A04S	T6
266-16-315	ISS15A-3D	15	50	20	28	66	50	1/8-27 NPT	SXMT040204	C020A04S	T6
266-16-316	ISS16A-3D	16	53	20	28	71	50	1/8-27 NPT	SXMT040204	C020A04S	T6
266-16-317	ISS17A-3D	17	56	20	28	73	50	1/8-27 NPT	SXMT050204	C020A05S	T6
266-16-318	ISS18A-3D	18	59	25	35	80	56	1/4-18 NPT	SXMT050204	C020A05S	T6
266-16-319	ISS19A-3D	19	62	25	35	81	56	1/4-18 NPT	SXMT060306	C022A06S	T7
266-16-320	ISS20A-3D	20	65	25	35	84	56	1/4-18 NPT	SXMT060306	C022A06S	T7
266-16-321	ISS21A-3D	21	68	25	35	86	56	1/4-18 NPT	SXMT070306	C025A06S	FT7
266-16-322	ISS22A-3D	22	71	25	35	89	56	1/4-18 NPT	SXMT070306	C025A06S	FT7
266-16-323	ISS23A-3D	23	74	25	35	91	56	1/4-18 NPT	SXMT070306	C025A06S	FT7
266-16-324	ISS24A-3D	24	78	32	42	100	60	1/4-18 NPT	SXMT070306	C025A06S	FT7
266-16-325	ISS25A-3D	25	80	32	42	101	60	1/4-18 NPT	SXMT080408	C030A07S	T9
266-16-326	ISS26A-3D	26	83	32	42	105	60	1/4-18 NPT	SXMT080408	C030A07S	T9
266-16-327	ISS27A-3D	27	86	32	42	106	60	1/4-18 NPT	SXMT080408	C030A07S	T9
266-16-328	ISS28A-3D	28	89	32	42	108	60	1/4-18 NPT	SXMT080408	C030A07S	T9
266-16-329	ISS29A-3D	29	92	32	42	110	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-330	ISS30A-3D	30	95	32	42	113	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-331	ISS31A-3D	31	98	32	42	120	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-332	ISS32A-3D	32	101	32	42	122	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-333	ISS33A-3D	33	104	32	42	123	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-334	ISS34A-3D	34	107	32	42	125	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-335	ISS35A-3D	35	110	32	42	127	60	1/4-18 NPT	SXMT120508	C045B12C	T20
266-16-336	ISS36A-3D	36	113	32	42	131	60	1/4-18 NPT	SXMT120508	C045B12C	T20
266-16-337	ISS37A-3D	37	116	40	50	141	70	1/4-18 NPT	SXMT120508	C045B12C	T20
266-16-338	ISS38A-3D	38	119	40	50	143	70	1/4-18 NPT	SXMT120508	C045B12C	T20
266-16-339	ISS39A-3D	39	122	40	50	144	70	1/4-18 NPT	SXMT120508	C045B12C	T20
266-16-340	ISS40A-3D	40	125	40	50	146	70	1/4-18 NPT	SXMT120508	C045B12C	T20

4xD drill

Order No.	Model	Size(mm)							Insert	Screw	Torx wrench
		Diameter dc(mm)	Cutting depth La(mm)	Shank dia.Dm(mm)	Flang dia.D(mm)	Length to Flange X1(mm)	Shank Length X2(mm)	Coolant thread hole A			
266-16-418	ISS 18A-4D	18	77	25	35	98	56	1/4-18 NPT	SXMT050204	C020A05S	T6
266-16-419	ISS 19A-4D	19	81	25	35	100	56	1/4-18 NPT	SXMT060306	C022A06S	FT7
266-16-420	ISS 20A-4D	20	85	25	35	104	56	1/4-18 NPT	SXMT060306	C022A06S	FT7
266-16-421	ISS 21A-4D	21	88	25	35	107	56	1/4-18 NPT	SXMT070306	C025A07S	FT7
266-16-422	ISS 22A-4D	22	92	25	35	111	56	1/4-18 NPT	SXMT070306	C025A07S	FT7
266-16-423	ISS 23A-4D	23	96	25	35	114	56	1/4-18 NPT	SXMT070306	C025A07S	FT7
266-16-424	ISS 24A-4D	24	100	32	42	124	60	1/4-18 NPT	SXMT070306	C025A07S	FT7
266-16-425	ISS 25A-4D	25	104	32	42	126	60	1/4-18 NPT	SXMT080408	C030A07S	FT9
266-16-426	ISS 26A-4D	26	108	32	42	131	60	1/4-18 NPT	SXMT080408	C030A07S	FT9
266-16-427	ISS 27A-4D	27	112	32	42	133	60	1/4-18 NPT	SXMT080408	C030A07S	FT9
266-16-428	ISS 28A-4D	28	116	32	42	136	60	1/4-18 NPT	SXMT080408	C030A07S	FT9
266-16-429	ISS 29A-4D	29	120	32	42	139	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-430	ISS 30A-4D	30	124	32	42	143	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-431	ISS 31A-4D	31	128	32	42	151	60	1/4-18 NPT	SXMT100408	C035A08S	T15
266-16-432	ISS 32A-4D	32	132	32	42	154	60	1/4-18 NPT	SXMT100408	C035A08S	T15

SOLID CARBIDE INSERT SXMT



Order No.	Model	Grade	Application	Size(mm)			
				d	r	s	α
260-16-101	SXMT040204-EM	EC2640	Steel,cast iron	4.9	0.4	2.3	8°
260-16-102	SXMT050204-EM	EC2640	Steel,cast iron	5.5	0.4	2.5	8°
260-16-103	SXMT060306-EM	EC2640	Steel,cast iron	6.4	0.6	2.9	8°
260-16-104	SXMT070306-EM	EC2640	Steel,cast iron	7.5	0.6	3.3	8°
260-16-105	SXMT080408-EM	EC2640	Steel,cast iron	8.9	0.8	3.7	8°
260-16-106	SXMT100408-EM	EC2640	Steel,cast iron	10.3	0.8	4.3	8°
260-16-107	SXMT120508-EM	EC2640	Steel,cast iron	12.6	0.8	5.1	8°

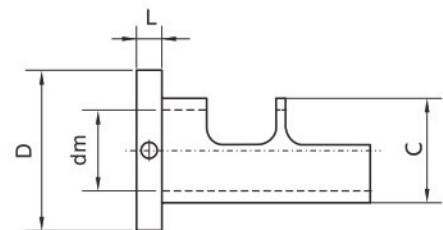
Recommended cutting data

ISO material	Hardness/Strength	Speed Vc(m/min)	Feed f(mm/rev)			
			φ 14-20.5	φ 21-28	φ 29-34	φ 35-40
P Mild steel	≤180HB	230(150-260)	0.05(0.03-0.1)	0.05(0.03-0.1)	0.05(0.03-0.1)	0.05(0.03-0.1)
P Low alloy steel	≤280HB	140(100-220)	0.09(0.06-0.13)	0.12(0.1-0.18)	0.15(0.13-0.21)	0.22(0.2-0.27)
P high alloy steel	≤280HB	140(80-180)	0.08(0.05-0.12)	0.12(0.06-0.15)	0.14(0.09-0.18)	0.15(0.1-0.2)
M stainless steel	≤250HB	150(100-180)	0.08(0.05-0.12)	0.1(0.06-0.12)	0.15(0.1-0.17)	0.18(0.15-0.2)
K cast iron	≤350N/mm2	120(100-180)	0.09(0.06-0.13)	0.13(0.1-0.18)	0.18(0.13-0.21)	0.25(0.2-0.27)
K nodular cast iron	≤800N/mm2	100(80-150)	0.09(0.06-0.13)	0.12(0.08-0.16)	0.16(0.1-0.2)	0.2(0.15-0.25)
N Alu.alloy	≤13%Si	220(100-800)	0.09(0.06-0.20)	0.13(0.1-0.25)	0.18(0.13-0.3)	0.25(0.2-0.35)
S heat resistant alloy	-	30(15-50)	0.04(0.02-0.06)	0.06(0.03-0.1)	0.08(0.04-0.12)	0.1(0.06-0.14)
S Titanium alloy	-	60(30-100)	0.06(0.04-0.08)	0.08(0.06-0.12)	0.1(0.08-0.15)	0.12(0.1-0.15)

ECCENTRIC BUSHING

- With this bushing indexable drill can be micro adjusted by +/-0.2mm

Order No.	Model	Size(mm)			
		C	dm	D	L
260-16-001	C25-XP20	25	20	42	5
260-16-002	C32-XP25	32	25	50	8
260-16-003	C40-XP32	40	32	60	8
260-16-004	C50-XP40	50	40	66	8






Operate guide:

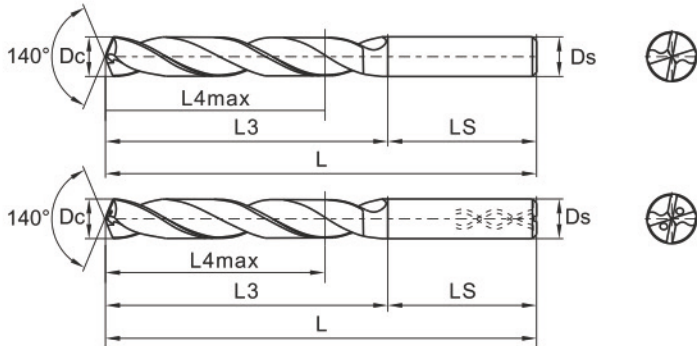
- increase cutting diameter : rotate bushing till marking line on drill point to areo "+"
- decrease cutting diameter : rotate bushing till marking line on drill point to areo "-"

DRILLING CUTTER

SOLID CARBIDE TWIST DRILLS

- Right hand cutting.
- Made of micrograin solid carbide and with HELICA coating.
- General purpose used for steel, stainless steel and cast iron.

DIN 6537		3xD	Type N	 140°
m7		HRC 45	HELICA coating	



Order No.		Dc. (mm)	Ds (mm)	L4max (mm)	L3 (mm)	L (mm)
external coolant	internal coolant					
411-37-005	412-37-005	3.00	4	14.00	20	62
411-37-010	412-37-010	3.17	4	14.00	20	62
411-37-015	412-37-015	3.30	4	14.00	20	62
411-37-020	412-37-020	3.50	4	15.00	20	62
411-37-025	412-37-025	4.00	4	17.00	24	66
411-37-030	412-37-030	4.20	4	17.00	24	66
411-37-035	412-37-035	4.50	6	18.00	24	66
411-37-040	412-37-040	5.00	6	20.00	28	66
411-37-045	412-37-045	5.16	6	20.00	28	66
411-37-050	412-37-050	5.50	6	21.00	28	66
411-37-055	412-37-055	6.00	6	21.00	28	66
411-37-060	412-37-060	6.50	8	23.00	34	79
411-37-065	412-37-065	6.80	8	25.00	34	79
411-37-070	412-37-070	7.00	8	25.00	34	79
411-37-075	412-37-075	7.10	8	25.00	34	79
411-37-080	412-37-080	7.50	8	25.00	34	79
411-37-085	412-37-085	7.80	8	27.00	34	79
411-37-090	412-37-090	8.00	8	27.00	41	79
411-37-095	412-37-095	8.50	10	27.00	47	89
411-37-100	412-37-100	8.80	10	29.00	47	89
411-37-105	412-37-105	9.00	10	29.00	47	89
411-37-110	412-37-110	9.13	10	29.00	47	89
411-37-115	412-37-115	9.50	10	29.00	47	89
411-37-120	412-37-120	10.00	10	31.00	47	89

Order No.		Dc. (mm)	Ds (mm)	L4max (mm)	L3 (mm)	L (mm)
external coolant	internal coolant					
411-37-125	412-37-125	10.20	12	31.00	55	102
411-37-130	412-37-130	10.50	12	31.00	55	102
411-37-135	412-37-135	10.70	12	33.00	55	102
411-37-140	412-37-140	11.00	12	33.00	55	102
411-37-145	412-37-145	11.50	12	33.00	55	102
411-37-150	412-37-150	12.00	12	36.00	55	102
411-37-155	412-37-155	12.50	14	36.00	60	107
411-37-160	412-37-160	12.70	14	36.00	60	107
411-37-165	412-37-165	13.00	14	36.00	60	107
411-37-170	412-37-170	13.50	14	37.00	60	107
411-37-175	412-37-175	14.00	14	37.00	60	107
411-37-180	412-37-180	14.50	16	38.00	65	115
411-37-185	412-37-185	15.00	16	38.00	65	115
411-37-190	412-37-190	15.50	16	39.00	65	115
411-37-195	412-37-195	16.00	16	39.00	65	115
411-37-200	412-37-200	16.50	18	40.00	73	123
411-37-205	412-37-205	17.00	18	40.00	73	123
411-37-210	412-37-210	17.50	18	41.00	73	123
411-37-215	412-37-215	18.00	18	41.00	73	123
411-37-220	412-37-220	18.50	20	49.00	79	131
411-37-225	412-37-225	19.00	20	49.00	79	131
411-37-230	412-37-230	19.50	20	49.00	79	131
411-37-235	412-37-235	20.00	20	49.00	79	131

Recommended cutting data for solid carbide twist drill

Material	Tensile strength(N/mm2)/ Hardness (HB)	Feed rate fz(mm/r)			Speed Vc(m/min)
		φ 4-8mm	φ 8-20	φ 20-25mm	
Structural steels	<500 N/mm2	0.08-0.15	0.15-0.3	0.3-0.35	80-130
Structural steels	500-700 N/mm2	0.06-0.12	0.12-0.25	0.25-0.35	65-100
Structural steels	>700 N/mm2	0.06-0.12	0.12-0.25	0.25-0.3	60-90
Tool steels	<1400 N/mm2	0.06-0.12	0.12-0.25	0.25-0.3	50-70
Tool steels	>1400 N/mm2	0.05-0.1	0.1-0.18	0.17-0.25	45-60
Stainless steel	<850 N/mm2	0.06-0.1	0.1-0.2	0.2-0.25	45-65
Cast iron	<200HB	0.1-0.15	0.14-0.18	0.18-0.22	95-100
Cast iron	>200HB	0.08-0.12	0.12-0.15	0.16-0.2	80-100
Al-alloys		0.12-0.2	0.2-0.35	0.35-0.4	80-180
Co-alloys		0.12-0.2	0.2-0.35	0.35-0.4	70-140
Ti-alloys		0.06-0.1	0.1-0.2	0.2-0.25	35-50