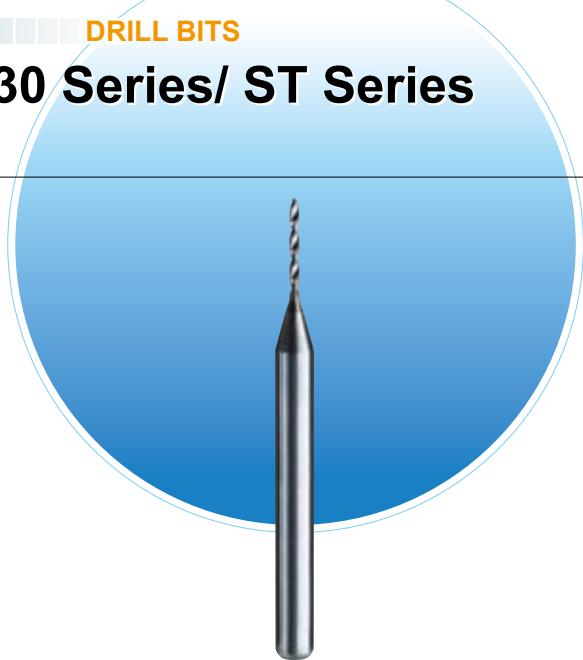
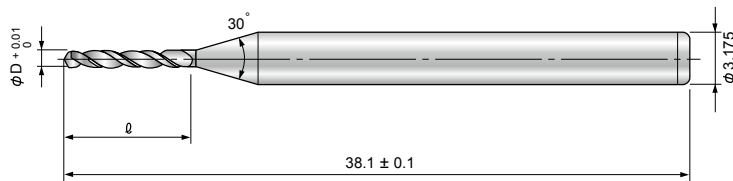


# UM30 Series/ ST Series



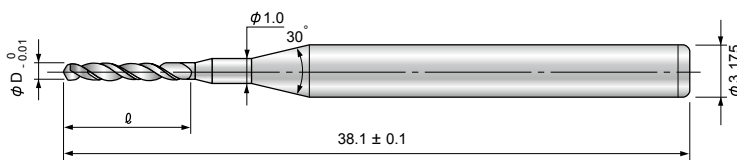
## UM30 SIZE : $\phi 1.65 \sim \phi 3.175$

With a strong helix for burr reduction and high performance cutting, this series is ideal for medium diameter holes in multi-layer boards where high quality is required.



## ST SIZE : $\phi 0.30 \sim \phi 3.175$

This Straight Type Drill offers an economical solution for drilling a wide range of drilling materials. With good swarf/chip evacuation the drill can be used effectively on Paper Phenolic (FR1/FR2), CEM-1 and FR4 glass epoxy.



Please see the recommended models on next page.

Recommended Models

UM30 Series

φD mm	φ mm	Part No.	φD mm	φ mm	Part No.	φD mm	φ mm	Part No.
1.65	10.0	128-5165	2.20	10.0	128-5220	2.75	10.0	128-5275
1.70	10.0	128-5170	2.25	10.0	128-5225	2.80	10.0	128-5280
1.75	10.0	128-5175	2.30	10.0	128-5230	2.85	10.0	128-5285
1.80	10.0	128-5180	2.35	10.0	128-5235	2.90	10.0	128-5290
1.85	10.0	128-5185	2.40	10.0	128-5240	2.95	10.0	128-5295
1.90	10.0	128-5190	2.45	10.0	128-5245	3.00	10.0	128-5300
1.95	10.0	128-5195	2.50	10.0	128-5250	3.05	10.0	128-5305
2.00	10.0	128-5200	2.55	10.0	128-5255	3.10	10.0	128-5310
2.05	10.0	128-5205	2.60	10.0	128-5260	3.15	10.0	128-5315
2.10	10.0	128-5210	2.65	10.0	128-5265	3.175	10.0	128-5317
2.15	10.0	128-5215	2.70	10.0	128-5270			

\*Recommended model specification would be revised without any notice due to upgrade in quality in performance.

ST Series

φD mm	φ mm	Part No.	φD mm	φ mm	Part No.	φD mm	φ mm	Part No.
0.30	5.0	101-8931	1.35	10.0	101-7135	2.40	10.0	101-C240
0.35	5.0	101-8936	1.40	10.0	101-7140	2.45	10.0	101-C245
0.40	5.0	101-8940	1.45	10.0	101-7145	2.50	10.0	101-C250
0.45	5.0	101-8945	1.50	10.0	101-7150	2.55	10.0	101-C255
0.50	5.0	101-8950	1.55	10.0	101-7155	2.60	10.0	101-C260
0.55	5.0	101-8955	1.60	10.0	101-7160	2.65	10.0	101-C265
0.60	7.0	101-7060	1.65	10.0	101-C165	2.70	10.0	101-C270
0.65	7.0	101-7065	1.70	10.0	101-C170	2.75	10.0	101-C275
0.70	8.0	101-7071	1.75	10.0	101-C175	2.80	10.0	101-C280
0.75	8.0	101-7076	1.80	10.0	101-C180	2.85	10.0	101-C285
0.80	10.0	101-7080	1.85	10.0	101-C185	2.90	10.0	101-C290
0.85	10.0	101-7085	1.90	10.0	101-C190	2.95	10.0	101-C295
0.90	10.0	101-7090	1.95	10.0	101-C195	3.00	10.0	101-C300
0.95	10.0	101-7095	2.00	10.0	101-C200	3.05	10.0	101-C305
1.00	10.0	101-7100	2.05	10.0	101-C205	3.10	10.0	101-C310
1.05	10.0	101-7105	2.10	10.0	101-C210	3.15	10.0	101-C315
1.10	10.0	101-7110	2.15	10.0	101-C215	3.165	10.0	101-C317
1.15	10.0	101-7115	2.20	10.0	101-C220	3.17	10.0	101-C319
1.20	10.0	101-7120	2.25	10.0	101-C225	3.175	10.0	101-C318
1.25	10.0	101-7125	2.30	10.0	101-C230			
1.30	10.0	101-7130	2.35	10.0	101-C235			

\* The 3.175mm diameter drill has a minus tolerance.

\* Diameters >1.60mm do not have the "rounded" shank end as shown on the previous page.

\* Model recommendation/specification may change as part of our policy to improve performance and quality.

Parameters

φD	1.6mm board thickness											
	FR-4 Double-Sided				FR-4 6-8 Layers				FR-4 Over 10 Layers			
	Spindle Speed	Infeed Rate	Chip Load	Stack Height	Spindle Speed	Infeed Rate	Chip Load	Stack Height	Spindle Speed	Infeed Rate	Chip Load	Stack Height
mm	k rpm	m/min	μm/rev	-	k rpm	m/min	μm/rev	-	k rpm	m/min	μm/rev	-
1.65	30	1.7	55	3-4	30	1.8	60	3-4	28	1.7	60	1-2
1.70	27	1.5	55	3-4	27	1.6	60	3-4	25	1.5	60	1-2
1.75	27	1.5	55	3-4	27	1.6	60	3-4	25	1.5	60	1-2
1.80	25	1.4	55	3-4	25	1.5	60	3-4	23	1.4	60	1-2
1.85	25	1.4	55	3-4	25	1.5	60	3-4	23	1.4	60	1-2
1.90	22	1.2	55	3-4	22	1.3	60	3-4	20	1.2	60	1-2
1.95	22	1.2	55	3-4	22	1.3	60	3-4	20	1.2	60	1-2
2.00	20	1.1	55	3-4	20	1.2	60	3-4	18	1.1	60	1-2
2.05~2.10	18	1.0	56	3-4	18	1.1	61	3-4	18	1.0	56	1-2
2.15~2.20	16	0.9	56	3-4	16	1.0	63	3-4	16	0.9	56	1-2
2.25~2.30	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.35~2.40	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.45~2.50	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.55~2.60	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.65~2.75	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.80~2.90	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
2.95~3.05	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2
3.10~3.175	15	0.8	53	3-4	15	0.9	60	3-4	15	0.9	60	1-2

These are general parameters recommended for normal conditions. However they may vary depending on the material and machine/spindle rigidity. Please refer to our "Technical Data Base" at our web site for more detailed information. <http://www.usuniontool.com>