

Technical information 7

Product lines and accuracy classes of UTILIS 330

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	Schnittleistungen Klein- und Mittel- Durchmesser	Schnittleistungen Klein- und Mittel- Durchmesser	Schnittleistungen Klein- und Mittel- Durchmesser	Span- neigen Produkte
WHS (HSS) Durchmesser Klein- und Mittel- Durchmesser	125-200	180-250	250-300	-
Kategorie Leistungs- klasse	I	II	III	IV
Leistungs- klasse Klein- und Mittel- Durchmesser	▼ ▼ ▼ ▼ ▼	▼ ▼ ▼ ▼ ▼	▼ ▼ ▼ ▼ ▼	▼ ▼ ▼ ▼ ▼

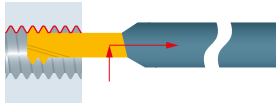
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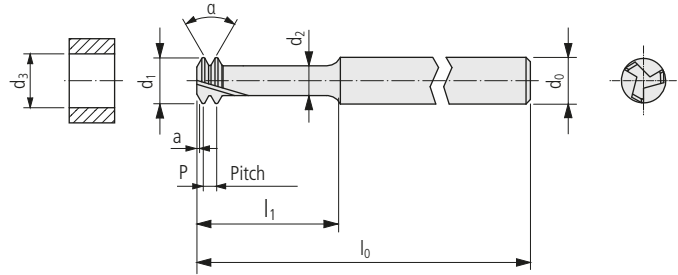
Product line	Accuracy class of UTILIS	Repeatability
PREMIUM-LINE		< 10 µm
STANDARD-LINE		< 20 µm
VALUE-LINE		< 50 µm



3 flutes, 2 teeth (full profile metric)



WHS ... (Short version)

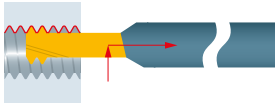


Order designation	Carbide □ 15		Standard	Dimensions									Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance	

PREMIUM-LINE

Accuracy class of UTILIS □ 5

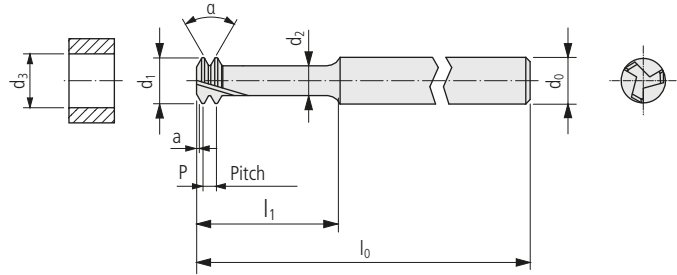
WHS 338 010 025 ...	■	■	M1	0.25	2.3	0.64	0.24	0.03	3	38	60°	0.75	0/+0.03
WHS 338 012 025 ...	■	■	M1.2	0.25	2.8	0.84	0.44	0.03	3	38	60°	0.95	0/+0.03
WHS 338 014 030 ...	■	■	M1.4	0.3	3.2	0.98	0.53	0.03	3	38	60°	1.1	0/+0.04
WHS 338 016 035 ...	■	■	M1.6	0.35	3.7	1.12	0.61	0.03	3	38	60°	1.25	0/+0.04
WHS 338 018 035 ...	■	■	M1.8	0.35	4.1	1.32	0.81	0.03	3	38	60°	1.45	0/+0.04
WHS 338 020 040 ...	■	■	M2	0.4	4.6	1.46	0.9	0.03	3	38	60°	1.6	0/+0.05
WHS 338 022 045 ...	■	■	M2.2	0.45	5.1	1.6	0.98	0.03	3	38	60°	1.75	0/+0.05
WHS 338 023 040 ...	■	■	M2.3	0.4	5.2	1.76	1.2	0.03	3	38	60°	1.9	0/+0.05
WHS 338 025 045 ...	■	■	M2.5	0.45	5.8	1.9	1.28	0.03	3	38	60°	2.05	0/+0.05
WHS 338 030 050 ...	■	■	M3	0.5	6.9	2.34	1.67	0.03	3	38	60°	2.5	0/+0.05
WHS 338 035 060 ...	■	■	M3.5	0.6	8.1	2.71	1.93	0.03	3	38	60°	2.9	0/+0.06
WHS 442 040 070 ...	■	■	M4	0.7	9.2	3.09	2.2	0.03	4	42	60°	3.3	0/+0.06
WHS 442 045 075 ...	■	■	M4.5	0.75	10.4	3.53	2.56	0.03	4	42	60°	3.75	0/+0.07
WHS 442 050 080 ...	■	■	M5	0.8	11.5	3.97	2.95	0.03	4	42	60°	4.2	0/+0.07



3 flutes, 2 teeth (full profile metric)

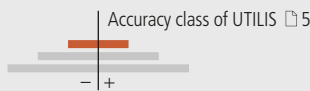


WHL ... (Long version)



Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance

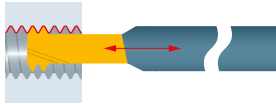
PREMIUM-LINE



WHL 338 010 025 ...	■	■	M1	0.25	4.6	0.64	0.24	0.03	3	38	60°	0.75	0/+0.03
WHL 338 012 025 ...	■	■	M1.2	0.25	5.5	0.84	0.44	0.03	3	38	60°	0.95	0/+0.03
WHL 338 014 030 ...	■	■	M1.4	0.3	6.4	0.98	0.53	0.03	3	38	60°	1.1	0/+0.04
WHL 338 016 035 ...	■	■	M1.6	0.35	7.4	1.12	0.61	0.03	3	38	60°	1.25	0/+0.04
WHL 338 018 035 ...	■	■	M1.8	0.35	8.3	1.32	0.81	0.03	3	38	60°	1.45	0/+0.04
WHL 338 020 040 ...	■	■	M2	0.4	9.2	1.46	0.9	0.03	3	38	60°	1.6	0/+0.05
WHL 338 022 045 ...	■	■	M2.2	0.45	10.1	1.6	0.98	0.03	3	38	60°	1.75	0/+0.05
WHL 338 023 040 ...	■	■	M2.3	0.4	10.4	1.76	1.2	0.03	3	38	60°	1.9	0/+0.05
WHL 338 025 045 ...	■	■	M2.5	0.45	11.5	1.9	1.28	0.03	3	38	60°	2.05	0/+0.05
WHL 338 030 050 ...	■	■	M3	0.5	13.8	2.34	1.67	0.03	3	38	60°	2.5	0/+0.05
WHL 338 035 060 ...	■	■	M3.5	0.6	16.1	2.71	1.93	0.03	3	38	60°	2.9	0/+0.06
WHL 442 040 070 ...	■	■	M4	0.7	18.4	3.09	2.2	0.03	4	42	60°	3.3	0/+0.06
WHL 442 045 075 ...	■	■	M4.5	0.75	20.7	3.53	2.56	0.03	4	42	60°	3.75	0/+0.07
WHL 442 050 080 ...	■	■	M5	0.8	23	3.97	2.95	0.03	4	42	60°	4.2	0/+0.07

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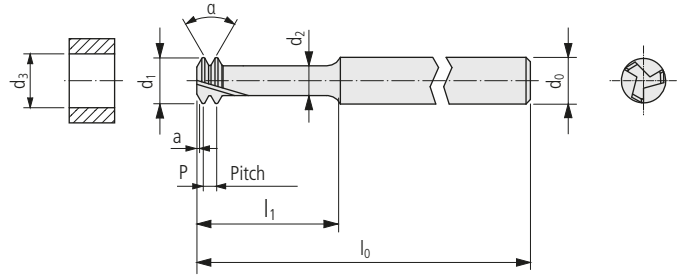
UTILIS
multidec
swiss type tools



3 flutes, 2 teeth (full profile metric)
Strengthen type



WHA ... (Short version)

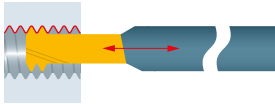


Order designation	Carbide □ 15		Standard	Dimensions									Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance	

PREMIUM-LINE

Accuracy class of UTILIS □ 5

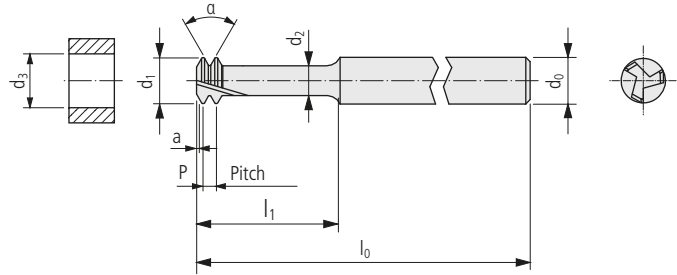
WHA 338 010 025 ...	■	■	M1.0	0.25	2.3	0.83	0.41	0.03	3	38	60°	0.75	0/+0.03
WHA 338 012 025 ...	■	■	M1.2	0.25	2.8	1.03	0.61	0.03	3	38	60°	0.95	0/+0.03
WHA 338 014 030 ...	■	■	M1.4	0.3	3.2	1.21	0.74	0.03	3	38	60°	1.1	0/+0.04
WHA 338 016 035 ...	■	■	M1.6	0.35	3.7	1.39	0.88	0.03	3	38	60°	1.25	0/+0.04
WHA 338 018 035 ...	■	■	M1.8	0.35	4.1	1.59	1.08	0.03	3	38	60°	1.45	0/+0.04
WHA 338 020 040 ...	■	■	M2.0	0.4	4.6	1.76	1.19	0.03	3	38	60°	1.6	0/+0.05
WHA 338 022 045 ...	■	■	M2.2	0.45	5.1	1.94	1.31	0.03	3	38	60°	1.75	0/+0.05
WHA 338 023 040 ...	■	■	M2.3	0.4	5.2	2.06	1.49	0.03	3	38	60°	1.9	0/+0.05
WHA 338 025 045 ...	■	■	M2.5	0.45	5.8	2.24	1.61	0.03	3	38	60°	2.05	0/+0.05
WHA 338 030 050 ...	■	■	M3.0	0.5	6.9	2.72	2.04	0.03	3	38	60°	2.5	0/+0.05
WHA 442 035 060 ...	■	■	M3.5	0.6	8.1	3.16	2.37	0.03	4	42	60°	2.9	0/+0.06
WHA 442 040 070 ...	■	■	M4.0	0.7	9.2	3.62	2.71	0.03	4	42	60°	3.3	0/+0.06



3 flutes, 2 teeth (full profile metric)
Strengthen type

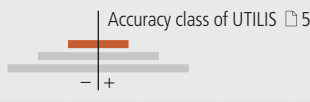


WHB ... (Long version)



Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance

PREMIUM-LINE

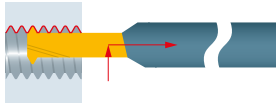


WHB 338 010 025 ...	■	■	M1.0	0.25	4.6	0.83	0.41	0.03	3	38	60°	0.75	0/+0.03
WHB 338 012 025 ...	■	■	M1.2	0.25	5.6	1.03	0.61	0.03	3	38	60°	0.95	0/+0.03
WHB 338 014 030 ...	■	■	M1.4	0.3	6.4	1.21	0.74	0.03	3	38	60°	1.1	0/+0.04
WHB 338 016 035 ...	■	■	M1.6	0.35	7.4	1.39	0.88	0.03	3	38	60°	1.25	0/+0.04
WHB 338 018 035 ...	■	■	M1.8	0.35	8.2	1.59	1.08	0.03	3	38	60°	1.45	0/+0.04
WHB 338 020 040 ...	■	■	M2.0	0.4	9.2	1.76	1.19	0.03	3	38	60°	1.6	0/+0.05
WHB 338 022 045 ...	■	■	M2.2	0.45	10.2	1.94	1.31	0.03	3	38	60°	1.75	0/+0.05
WHB 338 023 040 ...	■	■	M2.3	0.4	10.4	2.06	1.49	0.03	3	38	60°	1.9	0/+0.05
WHB 338 025 045 ...	■	■	M2.5	0.45	11.6	2.24	1.61	0.03	3	38	60°	2.05	0/+0.05
WHB 338 030 050 ...	■	■	M3.0	0.5	13.8	2.72	2.04	0.03	3	38	60°	2.5	0/+0.05
WHB 442 035 060 ...	■	■	M3.5	0.6	16.2	3.16	2.37	0.03	4	42	60°	2.9	0/+0.06
WHB 442 040 070 ...	■	■	M4.0	0.7	18.4	3.62	2.71	0.03	4	42	60°	3.3	0/+0.06

Application recommendation □ 341

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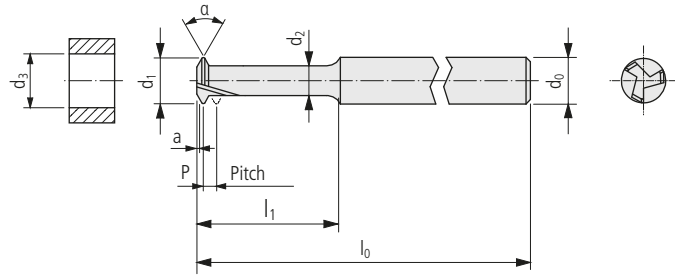
UTILIS
multidec
swiss type tools



3 flutes, 1 tooth (full profile metric)



WHC ... (Short version)

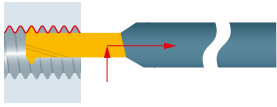


Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance

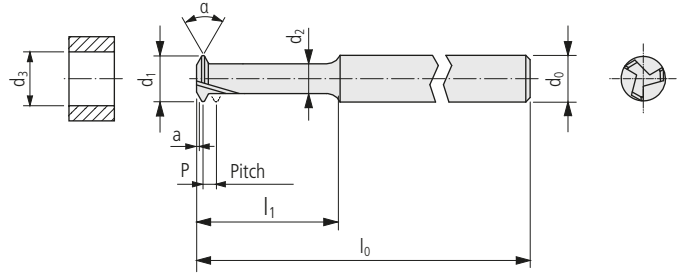
PREMIUM-LINE

Accuracy class of UTILIS □ 5

WHC 338 010 025 ...	■	■	M1.0	0.25	2.5	0.68	0.3	0.03	3	38	60°	0.75	0/+0.03
WHC 338 012 025 ...	■	■	M1.2	0.25	2.7	0.88	0.5	0.03	3	38	60°	0.95	0/+0.03
WHC 338 014 025 ...	■	■	M1.4	0.25	2.9	1.08	0.7	0.03	3	38	60°	1.15	0/+0.03
WHC 338 016 025 ...	■	■	M1.6	0.25	3.1	1.28	0.9	0.03	3	38	60°	1.35	0/+0.03
WHC 338 018 025 ...	■	■	M1.8	0.25	3.3	1.48	1.1	0.03	3	38	60°	1.55	0/+0.03
WHC 338 020 025 ...	■	■	M2.0	0.25	3.5	1.68	1.3	0.03	3	38	60°	1.75	0/+0.03
WHC 338 014 030 ...	■	■	M1.4	0.3	3.2	1.02	0.58	0.03	3	38	60°	1.1	0/+0.04
WHC 338 016 030 ...	■	■	M1.6	0.3	3.4	1.22	0.78	0.03	3	38	60°	1.3	0/+0.04
WHC 338 018 030 ...	■	■	M1.8	0.3	3.6	1.42	0.98	0.03	3	38	60°	1.5	0/+0.04
WHC 338 020 030 ...	■	■	M2.0	0.3	3.8	1.62	1.18	0.03	3	38	60°	1.7	0/+0.04
WHC 338 022 030 ...	■	■	M2.2	0.3	4	1.82	1.38	0.03	3	38	60°	1.9	0/+0.04
WHC 338 016 035 ...	■	■	M1.6	0.35	3.7	1.16	0.65	0.03	3	38	60°	1.25	0/+0.04
WHC 338 018 035 ...	■	■	M1.8	0.35	3.9	1.36	0.85	0.03	3	38	60°	1.45	0/+0.04
WHC 338 020 035 ...	■	■	M2.0	0.35	4.1	1.56	1.05	0.03	3	38	60°	1.65	0/+0.04
WHC 338 022 035 ...	■	■	M2.2	0.35	4.3	1.76	1.25	0.03	3	38	60°	1.85	0/+0.04
WHC 338 025 035 ...	■	■	M2.5	0.35	4.6	2.06	1.55	0.03	3	38	60°	2.15	0/+0.04
WHC 338 030 035 ...	■	■	M3.0	0.35	5.1	2.56	2.05	0.03	3	38	60°	2.65	0/+0.04
WHC 338 035 035 ...	■	■	M3.5	0.35	5.6	3.06	2.55	0.03	3	38	60°	3.15	0/+0.04
WHC 338 020 040 ...	■	■	M2.0	0.4	4.4	1.50	0.93	0.03	3	38	60°	1.6	0/+0.05
WHC 338 022 040 ...	■	■	M2.2	0.4	4.6	1.70	1.13	0.03	3	38	60°	1.8	0/+0.05
WHC 338 025 040 ...	■	■	M2.5	0.4	4.9	2.00	1.43	0.03	3	38	60°	2.1	0/+0.05
WHC 338 030 040 ...	■	■	M3	0.4	5.4	2.50	1.93	0.03	3	38	60°	2.6	0/+0.05
WHC 338 035 040 ...	■	■	M3.5	0.4	5.9	2.98	2.41	0.03	3	38	60°	3.1	0/+0.05
WHC 338 022 045 ...	■	■	M2.2	0.45	4.9	1.64	1.01	0.03	3	38	60°	1.75	0/+0.05
WHC 338 025 045 ...	■	■	M2.5	0.45	5.2	1.94	1.31	0.03	3	38	60°	2.05	0/+0.05
WHC 338 030 045 ...	■	■	M3	0.45	5.7	2.44	1.81	0.03	3	38	60°	2.55	0/+0.05
WHC 338 035 045 ...	■	■	M3.5	0.45	6.2	2.94	2.31	0.03	3	38	60°	3.05	0/+0.05
WHC 442 040 045 ...	■	■	M4	0.45	6.7	3.44	2.81	0.03	3	38	60°	3.55	0/+0.05
WHC 338 030 050 ...	■	■	M3	0.5	6	2.38	1.69	0.03	3	38	60°	2.5	0/+0.05
WHC 338 035 050 ...	■	■	M3.5	0.5	6.5	2.88	2.19	0.03	3	38	60°	3	0/+0.05
WHC 442 040 050 ...	■	■	M4	0.5	7	3.38	2.69	0.03	4	42	60°	3.5	0/+0.05
WHC 442 045 050 ...	■	■	M4.5	0.5	7.5	3.88	3.19	0.03	4	42	60°	4	0/+0.05
WHC 442 035 060 ...	■	■	M3.5	0.6	7.1	2.75	1.95	0.03	4	42	60°	2.9	0/+0.06
WHC 442 040 060 ...	■	■	M4	0.6	7.6	3.25	2.45	0.03	4	42	60°	3.4	0/+0.06
WHC 442 045 060 ...	■	■	M4.5	0.6	8.1	3.75	2.95	0.03	4	42	60°	3.9	0/+0.06
WHC 442 040 070 ...	■	■	M4	0.7	8.2	3.13	2.21	0.03	4	42	60°	3.3	0/+0.06
WHC 442 045 070 ...	■	■	M4.5	0.7	8.7	3.63	2.71	0.03	4	42	60°	3.8	0/+0.06
WHC 442 045 075 ...	■	■	M4.5	0.75	9	3.57	2.59	0.03	4	42	60°	3.75	0/+0.07
WHC 442 050 075 ...	■	■	M5	0.75	9.5	3.98	3.00	0.03	4	42	60°	4.25	0/+0.07
WHC 442 050 080 ...	■	■	M5	0.8	9.8	3.98	2.94	0.03	4	42	60°	4.2	0/+0.07



3 flutes, 1 tooth (full profile UNC/UNF)



WHC ... UNC ... (INCH) (Short version)

Order designation	Carbide □ 15		Standard	Dimensions									Core hole	
	UHM 20	UHM 20 HX		P	P	l ₁	d ₁	d ₂	d ₀	l ₀	α	d ₃	Tolerance	

PREMIUM-LINE

Accuracy class of UTILIS □ 5



WHC 338-01-64 UNC ...	■	■	1-64	64	0.397	4.2	1.36	0.81	3	38	60°	1.5	0/+0.04
WHC 338-02-56 UNC ...	■	■	2-56	56	0.454	4.9	1.62	1	3	38	60°	1.78	0/+0.05
WHC 338-03-48 UNC ...	■	■	3-48	48	0.529	5.7	1.86	1.15	3	38	60°	2.05	0/+0.05
WHC 442-04-40 UNC ...	■	■	4-40	40	0.635	6.7	2.06	1.22	4	42	60°	2.27	0/+0.06
WHC 442-05-40 UNC ...	■	■	5-40	40	0.635	7	2.39	1.55	4	42	60°	2.59	0/+0.06
WHC 442-06-32 UNC ...	■	■	6-32	32	0.794	8.3	2.52	1.49	4	42	60°	2.77	0/+0.07
WHC 442-08-32 UNC ...	■	■	8-32	32	0.794	8.9	3.18	2.16	4	42	60°	3.42	0/+0.07

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WHC ... UNF ... (INCH) (Short version)

Order designation	Carbide □ 15		Standard	Dimensions									Core hole	
	UHM 20	UHM 20 HX		P	P	l ₁	d ₁	d ₂	d ₀	l ₀	α	d ₃	Tolerance	

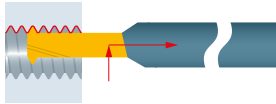
PREMIUM-LINE

Accuracy class of UTILIS □ 5



WHC 338-00-80 UNF ...	■	■	0-80	80	0.317	3.4	1.12	0.67	3	38	60°	1.25	0/+0.04
WHC 338-01-72 UNF ...	■	■	1-72	72	0.353	4	1.41	0.91	3	38	60°	1.55	0/+0.04
WHC 338-02-64 UNF ...	■	■	2-64	64	0.396	4.1	1.69	1.14	3	38	60°	1.9	0/+0.04
WHC 338-03-56 UNF ...	■	■	3-56	56	0.453	5.2	1.95	1.32	3	38	60°	2.15	0/+0.05
WHC 338-04-48 UNF ...	■	■	4-48	48	0.529	6	2.19	1.46	3	38	60°	2.4	0/+0.05
WHC 338-05-44 UNF ...	■	■	5-44	44	0.577	6.6	2.46	1.68	3	38	60°	2.7	0/+0.05
WHC 442-06-40 UNF ...	■	■	6-40	40	0.635	7.3	2.72	1.87	4	42	60°	2.95	0/+0.06
WHC 442-08-36 UNF ...	■	■	8-36	36	0.705	8.4	3.29	2.37	4	42	60°	3.5	0/+0.06
WHC 442-10-32 UNF ...	■	■	10-32	32	0.794	9.6	3.84	2.82	4	42	60°	4.1	0/+0.07

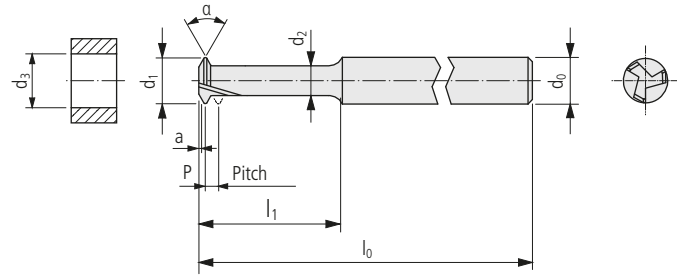
Application recommendation □ 341



3 flutes, 1 tooth (full profile metric)



WHD ... (Long version)

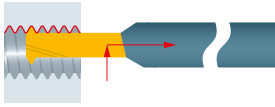


Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	l ₁	d ₁	d ₂	a	d ₀	l ₀	α	d ₃	Tolerance

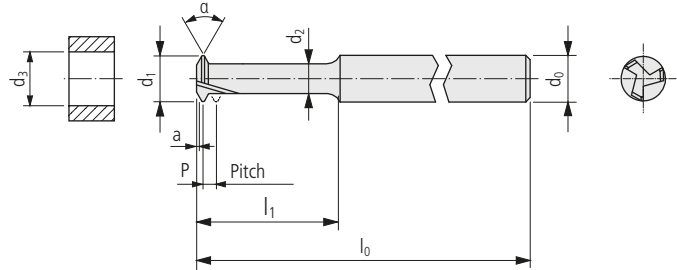
PREMIUM-LINE

Accuracy class of UTILIS □ 5

WHD 338 010 025 ...	■	■	M1.0	0.25	3.5	0.68	0.3	0.03	3	38	60°	0.75	0/+0.03
WHD 338 012 025 ...	■	■	M1.2	0.25	3.9	0.88	0.5	0.03	3	38	60°	0.95	0/+0.03
WHD 338 014 025 ...	■	■	M1.4	0.25	4.3	1.08	0.7	0.03	3	38	60°	1.15	0/+0.03
WHD 338 016 025 ...	■	■	M1.6	0.25	4.7	1.28	0.9	0.03	3	38	60°	1.35	0/+0.03
WHD 338 018 025 ...	■	■	M1.8	0.25	5.1	1.48	1.1	0.03	3	38	60°	1.55	0/+0.03
WHD 338 020 025 ...	■	■	M2.0	0.25	5.5	1.68	1.3	0.03	3	38	60°	1.75	0/+0.03
WHD 338 014 030 ...	■	■	M1.4	0.3	4.6	1.02	0.58	0.03	3	38	60°	1.1	0/+0.04
WHD 338 016 030 ...	■	■	M1.6	0.3	5	1.22	0.78	0.03	3	38	60°	1.3	0/+0.04
WHD 338 018 030 ...	■	■	M1.8	0.3	5.4	1.42	0.98	0.03	3	38	60°	1.5	0/+0.04
WHD 338 020 030 ...	■	■	M2.0	0.3	5.8	1.62	1.18	0.03	3	38	60°	1.7	0/+0.04
WHD 338 022 030 ...	■	■	M2.2	0.3	6.2	1.82	1.38	0.03	3	38	60°	1.9	0/+0.04
WHD 338 016 035 ...	■	■	M1.6	0.35	5.3	1.16	0.65	0.03	3	38	60°	1.25	0/+0.04
WHD 338 018 035 ...	■	■	M1.8	0.35	5.7	1.36	0.85	0.03	3	38	60°	1.45	0/+0.04
WHD 338 020 035 ...	■	■	M2.0	0.35	6.1	1.56	1.05	0.03	3	38	60°	1.65	0/+0.04
WHD 338 022 035 ...	■	■	M2.2	0.35	6.5	1.76	1.25	0.03	3	38	60°	1.85	0/+0.04
WHD 338 025 035 ...	■	■	M2.5	0.35	7.1	2.06	1.55	0.03	3	38	60°	2.15	0/+0.04
WHD 338 030 035 ...	■	■	M3.0	0.35	8.1	2.56	2.05	0.03	3	38	60°	2.65	0/+0.04
WHD 338 035 035 ...	■	■	M3.5	0.35	9.1	3.06	2.55	0.03	3	38	60°	3.15	0/+0.04
WHD 338 020 040 ...	■	■	M2.0	0.4	6.4	1.50	0.93	0.03	3	38	60°	1.6	0/+0.05
WHD 338 022 040 ...	■	■	M2.2	0.4	6.8	1.70	1.13	0.03	3	38	60°	1.8	0/+0.05
WHD 338 025 040 ...	■	■	M2.5	0.4	7.4	2.00	1.43	0.03	3	38	60°	2.1	0/+0.05
WHD 338 030 040 ...	■	■	M3	0.4	8.4	2.50	1.93	0.03	3	38	60°	2.6	0/+0.05
WHD 338 035 040 ...	■	■	M3.5	0.4	9.4	2.98	2.41	0.03	3	38	60°	3.1	0/+0.05
WHD 338 022 045 ...	■	■	M2.2	0.45	7.1	1.64	1.01	0.03	3	38	60°	1.75	0/+0.05
WHD 338 025 045 ...	■	■	M2.5	0.45	7.7	1.94	1.31	0.03	3	38	60°	2.05	0/+0.05
WHD 338 030 045 ...	■	■	M3	0.45	8.7	2.44	1.81	0.03	3	38	60°	2.55	0/+0.05
WHD 338 035 045 ...	■	■	M3.5	0.45	9.7	2.94	2.31	0.03	3	38	60°	3.05	0/+0.05
WHD 442 040 045 ...	■	■	M4	0.45	10.7	3.44	2.81	0.03	3	38	60°	3.55	0/+0.05
WHD 338 030 050 ...	■	■	M3	0.5	9	2.38	1.69	0.03	3	38	60°	2.5	0/+0.05
WHD 338 035 050 ...	■	■	M3.5	0.5	10	2.88	2.19	0.03	3	38	60°	3	0/+0.05
WHD 442 040 050 ...	■	■	M4	0.5	11	3.38	2.69	0.03	4	42	60°	3.5	0/+0.05
WHD 442 045 050 ...	■	■	M4.5	0.5	12	3.88	3.19	0.03	4	42	60°	4	0/+0.05
WHD 442 035 060 ...	■	■	M3.5	0.6	10.6	2.75	1.95	0.03	4	42	60°	2.9	0/+0.06
WHD 442 040 060 ...	■	■	M4	0.6	11.6	3.25	2.45	0.03	4	42	60°	3.4	0/+0.06
WHD 442 045 060 ...	■	■	M4.5	0.6	12.6	3.75	2.95	0.03	4	42	60°	3.9	0/+0.06
WHD 442 040 070 ...	■	■	M4	0.7	12.2	3.13	2.21	0.03	4	42	60°	3.3	0/+0.06
WHD 442 045 070 ...	■	■	M4.5	0.7	13.2	3.63	2.71	0.03	4	42	60°	3.8	0/+0.06
WHD 442 045 075 ...	■	■	M4.5	0.75	13.5	3.57	2.59	0.03	4	42	60°	3.75	0/+0.07
WHD 442 050 075 ...	■	■	M5	0.75	14.5	3.98	3.00	0.03	4	42	60°	4.25	0/+0.07
WHD 442 050 080 ...	■	■	M5	0.8	14.8	3.98	2.94	0.03	4	42	60°	4.2	0/+0.07



3 flutes, 1 tooth (full profile UNC/UNF)

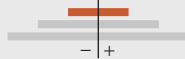


WHD ... UNC ... (INCH) (Long version)

Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	P	l ₁	d ₁	d ₂	d ₀	l ₀	α	d ₃	Tolerance

PREMIUM-LINE

Accuracy class of UTILIS □ 5



WHD 338-01-64 UNC ...	■	■	1-64	64	0.397	6.1	1.36	0.81	3	38	60°	1.5	0/+0.04
WHD 338-02-56 UNC ...	■	■	2-56	56	0.454	7.1	1.62	1	3	38	60°	1.78	0/+0.05
WHD 338-03-48 UNC ...	■	■	3-48	48	0.529	8.2	1.86	1.15	3	38	60°	2.05	0/+0.05
WHD 442-04-40 UNC ...	■	■	4-40	40	0.635	9.5	2.06	1.22	4	42	60°	2.27	0/+0.06
WHD 442-05-40 UNC ...	■	■	5-40	40	0.635	10.2	2.39	1.55	4	42	60°	2.59	0/+0.06
WHD 442-06-32 UNC ...	■	■	6-32	32	0.794	11.8	2.52	1.49	4	42	60°	2.77	0/+0.07
WHD 442-08-32 UNC ...	■	■	8-32	32	0.794	13.1	3.18	2.16	4	42	60°	3.42	0/+0.07

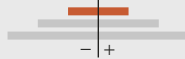
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WHD ... UNF ... (INCH) (Long version)

Order designation	Carbide □ 15		Standard	Dimensions								Core hole	
	UHM 20	UHM 20 HX		P	P	l ₁	d ₁	d ₂	d ₀	l ₀	α	d ₃	Tolerance

PREMIUM-LINE

Accuracy class of UTILIS □ 5

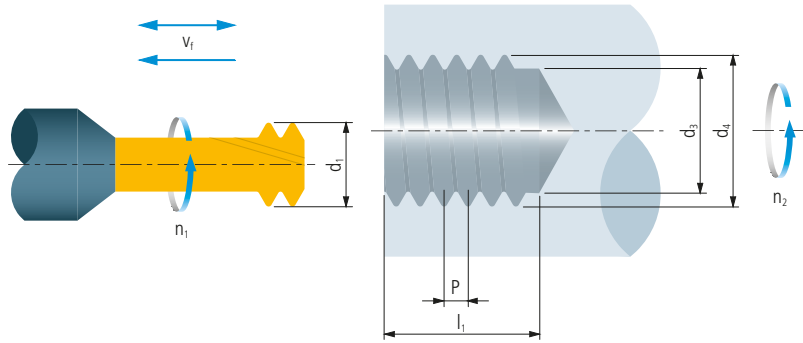


WHD 338-00-80 UNF ...	■	■	0-80	80	0.317	5	1.12	0.67	3	38	60°	1.25	0/+0.04
WHD 338-01-72 UNF ...	■	■	1-72	72	0.353	5.8	1.41	0.91	3	38	60°	1.55	0/+0.04
WHD 338-02-64 UNF ...	■	■	2-64	64	0.396	6.8	1.69	1.14	3	38	60°	1.9	0/+0.04
WHD 338-03-56 UNF ...	■	■	3-56	56	0.453	7.8	1.95	1.32	3	38	60°	2.15	0/+0.05
WHD 338-04-48 UNF ...	■	■	4-48	48	0.529	8.9	2.19	1.46	3	38	60°	2.4	0/+0.05
WHD 338-05-44 UNF ...	■	■	5-44	44	0.577	9.8	2.46	1.68	3	38	60°	2.7	0/+0.05
WHD 442-06-40 UNF ...	■	■	6-40	40	0.635	10.8	2.72	1.87	4	42	60°	2.95	0/+0.06
WHD 442-08-36 UNF ...	■	■	8-36	36	0.705	12.6	3.29	2.37	4	42	60°	3.5	0/+0.06
WHD 442-10-32 UNF ...	■	■	10-32	32	0.794	14.4	3.84	2.82	4	42	60°	4.1	0/+0.07

Application recommendation □ 341

	Steel unalloyed			Steel low alloyed			Steel high alloyed			Titanium		
Hardness value (HB)	125–300			180–250			200–350			–		
Category	I			II			III			IV		
Machining method	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼
Cutting speeds	v_c (m/min)											
Cutting material carbide												
UHM 20	–	–	20–120	–	–	20–100	–	–	20–90	–	–	20–70
UHM 20 HX	–	–	30–160	–	–	30–140	–	–	30–130	–	–	30–100

	Stainless steel			Stainless steel			Aluminum			Brass		
Hardness value (HB)	180–220			220–330			60–130			–		
Category	V			VI			VII			VIII		
Machining method	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼	▼	▼▼	▼▼▼
Cutting speeds	v_c (m/min)											
Cutting material carbide												
UHM 20	–	–	20–80	–	–	20–60	–	–	50–220	–	–	30–110
UHM 20 HX	–	–	30–120	–	–	30–100	–	–	60–350	–	–	50–180



$$v_f = z \cdot f_z \cdot n_1$$

$$n_1 = \frac{v_c \cdot 1000}{\pi \cdot d_1}$$

$$n_2 = \frac{v_f}{\pi \cdot d_1}$$

Explanation

v_f	Feed (mm/min)
d_1	Tool diameter (mm)
n_1	Tool revolutions (rev/min)
d_4	Work piece diameter (mm)
n_2	Revolutions (rev/min)
v_c	Cutting speed (m/min)
P	Pitch (mm)
l_1	Length of one milling pass (mm)
z	Number of teeth
d_3	Drilling diameter (mm)
f_z	Feed per tooth (mm)

Determine the drilling diameter

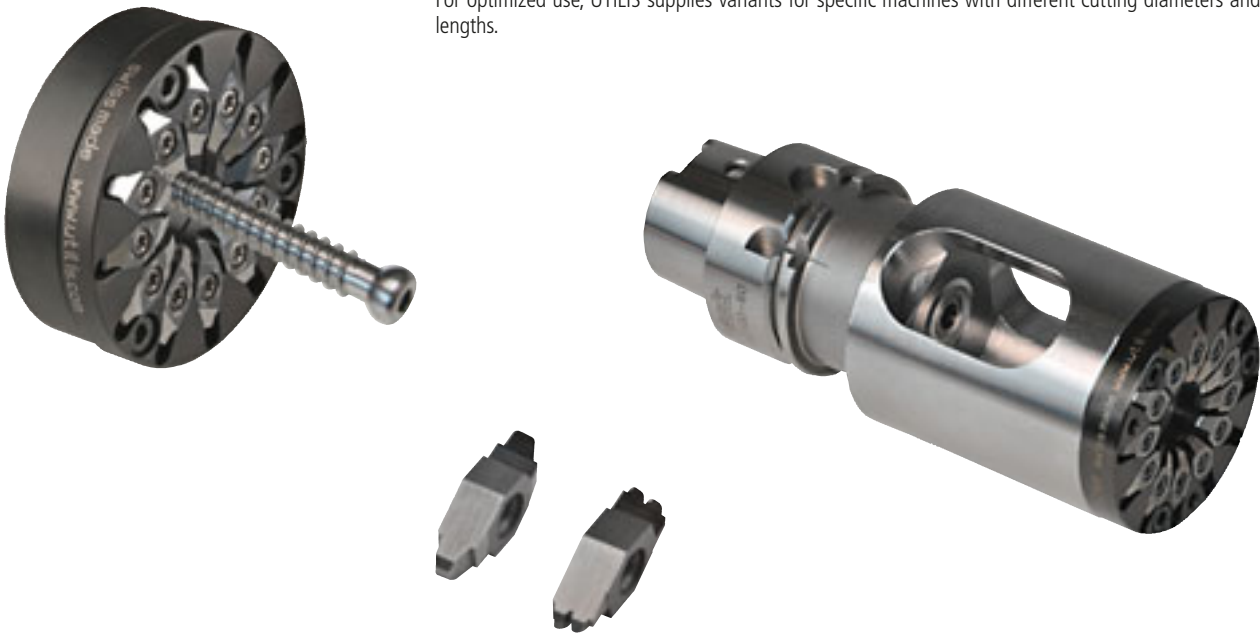
For the preparation of drilling before thread whirling, it is necessary to know at first the tolerance of the desired thread. To avoid overload of the tool the diameter must not exceed the max. diameter as mentioned in the following table.

Example: M 1.4, pitch 0.3, tolerance desired of the thread 6H on high level (1.11)

Diameter of the hole to be drilled min = 1.11 – (2 × 0.04) 1.03 mm minimum

multidec®-WHIRLING is a multiple cutter thread whirling tool system designed to significantly improve productivity – essential in today's mass production. Unlike single point threading which requires multiple passes, thread whirling produces a finished thread free from burr in a single pass. The use of up to 12 cutting inserts greatly reduces machining time.

For optimized use, UTILIS supplies variants for specific machines with different cutting diameters and lengths.



The inserts used in multidec®-WHIRLING are based on those in multidec®-CUT. This groove/lathe tool system is ideal for Swiss type turning machines with a maximum bar passage diameter of 10 mm. The inserts have two cutting edges that are screwed onto the holders with a repeat accuracy of <math>< 0.01\text{ mm}</math>.

Specialities and advantage:

- Up to 12 inserts increase productivity and reduce vibration considerably
- Little concentricity tolerance and high exchange accuracy of inserts $< \pm 0.005\text{ mm}$ guarantee threads of high-quality
- Quick and simple change of the Whirling tool reduces set up time
- Threads without cutting ridge decrease re-machining of parts
- Using UTILIS standard blanks allows short delivery time and best possible coating for demanded application
- Whirling tools with different flight circles and multi start threads available

