

For use with all Rotary Files: Dynabrade Die Grinders and Pencil Grinders

Overhang/Speed Charts

ANSI B7.1-2017 Charts and Diagrams

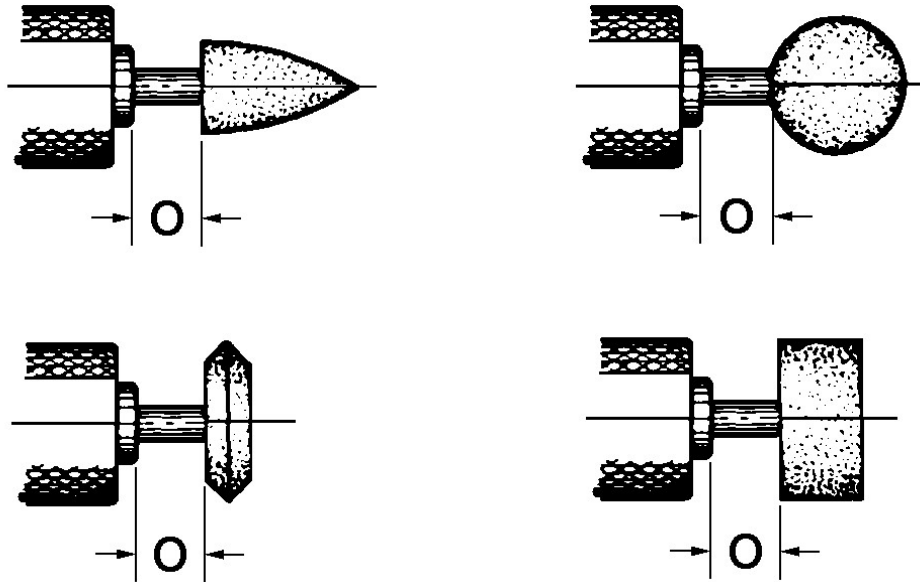


Figure No. 42
Dimension "O" indicates overhang of mandrel

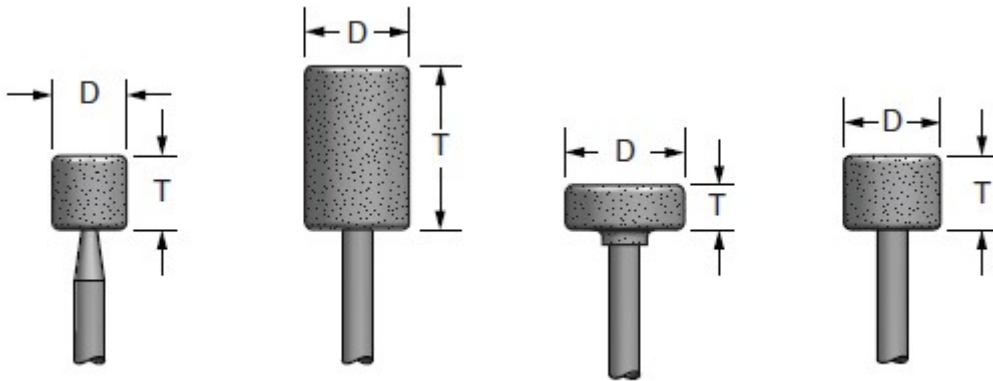


Illustration No. 80
Mounted wheels
standard shapes
Group "W"

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Table 20 – Group W — (plain wheels) Maximum operating speeds (RPM) for ½" mandrels

Shape No.	D Wheel Diameter Inches	T Wheel Thickness Inches	½" Overhang & Thd. Mdl.	Overhang — Dimension "O"			
				1"	1 ½"	2"	2 ½"
W 143	½	⅛	105,000	64,500	46,650	32,400	21,370
W 144	½	¼	105,000	64,500	46,650	32,400	21,370
W 145	½	⅜	105,000	64,500	46,650	32,400	21,370
W 146	½	½	105,000	64,500	46,650	32,400	21,370
W 151	⅜	⅛	105,000	64,500	46,650	32,400	21,370
W 152	⅜	¼	105,000	64,500	46,650	32,400	21,370
W 153	⅜	⅜	80,850	52,500	37,500	26,250	17,620
W 154	⅜	½	70,500	45,600	31,500	21,970	15,220
W 157	¼	⅛	123,000	65,625	47,770	33,150	21,750
W 158	¼	¼	105,000	64,500	46,650	32,400	21,370
W 159	¼	⅜	92,400	57,370	39,370	27,900	18,900
W 160	¼	½	81,370	51,000	34,120	24,000	16,870
W 161	¼	⅝	77,250	45,970	30,900	22,500	16,120
W 162	¼	¾	68,400	42,370	28,870	20,850	15,000
W 163	¼	½	60,000	38,020	26,250	18,750	13,870
W 164	¼	¾	45,900	30,000	21,750	15,900	11,850
W 165	⅜	⅛	107,400	62,470	41,250	29,250	20,250
W 166	⅜	¼	96,970	57,000	35,620	25,120	18,000
W 167	⅜	⅜	75,000	45,750	31,120	22,500	15,750
W 168	⅜	½	68,400	41,770	28,650	21,000	15,000
W 169	⅜	¾	61,650	37,720	27,000	19,870	14,250
W 170	⅜	½	52,500	33,000	23,020	16,650	12,600
W 171	⅜	¾	37,120	25,500	18,750	14,620	10,020
W 172	¾	⅛	99,370	59,250	41,020	29,250	20,250
W 173	¾	¼	87,600	53,250	35,250	24,750	17,250
W 174	¾	⅜	69,000	41,250	27,750	20,400	15,000
W 175	¾	½	54,000	33,000	24,150	18,000	13,500
W 176	¾	¾	45,370	28,500	21,000	15,900	12,150
W 177	¾	¾	33,750	23,250	17,620	13,650	10,350
W 178	¾	1	26,250	18,750	14,250	10,870	8,250
W 181	½	⅛	76,390	55,500	36,750	25,000	17,850
W 182	½	¼	73,500	43,650	29,100	20,770	15,450
W 183	½	⅜	51,750	31,870	22,500	17,250	12,900
W 184	½	½	41,020	26,400	19,500	15,000	11,400
W 185	½	¾	34,500	22,500	16,870	13,120	9,900
W 186	½	¾	26,250	17,400	12,750	9,750	8,020
W 187	½	1	20,620	13,870	10,120	7,870	6,370
W 190	⅝	⅛	61,120	48,000	31,500	22,650	16,870
W 191	⅝	¼	58,870	34,500	25,120	18,900	14,250
W 192	⅝	⅜	43,120	27,370	19,870	15,220	11,620
W 193	⅝	½	32,250	23,020	16,500	12,520	9,750
W 194	⅝	¾	29,400	19,120	13,500	10,500	8,250
W 195	⅝	¾	22,120	14,250	10,120	7,650	6,150
W 196	⅝	1	17,620	11,620	8,100	6,150	5,100
W 199	¾	⅛	50,930	44,770	30,000	21,750	15,750
W 200	¾	¼	50,930	33,520	23,850	17,850	13,350
W 201	¾	⅜	38,250	24,370	17,400	13,270	9,970
W 202	¾	½	30,600	19,500	13,500	10,120	7,800
W 203	¾	¾	25,500	15,900	10,870	8,250	6,600
W 204	¾	¾	18,900	12,000	8,400	6,220	5,250
W 210	⅞	⅛	43,650	35,250	25,720	18,900	14,320
W 211	⅞	¼	43,650	27,900	20,400	15,820	12,220
W 212	⅞	⅜	33,750	20,400	14,400	11,020	9,000
W 213	⅞	½	27,000	16,870	11,250	8,250	6,600
W 215	1	⅛	38,200	24,900	18,000	13,870	10,500
W 216	1	¼	30,520	18,600	12,750	9,520	7,500

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Table 22 – Group W — (plain wheels) Maximum operating speeds (RPM) for 1/4" mandrels

Shape No.	D Wheel Diameter Inches	T Wheel Thickness Inches	1/4" Overhang & Thd. Mds.	Overhang — Dimension "O"						
				1"	1 1/2"	2"	2 1/2"	3"	4"	5"
W 176	3/8	1/8	81,000	54,379	42,000	33,000	25,500	20,400	13,260	9,550
W 177	3/8	3/4	66,000	46,500	32,250	27,370	21,000	16,800	10,920	7,860
W 178	3/8	1	55,200	40,500	30,000	23,250	17,250	13,800	8,970	6,460
W 179	3/8	1 1/4	45,750	33,750	25,720	19,720	15,300	12,240	7,960	5,730
W 182	1/2	1/8	76,390	62,400	45,750	35,400	27,520	22,020	14,310	10,300
W 183	1/2	1/4	76,390	54,750	40,500	31,120	24,000	19,200	12,480	8,990
W 184	1/2	3/8	71,250	47,620	35,020	27,000	20,850	16,680	10,840	7,800
W 185	1/2	1/2	61,500	42,000	31,500	24,000	18,370	14,700	9,560	6,880
W 186	1/2	3/4	51,000	36,370	27,750	21,220	16,120	12,900	8,390	6,040
W 187	1/2	1	40,500	30,000	24,000	18,750	14,250	11,400	7,410	5,340
W 188	1/2	1 1/2	30,370	24,000	18,900	15,000	12,000	9,600	6,240	4,490
W 189	1/2	2	24,000	18,750	15,000	12,150	9,900	7,920	5,150	3,710
W 190	5/8	1/16	61,120	61,120	48,000	31,500	29,020	23,220	15,090	10,800
W 191	5/8	1/8	61,120	60,000	44,250	34,500	27,000	21,600	14,040	10,110
W 192	5/8	1/4	61,120	51,750	38,400	29,770	23,250	18,680	12,140	8,740
W 193	5/8	3/8	61,120	45,000	33,370	25,870	20,100	16,080	10,450	7,520
W 194	5/8	1/2	56,400	39,750	29,400	22,720	17,400	13,920	9,050	6,520
W 195	5/8	3/4	46,500	32,400	24,900	19,720	15,370	12,300	8,000	5,760
W 196	5/8	1	35,250	27,000	21,300	16,870	13,120	10,500	6,830	4,920
W 197	5/8	2	21,000	16,500	12,900	10,870	8,700	6,960	4,520	3,250
W 198	5/8	2 1/2	16,500	12,900	10,870	8,700	7,000	5,600	3,640	2,620
W 201	3/4	1/4	50,930	50,930	38,100	29,020	22,500	18,000	11,700	8,420
W 202	3/4	3/8	50,930	44,100	32,400	25,120	19,350	15,480	10,060	7,240
W 203	3/4	1/2	50,930	36,370	27,750	21,750	16,870	13,500	8,780	6,320
W 204	3/4	3/4	42,750	30,750	23,250	18,000	14,020	11,220	7,290	5,250
W 205	3/4	1	34,500	25,870	19,500	15,000	12,000	9,600	6,240	4,490
W 206	3/4	1 1/4	28,720	21,520	17,020	13,500	10,800	8,640	5,620	4,050
W 207	3/4	1 1/2	24,000	18,520	14,620	12,000	9,900	7,920	5,150	3,710
W 208	3/4	2	18,750	15,370	12,000	9,900	8,000	6,400	4,160	3,000
W 209	3/4	2 1/2	15,000	12,150	10,500	8,400	6,800	5,440	3,540	2,550
W 211	7/8	1/8	43,650	43,650	42,900	33,000	26,250	21,000	13,650	9,820
W 212	7/8	1/4	43,650	43,650	35,100	27,600	21,370	17,100	11,120	8,010
W 213	7/8	3/8	43,650	40,870	29,400	23,400	18,370	14,700	9,560	6,880
W 215	1	1/8	38,200	38,200	38,200	33,750	25,500	20,400	13,260	9,550
W 216	1	1/4	38,200	38,200	33,750	26,250	20,250	16,200	10,530	7,580
W 217	1	3/8	38,200	38,200	28,500	22,500	17,400	13,920	9,050	6,520
W 218	1	1/2	38,200	32,770	24,900	19,500	14,850	11,880	7,720	5,560
W 219	1	3/4	35,100	24,520	18,750	15,000	12,000	9,600	6,240	4,490
W 220	1	1	25,500	19,120	15,750	12,370	10,500	8,400	5,460	3,930
W 221	1	1 1/2	19,120	14,620	12,000	10,500	8,400	6,720	4,370	3,150
W 222	1	2	15,900	12,370	9,750	8,620	6,900	5,520	3,590	2,580
W 223	1	2 1/2	12,370	9,900	8,620	6,900	5,500	4,400	2,860	2,060
W 225	1 1/4	1/4	30,560	30,560	30,560	24,000	18,750	15,000	9,750	7,020
W 226	1 1/4	3/8	30,560	30,560	26,250	20,100	15,750	12,600	8,190	5,900
W 227	1 1/4	1/2	30,560	29,620	22,650	18,000	14,100	11,280	7,330	5,280
W 228	1 1/4	3/4	30,520	22,500	17,850	14,250	11,400	9,120	5,930	4,270
W 229	1 1/4	1	24,000	18,750	15,370	12,000	9,900	7,920	5,150	3,710
W 230	1 1/4	1 1/4	20,400	15,900	12,750	10,500	8,400	6,720	4,370	3,150
W 231	1 1/4	1 1/2	17,620	13,500	10,650	9,000	7,200	5,760	3,740	2,690
W 232	1 1/4	2	14,250	10,650	9,000	7,500	6,000	4,800	3,120	2,250
W 235	1 1/2	1/4	25,470	25,470	25,470	22,720	17,620	14,100	9,170	6,600
W 236	1 1/2	1/2	25,470	25,470	21,750	17,250	13,650	10,920	7,100	5,110
W 237	1 1/2	1	22,500	17,620	13,270	10,870	9,520	7,620	4,950	3,560
W 238	1 1/2	1 1/2	15,600	12,000	9,750	8,250	6,600	5,280	3,430	2,470
W 239	1 1/2	2	12,750	9,900	8,000	6,400	5,100	4,080	2,650	1,910
W 240	1 1/2	2 1/2	10,500	8,400	6,800	5,500	4,400	3,520	2,290	1,650
W 241	1 1/2	3	9,000	7,250	6,000	4,800	3,900	3,120	2,030	1,460
W 242	2	1	19,100	15,950	11,750	10,000	8,800	7,040	4,580	3,300
W 243	2	1 1/2	14,500	12,750	9,800	7,800	6,300	5,040	3,280	2,360
W 244	2	2	11,750	10,500	7,500	6,200	5,030	4,000	2,600	1,870
W 245	2	2 1/2	9,600	7,250	6,400	5,300	4,250	3,400	2,210	1,590
W 246	2	3	8,250	6,750	5,600	4,600	3,700	2,960	1,920	1,380

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Table 23 – Group W — (plain wheels) Maximum operating speeds (RPM) for 3/8" mandrels

Shape No.	D Wheel Diameter Inches	T Wheel Thickness Inches	1/2" Overhang & Thd. Mds.	Overhang — Dimension "O"						
				1"	1 1/2"	2"	2 1/2"	3"	4"	5"
W 185	1/2	1/2	76,390	76,390	63,000	48,000	36,740	29,400	19,120	13,760
W 186	1/2	3/4	76,390	72,740	55,500	42,440	32,240	25,800	16,780	12,080
W 187	1/2	1	76,390	60,000	48,000	37,500	28,500	22,800	14,820	10,680
W 188	1/2	1 1/2	60,740	48,000	37,800	30,000	24,000	19,200	12,480	8,980
W 189	1/2	2	48,000	37,500	30,000	24,300	19,800	15,840	10,300	7,420
W 194	3/8	1/2	61,120	61,120	58,800	45,440	34,800	27,840	18,100	13,040
W 195	3/8	3/4	61,120	61,120	49,800	39,440	30,740	24,600	16,000	11,520
W 196	3/8	1	61,120	54,000	42,600	33,740	26,240	21,000	13,660	9,840
W 197	3/8	2	42,000	33,000	25,800	21,740	17,400	13,970	9,040	6,500
W 198	3/8	2 1/2	33,000	25,800	21,740	17,400	14,000	11,200	7,280	5,240
W 203	3/4	1/2	50,930	50,930	50,930	43,500	33,740	27,000	17,560	12,640
W 204	3/4	3/4	50,930	50,930	46,500	36,000	28,040	22,440	14,580	10,500
W 205	3/4	1	50,930	50,930	39,000	30,000	24,000	19,200	12,480	8,980
W 206	3/4	1 1/4	50,930	43,040	34,040	27,000	21,600	17,280	11,240	8,100
W 207	3/4	1 1/2	48,000	37,040	29,240	24,000	19,800	15,840	10,300	7,420
W 208	3/4	2	37,500	30,740	24,000	19,800	16,000	12,800	8,320	6,000
W 209	3/4	2 1/2	30,000	24,300	21,000	18,800	13,600	10,880	7,080	5,100
W 218	1	1/2	38,200	38,200	38,200	38,200	29,700	23,760	15,440	11,120
W 219	1	3/4	38,200	38,200	37,500	30,000	24,000	19,200	12,480	8,980
W 220	1	1	38,200	38,200	31,500	24,740	21,000	16,800	10,920	7,860
W 221	1	1 1/2	38,200	29,240	24,000	21,000	16,800	13,440	8,740	6,300
W 222	1	2	31,800	24,740	19,500	17,240	13,800	11,040	7,180	5,160
W 223	1	2 1/2	24,740	19,800	17,240	13,800	11,000	8,800	5,720	4,120
W 227	1 1/4	1/2	30,560	30,560	30,560	30,560	28,200	22,560	14,660	10,560
W 228	1 1/4	3/4	30,560	30,560	30,560	28,500	22,800	18,240	11,860	8,540
W 229	1 1/4	1	30,560	30,560	30,560	24,000	19,800	15,840	10,300	7,420
W 230	1 1/4	1 1/4	30,560	30,560	25,500	21,000	16,800	13,440	8,740	6,300
W 231	1 1/4	1 1/2	30,560	27,000	21,300	18,000	14,400	11,520	7,180	5,380
W 232	1 1/4	2	28,500	21,300	18,000	15,000	12,000	9,600	5,720	4,500
W 236	1 1/2	1/2	25,470	25,470	25,470	25,470	25,470	21,840	14,200	10,220
W 237	1 1/2	1	25,470	25,470	25,470	21,740	19,040	15,240	9,900	7,120
W 238	1 1/2	1 1/2	25,470	24,000	19,500	16,500	13,200	10,560	6,860	4,940
W 239	1 1/2	2	24,470	19,800	16,000	12,800	10,200	8,160	5,300	3,820
W 240	1 1/2	2 1/2	21,000	16,800	13,600	11,000	8,800	7,040	4,580	3,300
W 241	1 1/2	3	18,000	14,500	12,000	9,600	7,800	6,240	4,060	2,920
W 242	2	1	19,100	19,100	19,100	19,100	17,600	14,080	9,160	6,600
W 243	2	1 1/2	19,100	19,100	19,100	15,600	12,600	10,080	6,560	4,720
W 244	2	2	19,100	19,100	15,000	12,400	10,000	8,000	5,200	3,740
W 245	2	2 1/2	19,100	14,500	12,800	10,600	8,500	6,800	4,420	3,180
W 246	2	3	16,500	13,500	11,200	9,200	7,400	5,920	3,840	2,760

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