OSAWA

DRILLS & END MILLS

OSW23 UPDATE

INDEX

TYPHOON CV

HIGH PERFORMANCE - GENERAL PURPOSE

The tool of choice for multi-purpose drilling on ISO P, M, K, N below 1100 N/mm².

La soluzione ideale per la foratura di materiali ISO P, M, K, N sino a 1100 N/mm².

Die optimale Lösung für das Bohren der Materialien ISO P, M, K, N bis zu 1100 N/mm².

La solution idéale pour le perçage de matériaux ISO P, M, K, N jusqu'à 1100 N/mm².

La solución ideal para el taladrado de materiales ISO P, M, K, N hasta 1100 N/mm².

Идеальное решение для сверления материалов по ISO P, M, K, N до 1100 Н/мм².

TYPHOON CV

HIGH PERFORMANCE - GENERAL PURPOSE

- Unique split point: reduces thrust, provides better self centering
- Split gash design: low drilling resistance and short chips for easier ejection
- Optimized Chisel: long and stable tool life
- Wide flutes by new grinding technology: smooth chips ejection
- Special curved edge design: reduces cutting force
- Small chamfer: reduces corner chipping problem
- Special edge treatment: extends tool life

- Point de séparation unique: réduit la poussée, permet un meilleur auto-centrage.
- Grande goujure centrale: faible résistance au perçage et copeaux courts pour une éjection plus facile
- Arête de coupe transversale optimisée : durée de vie de l'outil longue et stable
- Des goujures larges grâce à une nouvelle technologie de meulage : éjection des copeaux optimale
- Conception spéciale de l'arête avec bord incurvé : réduit la force de coupe
- Petit chanfrein : réduit les problèmes d'écaillage dans les coins
- Traitement spécial des arêtes : prolonge la durée de vie de l'outil

- Affilatura a croce: riduce lo sforzo di taglio e migliora la capacità di centraggio
- Ampio scarico frontale: basso sforzo di taglio e trucioli corti per evacuazione più efficiente
- Tagliente trasversale ottimizzato: incremento durata e affidabilità
- Gole più ampie grazie alla nuova tecnologia di affilatura: ottima evacuazione dei trucioli
- Tagliente curvilineo: Riduce lo sforzo di taglio
- Smusso per protezione degli spigoli: riduzione dei problemi di scheggiatura
- Onatura precisa: maggiore durata dell'utensile

- Afilado a cruz: reduce el esfuerzo de corte y mejora el autocentrado
- Amplio descargue frontal: evacuación de viruta más eficiente gracias a bajos esfuerzos de corte y generación de viruta corta
- Filo de corte transversal mejorado Aumento de la vida útil y fiabilidad
- Ranuras más anchas gracias a la nueva tecnología de afilado: Excelente evacuación de viruta
- Filo de corte curvilíneo Reduce el esfuerzo de corte
- Chaflán para protección de los bordes: Reducción de problemas de astillado
- Tratamiento especial del filo: aumenta la vida útil de la herramienta

- Kreunzanschliff: reduziert die Schnittktraft und verbessert die Zentrierung
- Grosse Freifläche auf der Spitze: Geringer Bohrwiederstand und kurze Späne für eine effizientere Spanabfuhr
- Optimierte Querkante: Verbesserte Standzeit und Leistung
- Grössere Nuten, dank einer neuen Schleiftechnologie: optimale Spanabfuhr
- Gekurvte Schneide: Reduzierter Schneideaufwand
- Kantenschutz: vermindert Absplitterungen
- Spezieller Kantenschnitt: Verlängerte Standzeit

- Крестовая заточка: Снижает усилие резания и улучшает центрирование
- Дизайн режущей части: Низкое усилие резания и короткая стружка для более эффективного удаления
- Оптимизированная поперечная режущая кромка: Повышенная долговечность и надежность
- Более широкие канавки благодаря новой технологии заточки: Превосходное удаление стружки
- Криволинейная режущая кромка: Снижает усилие резания
- Фаска для защиты кромки: Уменьшает проблему сколов кромки
- Специальная обработка края: Более продолжительный срок службы инструмента

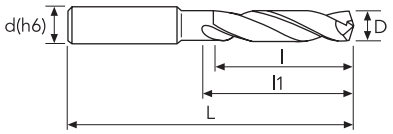
353CV

General purpose

3XD | DIN 6537K | CV | MG PV250 | 140° | 30°

353CV replaces 343TA.
353CV will be gradually available as soon as 343TA stock is phased out

P	M	K	N	S	H
1st choice		suitable			



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
1.00	+0.012/+0.002	3	5	7	45	353CV0100	●
1.10	+0.012/+0.002	3	5	7	45	353CV0110	●
1.20	+0.012/+0.002	3	5	7	45	353CV0120	●
1.30	+0.012/+0.002	3	5	7	45	353CV0130	●
1.40	+0.012/+0.002	3	5	7	45	353CV0140	●
1.50	+0.012/+0.002	3	10	13	50	353CV0150	●
1.60	+0.012/+0.002	3	10	13	50	353CV0160	●
1.70	+0.012/+0.002	3	10	13	50	353CV0170	●
1.80	+0.012/+0.002	3	10	13	50	353CV0180	●
1.90	+0.012/+0.002	3	10	13	50	353CV0190	●
2.00	+0.012/+0.002	4	12	17	55	353CV0200	●
2.10	+0.012/+0.002	4	12	17	55	353CV0210	●
2.20	+0.012/+0.002	4	12	17	55	353CV0220	●
2.30	+0.012/+0.002	4	12	17	55	353CV0230	●
2.40	+0.012/+0.002	4	12	17	55	353CV0240	●
2.50	+0.012/+0.002	4	12	17	55	353CV0250	●
2.60	+0.012/+0.002	4	12	17	55	353CV0260	●
2.70	+0.012/+0.002	4	12	17	55	353CV0270	●
2.80	+0.012/+0.002	4	12	17	55	353CV0280	●
2.90	+0.012/+0.002	4	12	17	55	353CV0290	●
3.00	+0.012/+0.002	6	14	20	62	353CV0300	●
3.10	+0.016/+0.004	6	14	20	62	353CV0310	●
3.20	+0.016/+0.004	6	14	20	62	353CV0320	●
3.30	+0.016/+0.004	6	14	20	62	353CV0330	●
3.40	+0.016/+0.004	6	14	20	62	353CV0340	●
3.50	+0.016/+0.004	6	14	20	62	353CV0350	●
3.60	+0.016/+0.004	6	14	20	62	353CV0360	●
3.70	+0.016/+0.004	6	14	20	62	353CV0370	●
3.80	+0.016/+0.004	6	17	24	66	353CV0380	●
3.90	+0.016/+0.004	6	17	24	66	353CV0390	●
4.00	+0.016/+0.004	6	17	24	66	353CV0400	●
4.10	+0.016/+0.004	6	17	24	66	353CV0410	●
4.20	+0.016/+0.004	6	17	24	66	353CV0420	●
4.30	+0.016/+0.004	6	17	24	66	353CV0430	●
4.40	+0.016/+0.004	6	17	24	66	353CV0440	●
4.50	+0.016/+0.004	6	17	24	66	353CV0450	●
4.60	+0.016/+0.004	6	17	24	66	353CV0460	●
4.70	+0.016/+0.004	6	17	24	66	353CV0470	●
4.80	+0.016/+0.004	6	20	28	66	353CV0480	●

● stock standard ○ non-standard stock ▽ stock exhaustion

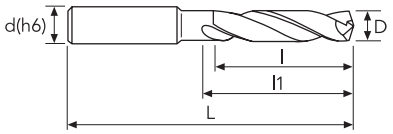
353CV

General purpose

3XD | DIN 6537K | CV | MG PV250 | 140° | 30°

353CV replaces 343TA.
353CV will be gradually available as soon as 343TA stock is phased out

P	M	K	N	S	H
1st choice		suitable			



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
4.90	+0.016/+0.004	6	20	28	66	353CV0490	●
5.00	+0.016/+0.004	6	20	28	66	353CV0500	●
5.10	+0.016/+0.004	6	20	28	66	353CV0510	●
5.20	+0.016/+0.004	6	20	28	66	353CV0520	●
5.30	+0.016/+0.004	6	20	28	66	353CV0530	●
5.40	+0.016/+0.004	6	20	28	66	353CV0540	●
5.50	+0.016/+0.004	6	20	28	66	353CV0550	●
5.60	+0.016/+0.004	6	20	28	66	353CV0560	●
5.70	+0.016/+0.004	6	20	28	66	353CV0570	●
5.80	+0.016/+0.004	6	20	28	66	353CV0580	●
5.90	+0.016/+0.004	6	20	28	66	353CV0590	●
6.00	+0.016/+0.004	6	20	28	66	353CV0600	●
6.10	+0.021/+0.006	8	24	34	79	353CV0610	●
6.20	+0.021/+0.006	8	24	34	79	353CV0620	●
6.30	+0.021/+0.006	8	24	34	79	353CV0630	●
6.40	+0.021/+0.006	8	24	34	79	353CV0640	●
6.50	+0.021/+0.006	8	24	34	79	353CV0650	●
6.60	+0.021/+0.006	8	24	34	79	353CV0660	●
6.70	+0.021/+0.006	8	24	34	79	353CV0670	●
6.80	+0.021/+0.006	8	24	34	79	353CV0680	●
6.90	+0.021/+0.006	8	24	34	79	353CV0690	●
7.00	+0.021/+0.006	8	24	34	79	353CV0700	●
7.10	+0.021/+0.006	8	29	41	79	353CV0710	●
7.20	+0.021/+0.006	8	29	41	79	353CV0720	●
7.30	+0.021/+0.006	8	29	41	79	353CV0730	●
7.40	+0.021/+0.006	8	29	41	79	353CV0740	●
7.50	+0.021/+0.006	8	29	41	79	353CV0750	●
7.60	+0.021/+0.006	8	29	41	79	353CV0760	●
7.70	+0.021/+0.006	8	29	41	79	353CV0770	●
7.80	+0.021/+0.006	8	29	41	79	353CV0780	●
7.90	+0.021/+0.006	8	29	41	79	353CV0790	●
8.00	+0.021/+0.006	8	29	41	79	353CV0800	●
8.10	+0.021/+0.006	10	35	47	89	353CV0810	●
8.20	+0.021/+0.006	10	35	47	89	353CV0820	●
8.30	+0.021/+0.006	10	35	47	89	353CV0830	●
8.40	+0.021/+0.006	10	35	47	89	353CV0840	●
8.50	+0.021/+0.006	10	35	47	89	353CV0850	●
8.60	+0.021/+0.006	10	35	47	89	353CV0860	●
8.70	+0.021/+0.006	10	35	47	89	353CV0870	●

● stock standard ○ non-standard stock ▽ stock exhaustion

353CV

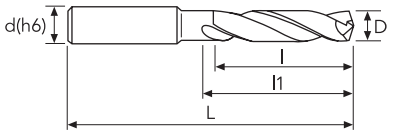
General purpose

3XD | DIN 6537K | CV | MG PV250 | 140° | 30°

353CV replaces 343TA.
353CV will be gradually available as soon as 343TA stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
8.80	+0.021/+0.006	10	35	47	89	353CV0880	●
8.90	+0.021/+0.006	10	35	47	89	353CV0890	●
9.00	+0.021/+0.006	10	35	47	89	353CV0900	●
9.10	+0.021/+0.006	10	35	47	89	353CV0910	●
9.20	+0.021/+0.006	10	35	47	89	353CV0920	●
9.30	+0.021/+0.006	10	35	47	89	353CV0930	●
9.40	+0.021/+0.006	10	35	47	89	353CV0940	●
9.50	+0.021/+0.006	10	35	47	89	353CV0950	●
9.60	+0.021/+0.006	10	35	47	89	353CV0960	●
9.70	+0.021/+0.006	10	35	47	89	353CV0970	●
9.80	+0.021/+0.006	10	35	47	89	353CV0980	●
9.90	+0.021/+0.006	10	35	47	89	353CV0990	●
10.00	+0.021/+0.006	10	35	47	89	353CV1000	●
10.20	+0.025/+0.007	12	40	55	102	353CV1020	●
10.50	+0.025/+0.007	12	40	55	102	353CV1050	●
11.00	+0.025/+0.007	12	40	55	102	353CV1100	●
11.50	+0.025/+0.007	12	40	55	102	353CV1150	●
12.00	+0.025/+0.007	12	40	55	102	353CV1200	●
12.50	+0.025/+0.007	14	43	60	107	353CV1250	●
13.00	+0.025/+0.007	14	43	60	107	353CV1300	●
13.50	+0.025/+0.007	14	43	60	107	353CV1350	●
14.00	+0.025/+0.007	14	43	60	107	353CV1400	●
14.50	+0.025/+0.007	16	49	65	115	353CV1450	●
15.00	+0.025/+0.007	16	49	65	115	353CV1500	●
15.50	+0.025/+0.007	16	49	65	115	353CV1550	●
16.00	+0.025/+0.007	16	49	65	115	353CV1600	●

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

353CV

	Material Group ISO 513	P1 P2 P3	P7	M1	K1	N1 N2	
	Hardness/Rm	<800 N/mm²	<700 N/mm²	<750 N/mm²	150÷200 HB		
	Vc (m/min)	**80÷100**	**35÷45**	**35÷45**	**80÷100**	**140÷180**	
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	
	**1**	0.050	0.035	0.035	0.050	0.065	
	2	0.070	0.049	0.049	0.070	0.091	
	3	0.086	0.060	0.060	0.086	0.112	
	4	0.126	0.088	0.088	0.126	0.164	
	5	0.131	0.092	0.092	0.131	0.170	
	6	0.145	0.102	0.102	0.145	0.189	
	7	0.165	0.116	0.116	0.165	0.215	
	8	0.185	0.130	0.130	0.185	0.241	
	9	0.205	0.144	0.144	0.205	0.267	
	10	0.224	0.157	0.157	0.224	0.291	
	11	0.244	0.171	0.171	0.244	0.317	
	12	0.263	0.184	0.184	0.263	0.342	
	13	0.282	0.197	0.197	0.282	0.367	
	14	0.302	0.211	0.211	0.302	0.393	
	15	0.315	0.221	0.221	0.315	0.410	
	16	0.336	0.235	0.235	0.336	0.437	

TYPHOON GA-HGA

HIGH PERFORMANCE - GENERAL APPLICATION

3xD and 5xD with Weldon shank, 8xD with cylindrical shank for general application on ISO P, M, K

3xD e 5xD con gambo Weldon, 8xD con gambo cilindrico per applicazioni generali su ISO P, M, K

3xD und 5xD mit Weldon Schaft 8xD mit Zylinderschaft für allgemeine Anwendung auf ISO P, M, K

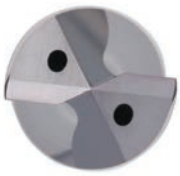
3xD et 5xD avec tige Weldon, 8xD avec tige cylindrique pour application générale sur ISO P, M, K

3XD y 5xD con mango Weldon, 8xD con mango cilíndrico para aplicación general en ISO P, M, K

3xD и 5xD с хвостовиком Weldon, 8xD с цилиндрическим хвостовиком для общего применения по ISO P, M, K.

TYPHOON GA-HGA

HIGH PERFORMANCE - GENERAL APPLICATION



- Self-centering geometry: accurate holes
- Made of sub-micron grain carbide and new PV400 coating for better wear resistance (lower cost per hole).
- Straight cutting edge design and unique edge treatment technology allow higher reliability.
- Optimized core diameter guarantees the straightness of the hole and wide flutes design allows smooth chip ejection

- Géométrie auto-centrée pour trous précis
- Fabriqué en carbure à grains submicroniques et nouveau revêtement PV400 pour une meilleure résistance à l'usure (coût inférieur par trou).
- La conception du bord droit et la technologie unique de traitement des bords permettent une plus grande fiabilité.
- Le diamètre optimisé du noyau garantit la rectitude du trou et la conception de cannelures larges permet une éjection en douceur des copeaux.

- Affilatura autocentrante per fori precisi
- In metallo duro con grano sub-micron e nuovo rivestimento PV400 per migliore resistenza all'usura (inferiore costo per foro)
- Tagliente diritto e esclusivo processo di onatura del bordo per elevata affidabilità
- Il diametro del nocciolo ottimizzato assicura la realizzazione di fori diritti; le scanalature ampie, garantiscono migliore evacuazione dei trucioli

- Afilado autocentrante para agujeros precisos
- Hecho de carburo de grano submicrónico y nuevo recubrimiento PV400 para una mayor resistencia al desgaste (menor costo por agujero).
- El diseño de filo de corte recto y la tecnología única de tratamiento de filo dan una mayor estabilidad.
- El diámetro del núcleo optimizado garantiza la rectitud del agujero y el diseño de ranuras anchas permiten una expulsión suave de la viruta.

- Selbstzentrierender Schliff für präzise Bohrungen
- Aus VHM Mikrokörnung und neue PV400 Beschichtung um bessere Verschleissbeständigkeit zu ermöglichen.
- Gerades Schnittkantendesign und optimaler Schliff für eine hohe Zuverlässigkeit des Werkzeugs.
- Optimierter Kerndurchmesser für gerade Bohrungen, breite Spannuten zur Verbesserung der Spanabfuhr.

- Самоцентрирующаяся заточка для получения точных отверстий
- Изготовлены из твёрдого сплава с субмикронным зерном и новым покрытием PV400 для лучшей износостойкости (более низкая стоимость отверстия).
- Прямая режущая кромка и уникальная технология обработки кромок обеспечивают более высокую надежность.
- Оптимизированный диаметр сердцевины гарантирует прямолинейность отверстия, а конструкция с широкими канавками обеспечивает беспрепятственный выброс стружки.

373GA-HGA

General application, Weldon shank

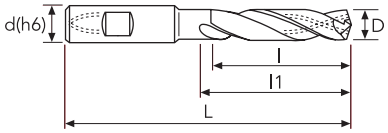
3XD | DIN 6537K | GA 373GA | HGA 373HGA | MG PV400 | 140° | 30°

373GA

373HGA

P	M	K	N	S	H	
★		★				373GA
★	☆	★				373HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	373GA EDP No.	Stock	373HGA EDP No.	Stock
3.0	+0.004/+0.016	6	14	20	62	373GA0300	●	373HGA0300	●
3.1	+0.004/+0.016	6	14	20	62	373GA0310	●	373HGA0310	●
3.2	+0.004/+0.016	6	14	20	62	373GA0320	●	373HGA0320	●
3.3	+0.004/+0.016	6	14	20	62	373GA0330	●	373HGA0330	●
3.4	+0.004/+0.016	6	14	20	62	373GA0340	●	373HGA0340	●
3.5	+0.004/+0.016	6	14	20	62	373GA0350	●	373HGA0350	●
3.6	+0.004/+0.016	6	14	20	62	373GA0360	●	373HGA0360	●
3.7	+0.004/+0.016	6	14	20	62	373GA0370	●	373HGA0370	●
3.8	+0.004/+0.016	6	17	24	66	373GA0380	●	373HGA0380	●
3.9	+0.004/+0.016	6	17	24	66	373GA0390	●	373HGA0390	●
4.0	+0.004/+0.016	6	17	24	66	373GA0400	●	373HGA0400	●
4.1	+0.004/+0.016	6	17	24	66	373GA0410	●	373HGA0410	●
4.2	+0.004/+0.016	6	17	24	66	373GA0420	●	373HGA0420	●
4.3	+0.004/+0.016	6	17	24	66	373GA0430	●	373HGA0430	●
4.4	+0.004/+0.016	6	17	24	66	373GA0440	●	373HGA0440	●
4.5	+0.004/+0.016	6	17	24	66	373GA0450	●	373HGA0450	●
4.6	+0.004/+0.016	6	17	24	66	373GA0460	●	373HGA0460	●
4.7	+0.004/+0.016	6	17	24	66	373GA0470	●	373HGA0470	●
4.8	+0.004/+0.016	6	20	28	66	373GA0480	●	373HGA0480	●
4.9	+0.004/+0.016	6	20	28	66	373GA0490	●	373HGA0490	●
5.0	+0.004/+0.016	6	20	28	66	373GA0500	●	373HGA0500	●
5.1	+0.004/+0.016	6	20	28	66	373GA0510	●	373HGA0510	●
5.2	+0.004/+0.016	6	20	28	66	373GA0520	●	373HGA0520	●
5.3	+0.004/+0.016	6	20	28	66	373GA0530	●	373HGA0530	●
5.4	+0.004/+0.016	6	20	28	66	373GA0540	●	373HGA0540	●
5.5	+0.004/+0.016	6	20	28	66	373GA0550	●	373HGA0550	●
5.6	+0.004/+0.016	6	20	28	66	373GA0560	●	373HGA0560	●
5.7	+0.004/+0.016	6	20	28	66	373GA0570	●	373HGA0570	●
5.8	+0.004/+0.016	6	20	28	66	373GA0580	●	373HGA0580	●
5.9	+0.004/+0.016	6	20	28	66	373GA0590	●	373HGA0590	●
6.0	+0.004/+0.016	6	20	28	66	373GA0600	●	373HGA0600	●
6.1	+0.006/+0.021	8	24	34	79	373GA0610	●	373HGA0610	●
6.2	+0.006/+0.021	8	24	34	79	373GA0620	●	373HGA0620	●
6.3	+0.006/+0.021	8	24	34	79	373GA0630	●	373HGA0630	●
6.4	+0.006/+0.021	8	24	34	79	373GA0640	●	373HGA0640	●
6.5	+0.006/+0.021	8	24	34	79	373GA0650	●	373HGA0650	●
6.6	+0.006/+0.021	8	24	34	79	373GA0660	●	373HGA0660	●
6.7	+0.006/+0.021	8	24	34	79	373GA0670	●	373HGA0670	●
6.8	+0.006/+0.021	8	24	34	79	373GA0680	●	373HGA0680	●

● stock standard ○ non-standard stock

373GA-HGA

General application, Weldon shank

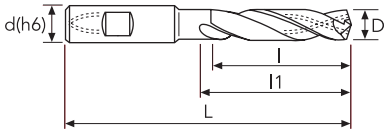
3XD | DIN 6537K | GA 373GA | HGA 373HGA | MG PV400 | 140° | 30°

373GA

373HGA

P	M	K	N	S	H	
★		★				373GA
★	☆	★				373HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	373GA EDP No.	Stock	373HGA EDP No.	Stock
6.9	+0.006/+0.021	8	24	34	79	373GA0690	●	373HGA0690	●
7.0	+0.006/+0.021	8	24	34	79	373GA0700	●	373HGA0700	●
7.1	+0.006/+0.021	8	29	41	79	373GA0710	●	373HGA0710	●
7.2	+0.006/+0.021	8	29	41	79	373GA0720	●	373HGA0720	●
7.3	+0.006/+0.021	8	29	41	79	373GA0730	●	373HGA0730	●
7.4	+0.006/+0.021	8	29	41	79	373GA0740	●	373HGA0740	●
7.5	+0.006/+0.021	8	29	41	79	373GA0750	●	373HGA0750	●
7.6	+0.006/+0.021	8	29	41	79	373GA0760	●	373HGA0760	●
7.7	+0.006/+0.021	8	29	41	79	373GA0770	●	373HGA0770	●
7.8	+0.006/+0.021	8	29	41	79	373GA0780	●	373HGA0780	●
7.9	+0.006/+0.021	8	29	41	79	373GA0790	●	373HGA0790	●
8.0	+0.006/+0.021	8	29	41	79	373GA0800	●	373HGA0800	●
8.1	+0.006/+0.021	10	35	47	89	373GA0810	●	373HGA0810	●
8.2	+0.006/+0.021	10	35	47	89	373GA0820	●	373HGA0820	●
8.3	+0.006/+0.021	10	35	47	89	373GA0830	●	373HGA0830	●
8.4	+0.006/+0.021	10	35	47	89	373GA0840	●	373HGA0840	●
8.5	+0.006/+0.021	10	35	47	89	373GA0850	●	373HGA0850	●
8.6	+0.006/+0.021	10	35	47	89	373GA0860	●	373HGA0860	●
8.7	+0.006/+0.021	10	35	47	89	373GA0870	●	373HGA0870	●
8.8	+0.006/+0.021	10	35	47	89	373GA0880	●	373HGA0880	●
8.9	+0.006/+0.021	10	35	47	89	373GA0890	●	373HGA0890	●
9.0	+0.006/+0.021	10	35	47	89	373GA0900	●	373HGA0900	●
9.1	+0.006/+0.021	10	35	47	89	373GA0910	●	373HGA0910	●
9.2	+0.006/+0.021	10	35	47	89	373GA0920	●	373HGA0920	●
9.3	+0.006/+0.021	10	35	47	89	373GA0930	●	373HGA0930	●
9.4	+0.006/+0.021	10	35	47	89	373GA0940	●	373HGA0940	●
9.5	+0.006/+0.021	10	35	47	89	373GA0950	●	373HGA0950	●
9.6	+0.006/+0.021	10	35	47	89	373GA0960	●	373HGA0960	●
9.7	+0.006/+0.021	10	35	47	89	373GA0970	●	373HGA0970	●
9.8	+0.006/+0.021	10	35	47	89	373GA0980	●	373HGA0980	●
9.9	+0.006/+0.021	10	35	47	89	373GA0990	●	373HGA0990	●
10.0	+0.006/+0.021	10	35	47	89	373GA1000	●	373HGA1000	●
10.1	+0.007/+0.025	12	40	55	102	373GA1010	●	373HGA1010	●
10.2	+0.007/+0.025	12	40	55	102	373GA1020	●	373HGA1020	●
10.3	+0.007/+0.025	12	40	55	102	373GA1030	●	373HGA1030	●
10.4	+0.007/+0.025	12	40	55	102	373GA1040	●	373HGA1040	●
10.5	+0.007/+0.025	12	40	55	102	373GA1050	●	373HGA1050	●
10.6	+0.007/+0.025	12	40	55	102	373GA1060	●	373HGA1060	●
10.7	+0.007/+0.025	12	40	55	102	373GA1070	●	373HGA1070	●

● stock standard ○ non-standard stock

373GA-HGA

General application, Weldon shank

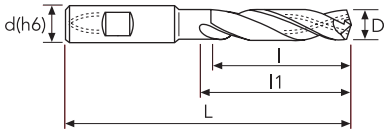
3XD | DIN 6537K | GA 373GA | HGA 373HGA | MG PV400 | 140° | 30°

373GA

373HGA

P	M	K	N	S	H	
★		★				373GA
★	☆	★				373HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	373GA EDP No.	Stock	373HGA EDP No.	Stock
10.8	+0.007/+0.025	12	40	55	102	373GA1080	●	373HGA1080	●
10.9	+0.007/+0.025	12	40	55	102	373GA1090	●	373HGA1090	●
11.0	+0.007/+0.025	12	40	55	102	373GA1100	●	373HGA1100	●
11.1	+0.007/+0.025	12	40	55	102	373GA1110	●	373HGA1110	●
11.2	+0.007/+0.025	12	40	55	102	373GA1120	●	373HGA1120	●
11.3	+0.007/+0.025	12	40	55	102	373GA1130	●	373HGA1130	●
11.4	+0.007/+0.025	12	40	55	102	373GA1140	●	373HGA1140	●
11.5	+0.007/+0.025	12	40	55	102	373GA1150	●	373HGA1150	●
11.6	+0.007/+0.025	12	40	55	102	373GA1160	●	373HGA1160	●
11.7	+0.007/+0.025	12	40	55	102	373GA1170	●	373HGA1170	●
11.8	+0.007/+0.025	12	40	55	102	373GA1180	●	373HGA1180	●
11.9	+0.007/+0.025	12	40	55	102	373GA1190	●	373HGA1190	●
12.0	+0.007/+0.025	12	40	55	102	373GA1200	●	373HGA1200	●
12.1	+0.007/+0.025	14	43	60	107	373GA1210	○	373HGA1210	●
12.2	+0.007/+0.025	14	43	60	107	373GA1220	●	373HGA1220	●
12.3	+0.007/+0.025	14	43	60	107	373GA1230	○		
12.4	+0.007/+0.025	14	43	60	107	373GA1240	○		
12.5	+0.007/+0.025	14	43	60	107	373GA1250	●	373HGA1250	●
12.6	+0.007/+0.025	14	43	60	107	373GA1260	○		
12.7	+0.007/+0.025	14	43	60	107	373GA1270	●	373HGA1270	●
12.8	+0.007/+0.025	14	43	60	107	373GA1280	●	373HGA1280	●
12.9	+0.007/+0.025	14	43	60	107	373GA1290	○		
13.0	+0.007/+0.025	14	43	60	107	373GA1300	●	373HGA1300	●
13.5	+0.007/+0.025	14	43	60	107	373GA1350	●	373HGA1350	●
13.7	+0.007/+0.025	14	43	60	107	373GA1370	●	373HGA1370	○
13.8	+0.007/+0.025	14	43	60	107	373GA1380	●	373HGA1380	○
14.0	+0.007/+0.025	14	43	60	107	373GA1400	●	373HGA1400	●
14.2	+0.007/+0.025	16	45	65	115	373GA1420	●	373HGA1420	●
14.5	+0.007/+0.025	16	45	65	115	373GA1450	●	373HGA1450	●
14.7	+0.007/+0.025	16	45	65	115	373GA1470	●	373HGA1470	○
14.8	+0.007/+0.025	16	45	65	115	373GA1480	●	373HGA1480	●
15.0	+0.007/+0.025	16	49	65	115	373GA1500	●	373HGA1500	●
15.2	+0.007/+0.025	16	49	65	115	373GA1520	●	373HGA1520	●
15.3	+0.007/+0.025	16	49	65	115	373GA1530	●	373HGA1530	●
15.5	+0.007/+0.025	16	49	65	115	373GA1550	●	373HGA1550	●
15.7	+0.007/+0.025	16	49	65	115	373GA1570	●	373HGA1570	○
15.8	+0.007/+0.025	16	49	65	115	373GA1580	●	373HGA1580	●
16.0	+0.007/+0.025	16	49	65	115	373GA1600	●	373HGA1600	●
16.5	+0.007/+0.025	18	52	73	123	373GA1650	●	373HGA1650	●

● stock standard ○ non-standard stock

373GA-HGA

General application, Weldon shank

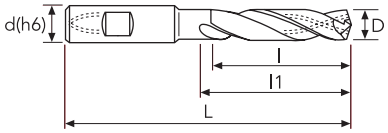
3XD | DIN 6537K | GA 373GA | HGA 373HGA | MG PV400 | 140° | 30°

373GA

373HGA

P	M	K	N	S	H	
★		★				373GA
★	☆	★				373HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	373GA EDP No.	Stock	373HGA EDP No.	Stock
16.8	+0.007/+0.025	18	52	73	123	373GA1680	○	373HGA1680	○
17.0	+0.007/+0.025	18	52	73	123	373GA1700	●	373HGA1700	●
17.5	+0.007/+0.025	18	52	73	123	373GA1750	●	373HGA1750	●
17.7	+0.007/+0.025	18	52	73	123	373GA1770	○	373HGA1770	○
17.8	+0.007/+0.025	18	52	73	123	373GA1780	○	373HGA1780	○
18.0	+0.007/+0.025	18	52	73	123	373GA1800	●	373HGA1800	●
18.5	+0.008/+0.029	20	55	79	131	373GA1850	●	373HGA1850	●
18.8	+0.008/+0.029	20	55	79	131	373GA1880	○	373HGA1880	○
19.0	+0.008/+0.029	20	55	79	131	373GA1900	●	373HGA1900	●
19.5	+0.008/+0.029	20	55	79	131	373GA1950	●	373HGA1950	●
19.8	+0.008/+0.029	20	55	79	131	373GA1980	○	373HGA1980	○
20.0	+0.008/+0.029	20	55	79	131	373GA2000	●	373HGA2000	●

● stock standard ○ non-standard stock

CUTTING PARAMETERS

373GA

	Material Group ISO 513	P1	P2	P3 P4	P5 P6	P7	P8
	Hardness/Rm	<500 N/mm²	500÷700 N/mm²	600÷1000 N/mm²	900÷1480 N/mm²	<750 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**70÷90**	**60÷80**	**60÷80**	**50÷70**	**40÷60**	**35÷55**
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	3	0.143	0.143	0.124	0.105	0.076	0.057
	4	0.143	0.143	0.124	0.105	0.076	0.057
	6	0.181	0.181	0.162	0.133	0.114	0.095
	8	0.209	0.209	0.190	0.152	0.133	0.124
	10	0.209	0.209	0.190	0.152	0.133	0.124
	12	0.266	0.266	0.219	0.181	0.171	0.171
	14	0.304	0.304	0.238	0.209	0.190	0.190
	16	0.304	0.304	0.238	0.209	0.190	0.190
	18	0.361	0.361	0.285	0.228	0.228	0.228
	20	0.361	0.361	0.285	0.228	0.228	0.228

373HGA

	Material Group ISO 513	P1	P2	P3 P4	P5 P6	P7	P8
	Hardness/Rm	<500 N/mm²	500÷700 N/mm²	600÷1000 N/mm²	900÷1480 N/mm²	<750 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**90÷110**	**70÷90**	**70÷90**	**50÷70**	**50÷70**	**40÷60**
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	3	0.150	0.150	0.130	0.110	0.080	0.060
	4	0.150	0.150	0.130	0.110	0.080	0.060
	6	0.190	0.190	0.170	0.140	0.120	0.100
	8	0.220	0.220	0.200	0.160	0.140	0.130
	10	0.220	0.220	0.200	0.160	0.140	0.130
	12	0.280	0.280	0.230	0.190	0.180	0.180
	14	0.320	0.320	0.250	0.220	0.200	0.200
	16	0.320	0.320	0.250	0.220	0.200	0.200
	18	0.380	0.380	0.300	0.240	0.240	0.240
	20	0.380	0.380	0.300	0.240	0.240	0.240

373HGA

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**50÷70**	**50÷70**	**35÷55**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	3	0.080	0.060	0.060			
	4	0.100	0.080	0.080			
	6	0.120	0.080	0.080			
	8	0.130	0.100	0.100			
	10	0.150	0.110	0.110			
	12	0.170	0.130	0.130			
	14	0.180	0.130	0.130			
	16	0.200	0.140	0.140			
	18	0.220	0.140	0.140			
	20	0.240	0.160	0.160			

CUTTING PARAMETERS

373GA

Material Group ISO 513	K1	K2	K3			
Hardness/Rm	150÷250 HB	150÷350 HB	120÷260 HB			
Vc (m/min)	**90÷110**	**70÷90**	**60÷80**			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3	0.162	0.143	0.086			
4	0.190	0.162	0.095			
6	0.238	0.190	0.124			
8	0.257	0.238	0.152			
10	0.285	0.266	0.190			
12	0.314	0.285	0.209			
14	0.342	0.314	0.228			
16	0.380	0.333	0.247			
18	0.399	0.361	0.266			
20	0.428	0.380	0.266			

373HGA

Material Group ISO 513	K1	K2	K3			
Hardness/Rm	150÷250 HB	150÷350 HB	120÷260 HB			
Vc (m/min)	**110÷130**	**90÷110**	**70÷90**			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3	0.170	0.150	0.090			
4	0.200	0.170	0.100			
6	0.250	0.200	0.130			
8	0.270	0.250	0.160			
10	0.300	0.280	0.200			
12	0.330	0.300	0.220			
14	0.360	0.330	0.240			
16	0.400	0.350	0.260			
18	0.420	0.380	0.280			
20	0.450	0.400	0.280			

375GA-HGA

General application, Weldon shank

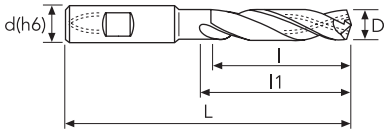
5XD | DIN 6537L | GA 375GA | HGA 375HGA | MG PV400 | 140° | 30°

375GA

375HGA

P	M	K	N	S	H	
★		★				375GA
★	☆	★				375HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	375GA EDP No.	Stock	375HGA EDP No.	Stock
3.0	+0.004/+0.016	6	23	28	66	375GA0300	●	375HGA0300	●
3.1	+0.004/+0.016	6	23	28	66	375GA0310	●	375HGA0310	●
3.2	+0.004/+0.016	6	23	28	66	375GA0320	●	375HGA0320	●
3.3	+0.004/+0.016	6	23	28	66	375GA0330	●	375HGA0330	●
3.4	+0.004/+0.016	6	23	28	66	375GA0340	●	375HGA0340	●
3.5	+0.004/+0.016	6	23	28	66	375GA0350	●	375HGA0350	●
3.6	+0.004/+0.016	6	23	28	66	375GA0360	●	375HGA0360	●
3.7	+0.004/+0.016	6	23	28	66	375GA0370	●	375HGA0370	●
3.8	+0.004/+0.016	6	29	36	74	375GA0380	●	375HGA0380	●
3.9	+0.004/+0.016	6	29	36	74	375GA0390	●	375HGA0390	●
4.0	+0.004/+0.016	6	29	36	74	375GA0400	●	375HGA0400	●
4.1	+0.004/+0.016	6	29	36	74	375GA0410	●	375HGA0410	●
4.2	+0.004/+0.016	6	29	36	74	375GA0420	●	375HGA0420	●
4.3	+0.004/+0.016	6	29	36	74	375GA0430	●	375HGA0430	●
4.4	+0.004/+0.016	6	29	36	74	375GA0440	●	375HGA0440	●
4.5	+0.004/+0.016	6	29	36	74	375GA0450	●	375HGA0450	●
4.6	+0.004/+0.016	6	29	36	74	375GA0460	●	375HGA0460	●
4.7	+0.004/+0.016	6	29	36	74	375GA0470	●	375HGA0470	●
4.8	+0.004/+0.016	6	35	44	82	375GA0480	●	375HGA0480	●
4.9	+0.004/+0.016	6	35	44	82	375GA0490	●	375HGA0490	●
5.0	+0.004/+0.016	6	35	44	82	375GA0500	●	375HGA0500	●
5.1	+0.004/+0.016	6	35	44	82	375GA0510	●	375HGA0510	●
5.2	+0.004/+0.016	6	35	44	82	375GA0520	●	375HGA0520	●
5.3	+0.004/+0.016	6	35	44	82	375GA0530	●	375HGA0530	●
5.4	+0.004/+0.016	6	35	44	82	375GA0540	●	375HGA0540	●
5.5	+0.004/+0.016	6	35	44	82	375GA0550	●	375HGA0550	●
5.6	+0.004/+0.016	6	35	44	82	375GA0560	●	375HGA0560	●
5.7	+0.004/+0.016	6	35	44	82	375GA0570	●	375HGA0570	●
5.8	+0.004/+0.016	6	35	44	82	375GA0580	●	375HGA0580	●
5.9	+0.004/+0.016	6	35	44	82	375GA0590	●	375HGA0590	●
6.0	+0.004/+0.016	6	35	44	82	375GA0600	●	375HGA0600	●
6.1	+0.006/+0.021	8	43	53	91	375GA0610	●	375HGA0610	●
6.2	+0.006/+0.021	8	43	53	91	375GA0620	●	375HGA0620	●
6.3	+0.006/+0.021	8	43	53	91	375GA0630	●	375HGA0630	●
6.4	+0.006/+0.021	8	43	53	91	375GA0640	●	375HGA0640	●
6.5	+0.006/+0.021	8	43	53	91	375GA0650	●	375HGA0650	●
6.6	+0.006/+0.021	8	43	53	91	375GA0660	●	375HGA0660	●
6.7	+0.006/+0.021	8	43	53	91	375GA0670	●	375HGA0670	●
6.8	+0.006/+0.021	8	43	53	91	375GA0680	●	375HGA0680	●

● stock standard ○ non-standard stock

375GA-HGA

General application, Weldon shank

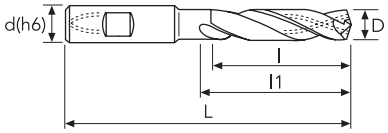
5XD | DIN 6537L | GA 375GA | HGA 375HGA | MG PV400 | 140° | 30°

375GA

375HGA

P	M	K	N	S	H	
★		★				375GA
★	☆	★				375HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	375GA EDP No.	Stock	375HGA EDP No.	Stock
6.9	+0.006/+0.021	8	43	53	91	375GA0690	●	375HGA0690	●
7.0	+0.006/+0.021	8	43	53	91	375GA0700	●	375HGA0700	●
7.1	+0.006/+0.021	8	43	53	91	375GA0710	●	375HGA0710	●
7.2	+0.006/+0.021	8	43	53	91	375GA0720	●	375HGA0720	●
7.3	+0.006/+0.021	8	43	53	91	375GA0730	●	375HGA0730	●
7.4	+0.006/+0.021	8	43	53	91	375GA0740	●	375HGA0740	●
7.5	+0.006/+0.021	8	43	53	91	375GA0750	●	375HGA0750	●
7.6	+0.006/+0.021	8	43	53	91	375GA0760	●	375HGA0760	●
7.7	+0.006/+0.021	8	43	53	91	375GA0770	●	375HGA0770	●
7.8	+0.006/+0.021	8	43	53	91	375GA0780	●	375HGA0780	●
7.9	+0.006/+0.021	8	43	53	91	375GA0790	●	375HGA0790	●
8.0	+0.006/+0.021	8	43	53	91	375GA0800	●	375HGA0800	●
8.1	+0.006/+0.021	10	49	61	103	375GA0810	●	375HGA0810	●
8.2	+0.006/+0.021	10	49	61	103	375GA0820	●	375HGA0820	●
8.3	+0.006/+0.021	10	49	61	103	375GA0830	●	375HGA0830	●
8.4	+0.006/+0.021	10	49	61	103	375GA0840	●	375HGA0840	●
8.5	+0.006/+0.021	10	49	61	103	375GA0850	●	375HGA0850	●
8.6	+0.006/+0.021	10	49	61	103	375GA0860	●	375HGA0860	●
8.7	+0.006/+0.021	10	49	61	103	375GA0870	●	375HGA0870	●
8.8	+0.006/+0.021	10	49	61	103	375GA0880	●	375HGA0880	●
8.9	+0.006/+0.021	10	49	61	103	375GA0890	●	375HGA0890	●
9.0	+0.006/+0.021	10	49	61	103	375GA0900	●	375HGA0900	●
9.1	+0.006/+0.021	10	49	61	103	375GA0910	●	375HGA0910	●
9.2	+0.006/+0.021	10	49	61	103	375GA0920	●	375HGA0920	●
9.3	+0.006/+0.021	10	49	61	103	375GA0930	●	375HGA0930	●
9.4	+0.006/+0.021	10	49	61	103	375GA0940	●	375HGA0940	●
9.5	+0.006/+0.021	10	49	61	103	375GA0950	●	375HGA0950	●
9.6	+0.006/+0.021	10	49	61	103	375GA0960	●	375HGA0960	●
9.7	+0.006/+0.021	10	49	61	103	375GA0970	●	375HGA0970	●
9.8	+0.006/+0.021	10	49	61	103	375GA0980	●	375HGA0980	●
9.9	+0.006/+0.021	10	49	61	103	375GA0990	●	375HGA0990	●
10.0	+0.006/+0.021	10	49	61	103	375GA1000	●	375HGA1000	●
10.1	+0.007/+0.025	12	52	71	118	375GA1010	●	375HGA1010	●
10.2	+0.007/+0.025	12	52	71	118	375GA1020	●	375HGA1020	●
10.3	+0.007/+0.025	12	52	71	118	375GA1030	●	375HGA1030	●
10.4	+0.007/+0.025	12	52	71	118	375GA1040	●	375HGA1040	●
10.5	+0.007/+0.025	12	52	71	118	375GA1050	●	375HGA1050	●
10.6	+0.007/+0.025	12	52	71	118	375GA1060	●	375HGA1060	●
10.7	+0.007/+0.025	12	52	71	118	375GA1070	●	375HGA1070	●

● stock standard ○ non-standard stock

375GA-HGA

General application, Weldon shank

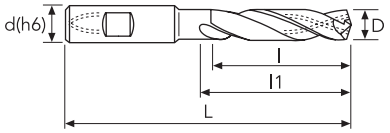
5XD | DIN 6537L | GA 375GA | HGA 375HGA | MG PV400 | 140° | 30°

375GA

375HGA

P	M	K	N	S	H	
★		★				375GA
★	☆	★				375HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	375GA EDP No.	Stock	375HGA EDP No.	Stock
10.8	+0.007/+0.025	12	52	71	118	375GA1080	●	375HGA1080	●
10.9	+0.007/+0.025	12	52	71	118	375GA1090	●	375HGA1090	●
11.0	+0.007/+0.025	12	52	71	118	375GA1100	●	375HGA1100	●
11.1	+0.007/+0.025	12	52	71	118	375GA1110	●	375HGA1110	●
11.2	+0.007/+0.025	12	52	71	118	375GA1120	●	375HGA1120	●
11.3	+0.007/+0.025	12	52	71	118	375GA1130	●	375HGA1130	●
11.4	+0.007/+0.025	12	52	71	118	375GA1140	●	375HGA1140	●
11.5	+0.007/+0.025	12	52	71	118	375GA1150	●	375HGA1150	●
11.6	+0.007/+0.025	12	52	71	118	375GA1160	●	375HGA1160	●
11.7	+0.007/+0.025	12	52	71	118	375GA1170	●	375HGA1170	●
11.8	+0.007/+0.025	12	52	71	118	375GA1180	●	375HGA1180	●
11.9	+0.007/+0.025	12	52	71	118	375GA1190	●	375HGA1190	●
12.0	+0.007/+0.025	12	52	71	118	375GA1200	●	375HGA1200	●
12.1	+0.007/+0.025	14	63	77	124			375HGA1210	●
12.2	+0.007/+0.025	14	63	77	124			375HGA1220	●
12.3	+0.007/+0.025	14	63	77	124			375HGA1230	●
12.4	+0.007/+0.025	14	63	77	124			375HGA1240	●
12.5	+0.007/+0.025	14	63	77	124	375GA1250	●	375HGA1250	●
12.6	+0.007/+0.025	14	63	77	124			375HGA1260	●
12.7	+0.007/+0.025	14	63	77	124			375HGA1270	●
12.8	+0.007/+0.025	14	63	77	124			375HGA1280	●
13.0	+0.007/+0.025	14	63	77	124	375GA1300	●	375HGA1300	●
13.5	+0.007/+0.025	14	63	77	124	375GA1350	●	375HGA1350	●
13.7	+0.007/+0.025	14	63	77	124			375HGA1370	●
13.8	+0.007/+0.025	14	63	77	124			375HGA1380	●
13.9	+0.007/+0.025	14	63	77	124			375HGA1390	●
14.0	+0.007/+0.025	14	63	77	124	375GA1400	●	375HGA1400	●
14.1	+0.007/+0.025	16	67	83	133			375HGA1410	●
14.2	+0.007/+0.025	16	67	83	133			375HGA1420	●
14.5	+0.007/+0.025	16	67	83	133	375GA1450	●	375HGA1450	●
14.7	+0.007/+0.025	16	67	83	133			375HGA1470	●
14.8	+0.007/+0.025	16	67	83	133			375HGA1480	●
15.0	+0.007/+0.025	16	67	83	133	375GA1500	●	375HGA1500	●
15.1	+0.007/+0.025	16	67	83	133			375HGA1510	●
15.2	+0.007/+0.025	16	67	83	133			375HGA1520	●
15.3	+0.007/+0.025	16	67	83	133			375HGA1530	●
15.5	+0.007/+0.025	16	67	83	133	375GA1550	●	375HGA1550	●
15.7	+0.007/+0.025	16	67	83	133			375HGA1570	●
15.8	+0.007/+0.025	16	67	83	133			375HGA1580	●

● stock standard ○ non-standard stock

375GA-HGA

General application, Weldon shank

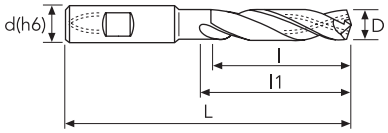
5XD | DIN 6537L | GA 375GA | HGA 375HGA | MG PV400 | 140° | 30°

375GA

375HGA

P	M	K	N	S	H	
★		★				375GA
★	☆	★				375HGA

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	375GA EDP No.	Stock	375HGA EDP No.	Stock
16.0	+0.007/+0.025	16	67	83	133	375GA1600	●	375HGA1600	●
16.5	+0.007/+0.025	18	75	93	143	375GA1650	●	375HGA1650	●
16.8	+0.007/+0.025	18	75	93	143			375HGA1680	○
17.0	+0.007/+0.025	18	75	93	143	375GA1700	●	375HGA1700	●
17.5	+0.007/+0.025	18	75	93	143	375GA1750	●	375HGA1750	●
17.7	+0.007/+0.025	18	75	93	143			375HGA1770	○
17.8	+0.007/+0.025	18	75	93	143			375HGA1780	○
18.0	+0.007/+0.025	18	75	93	143	375GA1800	●	375HGA1800	●
18.5	+0.008/+0.029	20	81	101	153	375GA1850	●	375HGA1850	●
18.8	+0.008/+0.029	20	81	101	153			375HGA1880	○
19.0	+0.008/+0.029	20	81	101	153	375GA1900	●	375HGA1900	●
19.5	+0.008/+0.029	20	81	101	153	375GA1950	●	375HGA1950	●
19.8	+0.008/+0.029	20	81	101	153			375HGA1980	○
20.0	+0.008/+0.029	20	81	101	153	375GA2000	●	375HGA2000	●

● stock standard ○ non-standard stock

CUTTING PARAMETERS

375GA

	Material Group ISO 513	P1	P2	P3 P4	P5 P6	P7	P8
	Hardness/Rm	<500 N/mm²	500÷700 N/mm²	600÷1000 N/mm²	900÷1480 N/mm²	<750 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**70÷90**	**60÷80**	**60÷80**	**50÷70**	**40÷60**	**35÷55**
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	3	0.143	0.143	0.124	0.105	0.076	0.057
	4	0.143	0.143	0.124	0.105	0.076	0.057
	6	0.181	0.181	0.162	0.133	0.114	0.095
	8	0.209	0.209	0.190	0.152	0.133	0.124
	10	0.209	0.209	0.190	0.152	0.133	0.124
	12	0.266	0.266	0.219	0.181	0.171	0.171
	14	0.304	0.304	0.238	0.209	0.190	0.190
	16	0.304	0.304	0.238	0.209	0.190	0.190
	18	0.361	0.361	0.285	0.228	0.228	0.228
	20	0.361	0.361	0.285	0.228	0.228	0.228

375HGA

	Material Group ISO 513	P1	P2	P3 P4	P5 P6	P7	P8
	Hardness/Rm	<500 N/mm²	500÷700 N/mm²	600÷1000 N/mm²	900÷1480 N/mm²	<750 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**90÷110**	**70÷90**	**70÷90**	**50÷70**	**50÷70**	**40÷60**
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	3	0.150	0.150	0.130	0.110	0.080	0.060
	4	0.150	0.150	0.130	0.110	0.080	0.060
	6	0.190	0.190	0.170	0.140	0.120	0.100
	8	0.220	0.220	0.200	0.160	0.140	0.130
	10	0.220	0.220	0.200	0.160	0.140	0.130
	12	0.280	0.280	0.230	0.190	0.180	0.180
	14	0.320	0.320	0.250	0.220	0.200	0.200
	16	0.320	0.320	0.250	0.220	0.200	0.200
	18	0.380	0.380	0.300	0.240	0.240	0.240
	20	0.380	0.380	0.300	0.240	0.240	0.240

375HGA

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**50÷70**	**50÷70**	**35÷55**			
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	3	0.080	0.060	0.060			
	4	0.100	0.080	0.080			
	6	0.120	0.080	0.080			
	8	0.130	0.100	0.100			
	10	0.150	0.110	0.110			
	12	0.170	0.130	0.130			
	14	0.180	0.130	0.130			
	16	0.200	0.140	0.140			
	18	0.220	0.140	0.140			
	20	0.240	0.160	0.160			

CUTTING PARAMETERS

375GA

Material Group ISO 513	K1	K2	K3			
Hardness/Rm	150÷250 HB	150÷350 HB	120÷260 HB			
Vc (m/min)	**90÷110**	**70÷90**	**60÷80**			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3	0.162	0.143	0.086			
4	0.190	0.162	0.095			
6	0.238	0.190	0.124			
8	0.257	0.238	0.152			
10	0.285	0.266	0.190			
12	0.314	0.285	0.209			
14	0.342	0.314	0.228			
16	0.380	0.333	0.247			
18	0.399	0.361	0.266			
20	0.428	0.380	0.266			

375HGA

Material Group ISO 513	K1	K2	K3			
Hardness/Rm	150÷250 HB	150÷350 HB	120÷260 HB			
Vc (m/min)	**110÷130**	**90÷110**	**70÷90**			
D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
3	0.170	0.150	0.090			
4	0.200	0.170	0.100			
6	0.250	0.200	0.130			
8	0.270	0.250	0.160			
10	0.300	0.280	0.200			
12	0.330	0.300	0.220			
14	0.360	0.330	0.240			
16	0.400	0.350	0.260			
18	0.420	0.380	0.280			
20	0.450	0.400	0.280			

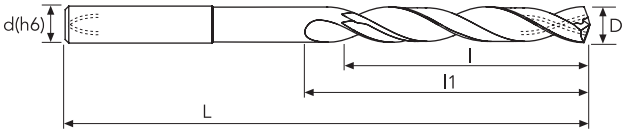
358HGA

General purpose, long (8xD)

8XD | OSAWA NORM | HGA | MG PV400 | 140° | 30°

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
3.0	+0.012/+0.002	6	29	34	72	358HGA0300	●
3.1	+0.016/+0.004	6	29	34	72	358HGA0310	●
3.2	+0.016/+0.004	6	29	34	72	358HGA0320	●
3.3	+0.016/+0.004	6	29	34	72	358HGA0330	●
3.4	+0.016/+0.004	6	29	34	72	358HGA0340	●
3.5	+0.016/+0.004	6	29	34	72	358HGA0350	●
3.6	+0.016/+0.004	6	29	34	72	358HGA0360	●
3.7	+0.016/+0.004	6	29	34	72	358HGA0370	●
3.8	+0.016/+0.004	6	36	43	81	358HGA0380	●
3.9	+0.016/+0.004	6	36	43	81	358HGA0390	●
4.0	+0.016/+0.004	6	36	43	81	358HGA0400	●
4.1	+0.016/+0.004	6	36	43	81	358HGA0410	●
4.2	+0.016/+0.004	6	36	43	81	358HGA0420	●
4.3	+0.016/+0.004	6	36	43	81	358HGA0430	●
4.4	+0.016/+0.004	6	36	43	81	358HGA0440	○
4.5	+0.016/+0.004	6	36	43	81	358HGA0450	●
4.6	+0.016/+0.004	6	36	43	81	358HGA0460	●
4.7	+0.016/+0.004	6	36	43	81	358HGA0470	●
4.8	+0.016/+0.004	6	48	57	95	358HGA0480	●
4.9	+0.016/+0.004	6	48	57	95	358HGA0490	●
5.0	+0.016/+0.004	6	48	57	95	358HGA0500	●
5.1	+0.016/+0.004	6	48	57	95	358HGA0510	●
5.2	+0.016/+0.004	6	48	57	95	358HGA0520	●
5.3	+0.016/+0.004	6	48	57	95	358HGA0530	●
5.4	+0.016/+0.004	6	48	57	95	358HGA0540	○
5.5	+0.016/+0.004	6	48	57	95	358HGA0550	●
5.6	+0.016/+0.004	6	48	57	95	358HGA0560	●
5.7	+0.016/+0.004	6	48	57	95	358HGA0570	●
5.8	+0.016/+0.004	6	48	57	95	358HGA0580	●
5.9	+0.016/+0.004	6	48	57	95	358HGA0590	●
6.0	+0.016/+0.004	6	48	57	95	358HGA0600	●
6.1	+0.021/+0.006	8	64	76	114	358HGA0610	●
6.2	+0.021/+0.006	8	64	76	114	358HGA0620	●
6.3	+0.021/+0.006	8	64	76	114	358HGA0630	●
6.4	+0.021/+0.006	8	64	76	114	358HGA0640	●
6.5	+0.021/+0.006	8	64	76	114	358HGA0650	●
6.6	+0.021/+0.006	8	64	76	114	358HGA0660	●
6.7	+0.021/+0.006	8	64	76	114	358HGA0670	●
6.8	+0.021/+0.006	8	64	76	114	358HGA0680	●

● stock standard ○ non-standard stock

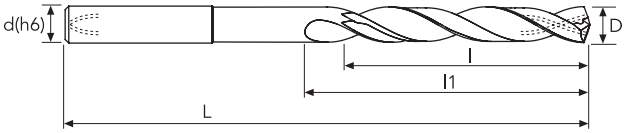
358HGA

General purpose, long (8xD)

8XD | OSAWA NORM | HGA | MG PV400 | 140° | 30°

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
6.9	+0.021/+0.006	8	64	76	114	358HGA0690	●
7.0	+0.021/+0.006	8	64	76	114	358HGA0700	●
7.1	+0.021/+0.006	8	64	76	114	358HGA0710	●
7.2	+0.021/+0.006	8	64	76	114	358HGA0720	●
7.3	+0.021/+0.006	8	64	76	114	358HGA0730	●
7.4	+0.021/+0.006	8	64	76	114	358HGA0740	●
7.5	+0.021/+0.006	8	64	76	114	358HGA0750	●
7.6	+0.021/+0.006	8	64	76	114	358HGA0760	●
7.7	+0.021/+0.006	8	64	76	114	358HGA0770	○
7.8	+0.021/+0.006	8	64	76	114	358HGA0780	●
7.9	+0.021/+0.006	8	64	76	114	358HGA0790	○
8.0	+0.021/+0.006	8	64	76	114	358HGA0800	●
8.1	+0.021/+0.006	10	80	95	142	358HGA0810	●
8.2	+0.021/+0.006	10	80	95	142	358HGA0820	●
8.3	+0.021/+0.006	10	80	95	142	358HGA0830	●
8.4	+0.021/+0.006	10	80	95	142	358HGA0840	○
8.5	+0.021/+0.006	10	80	95	142	358HGA0850	●
8.6	+0.021/+0.006	10	80	95	142	358HGA0860	●
8.7	+0.021/+0.006	10	80	95	142	358HGA0870	●
8.8	+0.021/+0.006	10	80	95	142	358HGA0880	●
8.9	+0.021/+0.006	10	80	95	142	358HGA0890	○
9.0	+0.021/+0.006	10	80	95	142	358HGA0900	●
9.1	+0.021/+0.006	10	80	95	142	358HGA0910	●
9.2	+0.021/+0.006	10	80	95	142	358HGA0920	●
9.3	+0.021/+0.006	10	80	95	142	358HGA0930	●
9.4	+0.021/+0.006	10	80	95	142	358HGA0940	○
9.5	+0.021/+0.006	10	80	95	142	358HGA0950	●
9.6	+0.021/+0.006	10	80	95	142	358HGA0960	○
9.7	+0.021/+0.006	10	80	95	142	358HGA0970	○
9.8	+0.021/+0.006	10	80	95	142	358HGA0980	●
9.9	+0.021/+0.006	10	80	95	142	358HGA0990	○
10.0	+0.021/+0.006	10	80	95	142	358HGA1000	●
10.1	+0.025/+0.007	12	96	114	162	358HGA1010	○
10.2	+0.025/+0.007	12	96	114	162	358HGA1020	●
10.3	+0.025/+0.007	12	96	114	162	358HGA1030	○
10.4	+0.025/+0.007	12	96	114	162	358HGA1040	○
10.5	+0.025/+0.007	12	96	114	162	358HGA1050	●
10.6	+0.025/+0.007	12	96	114	162	358HGA1060	○
10.7	+0.025/+0.007	12	96	114	162	358HGA1070	○

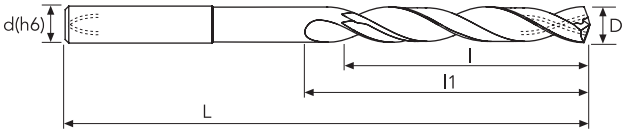
358HGA

General purpose, long (8xD)

8XD | OSAWA NORM | HGA | MG PV400 | 140° | 30°

P	M	K	N	S	H
★	☆	★			

★ 1st choice ☆ suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
10.8	+0.025/+0.007	12	96	114	162	358HGA1080	●
10.9	+0.025/+0.007	12	96	114	162	358HGA1090	○
11.0	+0.025/+0.007	12	96	114	162	358HGA1100	●
11.1	+0.025/+0.007	12	96	114	162	358HGA1110	○
11.2	+0.025/+0.007	12	96	114	162	358HGA1120	●
11.3	+0.025/+0.007	12	96	114	162	358HGA1130	○
11.4	+0.025/+0.007	12	96	114	162	358HGA1140	○
11.5	+0.025/+0.007	12	96	114	162	358HGA1150	●
11.6	+0.025/+0.007	12	96	114	162	358HGA1160	○
11.7	+0.025/+0.007	12	96	114	162	358HGA1170	○
11.8	+0.025/+0.007	12	96	114	162	358HGA1180	●
11.9	+0.025/+0.007	12	96	114	162	358HGA1190	○
12.0	+0.025/+0.007	12	96	114	162	358HGA1200	●
12.2	+0.025/+0.007	14	112	133	182	358HGA1220	●
12.5	+0.025/+0.007	14	112	133	182	358HGA1250	●
12.8	+0.025/+0.007	14	112	133	182	358HGA1280	●
13.0	+0.025/+0.007	14	112	133	182	358HGA1300	●
13.2	+0.025/+0.007	14	112	133	182	358HGA1320	●
13.5	+0.025/+0.007	14	112	133	182	358HGA1350	●
13.8	+0.025/+0.007	14	112	133	182	358HGA1380	○
14.0	+0.025/+0.007	14	112	133	182	358HGA1400	●
14.2	+0.025/+0.007	16	128	152	203	358HGA1420	●
14.5	+0.025/+0.007	16	128	152	203	358HGA1450	●
14.8	+0.025/+0.007	16	128	152	203	358HGA1480	○
15.0	+0.025/+0.007	16	128	152	203	358HGA1500	●
15.5	+0.025/+0.007	16	128	152	203	358HGA1550	●
15.8	+0.025/+0.007	16	128	152	203	358HGA1580	○
16.0	+0.025/+0.007	16	128	152	203	358HGA1600	●
16.5	+0.025/+0.007	18	144	171	222	358HGA1650	●
16.8	+0.025/+0.007	18	144	171	222	358HGA1680	○
17.0	+0.025/+0.007	18	144	171	222	358HGA1700	●
17.5	+0.025/+0.007	18	144	171	222	358HGA1750	●
17.8	+0.025/+0.007	18	144	171	222	358HGA1780	○
18.0	+0.025/+0.007	18	144	171	222	358HGA1800	●
18.5	+0.029/+0.008	20	160	190	243	358HGA1850	●
18.8	+0.029/+0.008	20	160	190	243	358HGA1880	○
19.0	+0.029/+0.008	20	160	190	243	358HGA1900	●
19.5	+0.029/+0.008	20	160	190	243	358HGA1950	●
19.8	+0.029/+0.008	20	160	190	243	358HGA1980	○
20.0	+0.029/+0.008	20	160	190	243	358HGA2000	●

● stock standard ○ non-standard stock

CUTTING PARAMETERS

358HGA

	Material Group ISO 513	P1	P2	P3 P4	P5 P6	P7	P8
	Hardness/Rm	<500 N/mm²	500÷700 N/mm²	600÷1000 N/mm²	900÷1480 N/mm²	<700 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**80÷100**	**65÷85**	**65÷85**	**45÷65**	**45÷65**	**35÷55**
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	3	0.150	0.150	0.130	0.105	0.057	0.057
	4	0.150	0.150	0.130	0.105	0.057	0.057
	6	0.190	0.190	0.170	0.133	0.095	0.095
	8	0.220	0.220	0.200	0.152	0.124	0.124
	10	0.220	0.220	0.200	0.152	0.124	0.124
	12	0.280	0.280	0.230	0.181	0.171	0.171
	14	0.320	0.320	0.250	0.209	0.190	0.190
	16	0.320	0.320	0.250	0.209	0.190	0.190
	18	0.380	0.380	0.300	0.228	0.228	0.228
	20	0.380	0.380	0.300	0.228	0.228	0.228

358HGA

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**40÷60**	**40÷60**	**30÷50**			
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	3	0.800	0.060	0.060			
	4	0.800	0.060	0.060			
	6	0.100	0.080	0.080			
	8	0.100	0.080	0.080			
	10	0.120	0.100	0.100			
	12	0.120	0.100	0.100			
	14	0.140	0.120	0.120			
	16	0.140	0.120	0.120			
	18	0.160	0.140	0.140			
	20	0.160	0.140	0.140			

358HGA

	Material Group ISO 513	K1	K2	K3			
	Hardness/Rm	150÷250 HB	150÷350 HB	250÷500 HB			
	Vc (m/min)	**100÷120**	**80÷100**	**65÷85**			
Ø RUN OUT <0.02mm	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	3	0.162	0.143	0.086			
	4	0.190	0.162	0.095			
	6	0.238	0.190	0.124			
	8	0.257	0.238	0.152			
	10	0.285	0.266	0.190			
	12	0.314	0.285	0.209			
	14	0.342	0.314	0.228			
	16	0.380	0.333	0.247			
	18	0.399	0.361	0.266			
	20	0.428	0.380	0.266			

TYPHOON HVA

HIGH PERFORMANCE - STAINLESS STEEL

High performance tools for stainless steel (ISO M), steel (ISO P), and HRSA super alloys (ISO S) below 45 HRC.

Punte ad alto rendimento per la foratura di acciaio inossidabile (ISO M), acciaio (ISO P) e super leghe (ISO S) sino a 45 HRC.

Hochleistungsbohrer für das Bohren von rostfreiem Stahl (ISO M), Stahl (ISO P) und Superlegierungen (ISO S) bis 45 HRC

Forets haute performance pour le perçage de l'acier inoxydable (ISO M), de l'acier (ISO P) et des super alliages (ISO S) jusqu'à 45 HRC.

Brocas de alto rendimiento para el taladrado de acero inoxidable (ISO M), acero (ISO P) e y súper aleaciones (ISO S) hasta 45 HRC.

Высокопроизводительный инструмент для обработки нержавеющей стали (ISO M), стали (ISO P) и жаропрочных сплавов (ISO S) с твёрдостью до 45 HRC.

TYPHOON HVA

HIGH PERFORMANCE - STAINLESS STEEL

- Self-centering geometry: large chisel edge for highly accurate holes
- Straight cutting edge: short chips for easy evacuation and high reliability
- Large back taper geometry: reduces the torque and improves the cutting efficiency
- Chip pocket design: smooth surface to reduce welding and wide space to improve chip ejection
- Substrate: specifically selected nano grain for high wear resistance, long and reliable life
- Coating: improved new coating technology for high wear resistance

- Affûtage autocentré
large arête transversale pour des trous très précis
- Profil de l'arête droit et renforcé : il génère des copeaux courts et garantit une grande fiabilité
- Géométrie du corps avec conicité arrière pour faciliter l'action de coupe
- Géométrie des goujures: surface lisse pour réduire les problèmes de collage et faciliter l'évacuation des copeaux
- Substrat: des nanograins spécifiquement sélectionnés pour une haute résistance à l'usure, une durée de vie longue et fiable
- Revêtement:
nouvelle technologie de revêtement améliorée pour une haute résistance à l'usure

- Affilatura autocentrante: il particolare design del tagliente trasversale permette forature molto precise
- Profilo del tagliente diritto e rinforzato: genera trucioli corti e garantisce grande affidabilità
- Geometria del corpo con ampia conicità posteriore per agevolare l'azione di taglio
- Geometria delle gole: elevata finitura per ridurre il fenomeno dell'incollaggio e facilitare l'espulsione dei trucioli
- Substrato: nano grani selezionati per elevata resistenza all'usura, lunga durata e affidabilità
- Rivestimento: nuova tecnologia per elevata resistenza all'usura

- Afilado autocentrante amplio filo transversal para agujeros muy precisos
- Perfil del filo recto y reforzado: genera virutas cortas y garantiza una gran fiabilidad
- Geometría del cuerpo con conicidad posterior para facilitar la acción de corte
- Geometría de las ranuras:
Acabado superficial excelente para reducir el problema del encolado y facilitar la evacuación de las virutas
- Sustrato: nanograno específicamente seleccionado para una alta resistencia al desgaste y una vida útil larga y fiable
- Recubrimiento: nueva tecnología de alta resistencia al desgaste

- Selbstzentrierender Schliff: das besondere Design der Querschneide ermöglicht ein sehr präzises Bohren
- Gerades und verstärktes Schneidkantenprofil: zur Erzeugung kurzer Späne und Gewährleistung hoher Zuverlässigkeit
- Geometrie der Schneidkante mit speziellem Schliff zum Schutz von Schneidkante und Kanten
- Nutengeoemtrie: Glattere Oberflächen zur Vermeidung des Klebephänomens und zur Verbesserung der Spanabfuhr
- Substrat: Spezielle Nanokörnung für eine hohe Verschleissbeständigkeit und Standzeit.
- Beschichtung: Verbesserte Beschichtung für eine höhere Verschleissbeständigkeit.

- Самоцентрирующаяся геометрия: особая конструкция режущей кромки обеспечивает очень точное сверление
- Прямые режущие кромки: формирование короткой стружки и высокая надежность
- Геометрия с обратным конусом: увеличивает эффективность обработки
- Геометрия канавки: гладкая поверхность для уменьшения наклепа и большое пространство для улучшения отвода стружки
- Субстрат: специальный нанозернистый твердый сплав для высокой износостойкости, долгого и надежного срока службы
- Покрытие: улучшенная новая технология покрытия для обеспечения высокой износостойкости

353HVA

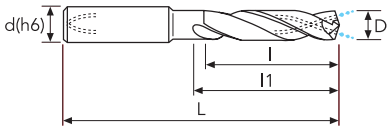
Stainless steel

3XD | DIN 6537K | HVA | MG PV350 | 140° | 30°

353HVA replaces 353SUH.
353HVA will be gradually available as soon as 353SUH stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
3.00	+0.012/+0.002	6	14	20	62	353HVA0300	●
3.10	+0.016/+0.004	6	14	20	62	353HVA0310	●
3.20	+0.016/+0.004	6	14	20	62	353HVA0320	●
3.30	+0.016/+0.004	6	14	20	62	353HVA0330	●
3.40	+0.016/+0.004	6	14	20	62	353HVA0340	●
3.50	+0.016/+0.004	6	14	20	62	353HVA0350	●
3.60	+0.016/+0.004	6	14	20	62	353HVA0360	●
3.70	+0.016/+0.004	6	14	20	62	353HVA0370	●
3.80	+0.016/+0.004	6	17	24	66	353HVA0380	●
3.90	+0.016/+0.004	6	17	24	66	353HVA0390	●
4.00	+0.016/+0.004	6	17	24	66	353HVA0400	●
4.10	+0.016/+0.004	6	17	24	66	353HVA0410	●
4.20	+0.016/+0.004	6	17	24	66	353HVA0420	●
4.30	+0.016/+0.004	6	17	24	66	353HVA0430	●
4.40	+0.016/+0.004	6	17	24	66	353HVA0440	●
4.50	+0.016/+0.004	6	17	24	66	353HVA0450	●
4.60	+0.016/+0.004	6	17	24	66	353HVA0460	●
4.70	+0.016/+0.004	6	17	24	66	353HVA0470	●
4.80	+0.016/+0.004	6	20	28	66	353HVA0480	●
4.90	+0.016/+0.004	6	20	28	66	353HVA0490	●
5.00	+0.016/+0.004	6	20	28	66	353HVA0500	●
5.10	+0.016/+0.004	6	20	28	66	353HVA0510	●
5.20	+0.016/+0.004	6	20	28	66	353HVA0520	●
5.30	+0.016/+0.004	6	20	28	66	353HVA0530	●
5.40	+0.016/+0.004	6	20	28	66	353HVA0540	●
5.50	+0.016/+0.004	6	20	28	66	353HVA0550	●
5.60	+0.016/+0.004	6	20	28	66	353HVA0560	●
5.70	+0.016/+0.004	6	20	28	66	353HVA0570	●
5.80	+0.016/+0.004	6	20	28	66	353HVA0580	●
5.90	+0.016/+0.004	6	20	28	66	353HVA0590	●
6.00	+0.016/+0.004	6	20	28	66	353HVA0600	●
6.10	+0.021/+0.006	8	24	34	79	353HVA0610	●
6.20	+0.021/+0.006	8	24	34	79	353HVA0620	●
6.30	+0.021/+0.006	8	24	34	79	353HVA0630	●
6.40	+0.021/+0.006	8	24	34	79	353HVA0640	●
6.50	+0.021/+0.006	8	24	34	79	353HVA0650	●
6.60	+0.021/+0.006	8	24	34	79	353HVA0660	●
6.70	+0.021/+0.006	8	24	34	79	353HVA0670	●
6.80	+0.021/+0.006	8	24	34	79	353HVA0680	●

● stock standard ○ non-standard stock ▽ stock exhaustion

353HVA

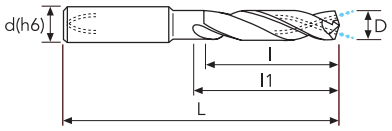
Stainless steel

3XD | DIN 6537K | HVA | MG PV350 | 140° | 30°

353HVA replaces 353SUH.
353HVA will be gradually available as soon as 353SUH stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
6.90	+0.021/+0.006	8	24	34	79	353HVA0690	●
7.00	+0.021/+0.006	8	24	34	79	353HVA0700	●
7.10	+0.021/+0.006	8	29	41	79	353HVA0710	●
7.20	+0.021/+0.006	8	29	41	79	353HVA0720	●
7.30	+0.021/+0.006	8	29	41	79	353HVA0730	●
7.40	+0.021/+0.006	8	29	41	79	353HVA0740	●
7.50	+0.021/+0.006	8	29	41	79	353HVA0750	●
7.60	+0.021/+0.006	8	29	41	79	353HVA0760	●
7.70	+0.021/+0.006	8	29	41	79	353HVA0770	●
7.80	+0.021/+0.006	8	29	41	79	353HVA0780	●
7.90	+0.021/+0.006	8	29	41	79	353HVA0790	●
8.00	+0.021/+0.006	8	29	41	79	353HVA0800	●
8.10	+0.021/+0.006	10	35	47	89	353HVA0810	●
8.20	+0.021/+0.006	10	35	47	89	353HVA0820	●
8.30	+0.021/+0.006	10	35	47	89	353HVA0830	●
8.40	+0.021/+0.006	10	35	47	89	353HVA0840	●
8.50	+0.021/+0.006	10	35	47	89	353HVA0850	●
8.60	+0.021/+0.006	10	35	47	89	353HVA0860	●
8.70	+0.021/+0.006	10	35	47	89	353HVA0870	●
8.80	+0.021/+0.006	10	35	47	89	353HVA0880	●
8.90	+0.021/+0.006	10	35	47	89	353HVA0890	●
9.00	+0.021/+0.006	10	35	47	89	353HVA0900	●
9.10	+0.021/+0.006	10	35	47	89	353HVA0910	●
9.20	+0.021/+0.006	10	35	47	89	353HVA0920	●
9.30	+0.021/+0.006	10	35	47	89	353HVA0930	●
9.40	+0.021/+0.006	10	35	47	89	353HVA0940	●
9.50	+0.021/+0.006	10	35	47	89	353HVA0950	●
9.60	+0.021/+0.006	10	35	47	89	353HVA0960	●
9.70	+0.021/+0.006	10	35	47	89	353HVA0970	●
9.80	+0.021/+0.006	10	35	47	89	353HVA0980	●
9.90	+0.021/+0.006	10	35	47	89	353HVA0990	●
10.00	+0.021/+0.006	10	35	47	89	353HVA1000	●
10.10	+0.025/+0.007	12	40	55	102	353HVA1010	●
10.20	+0.025/+0.007	12	40	55	102	353HVA1020	●
10.30	+0.025/+0.007	12	40	55	102	353HVA1030	●
10.50	+0.025/+0.007	12	40	55	102	353HVA1050	●
10.60	+0.025/+0.007	12	40	55	102	353HVA1060	●
10.80	+0.025/+0.007	12	40	55	102	353HVA1080	●
11.00	+0.025/+0.007	12	40	55	102	353HVA1100	●

● stock standard ○ non-standard stock ▽ stock exhaustion

353HVA

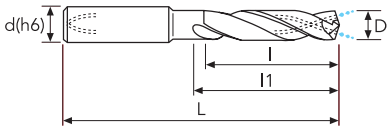
Stainless steel

3XD | DIN 6537K | HVA | MG PV350 | 140° | 30°

353HVA replaces 353SUH.
353HVA will be gradually available as soon as 353SUH stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
11.20	+0.025/+0.007	12	40	55	102	353HVA1120	●
11.50	+0.025/+0.007	12	40	55	102	353HVA1150	●
11.80	+0.025/+0.007	12	40	55	102	353HVA1180	●
12.00	+0.025/+0.007	12	40	55	102	353HVA1200	●
12.10	+0.025/+0.007	14	43	60	107	353HVA1210	●
12.20	+0.025/+0.007	14	43	60	107	353HVA1220	●
12.50	+0.025/+0.007	14	43	60	107	353HVA1250	●
12.80	+0.025/+0.007	14	43	60	107	353HVA1280	●
13.00	+0.025/+0.007	14	43	60	107	353HVA1300	●
13.30	+0.025/+0.007	14	43	60	107	353HVA1330	●
13.50	+0.025/+0.007	14	43	60	107	353HVA1350	●
13.80	+0.025/+0.007	14	43	60	107	353HVA1380	●
14.00	+0.025/+0.007	14	43	60	107	353HVA1400	●
14.10	+0.025/+0.007	16	45	65	115	353HVA1410	●
14.20	+0.025/+0.007	16	45	65	115	353HVA1420	●
14.50	+0.025/+0.007	16	45	65	115	353HVA1450	●
15.00	+0.025/+0.007	16	49	65	115	353HVA1500	●
15.30	+0.025/+0.007	16	49	65	115	353HVA1530	●
15.50	+0.025/+0.007	16	49	65	115	353HVA1550	●
15.80	+0.025/+0.007	16	49	65	115	353HVA1580	●
16.00	+0.025/+0.007	16	49	65	115	353HVA1600	●
16.50	+0.025/+0.007	18	52	73	123	353HVA1650	●
17.00	+0.025/+0.007	18	52	73	123	353HVA1700	●
17.50	+0.025/+0.007	18	52	73	123	353HVA1750	●
18.00	+0.025/+0.007	18	52	73	123	353HVA1800	●
18.50	+0.029/+0.008	20	55	79	131	353HVA1850	●
19.00	+0.029/+0.008	20	55	79	131	353HVA1900	●
19.50	+0.029/+0.008	20	55	79	131	353HVA1950	●
20.00	+0.029/+0.008	20	55	79	131	353HVA2000	●

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

353HVA

	Material Group ISO 513	P1 P2	P3 P4	P5	P6	P7	P8
	Hardness/Rm	500÷700 N/mm²	600÷1000 N/mm²	900÷1200 N/mm²	1200÷1400 N/mm²	<700 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**100÷140**	**80÷120**	**70÷90**	**50÷70**	**50÷70**	**20÷30**
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	**3**	0.118	0.106	0.095	0.083	0.077	0.046
	4	0.140	0.126	0.112	0.098	0.091	0.055
	5	0.161	0.145	0.129	0.113	0.105	0.063
	6	0.183	0.164	0.146	0.128	0.119	0.071
	7	0.204	0.184	0.163	0.143	0.133	0.080
	8	0.226	0.203	0.181	0.158	0.147	0.088
	9	0.247	0.223	0.198	0.173	0.161	0.096
	10	0.269	0.242	0.215	0.188	0.175	0.105
	11	0.280	0.252	0.224	0.196	0.182	0.109
	12	0.301	0.271	0.241	0.211	0.196	0.117
	13	0.323	0.290	0.258	0.226	0.210	0.126
	14	0.344	0.310	0.275	0.241	0.224	0.134
	15	0.366	0.329	0.292	0.256	0.238	0.143
	16	0.387	0.348	0.310	0.271	0.252	0.151
	17	0.398	0.358	0.318	0.278	0.259	0.155
	18	0.409	0.368	0.327	0.286	0.266	0.159
	19	0.419	0.377	0.335	0.293	0.273	0.164
	20	0.430	0.387	0.344	0.301	0.280	0.168

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**50÷70**	**45÷65**	**35÷50**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	**3**	0.077	0.061	0.054			
	4	0.091	0.073	0.064			
	5	0.105	0.084	0.073			
	6	0.119	0.095	0.083			
	7	0.133	0.106	0.093			
	8	0.147	0.117	0.103			
	9	0.161	0.129	0.112			
	10	0.175	0.140	0.122			
	11	0.182	0.145	0.127			
	12	0.196	0.157	0.137			
	13	0.210	0.168	0.147			
	14	0.224	0.179	0.157			
	15	0.238	0.190	0.166			
	16	0.252	0.201	0.176			
	17	0.259	0.207	0.181			
	18	0.266	0.212	0.186			
	19	0.273	0.218	0.191			
	20	0.280	0.224	0.196			

CUTTING PARAMETERS

353HVA

	Material Group ISO 513	S1 S2	S3	S4	S5		
	Hardness/Rm	<35 N/mm²	35÷45 N/mm²				
	Vc (m/min)	**30÷50**	**25÷45**	**30÷45**	**25÷35**		
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)		
	**3**	0.053	0.037	0.051	0.043		
	4	0.063	0.044	0.060	0.050		
	5	0.073	0.051	0.069	0.058		
	6	0.082	0.058	0.078	0.066		
	7	0.092	0.064	0.087	0.074		
	8	0.102	0.071	0.097	0.081		
	9	0.111	0.078	0.106	0.089		
	10	0.121	0.085	0.115	0.097		
	11	0.126	0.088	0.119	0.101		
	12	0.135	0.095	0.129	0.108		
	13	0.145	0.102	0.138	0.116		
	14	0.155	0.108	0.147	0.124		
	15	0.164	0.115	0.156	0.132		
	16	0.174	0.122	0.165	0.139		
	17	0.179	0.125	0.170	0.143		
	18	0.184	0.129	0.175	0.147		
	19	0.189	0.132	0.179	0.151		
	20	0.194	0.135	0.185	0.155		

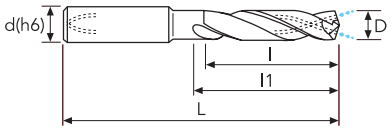
355HVA

Stainless steel

5XD | DIN 6537L | HVA | MG PV350 | 140° | 30°

355HVA replaces 355SUH.
355HVA will be gradually available as soon as 355SUH stock is phased out

P	M	K	N	S	H
1st choice		suitable			



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
3.00	+0.012/+0.002	6	23	28	66	355HVA0300	●
3.10	+0.016/+0.004	6	23	28	66	355HVA0310	●
3.20	+0.016/+0.004	6	23	28	66	355HVA0320	●
3.30	+0.016/+0.004	6	23	28	66	355HVA0330	●
3.40	+0.016/+0.004	6	23	28	66	355HVA0340	●
3.50	+0.016/+0.004	6	23	28	66	355HVA0350	●
3.60	+0.016/+0.004	6	23	28	66	355HVA0360	●
3.70	+0.016/+0.004	6	23	28	66	355HVA0370	●
3.80	+0.016/+0.004	6	29	36	74	355HVA0380	●
3.90	+0.016/+0.004	6	29	36	74	355HVA0390	●
4.00	+0.016/+0.004	6	29	36	74	355HVA0400	●
4.10	+0.016/+0.004	6	29	36	74	355HVA0410	●
4.20	+0.016/+0.004	6	29	36	74	355HVA0420	●
4.30	+0.016/+0.004	6	29	36	74	355HVA0430	●
4.40	+0.016/+0.004	6	29	36	74	355HVA0440	●
4.50	+0.016/+0.004	6	29	36	74	355HVA0450	●
4.60	+0.016/+0.004	6	29	36	74	355HVA0460	●
4.70	+0.016/+0.004	6	29	36	74	355HVA0470	●
4.80	+0.016/+0.004	6	35	44	82	355HVA0480	●
4.90	+0.016/+0.004	6	35	44	82	355HVA0490	●
5.00	+0.016/+0.004	6	35	44	82	355HVA0500	●
5.10	+0.016/+0.004	6	35	44	82	355HVA0510	●
5.20	+0.016/+0.004	6	35	44	82	355HVA0520	●
5.30	+0.016/+0.004	6	35	44	82	355HVA0530	●
5.40	+0.016/+0.004	6	35	44	82	355HVA0540	●
5.50	+0.016/+0.004	6	35	44	82	355HVA0550	●
5.60	+0.016/+0.004	6	35	44	82	355HVA0560	●
5.70	+0.016/+0.004	6	35	44	82	355HVA0570	●
5.80	+0.016/+0.004	6	35	44	82	355HVA0580	●
5.90	+0.016/+0.004	6	35	44	82	355HVA0590	●
6.00	+0.016/+0.004	6	35	44	82	355HVA0600	●
6.10	+0.021/+0.006	8	43	53	91	355HVA0610	●
6.20	+0.021/+0.006	8	43	53	91	355HVA0620	●
6.30	+0.021/+0.006	8	43	53	91	355HVA0630	●
6.40	+0.021/+0.006	8	43	53	91	355HVA0640	●
6.50	+0.021/+0.006	8	43	53	91	355HVA0650	●
6.60	+0.021/+0.006	8	43	53	91	355HVA0660	●
6.70	+0.021/+0.006	8	43	53	91	355HVA0670	●
6.80	+0.021/+0.006	8	43	53	91	355HVA0680	●

355HVA

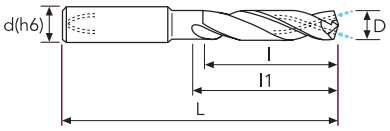
Stainless steel

5XD | DIN 6537L | HVA | MG PV350 | 140° | 30°

355HVA replaces 355SUH.
355HVA will be gradually available as soon as 355SUH stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
6.90	+0.021/+0.006	8	43	53	91	355HVA0690	●
7.00	+0.021/+0.006	8	43	53	91	355HVA0700	●
7.10	+0.021/+0.006	8	43	53	91	355HVA0710	●
7.20	+0.021/+0.006	8	43	53	91	355HVA0720	●
7.30	+0.021/+0.006	8	43	53	91	355HVA0730	●
7.40	+0.021/+0.006	8	43	53	91	355HVA0740	●
7.50	+0.021/+0.006	8	43	53	91	355HVA0750	●
7.60	+0.021/+0.006	8	43	53	91	355HVA0760	●
7.70	+0.021/+0.006	8	43	53	91	355HVA0770	●
7.80	+0.021/+0.006	8	43	53	91	355HVA0780	●
7.90	+0.021/+0.006	8	43	53	91	355HVA0790	●
8.00	+0.021/+0.006	8	43	53	91	355HVA0800	●
8.10	+0.021/+0.006	10	49	61	103	355HVA0810	●
8.20	+0.021/+0.006	10	49	61	103	355HVA0820	●
8.30	+0.021/+0.006	10	49	61	103	355HVA0830	●
8.40	+0.021/+0.006	10	49	61	103	355HVA0840	●
8.50	+0.021/+0.006	10	49	61	103	355HVA0850	●
8.60	+0.021/+0.006	10	49	61	103	355HVA0860	●
8.70	+0.021/+0.006	10	49	61	103	355HVA0870	●
8.80	+0.021/+0.006	10	49	61	103	355HVA0880	●
8.90	+0.021/+0.006	10	49	61	103	355HVA0890	●
9.00	+0.021/+0.006	10	49	61	103	355HVA0900	●
9.10	+0.021/+0.006	10	49	61	103	355HVA0910	●
9.20	+0.021/+0.006	10	49	61	103	355HVA0920	●
9.30	+0.021/+0.006	10	49	61	103	355HVA0930	●
9.40	+0.021/+0.006	10	49	61	103	355HVA0940	●
9.50	+0.021/+0.006	10	49	61	103	355HVA0950	●
9.60	+0.021/+0.006	10	49	61	103	355HVA0960	●
9.70	+0.021/+0.006	10	49	61	103	355HVA0970	●
9.80	+0.021/+0.006	10	49	61	103	355HVA0980	●
9.90	+0.021/+0.006	10	49	61	103	355HVA0990	●
10.00	+0.021/+0.006	10	49	61	103	355HVA1000	●
10,10	+0.025/+0.007	12	52	71	118	355HVA1010	●
10.20	+0.025/+0.007	12	52	71	118	355HVA1020	●
10.30	+0.025/+0.007	12	52	71	118	355HVA1030	●
10.50	+0.025/+0.007	12	52	71	118	355HVA1050	●
10,60	+0.025/+0.007	12	52	71	118	355HVA1060	●
10.80	+0.025/+0.007	12	52	71	118	355HVA1080	●
11.00	+0.025/+0.007	12	52	71	118	355HVA1100	●

355HVA

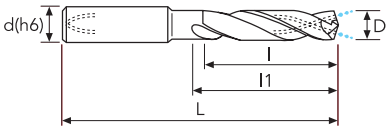
Stainless steel

5XD | DIN 6537L | HVA | MG PV350 | 140° | 30°

355HVA replaces 355SUH.
355HVA will be gradually available as soon as 355SUH stock is phased out

P	M	K	N	S	H

1st choice suitable



D(m7)	D Tol.	d(h6)	l	l1	L	EDP No.	Stock
11,10	+0.025/+0.007	12	52	71	118	355HVA1110	●
11.20	+0.025/+0.007	12	52	71	118	355HVA1120	●
11.30	+0.025/+0.007	12	52	71	118	355HVA1130	●
11.50	+0.025/+0.007	12	52	71	118	355HVA1150	●
11.80	+0.025/+0.007	12	52	71	118	355HVA1180	●
12.00	+0.025/+0.007	12	52	71	118	355HVA1200	●
12,10	+0.025/+0.007	14	63	77	124	355HVA1210	●
12.20	+0.025/+0.007	14	63	77	124	355HVA1220	●
12.50	+0.025/+0.007	14	63	77	124	355HVA1250	●
12.80	+0.025/+0.007	14	63	77	124	355HVA1280	●
13.00	+0.025/+0.007	14	63	77	124	355HVA1300	●
13.30	+0.025/+0.007	14	63	77	124	355HVA1330	●
13.50	+0.025/+0.007	14	63	77	124	355HVA1350	●
13.80	+0.025/+0.007	14	63	77	124	355HVA1380	●
14.00	+0.025/+0.007	14	63	77	124	355HVA1400	●
14.10	+0.025/+0.007	16	67	83	133	355HVA1410	●
14.20	+0.025/+0.007	16	67	83	133	355HVA1420	●
14.50	+0.025/+0.007	16	67	83	133	355HVA1450	●
15.00	+0.025/+0.007	16	67	83	133	355HVA1500	●
15.30	+0.025/+0.007	16	67	83	133	355HVA1530	●
15.50	+0.025/+0.007	16	67	83	133	355HVA1550	●
15.80	+0.025/+0.007	16	67	83	133	355HVA1580	●
16.00	+0.025/+0.007	16	67	83	133	355HVA1600	●
16.50	+0.025/+0.007	18	75	93	143	355HVA1650	●
17.00	+0.025/+0.007	18	75	93	143	355HVA1700	●
17.50	+0.025/+0.007	18	75	93	143	355HVA1750	●
18.00	+0.025/+0.007	18	75	93	143	355HVA1800	●
18.50	+0.029/+0.008	20	81	101	153	355HVA1850	●
19.00	+0.029/+0.008	20	81	101	153	355HVA1900	●
19.50	+0.029/+0.008	20	81	101	153	355HVA1950	●
20.00	+0.029/+0.008	20	81	101	153	355HVA2000	●

CUTTING PARAMETERS

355HVA

	Material Group ISO 513	P1 P2	P3 P4	P5	P6	P7	P8
	Hardness/Rm	500÷700 N/mm²	600÷1000 N/mm²	900÷1200 N/mm²	1200÷1400 N/mm²	<700 N/mm²	850÷1200 N/mm²
	Vc (m/min)	**100÷140**	**80÷120**	**70÷90**	**50÷70**	**50÷70**	**20÷30**
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)
	**3**	0.101	0.075	0.060	0.050	0.065	0.039
	4	0.119	0.089	0.071	0.059	0.077	0.046
	5	0.137	0.103	0.082	0.069	0.089	0.053
	6	0.155	0.117	0.093	0.078	0.101	0.061
	7	0.174	0.130	0.104	0.087	0.113	0.068
	8	0.192	0.144	0.115	0.096	0.125	0.075
	9	0.210	0.158	0.126	0.105	0.137	0.082
	10	0.228	0.171	0.137	0.114	0.148	0.089
	11	0.238	0.178	0.143	0.119	0.154	0.093
	12	0.256	0.192	0.154	0.128	0.166	0.100
	13	0.274	0.206	0.164	0.137	0.178	0.107
	14	0.292	0.219	0.175	0.146	0.190	0.114
	15	0.311	0.233	0.186	0.155	0.202	0.121
	16	0.329	0.247	0.197	0.164	0.214	0.128
	17	0.338	0.254	0.203	0.169	0.220	0.132
	18	0.347	0.260	0.208	0.174	0.226	0.135
	19	0.356	0.267	0.214	0.178	0.232	0.139
	20	0.366	0.274	0.219	0.183	0.238	0.143

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**50÷70**	**45÷65**	**35÷50**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
	**3**	0.065	0.052	0.046			
	4	0.077	0.062	0.054			
	5	0.089	0.071	0.062			
	6	0.101	0.081	0.071			
	7	0.113	0.090	0.079			
	8	0.125	0.100	0.087			
	9	0.137	0.109	0.096			
	10	0.148	0.119	0.104			
	11	0.154	0.124	0.108			
	12	0.166	0.133	0.116			
	13	0.178	0.143	0.125			
	14	0.190	0.152	0.133			
	15	0.202	0.162	0.141			
	16	0.214	0.171	0.150			
	17	0.220	0.176	0.154			
	18	0.226	0.181	0.158			
	19	0.232	0.185	0.162			
	20	0.238	0.190	0.166			

CUTTING PARAMETERS

355HVA

	Material Group ISO 513	S1 S2	S3	S4	S5		
	Hardness/Rm	<35 N/mm²	35÷45 N/mm²				
	Vc (m/min)	**30÷50**	**25÷45**	**30÷45**	**25÷35**		
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)		
	**3**	0.045	0.032	0.043	0.036		
	4	0.053	0.037	0.051	0.043		
	5	0.062	0.043	0.059	0.049		
	6	0.070	0.049	0.066	0.056		
	7	0.078	0.055	0.074	0.063		
	8	0.086	0.060	0.082	0.069		
	9	0.095	0.066	0.090	0.076		
	10	0.103	0.072	0.098	0.082		
	11	0.107	0.075	0.102	0.086		
	12	0.115	0.081	0.109	0.092		
	13	0.123	0.086	0.117	0.099		
	14	0.132	0.092	0.125	0.105		
	15	0.140	0.098	0.133	0.112		
	16	0.148	0.104	0.141	0.118		
	17	0.152	0.106	0.145	0.122		
	18	0.156	0.109	0.148	0.125		
	19	0.160	0.112	0.152	0.128		
	20	0.164	0.115	0.156	0.132		

TYPHOON HSD

STEP DRILL FOR 90° CHAMFERING

Chamfer drill for universal application ISO P, M, S.

Punta svasatore per applicazione universale ISO P, M, S.

Fasenbohrer für allgemeine Anwendungen auf ISO P, M, S.

Fraise à chanfreiner pour application universelle ISO P, M, S.

Broca de chaflanar universal ISO P, M, S.

Фасочное сверло для универсального применения ISO P, M, S.

TYPHOON HSD

STEP DRILL FOR 90° CHAMFERING

- Combined tool: boring and chamfering at the same time
- Straight edge geometry: stable cutting, produces relative small chips
- Flute design: wide flutes for better chip ejection
- Substrate and coating: specifically selected to perform on wide range of workpiece materials

- Outil combiné: alésage et chanfreinage en même temps
- Géométrie de bord droit: coupe stable, produit des copeaux relativement petits
- Conception de gougures: large gougure pour faciliter l'évacuation des copeaux
- Substrat et revêtement: spécialement sélectionnés pour fonctionner sur une large gamme de matière de pièces

- Utensile combinato: foratura e svasatura in un'unica operazione
- Tagliente diritto: garantisce stabilità e produce trucioli più corti
- Design delle gole: ampie per agevolare l'evacuazione dei trucioli
- Substrato e rivestimento: specifici per performare al meglio su una vasta gamma di materiali

- Herramienta mixta: taladrado y chaflanado al mismo tiempo
- Geometría filo recto: corte estable, produce virutas relativamente pequeñas
- Diseño canales: canales anchos para una mejor expulsión de viruta
- Sustrato y revestimiento: específicamente seleccionados para un óptimo rendimiento en una gran variedad de materiales

- Kombiwerkzeug: Bohren und Fasen in einem Arbeitsgang
- Gerade Schnittgeometrie: stabiles schneiden, erzeugt kleine Späne
- Nutenform: breite Nuten um die Späne besser abzuführen
- Substrat und Beschichtung: so ausgewählt um sehr flexibel auf unterschiedlichen Materialgruppen eingesetzt zu werden

- Комбинированное сверло: сверление и снятие фаски
- Прямая режущая кромка: гарантирует стабильность и получение более короткой стружки
- Конструкция канавки: широкая для облегчения удаления стружки
- Исходный материал и покрытие: специально для работы с широким спектром материалов.

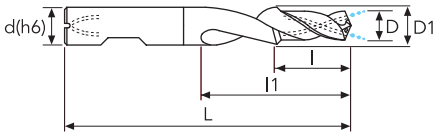
372HSD

through coolant step drill for 90° chamfering, weldon shank, universal application

3XD | OSAWA NORM | HSD | MG PV300 | 140° | 30°

P	M	K	N	S	H

★ 1st choice ☆ suitable



D(m7)	Thread Size	D Tol.	D1(h10)	d(h6)	l	l1	L	EDP No.	Stock
2.50	M3 /C	+0.012/+0.002	4.00	4	9	25	62	372HSD0250	●
2.80	M3 /F	+0.012/+0.002	4.00	4	9	25	62	372HSD0280	●
3.30	M4 /C	+0.016/+0.004	5.00	6	11	28	66	372HSD0330	●
3.70	M4 /F	+0.016/+0.004	6.00	6	11	28	66	372HSD0370	●
4.20	M5 /C	+0.016/+0.004	6.00	6	14	28	66	372HSD0420	●
4.65	M5 /F	+0.016/+0.004	6.00	6	14	28	66	372HSD0465	●
5.00	M6 /C	+0.016/+0.004	8.00	8	17	41	79	372HSD0500	●
5.55	M6 /F	+0.016/+0.004	8.00	8	17	41	79	372HSD0555	●
6.80	M8 /C	+0.021/+0.006	10.00	10	21	47	89	372HSD0680	●
7.45	M8 /F	+0.021/+0.006	10.00	10	21	47	89	372HSD0745	●
8.50	M10 /C	+0.021/+0.006	12.00	12	26	55	102	372HSD0850	●
9.35	M10 /F	+0.021/+0.006	12.00	12	26	55	102	372HSD0935	●
10.30	M12 /C	+0.025/+0.007	14.00	14	30	60	107	372HSD1030	●
11.22	M12 /F	+0.025/+0.007	14.00	14	30	60	107	372HSD1122	○

C: Cutting taps, F: Forming taps

● stock standard ○ non-standard stock ▽ stock exhaustion

372HSD

	Material Group ISO 513	P1 P2	P3 P4	P7			
	Hardness/Rm	500÷700 N/mm²	600÷1000 N/mm²	<700 N/mm²			
	Vc (m/min)	**80÷120**	**70÷110**	**40÷80**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
Ø RUN OUT <0.02mm	**3**	0.130	0.130	0.075			
	4	0.150	0.150	0.090			
	5	0.170	0.170	0.100			
	6	0.190	0.190	0.110			
	7	0.220	0.220	0.120			
	8	0.250	0.250	0.130			
	9	0.280	0.280	0.140			
	10	0.300	0.300	0.150			
	11	0.310	0.310	0.155			
	12	0.330	0.330	0.160			
	13	0.340	0.340	0.165			
	14	0.360	0.360	0.175			
	15	0.380	0.380	0.180			
	16	0.400	0.400	0.185			
	17	0.410	0.410	0.195			
	18	0.420	0.420	0.200			
	19	0.420	0.420	0.200			
	20	0.420	0.420	0.210			

372HSD

	Material Group ISO 513	M1	M2	M3			
	Hardness/Rm	<750 N/mm²	550÷850 N/mm²	650÷950 N/mm²			
	Vc (m/min)	**40÷80**	**40÷80**	**30÷60**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
Ø RUN OUT <0.02mm	**3**	0.075	0.055	0.055			
	4	0.090	0.070	0.070			
	5	0.100	0.075	0.075			
	6	0.110	0.075	0.075			
	7	0.120	0.080	0.080			
	8	0.130	0.090	0.090			
	9	0.140	0.095	0.095			
	10	0.150	0.105	0.105			
	11	0.155	0.115	0.115			
	12	0.160	0.120	0.120			
	13	0.165	0.125	0.125			
	14	0.175	0.135	0.135			
	15	0.180	0.135	0.135			
	16	0.185	0.140	0.140			
	17	0.195	0.145	0.145			
	18	0.200	0.150	0.150			
	19	0.200	0.160	0.160			
	20	0.210	0.170	0.170			

CUTTING PARAMETERS

372HSD

	Material Group ISO 513	S1 S2	S3	S5			
	Hardness/Rm	<35 HRC	35÷45 HRC				
	Vc (m/min)	**30÷50**	**30÷50**	**25÷45**			
	D (mm)	fn (mm/rev)	fn (mm/rev)	fn (mm/rev)			
Ø RUN OUT <0.02mm	**3**	0.030÷0.080	0.030÷0.070	0.030÷0.060			
	4	0.040÷0.100	0.040÷0.100	0.040÷0.080			
	5	0.050÷0.100	0.050÷0.100	0.040÷0.090			
	6	0.050÷0.100	0.050÷0.100	0.050÷0.100			
	7	0.050÷0.110	0.050÷0.110	0.050÷0.110			
	8	0.060÷0.120	0.060÷0.120	0.060÷0.110			
	9	0.060÷0.130	0.060÷0.130	0.060÷0.120			
	10	0.070÷0.140	0.070÷0.140	0.070÷0.120			
	11	0.080÷0.150	0.080÷0.150	0.080÷0.130			
	12	0.080÷0.160	0.080÷0.160	0.080÷0.140			
	13	0.080÷0.170	0.080÷0.170	0.080÷0.150			
	14	0.090÷0.180	0.090÷0.180	0.090÷0.160			
	15	0.090÷0.180	0.090÷0.180	0.090÷0.160			
	16	0.100÷0.180	0.100÷0.180	0.100÷0.160			
	17	0.100÷0.190	0.100÷0.190	0.100÷0.170			
	18	0.100÷0.200	0.100÷0.200	0.100÷0.180			
	19	0.110÷0.210	0.110÷0.210	0.110÷0.190			
	20	0.120÷0.220	0.120÷0.220	0.120÷0.200			

ALU

NON-FERROUS MATERIALS

Uncoated micrograin carbide and cutting geometry specifically developed for non-ferrous machining. Lapped cutting edges and ad-hoc profile of the chip pocket for low cutting forces and outstanding finishing quality. Also available in the HF ALU version with unequal pitch (UP) with a specific design allowing mirror finishing and DxD machining, even in the 4-flutes version.

Micrograna non rivestita e geometria di taglio sviluppata specificamente per la lavorazione di materiali non-ferrosi. Taglienti lappati e particolare profilo del vano truciolo per bassi sforzi di taglio e un'eccellente finitura superficiale. Disponibile anche la versione HF Alu con passo differenziato (UP) con un particolare design che permette finiture a specchio e lavorazioni DxD, anche nella versione a 4 taglienti.

Unbeschichtete Mikrokörnung und eigens für die Bearbeitung von NE-Metallen entwickelte Schnittgeometrie. Dank der geläppten Schneiden und der besonderen Form der Nuten ist die aufzubringende Schnittkraft gering, bei gleichzeitig ausgezeichnetem Oberflächenfinish. Auch in der Version HF Alu mit ungleicher Teilung (UP) und besonderer Form erhältlich, die auch in der Version mit 4 Schneiden ein spiegelblankes Oberflächenfinish und DxD-Bearbeitungen ermöglicht.

Micrograin non revêtu et géométrie de coupe développée spécifiquement pour l'usinage de matériaux non ferreux. Arêtes de coupe polies et profil particulier de la goujure pour de faibles efforts de coupe et une excellente finition superficielle. Également disponible la version HF Alu à pas décalé(UP), avec un design particulier qui permet des finitions glacées et des usinages DxD,aussi dans la version à 4 arêtes de coupe.

Micrograna no revestida y geometría de corte desarrollada específicamente para la elaboración de materiales no ferrosos. Filos de corte lapeados y perfil especial del compartimento de virutas, para bajos esfuerzos de corte y un excelente acabado de la superfície. También está disponible la versión HF Alu con paso diferenciado (UP) con un diseño especial que permite acabados a espejo y elaboraciones D x D, incluso en la versión de 4 filos.

Мелкозернистый твердый сплав без покрытия со специально разработанной геометрией для обработки цветных металлов. Доведенные режущие кромки и специальный профиль стружечных канавок снижают силы резания и улучшают качество обработанной поверхности. Также доступна версия HF Alu с неравномерным шагом (UP) и специальной геометрией, позволяющая получать зеркальную поверхность и работать в режиме DxD, в том числе для версии с 4-мя зубьями.

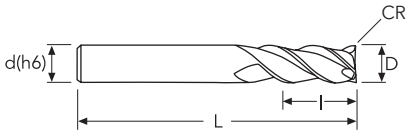
HFAL3

cylindrical shank, 3 flutes, corner radius

OSAWA NORM | ALU | MG POLISHED | 30° | RADIUS | Z3 UP

P	M	K	N	S	H
1st choice		suitable			

SLOTTING | SIDE MILLING | HELICAL | RAMPING | VERTICAL | DRILLING



D	D Tol.	CR	CR Tol.	d(h6)	l	l1	L	z	EDP No.	Stock
1	0/-0.015	0.10	0/-0.01	6	3		50	3	HFAL301010030	●
1	0/-0.015	0.10	0/-0.01	6	5		50	3	HFAL301010050	●
1,5	0/-0.015	0.10	0/-0.01	6	4.5		50	3	HFAL301015045	●
1,5	0/-0.015	0.10	0/-0.01	6	6		50	3	HFAL301015060	●
1,5	0/-0.015	0.10	0/-0.01	6	8		50	3	HFAL301015080	●
2	0/-0.020	0.10	±0.020	6	3		50	3	HFAL301020030	●
2	0/-0.020	0.10	±0.020	6	5		50	3	HFAL301020050	●
2	0/-0.020	0.10	±0.020	6	6.5		50	3	HFAL301020	●
2	0/-0.020	0.10	±0.020	6	8		50	3	HFAL301020080	●
2	0/-0.020	0.10	±0.020	6	10		50	3	HFAL301020100	●
3	0/-0.020	0.10	±0.020	6	6		50	3	HFAL301030060	●
3	0/-0.020	0.10	±0.020	6	9		50	3	HFAL301030	●
3	0/-0.020	0.10	±0.020	6	12		50	3	HFAL301030120	●
4	0/-0.020	0.10	±0.020	6	12		50	3	HFAL301040	●
5	0/-0.020	0.10	±0.020	6	15		50	3	HFAL301050	●
6	0/-0.020	0.10	±0.020	6	20		60	3	HFAL301060	●
8	0/-0.020	0.10	±0.020	8	20		64	3	HFAL301080	●
10	0/-0.020	0.10	±0.020	10	22		75	3	HFAL301100	●
12	0/-0.020	0.10	±0.020	12	25		75	3	HFAL301120	●
14	0/-0.020	0.10	±0.020	14	32		90	3	HFAL301140	●
16	0/-0.020	0.10	±0.020	16	32		90	3	HFAL301160	●
20	0/-0.020	0.10	±0.020	20	38		100	3	HFAL301200	●

● stock standard ○ non-standard stock ▽ stock exhaustion

HFAL3

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	D x D	D x D	D x D	D x D
	Vc (m/min)	300÷500	200÷400	150÷350	600÷900
SLOTTING	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.022	0.019	0.015	0.024
	3	0.033	0.028	0.023	0.036
	4	0.044	0.037	0.031	0.048
	5	0.055	0.047	0.039	0.061
	6	0.065	0.055	0.046	0.072
	8	0.086	0.073	0.060	0.095
	10	0.105	0.089	0.074	0.116
	12	0.120	0.102	0.084	0.132
	14	0.140	0.119	0.098	0.154
	16	0.160	0.136	0.112	0.176
	18	0.176	0.150	0.123	0.194
	20	0.195	0.166	0.137	0.215

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	1.5D x 0.5D	1.5D x 0.5D	1.5D x 0.5D	1.5D x 0.5D
	Vc (m/min)	300÷600	200÷500	200÷400	600÷1000
SIDE MILLING	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.026	0.024	0.021	0.029
	3	0.040	0.036	0.032	0.044
	4	0.053	0.048	0.042	0.058
	5	0.066	0.059	0.053	0.073
	6	0.078	0.070	0.062	0.086
	8	0.103	0.093	0.083	0.114
	10	0.126	0.113	0.101	0.139
	12	0.144	0.130	0.115	0.158
	14	0.168	0.151	0.134	0.185
	16	0.192	0.173	0.154	0.211
	18	0.211	0.190	0.169	0.232
	20	0.234	0.211	0.187	0.257

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	8° x 0.5D	5° x 0.5D	5° x 0.5D	8° x 0.5D
	Vc (m/min)	300÷500	200÷400	150÷350	600÷900
HELICAL	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.015	0.014	0.011	0.017
	3	0.023	0.020	0.017	0.025
	4	0.030	0.027	0.022	0.033
	5	0.038	0.034	0.028	0.042
	6	0.045	0.040	0.033	0.049
	8	0.059	0.053	0.044	0.065
	10	0.073	0.065	0.054	0.080
	12	0.083	0.074	0.061	0.091
	14	0.097	0.087	0.071	0.106
	16	0.111	0.099	0.082	0.122
	18	0.122	0.109	0.090	0.134
	20	0.135	0.121	0.099	0.148

HFAL3

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	15° x D	10° x D	7° x D	15° x D
	Vc (m/min)	300÷500	200÷400	150÷350	600÷900
RAMPING	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.015	0.013	0.011	0.016
	3	0.022	0.019	0.016	0.024
	4	0.029	0.025	0.022	0.032
	5	0.037	0.032	0.027	0.040
	6	0.043	0.038	0.032	0.048
	8	0.057	0.050	0.042	0.063
	10	0.070	0.061	0.051	0.077
	12	0.080	0.069	0.059	0.088
	14	0.093	0.081	0.069	0.102
	16	0.106	0.092	0.078	0.117
	18	0.117	0.102	0.086	0.129
	20	0.130	0.113	0.096	0.143

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	D x 0.4D	D x 0.4D	D x 0.4D	D x 0.4D
	Vc (m/min)	300÷500	200÷400	150÷350	600÷900
VERTICAL	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.022	0.020	0.018	0.024
	3	0.033	0.030	0.026	0.036
	4	0.044	0.040	0.035	0.048
	5	0.055	0.050	0.044	0.061
	6	0.065	0.059	0.052	0.072
	8	0.086	0.077	0.069	0.095
	10	0.105	0.095	0.084	0.116
	12	0.120	0.108	0.096	0.132
	14	0.140	0.126	0.112	0.154
	16	0.160	0.144	0.128	0.176
	18	0.176	0.158	0.141	0.194
	20	0.195	0.176	0.156	0.215

	Material Group ISO 513	N1	N2 N3	N4	N5
	Hardness/Rm				
	ap x ae	D x D	D x D	0.5D x D	0.5D x D
	Vc (m/min)	270÷370	190÷290	150÷250	500÷700
DRILLING	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.011	0.010	0.009	0.012
	3	0.017	0.015	0.013	0.018
	4	0.022	0.020	0.018	0.024
	5	0.028	0.025	0.022	0.030
	6	0.033	0.029	0.026	0.036
	8	0.043	0.039	0.034	0.047
	10	0.053	0.047	0.042	0.058
	12	0.060	0.054	0.048	0.066
	14	0.070	0.063	0.056	0.077
	16	0.080	0.072	0.064	0.088
	18	0.088	0.079	0.070	0.097
	20	0.098	0.088	0.078	0.107

PARAMETERS SUGGESTED WITH HIGH POWER MILLING CHUCK AND STABLE MACHINING CONDITION

www.osawa.it

$OUPDATE

SORMA
DIAMOND & CUTTING TOOLS

Sorma S.p.a. / Via Don F. Tosatto 8 / 30174 Mestre Venezia - ITALY / t. +39 041.959179 / f. +39 02.57760374 / info@sorma.net / www.sorma.net