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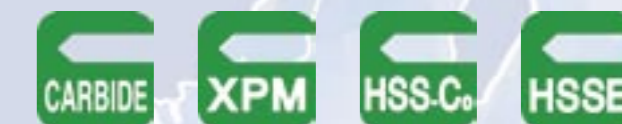
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# vol. 21



TOOL COMMUNICATION

# OSG EUROPE



TOOL COMMUNICATION

**OSG CORPORATION**



## DEAR CUSTOMER.

We are pleased to present our new High Performance tap catalogue. We have gone to great lengths to make this catalogue as comprehensive and user friendly as possible.

This new catalogue features an illustrated index and product selection guide, designed to help you find the right tool for your application.

OSG 's goal is to manufacture extraordinary cutting tools specially designed to meet your needs. We are dedicated to the following:

- Unsurpassed design and manufacturing quality
  - World class R&D, engineering and test
  - Total sales support including factory and field engineering staff dedicated to customer needs
- We appreciate your continued support and we remain fully committed to serving your needs with innovative and superior products.

## LIEBE KUNDEN.

wir freuen uns, Ihnen unseren aktuellsten Katalog mit High Performance Gewindescheidern präsentieren zu dürfen. Wir haben versucht den Katalog so übersichtlich und benutzerfreundlich wie möglich zu gestalten.

Dieser Katalog beinhaltet einen kompletten Überblick über unser Gewindeschneiderprogramm. Reich bebildert und detailliert Beschrieben um Ihnen der Suche nach dem richtigen Werkzeug für Ihre Anforderungen zu helfen.

Das Ziel des OSG ist es, Ihre Anforderungen richtig zu erkennen und Ihnen das optimale Werkzeug zur Verfügung zu stellen. Unsere Stärken sind:

- ein einmaliges Design und eine konstante Herstellungsqualität
  - eine weltweite Forschung- und Entwicklungsabteilung
  - eine komplette Verkaufsabwicklung, in welche die Produktion und das Ingenieurwissen einfließt, abgestimmt auf die Kundenbedürfnisse
- Wir wünschen Ihnen viel Spaß mit unserem Katalog.



## CARI CLIENTI.

siamo felici di presentarvi il Nostro nuovo catalogo Maschi ad alta performance OSG.

Le geometrie, i materiali e la vasta gamma degli utensili da taglio, sono la Nostra carta vincente.

Un'équipe commerciale e tecnica ed un competente servizio clienti sono a Vostra disposizione per offrirvi la migliore soluzione per aumentare le prestazioni delle Vostre lavorazioni.

I Nostri clienti possono contare su un importante magazzino utensili presso la sede delle OSG.

La OSG augura un ottimo lavoro con gli utensili di alta qualità.

## CHERS PARTENAIRES. CHERS CLIENTS.

Nous sommes heureux de vous présenter notre nouveau catalogue des tarauds haute performance en carbure, XPM et V3.

Nous avons mis tout en œuvre afin que ce catalogue soit le plus facile d'utilisation et le plus compréhensible possible.

Ce nouveau catalogue se distingue par son guide de sélection et son index rapide, pour des produits existants et nouveaux, qui vous donneront directement leurs champs d'application.

Le but d'OSG est de fabriquer des outils de coupe hors du commun conçus spécialement pour répondre à vos besoins. Nos atouts sont:

- un design unique et une qualité constante de fabrication.
- un département R & D au niveau mondial.
- un support total de vente comprenant les usines et les ingénieurs qui se consacrent au service de la clientèle.

Nous sommes heureux de vous compter parmi nos clients et nous restons à votre entière disposition pour vous proposer nos produits innovants et de haute qualité.

## OSG UK Ltd.

### EXTRACT OF OUR GENERAL CONDITIONS

#### TERMS OF PAYMENT

Subject to credit being approved and unless otherwise expressly agreed accounts are due for payment not later than the end of the month following the month of despatch; otherwise payment must be received by the Company before delivery. When deliveries are spread over a period each consignment will be invoiced as despatched and each month's invoices will be treated as a separate account and be payable according. Failure to pay for any goods or for any delivery or instalment shall entitle the Company to suspend further deliveries and work both on the same order and on any other order from the Customer without prejudice to any other rights the Company may have. The Company reserves the right where genuine doubts arise as to a Customer's financial position or in the case of failure to pay for any goods or any delivery or instalment as aforesaid to suspend delivery of any order or any part or instalment without ability until payment or satisfactory security for payment has been provided.

#### TITLE TO GOODS

Until payment in full has been received by the Company for all goods whatsoever supplied at any time by the Company to the Customer. Property in the goods shall remain in the Company and the Customer shall hold the goods as bailee on behalf of the Company

#### LEGAL CONSTRUCTION

These conditions of Sale shall be constructed in accordance with English Law and be subject to the jurisdiction of the English Courts.

## OSG GmbH

### EXTRAKT ALLGEMEINE VERKAUFS-; LIEFER- UND ZAHLUNGSBEDINGUNGEN

#### PREISE

Unsere Preise verstehen sich, wenn nicht anders vereinbart, ab Lager oder Lieferwerk, ausschließlich Verpackung, die zu den Selbstkosten berechnet und nicht zurückgenommen wird. Zu den Preisen kommt die Mehrwertsteuer in der jeweiligen gesetzlichen Höhe hinzu. Sämtliche Berechnungen erfolgen in Euro. Die Zahlung hat, wenn nicht anders vereinbart ist, bar ohne jeden Abzug frei Zahlstelle des Lieferers zu erfolgen.

Das Zurückbehalten von Zahlungen sowie die Aufrechnung etwaiger von uns bestrittener Gegenansprüche sind nicht zulässig.

Bei verspäteter oder gestundeter Zahlung werden bankübliche Zinsen und Provisionen berechnet.

Vor völliger Bezahlung fälliger Rechnungsbeträge, einschließlich Verzugszinsen, sind wir zu keiner weiteren Lieferung aus irgendeinem laufenden Vertrag verpflichtet.

Bleibt der Besteller mit einer fälligen Zahlung im Rückstand oder tritt in seinen Vermögensverhältnissen eine wesentliche Verschlechterung ein bzw. lauten die über ihn eingeholten Auskünfte unbefriedigend, so wir nach unserer Wahl berechtigt, Vorkasse oder die Erbringung einer Sicherheit vor Lieferung zu verlangen.

Zahlungen dürfen nur an uns unmittelbar oder an einen von uns besonders Beauftragten, der einen Sonderausweis zum Inkasso besitzt, geleistet werden. Bei Zahlungen, die auf andere Weise geleistet werden, haftet der Besteller in voller Höhe des von uns zu fordernden Betrages.

#### EIGENTUMSVORBEHALT

Alle gelieferten Waren bleiben unser Eigentum (Vorbehaltsware) bis zur Erfüllung sämtlicher Forderungen gleich aus welchem Rechtsgrund, einschließlich der künftig entstehenden oder später abgeschlossenen Verträge. Das gilt auch, wenn Zahlungen auf besonders bezeichnete Forderungen geleistet wurden. Der Besteller ist verpflichtet, den Liefergegenstand gegen Diebstahl, Feuer und sonstige Schäden zu versichern und uns den Abschluss nachzuweisen.

Der Liefergegenstand darf vom Besteller weder verpfändet noch zur Sicherung übereignet werden. Im Falle von Pfändungen, Beschlagnahme oder sonstige Verfügung durch Dritte hat der Besteller uns davon unverzüglich ausreichend zu unterrichten. Unter Eigentumsvorbehalt stehende Waren dürfen nur im regelmäßigen Geschäftsverkehr veräußert werden, wenn sichergestellt ist, dass die Forderungen aus dem Weiterverkauf auf uns übergeht und der Eigentumsvorbehalt durch den Besteller an seine Kunden weitergeleitet wird. Der Besteller tritt bereits jetzt die ihm aus dem Weiterverkauf oder aus der sonstigen Verwendung der Ware zustehende Forderungen Nebenrechten an uns ab. Die Ermächtigung zum Weiterverkauf ist widerruflich. Der Besteller verpflichtet sich, uns im Falle des Zahlungsverzuges unverzüglich den Abnehmer der Vorbehaltsware zu benennen.

Falle vertragswidrigen Verhaltens des Bestellers, wozu auch der Zahlungsverzug rechnet, sind wir nach Mahnung zur Zurücknahme des unter Eigentumsvorbehalt gelieferten Gegenstandes berechtigt, und Besteller ist zur Herausgabe verpflichtet. Weder die Geltendmachung des Eigentumsvorbehaltes noch Pfändung des Liefergegenstandes durch uns gelten, sofern nicht das Abzahlungsgesetz Anwendung findet, als Rücktritt vom Vertrag.

#### ANZUWENDENDEN RECHT, ERFÜLLUNGORT UND GERICHTSSTAND

Die Vertragsbeziehungen unterliegen ausschließlich dem Recht der Bundesrepublik Deutschland. Die Anwendung internationaler Kaufrechtsgesetze wird ausgeschlossen. Erfüllungsort für sämtliche aus dem Vertragsverhältnis sich ergebenden Rechte und Verbindlichkeiten ist Ostfildern Nellingen.

Gerichtsstand für sämtliche sich aus dem Vertragsverhältnis ergebende Rechte und Verbindlichkeiten ist, wenn der Besteller Vollkaufmann, eine juristische Person des öffentlichen Rechts oder ein öffentliches Sondervermögen ist, Ostfildern bzw. Esslingen.

## OSG ITALIA s.r.l.

### CONDIZIONI GENERALI DI VENDITA

#### PAGAMENTI

Non sono riconosciuti se fatti a persone non munite di regolare mandato. Gli assegni devono essere intestati alla nostra ditta con dicitura "NON TRASFERIBILE" anche se l'assegno viene consegnato a un nostro incaricato. Non si accettano sconti ed abbuoni se non concordati preventivamente.

#### RESI

Non si accetta il reso merce senza nostra preventiva autorizzazione scritta. La merce resa qualunque ne sia il motivo, deve essere resa in porto franco alla nostra sede di Torino. Per il controllo e le pratiche amministrative relative alla merce da Voi restituita vi verrà addebitato il 10% del valore.

Per eventuali ammanchi nei quantitativi o per difetto, dovranno pervenirci entro 10 giorni dalla data di spedizione della merce. Controversie e contestazioni di qualsiasi natura: unico foro competente quello di Torino.

## OSG EUROPE s.a.

### EXTRACT OF OUR GENERAL CONDITIONS

All our invoices are established net prices and without discount, payable on the deadline as indicated on the invoice.

Any remark after 8 days from date of receiving the good will not be accepted.

In case of delay in payments of more than 15 days after the date of reception of the goods, the amount due will be increased with 1% per month, with a maximum of 25 €.

















All goods are sold with the reserve of property transfer until full payment of the selling price. In case of contesting of an invoice, the Court of Nivelles (Belgium) are the only accredited.

<b>C ≤ 0,2%</b>	Low carbon steels	Kohlenstoffstahl	Acciaio a basso contenuto di carbonio	Aciers bas carbone
<b>0,25 &lt; C ≤ 0,4%</b>	Medium carbon steels	Kohlenstoffstahl	Acciaio a medio contenuto di carbonio	Aciers médium carbone
<b>C ≥ 0,45%</b>	High carbon steels	Kohlenstoffstahl	Acciaio ad alto contenuto di carbonio	Aciers haut carbone
<b>SCM</b>	Alloy steels	Leg. Stahl	Acciai legati	Aciers alliés
<b>~35 HRC</b>	Hardened steels	Gehärteter Stahl	Acciai temprati	Aciers trempé
<b>35~45 HRC</b>	Hardened steels	Gehärteter Stahl	Acciai temprati	Aciers trempé
<b>45~50 HRC</b>	Hardened steels	Gehärteter Stahl	Acciai temprati	Aciers trempé
<b>50~70 HRC</b>	Hardened steels	Gehärteter Stahl	Acciai temprati	Aciers trempé
<b>SUS</b>	Stainless steels	VA Stahl	Acciai inossidabili	Inox
<b>SKD</b>	Tool steels	Werkzeustahl	Acciai da utensili	Aciers d'outillage
<b>GG</b>	Cast iron	Grauguss	Ghisa grigia	Fonte
<b>GGG</b>	Ductile cast iron	Kugelgraphitguss	Ghisa malleabile	Fonte ductile
<b>Cu</b>	Copper	Kupferlegierung	Rame	Cuivre
<b>Al</b>	Aluminium	Aluminium	Alluminio	Aluminium
<b>AC</b>	Cast aluminium alloys	Aluminiumlegierung	Leghe di alluminio	Alliages d'alu coulé
<b>Ti</b>	Titanium	Titanium	Titanio	Titane
<b>Tiall</b>	Titanium alloys	Titaniumlegierung	Leghe di titanio	Alliages de Titane
<b>Inl</b>	Inconel	Inconel	Inconel	Inconel

	Good	Gut	Ottimo	Bon
	Excellent	Sehr gut	Buono	Excellent



## DRILLING - BOHREN - FORATURA - PERÇAGE

Type	DESCRIPTIONS - BESCHREIBUNG - DESCRIZIONE - DESCRIPTIONS
WX	 <ul style="list-style-type: none"> <li>• Micrograin with improved TiAIN</li> <li>• The best ratio performance- price</li> <li>• Preciser results, more stable, longer life time</li> <li>• According to 21 century demands</li> </ul>
	 <ul style="list-style-type: none"> <li>• Neues Mischkorn - Hartmetall mit verbesserter TiAIN - Mehrlagenbeschichtung</li> <li>• Bestes Preis - Leistungs - Verhältnis</li> <li>• Resultat: zäher, stabiler, bessere Standzeit, Preisgünstig</li> <li>• Neueste Serie, abgestimmt auf die Bedürfnisse des 21. Jahrhunderts</li> </ul>
	 <ul style="list-style-type: none"> <li>• Carburo micrograna con rivestimento TiAIN</li> <li>• Il miglior rapporto performance - prezzo</li> <li>• Maggior precisione, stabilità e durata</li> <li>• Risponde alla maggior richiesta del 21° secolo</li> </ul>
	 <ul style="list-style-type: none"> <li>• Carbure micrograin avec TiAIN amélioré</li> <li>• Le meilleur rapport performance-prix</li> <li>• Résultat plus précis, plus stable, meilleure durée de vie</li> <li>• Répond aux besoins du 21<sup>ème</sup> siècle</li> </ul>
FX	 <ul style="list-style-type: none"> <li>• High performance material selected for use with high cutting speeds</li> <li>• Also for dry applications</li> </ul>
	 <ul style="list-style-type: none"> <li>• High performance Bohrer für sehr hohe Schnittgeschwindigkeiten</li> <li>• Auch für Trockenbearbeitung geeignet</li> </ul>
	 <ul style="list-style-type: none"> <li>• Materiali alta performance per lavorazioni ad alta velocità</li> <li>• Anche per lavorazioni a secco</li> </ul>
	 <ul style="list-style-type: none"> <li>• Matière de haute performance sélectionnée pour de hautes vitesses de coupe</li> <li>• Prévu également pour l'usinage à sec</li> </ul>
XPM	 <ul style="list-style-type: none"> <li>• Specially developed by OSG for all stainless steels, Titanium alloys, steel alloys, exotic steels, cast iron up to 52 HRC</li> </ul>
	 <ul style="list-style-type: none"> <li>• Von OSG entwickeltes Material speziell für die Bebearbeitung von VA-Stahl, legierten Stählen, Titan-legierungen, Gußeisen und exotischen Materialien bis zu 52 HRC</li> </ul>
	 <ul style="list-style-type: none"> <li>• Materiali sviluppati da OSG per lavorazioni di acciai oltre 52 HRC e ghise</li> </ul>
	 <ul style="list-style-type: none"> <li>• Matière développée par OSG pour tous les aciers inox, alliages de titane, aciers alliés, aciers exotiques, fontes jusqu'à 52 HRC</li> </ul>
HSSE-V3	 <ul style="list-style-type: none"> <li>• High speed steel with 3% Vanadium, for better wear resistance</li> </ul>
	 <ul style="list-style-type: none"> <li>• Für HSC Bearbeitung in Stahl mit 3% Vanadium</li> <li>• Spezielle Schneidengeometrie erhöht die Verschleißfestigkeit</li> </ul>
	 <ul style="list-style-type: none"> <li>• Acciaio superrapido con 3% di Vanadio per una miglior resistenza all'usura</li> </ul>
	 <ul style="list-style-type: none"> <li>• Acier rapide avec 3% de Vanadium, donne une meilleure résistance à l'usure</li> </ul>

Selection - Auswahl - Selezione - Sélection

⊙ Excellent - Sehr gut - Ottimo - Excellent

○ Good - Gut - Buono - Bon



Type - Typ - Tipo - Type	Page Seite Pagin Page	Surface finish Beschichtung Rivestimento Revelament	Work material - Werkstoff - Materiale - Matière																		
			C ≤ 0.2%	0.25% C ≤ 0.4%	C ≥ 0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl	
<b>NEW</b> CAO-GDXL	10	CrN													⊙	⊙					
EX-GDXL	35-37	TiN	⊙	○	○	○	○							○	○	○	○	○	○	○	
EX-H-DRL	19									○	⊙										
EX-SUS-GDR	31 - 34	TiN	⊙											⊙			⊙	⊙	○	⊙	
EX-SUS-GDS	25 - 30	TiN	⊙	○										⊙			⊙	⊙	○	⊙	⊙
FS-GDN	5	FX	⊙	⊙	⊙	⊙	⊙	⊙	⊙					○	○	⊙			○		
FS-GDS	4	FX	⊙	⊙	⊙	⊙	⊙	⊙	⊙					○	○	⊙			○		
FT-GDN	7	FX	⊙	⊙	⊙	⊙	○	○	○					○	○	○	⊙			○	
FT-GDS	6	FX	⊙	⊙	⊙	⊙	○	○	○					⊙	○	○	⊙			○	○
FTO-GDN	1-2	FX	⊙	⊙	⊙	⊙	⊙	○						⊙	○	⊙	⊙	○		⊙	○
FTO-GDS	3	FX	⊙	⊙	⊙	⊙	⊙	○	○					⊙	○	⊙	⊙	○		○	⊙
FTO-GDXL	8	FX			⊙	⊙															
<b>NEW</b> FTO-M-GDXL	9	FX							⊙	○											
<b>NEW</b> FTO-PLT	9	FX			⊙	⊙															
FX-LDS	40	FX	⊙	⊙	⊙	⊙	⊙	○							⊙	⊙	⊙	○		○	○
<b>NEW</b> HYP-HP-GDS	11-12	TiAlN	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
<b>NEW</b> HYP-HPO-GDS	13-14	TiAlN	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
NC-LDS	41	FX	⊙	⊙	⊙	○								○	○	○			○	○	
SH-DRL	18-19																				
V-HDO-GDR	24	V	⊙	⊙	⊙	⊙	⊙	⊙						⊙	○	○	⊙	⊙	○	○	○
VP-GDR	20-21	V	⊙	⊙	⊙	⊙	⊙	○							⊙	⊙	⊙	○	○	⊙	○
VPH-GDS	22-23	V	○	○	○	○	⊙	⊙	⊙						⊙	⊙	⊙	⊙	○	⊙	⊙
VP-HO-GDR	23	V	⊙	⊙	⊙	⊙	⊙	○						⊙	⊙	⊙	⊙	⊙	○	⊙	○
V-SDR	38-39	V	⊙	⊙	○	⊙									○	○	○			○	○
WX-MS-GDS	15-17	WX	⊙	⊙	○	○								○		○		⊙	⊙	⊙	○



# Carbide Extra Long Drills with Oil Holes for Copper Alloys and Aluminium Alloys

## CAO-GDXL

**PAT.**

For high speed, highly efficient  
non-step deep hole  
drilling of copper alloys  
and aluminum alloys I

*High speed  
Highly efficient*

*Non-step  
Deep hole*



Icons - Pictogramme - Pittogrammi - Pictogrammes

1 Material



Carbide



Micro-grain



HSS Cobalt (Co8)



High grade Powder Metallurgy HSS (XPM) (Co10 + V5)



Powder Metallurgy HSS (PM-T15) (Co5 + V5)



High Vanadium HSS-E V3



HSS

2 Coating



Multi layered composite TiAlN



Chromium nitride



Coating TiN



Multilayer coating TiAlN



Multilayer coating TiCN



Steam Oxide

3 Shank



Shank diameter tolerance



Straight shank



Whistle Notch



All shanks of OSG mills are suitable for Hypro-Shrink Fit systeme



Straight shank for flat

4 Helix Angle



30°

5 Point Angle



140°

6 Tool tolerance



h8

7 Internal cooling



8 High speed drilling



FS

9 Thinning



10 Drilling depth



> 5D

11 Short - Long - Extra long serie



Short serie



Long serie



Extra long serie

12 Cutting Conditions



min<sup>-1</sup>

13 Strongly Recommended



Strongly recommended



## Index - Vorschau - Indice rapido - Index rapide

Appearance	Type	Coating	Specification	Range		Page
<b>SOLID CARBIDE</b>						
	<b>FTO-GDN</b>	<b>FX</b>	Solid Carbide, normal for high speed drilling	3~20	5~7 D	1-2
	<b>FTO-GDS</b>	<b>FX</b>	Carbide extra fine micro grain	2.8~8	5~7 D	3
	<b>FS-GDS</b>	<b>FX</b>	Solid Carbide, short for high speed drilling	2~6	≤ 3 D	4
	<b>FS-GDN</b>	<b>FX</b>	Solid Carbide, normal for high speed drilling	6~20	≤ 3 D	5
	<b>FT-GDS</b>	<b>FX</b>	Solid Carbide, short for general applications	2~6	≤ 3 D	6
	<b>FT-GDN</b>	<b>FX</b>	Solid Carbide, short for general applications	6~20	≤ 3 D	7
	<b>FTO-GDXL</b>	<b>FX</b>	Solid Carbide, high speed, without stock	3~12	10~30 D	8
<b>NEW</b> 	<b>FTO-M-GDXL</b>	<b>FX</b>	Carbide micro grain, for deep drilling in dies	4~10	20 D	9
<b>NEW</b> 	<b>FTO-PLT</b>	<b>FX</b>	Carbide micro grain, pilot drill for FTO-GDXL, FTO-M-GDXL	4.03-10.03		9
<b>NEW</b> 	<b>CAO-GDXL</b>	<b>CrN</b>	Carbide micro grain, for deep drilling in in Cu & Al alloys	3~10	10~30 D	10
<b>NEW</b> 	<b>HYP-HP-GDS</b>	<b>TIAlN</b>	Carbide micro grain, multi purpose 3D drill	3~20	≤ 3 D	11-12
<b>NEW</b> 	<b>HYP-HPO-GDS</b>	<b>TIAlN</b>	Carbide micro grain, multi purpose 3D drill	3~20	≤ 3 D	13-14
	<b>WX-MS-GDS</b>	<b>WX</b>	Carbide extra fine micro grain	0.2~5	≥ 5 D	15~17
	<b>SH-DRL</b>		Solid Carbide	2~16.6	≤ 3 D	18-19
	<b>EX-H-DRL</b>		Solid Carbide, for removing broken taps	2~12	≤ 2 D	19
<b>XPM</b>						
	<b>VP-GDR</b>	<b>V</b>	XPM, parabolic flute	2~32	≥ 5 D	20-21
	<b>VPH-GDS</b>	<b>V</b>	XPM for hardened steels	2~13	≤ 4 D	22-23
	<b>VP-HO-GDR</b>	<b>V</b>	CPM with oil hole for high speed drilling	6~32	≥ 5 D	23
<b>HSSE</b>						
	<b>V-HDO-GDR</b>	<b>V</b>	Recommended for horizontal drilling	6~32	≥ 5 D	24
	<b>EX-SUS-GDS</b>	<b>TiN</b>	For CNC high speed drilling	0.5~20	≤ 4 D	25~30
	<b>EX-SUS-GDR</b>	<b>TiN</b>	For CNC high speed drilling	2~20	≥ 5 D	31~34
	<b>EX-GDXL</b>	<b>TiN</b>	HSS Co8, extra long for general application	2~13		35~37
<b>DIN 338</b>						
	<b>V-SDR</b>	<b>V</b>	For general applications	2~13	≤ 4 D	38-39
<b>SPOTTING DRILLS</b>						
	<b>FX-LDS</b>	<b>FX</b>	Carbide, for centering and chamfering	3~25		40
	<b>NC-LDS</b>		HSS, for centering and chamfering	3~25		41



Icons - Pictogramme - Pittogrammi - Pictogrammes

1 Material



Vollhartmetall



Micro-grain



HSS (Co8)



Spezial Pulvermetall HSS (XPM) (Co10 + V5)



Pulvermetall HSS (PM-T15) (Co5 + V5)



HSS-E (V3)



HSS

2 Beschichtung



Mehrlagenbeschichtung TiAlN



Chromnitrit



TiN Beschichtet



TiAlN Beschichtet



Mehrlagenbeschichtung TiCN



Basis Schicht Dampf

3 Schaft



Schafttoleranz



Zylindrischer Schaft



Whistle Notch



Schrumpftauglich



Zylindrischer Schaft mit Spannfläche

4 Helix Drall Winkel



30°

5 Spitzenwinkel



140°

6 Werkzeugtoleranz



h8

7 Innere Kühlmittelzuführung



8 Hohe Schnittge-windigkeiten



FS

9 Anschliff



10 Gewindetiefe



> 5D

11 Kurze - Lange - Extra lange Serie



Kurze Serie



Lange Serie



Extra lange Serie

12 Schnittwerte



min<sup>-1</sup>

13 OSG Empfehlung



OSG Empfehlung



## Index - Vorschau - Indice rapido - Index rapide

Ansicht	Typ	Beschichtung	Beschreibung	Größe	Seite
<b>VHM</b>					
	<b>FTO-GDN</b>	FX	VHM - Bohrer, normale Ausführung, High Speed Bohren	3~20	5~7 D 1-2
	<b>FTO-GDS</b>	FX	VHM - Bohrer für Präzisionsbohrungen	2.8~8	5~7 D 3
	<b>FS-GDS</b>	FX	VHM - Bohrer, kurze Ausführung, High Speed Bohren	2~6	≤ 3 D 4
	<b>FS-GDN</b>	FX	VHM - Bohrer, normale Ausführung, High Speed Bohren	6~20	≤ 3 D 5
	<b>FT-GDS</b>	FX	VHM - Bohrer, kurze Ausführung für allgemeine Bearbeitung	2~6	≤ 3 D 6
	<b>FT-GDN</b>	FX	VHM - Bohrer, normale Ausführung für allgemeine Bearbeitung	6~20	≤ 3 D 7
	<b>FTO-GDXL</b>	FX	VHM-Bohrer, extra lange Ausführung mit innerer Kühlmittelzufuhr für High-Speed Tiefbohren	3~12	10~30 D 8
<b>NEU</b> 	<b>FTO-M-GDXL</b>	FX	VHM - Bohrer, für Tiefbohren in formen	4~10	20 D 9
<b>NEU</b> 	<b>FTO-PLT</b>	FX	VHM - Bohrer, pilot Bohrer für Tiefbohren in formen	4.03-10.03	9
<b>NEU</b> 	<b>CAO-GDXL</b>	CrN	VHM - Bohrer, für Tiefbohren in Cu und Al	3~10	10~30 D 10
<b>NEU</b> 	<b>HYP-HP-GDS</b>	TiAlN	VHM - Bohrer, 3D, für allgemeine Anwendungen	3~20	≤ 3 D 11-12
<b>NEU</b> 	<b>HYP-HPO-GDS</b>	TiAlN	VHM - Bohrer, 3D, für allgemeine Anwendungen	3~20	≤ 3 D 13-14
	<b>WX-MS-GDS</b>	WX	VHM - Bohrer für Präzisionsbohrungen	0.2~5	≥ 5 D 15~17
	<b>SH-DRL</b>		VHM - Bohrer für gehärtete Materialien	2~16.6	≤ 3 D 18-19
	<b>EX-H-DRL</b>		Zum entfernen von abgebrochenen Gewindebohrern	2~12	≤ 2 D 19
<b>XPM</b>					
	<b>VP-GDR</b>	V	Pulvermaterial XPM normale Ausführung für hohe Zerspanleistung	2~32	≥ 5 D 20-21
	<b>VPH-GDS</b>	V	Pulvermaterial XPM kurze Ausführung für hohe Zerspanleistung	2~13	≤ 4 D 22-23
	<b>VP-HO-GDR</b>	V	Pulvermaterial CPM für hohe Zerspanleistung	6~32	≥ 5 D 23
<b>HSSE</b>					
	<b>V-HDO-GDR</b>	V	HSS Co8 mit Ölzuführung für allgemeine Bearbeitungen	6~32	≥ 5 D 24
	<b>EX-SUS-GDS</b>	TiN	HSS-E V3, kurze Ausführung für VA und langspanende Werkstoffe	0.5~20	≤ 4 D 25~30
	<b>EX-SUS-GDR</b>	TiN	HSS-E V3, normale Ausführung für VA und langspanende Werkstoffe	2~20	≥ 5 D 31~34
	<b>EX-GDXL</b>	TiN	HSS Co8, extra lange Ausführung, für allgemeine Anwendungen	2~13	35~37
<b>DIN 338</b>					
	<b>V-SDR</b>	V	HSS-E V3 für allgemeine Bearbeitung	2~13	≤ 4 D 38-39
<b>ANBOHRER</b>					
	<b>FX-LDS</b>	FX	VHM - Anbohrer	3~25	40
	<b>NC-LDS</b>		HSS - Anbohrer	3~25	41



## Icons - Pictogramme - Pittogrammi - Pictogrammes

## 1 Materiale utensile



Carburo



Micrograna



Cobalto HSS (Co8)

Alto livello di metallurgia delle  
polveri sinterizzate  
HSS (XPM) (Co10 + V5)Metallurgia delle polveri  
sinterizzate  
(PM-T15) (Co5 + V5)HSS-E alto contenuto di vanadio  
(V3)

HSS

## 2 Rivestimento



Multistrato composito TiAlN



Nitruro di cromo



Rivestimento TiN



Rivestimento TiAlN



Multistrato composito TiCN



Trattamento al vapore

## 3 Gambo

Tolleranza del  
diametro del gambo

Gambo cilindrico



Whistle Notch



Adatto al sistema di serraggio



Gambo cilindrico con piatto

## 4 Angolo d'elica



30°



140°

## 5 Angolo delle punte



h8

## 6 Tolleranza del diametro di

## 7 Con fori di lubrificazione centrali



## 8 Foratura ad alta velocita



FS

## 9 Affilatura



## 10 Profondità di filettatura



&gt; 5D

## 11 Serie Corta - Lunga - Extra lunga



Serie corta



Serie lunga



Serie extra lunga

## 12 Velocità di taglio

min<sup>-1</sup>

## 13 Sugerito vivamente



Sugerito vivamente



## Index - Vorschau - Indice rapido - Index rapide

Come si presenta	Tipo	Rivestimento	Caratteristiche	Dimensioni	N° pagina
<b>CARBURO MONOBLOCCO</b>					
	<b>FTO-GDN</b>	FX	Carburo micrograna-serie regolare con fori di lubrificazione	3~20	5~7 D 1-2
	<b>FTO-GDS</b>	FX	Carburo micrograna-serie corta con fori di lubrificazione	2.8~8	5~7 D 3
	<b>FS-GDS</b>	FX	Carburo micrograna-serie corta-foratura ad alta velocità	2~6	≤ 3 D 4
	<b>FS-GDN</b>	FX	Carburo micrograna-serie regolare-oratura ad alta velocità	6~20	≤ 3 D 5
	<b>FT-GDS</b>	FX	Carburo micrograna-serie corta-per applicazioni generali	2~6	≤ 3 D 6
	<b>FT-GDN</b>	FX	Carburo micrograna-serie regolare-per applicazioni generali	6~20	≤ 3 D 7
	<b>FTO-GDXL</b>	FX	Carburo micrograna-serie extra lunga-con fori di lubrificazione-alta velocità-30D senza step	3~12	10~30 D 8
<b>NUOVO</b> 	<b>FTO-M-GDXL</b>	FX	Carburo micrograna-serie extra lunga-con fori di lubrificazione-alta velocità-20D senza step	4~10	20 D 9
<b>NUOVO</b> 	<b>FTO-PLT</b>	FX	Carburo micrograna-trivello pilota per FTO-GDXL, FTO-M-GDXL	4.03-10.03	9
<b>NUOVO</b> 	<b>CAO-GDXL</b>	CrN	Carburo micrograna-serie extra lunga-con fori di lubrificazione-profondità perforare dentro Cu, Al	3~10	10~30 D 10
<b>NUOVO</b> 	<b>HYP-HP-GDS</b>	TIAlN	Micrograna-con 3D fori raccomandato per applicazioni generali	3~20	≤ 3 D 11-12
<b>NUOVO</b> 	<b>HYP-HPO-GDS</b>	TIAlN	Micrograna-con 3D fori raccomandato per applicazioni generali-con fori di lubrificazione	3~20	≤ 3 D 13-14
	<b>WX-MS-GDS</b>	WX	Carburo micrograna-serie corta	0.2~5	≥ 5 D 15~17
	<b>SH-DRL</b>		Carburo micrograna-serie regolare	2~16.6	≤ 3 D 18-19
	<b>EX-H-DRL</b>		Carburo micrograna-distuggi - maschi	2~12	≤ 2 D 19
<b>XPM</b>					
	<b>VP-GDR</b>	V	XPM-geometria elicoidale-serie regolare	2~32	≥ 5 D 20-21
	<b>VPH-GDS</b>	V	XPM-per acciaio trattato fino-serie corta	2~13	≤ 4 D 22-23
	<b>VP-HO-GDR</b>	V	CPM-ad alta velocità-serie con fori di lubrificazione	6~32	≥ 5 D 23
<b>HSSE</b>					
	<b>V-HDO-GDR</b>	V	Co8-per applicazioni generali-con fori di lubrificazione-serie regolare	6~32	≥ 5 D 24
	<b>EX-SUS-GDS</b>	TiN	V3-serie corta-per inox, per acciaio dolce, alluminio, titanio e rame	0.5~20	≤ 4 D 25~30
	<b>EX-SUS-GDR</b>	TiN	V3-serie regolare-per inox, per acciaio dolce, alluminio, titanio e rame	2~20	≥ 5 D 31~34
	<b>EX-GDXL</b>	TiN	HSS Co8-serie extra lunga-per applicazioni generali	2~13	35~37
<b>DIN 338</b>					
	<b>V-SDR</b>	V	V3-serie regolare-per applicazioni generali	2~13	≤ 4 D 38-39
<b>PUNTE A CENTRARE</b>					
	<b>FX-LDS</b>	FX	Carburo monoblocco-rivestimento FX	3~25	40
	<b>NC-LDS</b>		Standard HSS-per centratura e svasatura su centri di lavoro	3~25	41



## Icons - Pictogramme - Pittogrammi - Pictogrammes

## 1 Matière outil



Carbure



Micrograin



HSS Cobalt (Co8)



Haut niveau de métallurgie des poudres HSS (XPM) (Co10 + V5)



Métallurgie des poudres HSS (PM-T15) (Co5 + V5)



HSSE haute teneur en vanadium (V3)



HSS

## 2 Revêtement



Revêtement multicouches composite TiAlN



Nitrure de chrome



Revêtement TiN



Revêtement TiAlN



Revêtement multicouches TiCN



Traitement vapeur

## 3 Queue



Tolérance du diamètre de queue



Queue cylindrique



Whistle Notch



Toutes les queues des fraises OSG sont adaptées pour le système de freinage



Queue cylindrique avec méplat

## 4 Angle d'hélice



30°



140°

## 5 Angle de pointe



h8

## 6 Tolérance outil

## 7 Arrosage central



## 8 Haute vitesse



## 9 Affûtage



## 10 Profondeur taraudage



&gt; 5D

## 11 Série courte - longue - extra longue



Série courte



Série longue



Série extra longue

## 12 Conditions de coupe

min<sup>-1</sup>

## 13 Recommandation



Fortement recommandé

## Index - Vorschau - Indice rapido - Index rapide

Apparence	Type	Revêt.	Specifications	Dim.	Page
<b>FORETS EN CARBURE MONOBLOC</b>					
	<b>FTO-GDN</b>	FX	Carbure, type normal pour perçage haute vitesse, avec trous d'huile	3~20	5~7 D 1-2
	<b>FTO-GDS</b>	FX	Carbure extra micrograin	2.8~8	5~7 D 3
	<b>FS-GDS</b>	FX	Carbure, type court pour perçage haute vitesse	2~6	≤ 3 D 4
	<b>FS-GDN</b>	FX	Carbure, type normal pour perçage haute vitesse	6~20	≤ 3 D 5
	<b>FT-GDS</b>	FX	Carbure, type court pour applications générales	2~6	≤ 3 D 6
	<b>FT-GDN</b>	FX	Carbure, type normal pour perçage haute vitesse	6~20	≤ 3 D 7
	<b>FTO-GDXL</b>	FX	Carbure, type extra long, avec trous d'huile Avance rapide, sans déburrage, 30D	3~12	10~30 D 8
<b>NOUVEAU</b> 	<b>FTO-M-GDXL</b>	FX	Carbure, type extra long, avec trous d'huile Avance rapide, sans déburrage, 20D, forage profond dans acier de moules	4~10	20 D 9
<b>NOUVEAU</b> 	<b>FTO-PLT</b>	FX	Carbure, forets pilot pour FTO-GDXL et FTO-M-GDXL	4.03-10.03	9
<b>NOUVEAU</b> 	<b>CAO-GDXL</b>	CrN	Carbure micrograin, forage profond dans Cu, Al	3~10	10~30 D 10
<b>NOUVEAU</b> 	<b>HYP-HP-GDS</b>	TiAlN	Carbure micrograin, 3D, applications générales	3~20	≤ 3 D 11-12
<b>NOUVEAU</b> 	<b>HYP-HPO-GDS</b>	TiAlN	Carbure micrograin, 3D, applications générales	3~20	≤ 3 D 13-14
	<b>WX-MS-GDS</b>	WX	Carbure, pour travaux de précision	0.2~5	≥ 5 D 15~17
	<b>SH-DRL</b>		Carbure, pour aciers à très haute dureté	2~16.6	≤ 3 D 18-19
	<b>EX-H-DRL</b>		Carbure, pour extraction de tarauds cassés	2~12	≤ 2 D 19
<b>XPM</b>					
	<b>VP-GDR</b>	V	Acier fritté XPM pour le perçage à haute vitesse	2~32	≥ 5 D 20-21
	<b>VPH-GDS</b>	V	Acier fritté XPM pour aciers trempés	2~13	≤ 4 D 22-23
	<b>VP-HO-GDR</b>	V	Acier fritté CPM pour le perçage à haute vitesse, avec trous d'huile	6~32	≥ 5 D 23
<b>HSSE</b>					
	<b>V-HDO-GDR</b>	V	Co8 pour applications générales, avec trous d'huile	6~32	≥ 5 D 24
	<b>EX-SUS-GDS</b>	TiN	V3, type court pour les inox et aciers doux	0.5~20	≤ 4 D 25~30
	<b>EX-SUS-GDR</b>	TiN	V3, type long pour les inox et aciers doux	2~20	≥ 5 D 31~34
	<b>EX-GDXL</b>	TiN	HSS Co8, type extra long pour applications générales	2~13	35~37
<b>DIN 338</b>					
	<b>V-SDR</b>	V	V3, standard pour applications générales	2~13	≤ 4 D 38-39
<b>SPOTTING DRILLS</b>					
	<b>FX-LDS</b>	FX	Carbure revêtu FX	3~25	40
	<b>NC-LDS</b>		Standard HSS	3~25	41





# Carbide FX Extra Long Drills with Oil Holes without Stock removal up to 30 x Dia. depth of hole

Mirror surface of grooves  
Very smooth coating  
Performance of chip evacuation



FTO-GDXL FT O-M-GDXL FTO-GDN FTO-GDS FTO-PET  
PAT. PAT.

## Drills - Bohrer - Punte - Forets

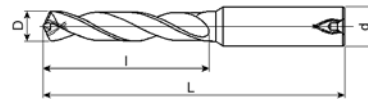
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

FTO-GDN



D &lt; 4 D ≥ 4

P. 45



EDP	D	L	l	d	€
8566030	3	66	25	3	
8566031	3.1	74	30	4	
8566032	3.2	74	30	4	
8566033	3.3	74	30	4	
8566034	3.4	74	30	4	
8566035	3.5	74	30	4	
8566036	3.6	74	30	4	
8566037	3.7	74	30	4	
8566038	3.8	74	33	4	
8566039	3.9	74	33	4	
8566040	4	74	33	4	
8566041	4.1	81	33	5	
8566042	4.2	81	33	5	
8566043	4.3	81	36	5	
8566044	4.4	81	36	5	
8566045	4.5	81	36	5	
8566046	4.6	81	36	5	
8566047	4.7	81	36	5	
8566048	4.8	81	39	5	
8566049	4.9	81	39	5	
8566050	5	81	39	5	
8566051	5.1	88	39	6	
8566052	5.2	88	39	6	
8566053	5.3	88	39	6	
8566054	5.4	88	43	6	
8566055	5.5	88	43	6	
8566056	5.6	88	43	6	
8566057	5.7	88	43	6	
8566058	5.8	88	43	6	
8566059	5.9	88	43	6	
8566060	6	88	43	6	
8566061	6.1	99	47	7	
48148061	6.1	99	47	8	
8566062	6.2	99	47	7	
48148062	6.2	99	47	8	
8566063	6.3	99	47	7	
48148063	6.3	99	47	8	
8566064	6.4	99	47	7	
48148064	6.4	99	47	8	
8566065	6.5	99	47	7	
48148065	6.5	99	47	8	
8566066	6.6	99	47	7	
48148066	6.6	99	47	8	
8566067	6.7	99	47	7	
48148067	6.7	99	47	8	
8566068	6.8	99	52	7	
48148068	6.8	99	52	8	
8566069	6.9	99	52	7	
48148069	6.9	99	52	8	
8566070	7	99	52	7	
48148070	7	99	52	8	
8566071	7.1	106	52	8	
8566072	7.2	106	52	8	

EDP	D	L	l	d	€
8566073	7.3	106	52	8	
8566074	7.4	106	52	8	
8566075	7.5	106	52	8	
8566076	7.6	106	56	8	
8566077	7.7	106	56	8	
8566078	7.8	106	56	8	
8566079	7.9	106	56	8	
8566080	8	106	56	8	
8566081	8.1	112	56	9	
48148081	8.1	112	56	10	
8566082	8.2	112	56	9	
48148082	8.2	112	56	10	
8566083	8.3	112	56	9	
48148083	8.3	112	56	10	
8566084	8.4	112	56	9	
48148084	8.4	112	56	10	
8566085	8.5	112	56	9	
48148085	8.5	112	56	10	
8566086	8.6	112	61	9	
48148086	8.6	112	61	10	
8566087	8.7	112	61	9	
48148087	8.7	112	61	10	
8566088	8.8	112	61	9	
48148088	8.8	112	61	10	
8566089	8.9	112	61	9	
48148089	8.9	112	61	10	
8566090	9	112	61	9	
48148090	9	112	61	10	
8566091	9.1	119	61	10	
8566092	9.2	119	61	10	
8566093	9.3	119	61	10	
8566094	9.4	119	61	10	
8566095	9.5	119	61	10	
8566096	9.6	119	65	10	
8566097	9.7	119	65	10	
8566098	9.8	119	65	10	
8566099	9.9	119	65	10	
8566100	10	119	65	10	
8566101	10.1	125	65	11	
48148101	10.1	125	65	12	
8566102	10.2	125	65	11	
48148102	10.2	125	65	12	
8566103	10.3	125	65	11	
48148103	10.3	125	65	12	
8566104	10.4	125	65	11	
48148104	10.4	125	65	12	
8566105	10.5	125	65	11	
48148105	10.5	125	65	12	
8566106	10.6	125	65	11	
48148106	10.6	125	65	12	
8566107	10.7	125	71	11	
48148107	10.7	125	71	12	
8566108	10.8	125	71	11	

Ultra  
FX

## Drills - Bohrer - Punte - Forets

FTO-GDN



EDP	D	L	l	d	€
48148108	10.8	125	71	12	
8566109	10.9	125	71	11	
48148109	10.9	125	71	12	
8566110	11	125	71	11	
48148110	11	125	71	12	
8566111	11.1	133	71	12	
8566112	11.2	133	71	12	
8566113	11.3	133	71	12	
8566114	11.4	133	71	12	
8566115	11.5	133	71	12	
8566116	11.6	133	71	12	
8566117	11.7	133	71	12	
8566118	11.8	133	71	12	
8566119	11.9	133	76	12	
8566120	12	133	76	12	
8566125	12.5	137	76	13	
48148125	12.5	137	76	14	
8566130	13	137	76	13	
48148130	13	137	76	14	
8566135	13.5	142	80	14	

EDP	D	L	l	d	€
8566140	14	142	80	14	
8566145	14.5	148	83	15	
48148145	14.5	148	83	16	
8566150	15	148	83	15	
48148150	15	148	83	16	
8566155	15.5	152	85	16	
8566160	16	152	85	16	
8566165	16.5	155	88	17	
48148165	16.5	155	88	18	
8566170	17	155	88	17	
48148170	17	155	88	18	
8566175	17.5	157	90	18	
8566180	18	157	90	18	
8566185	18.5	160	93	19	
48148185	18.5	160	93	20	
8566190	19	160	93	19	
48148190	19	160	93	20	
8566195	19.5	163	96	20	
8566200	20	163	96	20	

Ultra  
FX

Applications - Anwendungen - Applicazioni - Applications									
FTO-GDN	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	☉	☉	○			☉
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	○	☉	☉	○		☉	○	☉	○

Drills - Bohrer - Punte - Forets

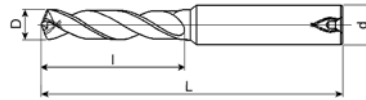
\* HIGH PERFORMANCE  
\* Carbide extra fine micro grain

\* HIGH PERFORMANCE  
\* Feinstkorn

\* ALTA PRESTAZIONE  
\* Carburo micrograna

\* HAUTE PERFORMANCE  
\* Carbure ultra fin micrograin

FTO-GDS



D < 4    D ≥ 4

P. 45

EDP	D	L	l	d	€
8566528	2.8	57	16	3	
8566529	2.9	57	16	3	
8566530	3	57	16	3	
8566531	3.1	63	18	4	
8566532	3.2	63	18	4	
8566533	3.3	63	18	4	
8566534	3.4	63	20	4	
8566535	3.5	63	20	4	
8566536	3.6	63	20	4	
8566537	3.7	63	20	4	
8566538	3.8	63	22	4	
8566539	3.9	63	22	4	
8566540	4	63	22	4	
8566541	4.1	68	22	5	
8566542	4.2	68	22	5	
8566543	4.3	68	24	5	
8566544	4.4	68	24	5	
8566545	4.5	68	24	5	
8566546	4.6	68	24	5	
8566547	4.7	68	24	5	
8566548	4.8	68	26	5	
8566549	4.9	68	26	5	
8566550	5	68	26	5	
8566551	5.1	73	26	6	
8566552	5.2	73	26	6	
8566553	5.3	73	26	6	
8566554	5.4	73	28	6	

EDP	D	L	l	d	€
8566555	5.5	73	28	6	
8566556	5.6	73	28	6	
8566557	5.7	73	28	6	
8566558	5.8	73	28	6	
8566559	5.9	73	28	6	
8566560	6	73	28	6	
8566561	6.1	81	31	7	
8566562	6.2	81	31	7	
8566563	6.3	81	31	7	
8566564	6.4	81	31	7	
8566565	6.5	81	31	7	
8566566	6.6	81	31	7	
8566567	6.7	81	31	7	
8566568	6.8	81	34	7	
8566569	6.9	81	34	7	
8566570	7	81	34	7	
8566571	7.1	87	34	8	
8566572	7.2	87	34	8	
8566573	7.3	87	34	8	
8566574	7.4	87	34	8	
8566575	7.5	87	34	8	
8566576	7.6	87	37	8	
8566577	7.7	87	37	8	
8566578	7.8	87	37	8	
8566579	7.9	87	37	8	
8566580	8	87	37	8	

Ultra FX

Applications - Anwendungen - Applicazioni - Applications									
FTO-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	⊙	⊙	⊙	⊙	⊙	○	○		⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	○	⊙	⊙	○			○	⊙	○

Drills - Bohrer - Punte - Forets



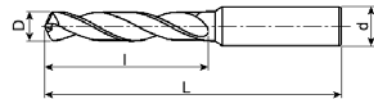
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

**FS-GDS**



D < 4    D ≥ 4

P. 46-47



Ultra  
FX

EDP	D	L	l	d	€
8575200	2	46	12	3	
8575210	2.1	46	12	3	
8575220	2.2	47	13	3	
8575230	2.3	47	13	3	
8575240	2.4	48	14	3	
8575250	2.5	48	14	3	
8575260	2.6	48	14	3	
8575270	2.7	50	16	3	
8575280	2.8	50	16	3	
8575290	2.9	50	16	3	
8575300	3	50	16	3	
8575310	3.1	54	18	4	
8575320	3.2	54	18	4	
8575330	3.3	54	18	4	
8575340	3.4	56	20	4	
8575350	3.5	56	20	4	
8575360	3.6	56	20	4	
8575370	3.7	56	20	4	
8575380	3.8	58	22	4	
8575390	3.9	58	22	4	
8575400	4	58	22	4	

EDP	D	L	l	d	€
8575410	4.1	60	22	5	
8575420	4.2	60	22	5	
8575430	4.3	62	24	5	
8575440	4.4	62	24	5	
8575450	4.5	62	24	5	
8575460	4.6	62	24	5	
8575470	4.7	62	24	5	
8575480	4.8	64	26	5	
8575490	4.9	64	26	5	
8575500	5	64	26	5	
8575510	5.1	68	26	6	
8575520	5.2	68	26	6	
8575530	5.3	68	26	6	
8575540	5.4	70	28	6	
8575550	5.5	70	28	6	
8575560	5.6	70	28	6	
8575570	5.7	70	28	6	
8575580	5.8	70	28	6	
8575590	5.9	70	28	6	
8575600	6	70	28	6	

Applications - Anwendungen - Applicazioni - Applications									
FS-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	☉	☉	☉	☉		
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	○	○	☉			○			

Drills - Bohrer - Punte - Forets

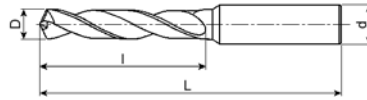
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

FS-GDN



P. 46-47



EDP	D	L	l	d	€
8570600	6	83	43	6	
8570610	6.1	87	47	7	
8570620	6.2	87	47	7	
8570630	6.3	87	47	7	
8570640	6.4	87	47	7	
8570650	6.5	87	47	7	
8570660	6.6	90	50	7	
8570670	6.7	90	50	7	
8570680	6.8	90	50	7	
8570690	6.9	90	50	7	
8570700	7	90	50	7	
8570710	7.1	92	52	8	
8570720	7.2	92	52	8	
8570730	7.3	92	52	8	
8570740	7.4	92	52	8	
8570750	7.5	92	52	8	
8570760	7.6	96	56	8	
8570770	7.7	96	56	8	
8570780	7.8	96	56	8	
8570790	7.9	96	56	8	
8570800	8	96	56	8	
8570810	8.1	96	56	8	
8570820	8.2	96	56	8	
8570830	8.3	96	56	8	
8570840	8.4	96	56	8	
8570850	8.5	96	56	9	
8570860	8.6	101	61	9	
8570870	8.7	101	61	9	
8570880	8.8	101	61	9	
8570890	8.9	101	61	9	
8570900	9	101	61	9	
8570910	9.1	105	61	10	
8570920	9.2	105	61	10	
8570930	9.3	105	61	10	
8570940	9.4	105	61	10	
8570950	9.5	105	61	10	
8570960	9.6	109	65	10	
8570970	9.7	109	65	10	
8570980	9.8	109	65	10	

EDP	D	L	l	d	€
8570990	9.9	109	65	10	
8571000	10	109	65	10	
8571010	10.1	109	65	11	
8571020	10.2	109	65	11	
8571030	10.3	109	65	11	
8571040	10.4	109	65	11	
8571050	10.5	109	65	11	
8571060	10.6	115	71	11	
8571070	10.7	115	71	11	
8571080	10.8	115	71	11	
8571090	10.9	115	71	11	
8571100	11	115	71	11	
8571110	11.1	121	71	12	
8571120	11.2	121	71	12	
8571130	11.3	121	71	12	
8571140	11.4	121	71	12	
8571150	11.5	121	71	12	
8571160	11.6	126	76	12	
8571170	11.7	126	76	12	
8571180	11.8	126	76	12	
8571190	11.9	126	76	12	
8571200	12	126	76	12	
8571250	12.5	128	76	13	
8571300	13	128	76	13	
8571350	13.5	134	80	14	
8571400	14	134	80	14	
8571450	14.5	143	83	15	
8571500	15	143	83	15	
8571550	15.5	145	85	16	
8571600	16	145	85	16	
8571650	16.5	148	88	17	
8571700	17	148	88	17	
8571750	17.5	154	90	18	
8571800	18	154	90	18	
8571850	18.5	157	93	19	
8571900	19	157	93	19	
8571950	19.5	162	96	20	
8572000	20	162	96	20	

Ultra  
FX

OSG Europe : www.osgeurope.com

Applications - Anwendungen - Applicazioni - Applications									
FS-GDN	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	◎	◎	◎	◎	◎	◎	◎	◎	
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
○	○	◎			○				

## Drills - Bohrer - Punta - Forets



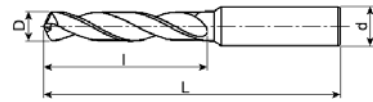
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

FT-GDS



EDP	D	L	l	d	€
8585200	2	46	12	3	
8585210	2.1	46	12	3	
8585220	2.2	47	13	3	
8585230	2.3	47	13	3	
8585240	2.4	48	14	3	
8585250	2.5	48	14	3	
8585260	2.6	48	14	3	
8585270	2.7	50	16	3	
8585280	2.8	50	16	3	
8585290	2.9	50	16	3	
8585300	3	50	16	3	
8585310	3.1	54	18	4	
8585320	3.2	54	18	4	
8585330	3.3	54	18	4	
8585340	3.4	56	20	4	
8585350	3.5	56	20	4	
8585360	3.6	56	20	4	
8585370	3.7	56	20	4	
8585380	3.8	58	22	4	
8585390	3.9	58	22	4	
8585400	4	58	22	4	

EDP	D	L	l	d	€
8585410	4.1	60	22	5	
8585420	4.2	60	22	5	
8585430	4.3	62	24	5	
8585440	4.4	62	24	5	
8585450	4.5	62	24	5	
8585460	4.6	62	24	5	
8585470	4.7	62	24	5	
8585480	4.8	64	26	5	
8585490	4.9	64	26	5	
8585500	5	64	26	5	
8585510	5.1	68	26	6	
8585520	5.2	68	26	6	
8585530	5.3	68	26	6	
8585540	5.4	70	28	6	
8585550	5.5	70	28	6	
8585560	5.6	70	28	6	
8585570	5.7	70	28	6	
8585580	5.8	70	28	6	
8585590	5.9	70	28	6	
8585600	6	70	28	6	

Ultra  
FX

Applications - Anwendungen - Applicazioni - Applications									
FT-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	☉	○	○	○		☉
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	○	○	☉			○	○	○	○

## Drills - Bohrer - Punte - Forets

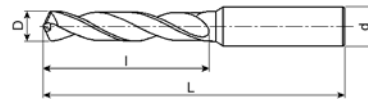
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

FT-GDN



P. 48



EDP	D	L	l	d	€
8580600	6	83	43	6	
8580610	6.1	87	47	7	
8580620	6.2	87	47	7	
8580630	6.3	87	47	7	
8580640	6.4	87	47	7	
8580650	6.5	87	47	7	
8580660	6.6	90	50	7	
8580670	6.7	90	50	7	
8580680	6.8	90	50	7	
8580690	6.9	90	50	7	
8580700	7	90	50	7	
8580710	7.1	92	52	8	
8580720	7.2	92	52	8	
8580730	7.3	92	52	8	
8580740	7.4	92	52	8	
8580750	7.5	92	52	8	
8580760	7.6	96	56	8	
8580770	7.7	96	56	8	
8580780	7.8	96	56	8	
8580790	7.9	96	56	8	
8580800	8	96	56	8	
8580810	8.1	96	56	8	
8580820	8.2	96	56	8	
8580830	8.3	96	56	8	
8580840	8.4	96	56	8	
8580850	8.5	96	56	9	
8580860	8.6	101	61	9	
8580870	8.7	101	61	9	
8580880	8.8	101	61	9	
8580890	8.9	101	61	9	
8580900	9	101	61	9	
8580910	9.1	105	61	10	
8580920	9.2	105	61	10	
8580930	9.3	105	61	10	
8580940	9.4	105	61	10	
8580950	9.5	105	61	10	
8580960	9.6	109	65	10	
8580970	9.7	109	65	10	
8580980	9.8	109	65	10	

EDP	D	L	l	d	€
8580990	9.9	109	65	10	
8581000	10	109	65	10	
8581010	10.1	109	65	11	
8581020	10.2	109	65	11	
8581030	10.3	109	65	11	
8581040	10.4	109	65	11	
8581050	10.5	109	65	11	
8581060	10.6	115	71	11	
8581070	10.7	115	71	11	
8581080	10.8	115	71	11	
8581090	10.9	115	71	11	
8581100	11	115	71	11	
8581110	11.1	121	71	12	
8581120	11.2	121	71	12	
8581130	11.3	121	71	12	
8581140	11.4	121	71	12	
8581150	11.5	121	71	12	
8581160	11.6	126	76	12	
8581170	11.7	126	76	12	
8581180	11.8	126	76	12	
8581190	11.9	126	76	12	
8581200	12	126	76	12	
8581250	12.5	128	76	13	
8581300	13	128	76	13	
8581350	13.5	134	80	14	
8581400	14	134	80	14	
8581450	14.5	143	83	15	
8581500	15	143	83	15	
8581550	15.5	145	85	16	
8581600	16	145	85	16	
8581650	16.5	148	88	17	
8581700	17	148	88	17	
8581750	17.5	154	90	18	
8581800	18	154	90	18	
8581850	18.5	157	93	19	
8581900	19	157	93	19	
8581950	19.5	162	96	20	
8582000	20	162	96	20	

Ultra  
FX

Applications - Anwendungen - Applicazioni - Applications									
FT-GDN	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	⊙	⊙	⊙	⊙	○	○	○		○
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	○	○	⊙			○			

Drills - Bohrer - Punte - Forets



- \* HIGH PERFORMANCE
- \* Solid Carbide
- \* For deep drilling in steel

- \* HIGH PERFORMANCE
- \* Vollhartmetall
- \* Für Tiefbohren in Stahl

- \* ALTA PRESTAZIONE
- \* Carburo monoblocco
- \* Forature profonde

- \* HAUTE PERFORMANCE
- \* Carbure monobloc
- \* Pour le forage profond dans l'acier

\* Non step drilling 10 D, 15 D, 20 D, 30 D

\* Ohne Step 10 D, 15 D, 20 D, 30 D

\* Foratura continua 10 D, 15 D, 20 D, 30 D

\* Forage en continu 10 D, 15 D, 20 D, 30 D

**FTO-GDXL**



EDP	D	L	l	d	€
8568030	3x10 D	90	40	3	
8568130	3x15 D	95	55	3	
8568035	3.5x10 D	100	50	4	
8568040	4x10 D	100	50	4	
8568140	4x15 D	115	75	4	
8568340	4x20 D	130	90	4	
8568045	4.5x10 D	115	60	5	
8568345	4.5x20 D	160	110	5	
8568050	5x10 D	115	65	5	
8568150	5x15 D	135	90	5	
8568350	5x20 D	160	120	5	
8568450	5x30 D	215	165	5	
8568055	5.5x10 D	128	78	6	
8568355	5.5x20 D	185	140	6	
8568455	5.5x30 D	230	180	6	
8568060	6x10 D	128	78	6	
8568160	6x15 D	155	110	6	
8568360	6x20 D	185	140	6	
8568460	6x30 D	230	180	6	
8568065	6.5x10 D	140	87	7	

EDP	D	L	l	d	€
8568165	6.5x15 D	175	120	7	
8568365	6.5x20 D	210	155	7	
8568465	6.5x30 D	280	215	7	
8568070	7x10 D	140	90	7	
8568170	7x15 D	175	125	7	
8568370	7x20 D	210	160	7	
8568470	7x30 D	280	230	7	
8568080	8x10 D	155	105	8	
8568180	8x15 D	195	145	8	
8568380	8x20 D	230	180	8	
8568480	8x30 D	315	265	8	
8568085	8.5x10 D	165	110	9	
8568185	8.5x15 D	210	155	9	
8568385	8.5x20 D	260	195	9	
8568090	9x10 D	165	115	9	
8568100	10x10 D	190	130	10	
8568200	10x15 D	240	180	10	
8568400	10x20 D	290	230	10	
8568110	11x10 D	205	145	11	
8568120	12x10 D	215	155	12	

Ultra FX

Applications - Anwendungen - Applicazioni - Applications									
FTO-GDXL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
			☉	☉					
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl

Drills - Bohrer - Punte - Forets

**NEW**

- \* HIGH PERFORMANCE
- \* Carbide micro grain
- \* For deep drilling in dies
- \* 20 D drilling

**NEU**

- \* HIGH PERFORMANCE
- \* Feinstkorn
- \* Für Tiefbohren in Formen
- \* 20 D Bohren

**NUOVO**

- \* ALTA PRESTAZIONE
- \* Carburo micrograna
- \* Per in profondità perforare nei dadi
- \* 20 D foratura

**NOUVEAU**

- \* HAUTE PERFORMANCE
- \* Carbure ultra fin micrograin
- \* Pour le forage profond dans les matrices
- \* Forage 20 D

**FTO-M-GDXL**



P. 49

EDP	D	L	l	d	€
8568540	4x20 D	140	90	4	
8568550	5x20 D	165	115	5	
8568560	6x20 D	190	140	6	

EDP	D	L	l	d	€
8568580	8x20 D	230	180	8	
8568600	10x20 D	280	230	10	

**NEW**

- \* HIGH PERFORMANCE
- \* Carbide micro grain
- \* Pilot drill for FTO-GDXL, FTO-M-GDXL

**NEU**

- \* HIGH PERFORMANCE
- \* Feinstkorn
- \* Versuchsbohrgerät für FTO-GDXL, FTO-M-GDXL

**NUOVO**

- \* ALTA PRESTAZIONE
- \* Carburo micrograna
- \* Trivello pilota per FTO-GDXL, FTO-M-GDXL

**NOUVEAU**

- \* HAUTE PERFORMANCE
- \* Carbure ultra fin micrograin
- \* Foret pilote pour FTO-GDXL, FTO-M-GDXL

**FTO-PLT**

**Ultra FX**



EDP	D	L	l	d	€
8568903	3.03	65	15	3	
8568923	3.53	70	18	4	
8568904	4.03	70	20	4	
8568924	4.53	75	23	5	
8568905	5.03	75	25	5	
8568925	5.53	80	28	6	
8568906	6.03	80	30	6	

EDP	D	L	l	d	€
8568926	6.53	85	33	7	
8568908	8.03	90	40	8	
8568928	8.53	95	43	9	
8568910	10.03	100	50	10	
8568911	11.03	115	55	11	
8568912	12.03	120	60	12	

	Applications - Anwendungen - Applicazioni - Applications								
FTO-M-GDXL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
						⊙	○		
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
FTO-PLT	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
			⊙	⊙				⊙	
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl

Drills - Bohrer - Punte - Forets



**NEW**

- \* HIGH PERFORMANCE
- \* Carbide micro grain
- \* For deep drilling in Cu & Al alloys
- \* Non step drilling 15 D, 20 D, 30 D

**NEU**

- \* HIGH PERFORMANCE
- \* Feinstkorn
- \* Für tief bohren in Cu & Al legierungen
- \* Ohne Step 15 D, 20 D, 30 D

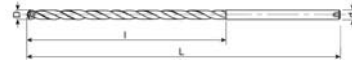
**NUOVO**

- \* ALTA PRESTAZIONE
- \* Carburo micrograna
- \* Forature profonde per Cu & leghe di alluminio
- \* Foratura continua 10 D, 15 D, 20 D, 30 D

**NOUVEAU**

- \* HAUTE PERFORMANCE
- \* Carbure micrograin
- \* Pour le forage profond dans Cu & alliages Al
- \* Forage en continu 15 D, 20 D, 30 D

**CAO-GDXL**



P. 50



EDP	D	L	l	d	€
8567130	3x15 D	105	55	3	
8567140	4x15 D	125	75	4	
8567340	4x20 D	140	90	4	
8567345	4.5x20 D	165	110	5	
8567150	5x15 D	140	90	5	
8567350	5x20 D	165	115	5	
8567450	5x30 D	215	165	5	
8567355	5.5x20 D	190	140	6	
8567455	5.5x30 D	250	200	6	
8567160	6x15 D	160	110	6	
8567360	6x20 D	190	140	6	
8567460	6x30 D	250	200	6	

EDP	D	L	l	d	€
8567165	6.5x15 D	175	120	7	
8567170	7x15 D	175	125	7	
8567370	7x20 D	210	160	7	
8567470	7x30 D	280	230	7	
8567180	8x15 D	195	145	8	
8567380	8x20 D	230	180	8	
8567480	8x30 D	315	265	8	
8567190	9x15 D	210	160	9	
8567390	9x20 D	260	210	9	
8567200	10x15 D	240	180	10	
8567400	10x20 D	290	230	10	

CrN

Applications - Anwendungen - Applicazioni - Applications									
CAO-GDXL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
				⊗	⊗				

## Drills - Bohrer - Punte - Forets

**NEW**

- \* **HIGH PERFORMANCE**
- \* Multi purpose 3D drill
- \* Flute design to facilitate short chipping & accurate hole size

**NEU**

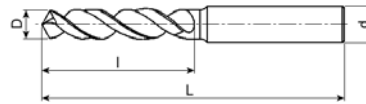
- \* **HIGH PERFORMANCE**
- \* 3D Bohrer-Allgemeine Anwendungen
- \* Schneidengeometrie für kurze Späne

**NUOVO**

- \* **ALTA PRESTAZIONE**
- \* Con 3D fori raccomandato per applicazioni generali
- \* Il disegno dell'elica della punta da origine a trucioli corti

**NOUVEAU**

- \* **HAUTE PERFORMANCE**
- \* Foret 3D application générale
- \* Le design de l'hélice du foret donne des copeaux courts

**HYP-HP-GDS**

EDP	D	L	l	d	€
30200300	3	62	20	6	
30200310	3.1	62	20	6	
30200320	3.2	62	20	6	
30200330	3.3	62	20	36	
30200340	3.4	62	20	6	
30200350	3.5	62	20	6	
30200360	3.6	62	20	6	
30200370	3.7	62	20	6	
30200380	3.8	66	24	6	
30200390	3.9	66	24	6	
30200400	4	66	24	6	
30200410	4.1	66	24	6	
30200420	4.2	66	24	6	
30200430	4.3	66	24	6	
30200440	4.4	66	24	6	
30200450	4.5	66	24	6	
30200460	4.6	66	24	6	
30200470	4.7	66	24	6	
30200480	4.8	66	28	6	
30200490	4.9	66	28	6	
30200500	5	66	28	6	
30200510	5.1	66	28	6	
30200520	5.2	66	28	6	
30200530	5.3	66	28	6	
30200540	5.4	66	28	6	
30200550	5.5	66	28	6	
30200560	5.6	66	28	6	
30200570	5.7	66	28	6	
30200580	5.8	66	28	6	
30200590	5.9	66	28	6	
30200600	6	66	28	6	
30200610	6.1	66	28	6	
30200620	6.2	66	28	6	
30200630	6.3	66	28	6	
30200640	6.4	79	34	8	
30200650	6.5	79	34	8	
30200660	6.6	79	34	8	
30200670	6.7	79	34	8	
30200680	6.8	79	34	8	
30200690	6.9	79	34	8	
30200700	7	79	34	8	
30200710	7.1	79	34	8	
30200720	7.2	79	41	8	
30200730	7.3	79	41	8	
30200740	7.4	79	41	8	
30200750	7.5	79	41	8	
30200760	7.6	79	41	8	
30200770	7.7	79	41	8	

EDP	D	L	l	d	€
30200780	7.8	79	41	8	
30200790	7.9	79	41	8	
30200800	8	79	41	8	
30200810	8.1	79	41	8	
30200820	8.2	79	41	8	
30200830	8.3	79	41	8	
30200840	8.4	89	47	10	
30200850	8.5	89	47	10	
30200860	8.6	89	47	10	
30200870	8.7	89	47	10	
30200880	8.8	89	47	10	
30200890	8.9	89	47	10	
30200900	9	89	47	10	
30200910	9.1	89	47	10	
30200920	9.2	89	47	10	
30200930	9.3	89	47	10	
30200940	9.4	89	47	10	
30200950	9.5	89	47	10	
30200960	9.6	89	47	10	
30200970	9.7	89	47	10	
30200980	9.8	89	47	10	
30200990	9.9	89	47	10	
30201000	10	89	47	10	
30201010	10.1	89	47	10	
30201020	10.2	102	55	12	
30201030	10.3	102	55	12	
30201040	10.4	102	55	12	
30201050	10.5	102	55	12	
30201060	10.6	102	55	12	
30201070	10.7	102	55	12	
30201080	10.8	102	55	12	
30201090	10.9	102	55	12	
30201100	11	102	55	12	
30201110	11.1	102	55	12	
30201120	11.2	102	55	12	
30201130	11.3	102	55	12	
30201140	11.4	102	55	12	
30201150	11.5	102	55	12	
30201160	11.6	102	55	12	
30201170	11.7	102	55	12	
30201180	11.8	102	55	12	
30201190	11.9	102	55	12	
30201200	12	102	55	12	
30201250	12.5	107	60	14	
30201300	13	107	60	14	
30201350	13.5	107	60	14	
30201400	14	107	60	14	
30201450	14.5	115	65	16	

HYP

## Drills - Bohrer - Punte - Forets

## HYP-HP-GDS



EDP	D	L	l	d	€
30201500	15	115	65	16	
30201550	15.5	115	65	16	
30201600	16	116	65	16	
30201650	16.5	123	73	18	
30201700	17	123	73	18	
30201750	17.5	123	73	18	

EDP	D	L	l	d	€
30201800	18	123	73	18	
30201850	18.5	131	79	20	
30201900	19	131	79	20	
30201950	19.5	131	79	20	
30202000	20	131	79	20	

## HYP

Applications - Anwendungen - Applicazioni - Applications									
HYP-HP-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

## Drills - Bohrer - Punta - Forets

**NEW**

- \* **HIGH PERFORMANCE**
- \* Multi purpose 3D drill
- \* Flute design to facilitate short chipping & accurate hole size

**NEU**

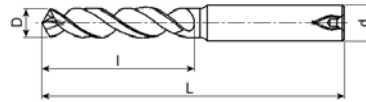
- \* **HIGH PERFORMANCE**
- \* 3D Bohrer-Allgemeine Anwendungen
- \* Schneidengeometrie für kurze Späne

**NUOVO**

- \* **ALTA PRESTAZIONE**
- \* Con 3D fori raccomandato per applicazioni generali
- \* Il disegno dell'elica della punta da origine a trucioli corti

**NOUVEAU**

- \* **HAUTE PERFORMANCE**
- \* Foret 3D application générale
- \* Le design de l'hélice du foret donne des copeaux courts

**HYP-HPO-GDS**

EDP	D	L	l	d	€
30210300	3	62	20	6	
30210310	3.1	62	20	6	
30210320	3.2	62	20	6	
30210330	3.3	62	20	6	
30210340	3.4	62	20	6	
30210350	3.5	62	20	6	
30210360	3.6	62	20	6	
30210370	3.7	62	20	6	
30210380	3.8	62	20	6	
30210390	3.9	62	20	6	
30210400	4	66	24	6	
30210410	4.1	66	24	6	
30210420	4.2	66	24	6	
30210430	4.3	66	24	6	
30210440	4.4	66	24	6	
30210450	4.5	66	24	6	
30210460	4.6	66	24	6	
30210470	4.7	66	24	6	
30210480	4.8	66	28	6	
30210490	4.9	66	28	6	
30210500	5	66	28	6	
30210510	5.1	66	28	6	
30210520	5.2	66	28	6	
30210530	5.3	66	28	6	
30210540	5.4	66	28	6	
30210550	5.5	66	28	6	
30210560	5.6	66	28	6	
30210570	5.7	66	28	6	
30210580	5.8	66	28	6	
30210590	5.9	66	28	6	
30210600	6	66	28	6	
30210610	6.1	66	28	6	
30210620	6.2	66	28	6	
30210630	6.3	66	28	6	
30210640	6.4	79	34	8	
30210650	6.5	79	34	8	
30210660	6.6	79	34	8	
30210670	6.7	79	34	8	
30210680	6.8	79	34	8	
30210690	6.9	79	34	8	
30210700	7	79	34	8	
30210710	7.1	79	34	8	
30210720	7.2	79	41	8	
30210730	7.3	79	41	8	
30210740	7.4	79	41	8	
30210750	7.5	79	41	8	
30210760	7.6	79	41	8	
30210770	7.7	79	41	8	

EDP	D	L	l	d	€
30210780	7.8	79	41	8	
30210790	7.9	79	41	8	
30210800	8	79	41	8	
30210810	8.1	79	41	8	
30210820	8.2	79	41	8	
30210830	8.3	79	41	8	
30210840	8.4	89	47	10	
30210850	8.5	89	47	10	
30210860	8.6	89	47	10	
30210870	8.7	89	47	10	
30210880	8.8	89	47	10	
30210890	8.9	89	47	10	
30210900	9	89	47	10	
30210910	9.1	89	47	10	
30210920	9.2	89	47	10	
30210930	9.3	89	47	10	
30210940	9.4	89	47	10	
30210950	9.5	89	47	10	
30210960	9.6	89	47	10	
30210970	9.7	89	47	10	
30210980	9.8	89	47	10	
30210990	9.9	89	47	10	
30211000	10	89	47	10	
30211010	10.1	89	47	10	
30211020	10.2	102	55	12	
30211030	10.3	102	55	12	
30211040	10.4	102	55	12	
30211050	10.5	102	55	12	
30211060	10.6	102	55	12	
30211070	10.7	102	55	12	
30211080	10.8	102	55	12	
30211090	10.9	102	55	12	
30211100	11	102	55	12	
30211110	11.1	102	55	12	
30211120	11.2	102	55	12	
30211130	11.3	102	55	12	
30211140	11.4	102	55	12	
30211150	11.5	102	55	12	
30211160	11.6	102	55	12	
30211170	11.7	102	55	12	
30211180	11.8	102	55	12	
30211190	11.9	102	55	12	
30211200	12	102	55	12	
30211250	12.5	107	60	14	
30211300	13	107	60	14	
30211350	13.5	107	60	14	
30211400	14	107	60	14	
30211450	14.5	115	65	16	

HYP

## Drills - Bohrer - Punte - Forets

## HYP-HPO-GDS



EDP	D	L	l	d	€
30211500	15	115	65	16	
30211550	15.5	115	65	16	
30211600	16	115	65	16	
30211650	16.5	123	73	18	
30211700	17	123	73	18	
30211750	17.5	123	73	18	

EDP	D	L	l	d	€
30211800	18	123	73	18	
30211850	18.5	131	79	20	
30211900	19	131	79	20	
30211950	19.5	131	79	20	
30212000	20	131	79	20	

HYP

Applications - Anwendungen - Applicazioni - Applications									
HYP-HPO-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	☉	☉	☉	☉	☉	☉
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	☉	☉	☉	☉	☉	☉	☉	☉	☉

## Drills - Bohrer - Punte - Forets

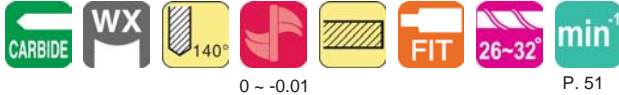
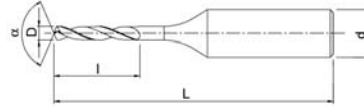
\* HIGH PERFORMANCE  
\* Carbide extra fine micro grain

\* HIGH PERFORMANCE  
\* Feinstkorn

\* ALTA PRESTAZIONE  
\* Carburo micrograna

\* HAUTE PERFORMANCE  
\* Carbure ultra fin micrograin

WX-MS-GDS



0 ~ -0.01

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EDP	D	L	l	d	€
3300020	0.2	38	1.5	3	
3300021	0.21	38	1.5	3	
3300022	0.22	38	1.5	3	
3300023	0.23	38	1.5	3	
3300024	0.24	38	1.5	3	
3300025	0.25	38	1.5	3	
3300026	0.26	38	1.5	3	
3300027	0.27	38	1.5	3	
3300028	0.28	38	1.5	3	
3300029	0.29	38	1.5	3	
3300030	0.3	38	1.5	3	
3300031	0.31	38	2	3	
3300032	0.32	38	2	3	
3300033	0.33	38	2	3	
3300034	0.34	38	2	3	
3300035	0.35	38	2	3	
3300036	0.36	38	2	3	
3300037	0.37	38	2	3	
3300038	0.38	38	2	3	
3300039	0.39	38	2.5	3	
3300040	0.4	38	2.5	3	
3300041	0.41	38	2.5	3	
3300042	0.42	38	2.5	3	
3300043	0.43	38	2.5	3	
3300044	0.44	38	2.5	3	
3300045	0.45	38	2.5	3	
3300046	0.46	38	2.5	3	
3300047	0.47	38	2.5	3	
3300048	0.48	38	2.5	3	
3300049	0.49	38	3	3	
3300050	0.5	38	3	3	
3300051	0.51	38	3	3	
3300052	0.52	38	3	3	
3300053	0.53	38	3	3	
3300054	0.54	38	3.5	3	
3300055	0.55	38	3.5	3	
3300056	0.56	38	3.5	3	
3300057	0.57	38	3.5	3	
3300058	0.58	38	3.5	3	
3300059	0.59	38	3.5	3	
3300060	0.6	38	3.5	3	
3300061	0.61	38	4	3	
3300062	0.62	38	4	3	
3300063	0.63	38	4	3	
3300064	0.64	38	4	3	
3300065	0.65	38	4	3	
3300066	0.66	38	4	3	
3300067	0.67	38	4	3	
3300068	0.68	38	4.5	3	
3300069	0.69	38	4.5	3	
3300070	0.7	38	4.5	3	
3300071	0.71	38	4.5	3	

EDP	D	L	l	d	€
3300072	0.72	38	4.5	3	
3300073	0.73	38	4.5	3	
3300074	0.74	38	4.5	3	
3300075	0.75	38	4.5	3	
3300076	0.76	38	5	3	
3300077	0.77	38	5	3	
3300078	0.78	38	5	3	
3300079	0.79	38	5	3	
3300080	0.8	38	5	3	
3300081	0.81	38	5	3	
3300082	0.82	38	5	3	
3300083	0.83	38	5	3	
3300084	0.84	38	5	3	
3300085	0.85	38	5	3	
3300086	0.86	38	5.5	3	
3300087	0.87	38	5.5	3	
3300088	0.88	38	5.5	3	
3300089	0.89	38	5.5	3	
3300090	0.9	38	5.5	3	
3300091	0.91	38	5.5	3	
3300092	0.92	38	5.5	3	
3300093	0.93	38	5.5	3	
3300094	0.94	38	5.5	3	
3300095	0.95	38	5.5	3	
3300096	0.96	38	6	3	
3300097	0.97	38	6	3	
3300098	0.98	38	6	3	
3300099	0.99	38	6	3	
3300100	1	38	6	3	
3300101	1.01	38	6	3	
3300102	1.02	38	6	3	
3300103	1.03	38	6	3	
3300104	1.04	38	6	3	
3300105	1.05	38	6	3	
3300106	1.06	38	6	3	
3300107	1.07	42	7	3	
3300108	1.08	42	7	3	
3300109	1.09	42	7	3	
3300110	1.1	42	7	3	
3300111	1.11	42	7	3	
3300112	1.12	42	7	3	
3300113	1.13	42	7	3	
3300114	1.14	42	7	3	
3300115	1.15	42	7	3	
3300116	1.16	42	7	3	
3300117	1.17	42	7	3	
3300118	1.18	42	7	3	
3300119	1.19	42	8	3	
3300120	1.2	42	8	3	
3300121	1.21	42	8	3	
3300122	1.22	42	8	3	
3300123	1.23	42	8	3	

Ultra  
WX

## Drills - Bohrer - Punte - Forets

## WX-MS-GDS



EDP	D	L	l	d	€
3300124	1.24	42	8	3	
3300125	1.25	42	8	3	
3300126	1.26	42	8	3	
3300127	1.27	42	8	3	
3300128	1.28	42	8	3	
3300129	1.29	42	8	3	
3300130	1.3	42	8	3	
3300131	1.31	42	8	3	
3300132	1.32	42	8	3	
3300133	1.33	42	9	3	
3300134	1.34	42	9	3	
3300135	1.35	42	9	3	
3300136	1.36	42	9	3	
3300137	1.37	42	9	3	
3300138	1.38	42	9	3	
3300139	1.39	42	9	3	
3300140	1.4	42	9	3	
3300141	1.41	42	9	3	
3300142	1.42	42	9	3	
3300143	1.43	42	9	3	
3300144	1.44	42	9	3	
3300145	1.45	42	9	3	
3300146	1.46	42	9	3	
3300147	1.47	42	9	3	
3300148	1.48	42	9	3	
3300149	1.49	42	9	3	
3300150	1.5	42	9	3	
3300151	1.51	42	10	3	
3300152	1.52	42	10	3	
3300153	1.53	42	10	3	
3300154	1.54	42	10	3	
3300155	1.55	42	10	3	
3300156	1.56	42	10	3	
3300157	1.57	42	10	3	
3300158	1.58	42	10	3	
3300159	1.59	42	10	3	
3300160	1.6	42	10	3	
3300161	1.61	42	10	3	

EDP	D	L	l	d	€
3300162	1.62	42	10	3	
3300163	1.63	42	10	3	
3300164	1.64	42	10	3	
3300165	1.65	42	10	3	
3300166	1.66	42	10	3	
3300167	1.67	42	10	3	
3300168	1.68	42	10	3	
3300169	1.69	42	10	3	
3300170	1.7	42	10	3	
3300171	1.71	42	11	3	
3300172	1.72	42	11	3	
3300173	1.73	42	11	3	
3300174	1.74	42	11	3	
3300175	1.75	42	11	3	
3300176	1.76	42	11	3	
3300177	1.77	42	11	3	
3300178	1.78	42	11	3	
3300179	1.79	42	11	3	
3300180	1.8	42	11	3	
3300181	1.81	42	11	3	
3300182	1.82	42	11	3	
3300183	1.83	42	11	3	
3300184	1.84	42	11	3	
3300185	1.85	42	11	3	
3300186	1.86	42	11	3	
3300187	1.87	42	11	3	
3300188	1.88	42	11	3	
3300189	1.89	42	11	3	
3300190	1.9	42	11	3	
3300191	1.91	50	12	3	
3300192	1.92	50	12	3	
3300193	1.93	50	12	3	
3300194	1.94	50	12	3	
3300195	1.95	50	12	3	
3300196	1.96	50	12	3	
3300197	1.97	50	12	3	
3300198	1.98	50	12	3	
3300199	1.99	50	12	3	

Ultra  
WX

Applications - Anwendungen - Applicazioni - Applications									
WX-MS-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	☉	☉	○	○					○
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	○		☉	☉	☉	○	○		

## Drills - Bohrer - Punte - Forets

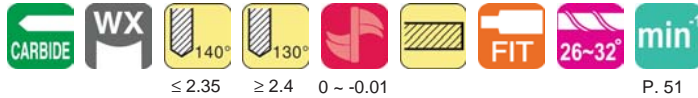
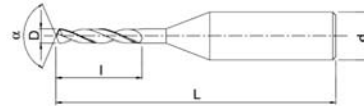
※ HIGH PERFORMANCE  
※ Carbide extra fine micro grain

※ HIGH PERFORMANCE  
※ Feinstkorn

※ ALTA PRESTAZIONE  
※ Carburo micrograna

※ HAUTE PERFORMANCE  
※ Carbure ultra fin micrograin

WX-MS-GDS



≤ 2.35 ≥ 2.4 0 ~ -0.01

P. 51



EDP	D	L	l	d	€
3300200	2	50	12	3	
3300205	2.05	50	12	3	
3300210	2.1	50	12	3	
3300215	2.15	50	13	3	
3300220	2.2	50	13	3	
3300225	2.25	50	13	3	
3300230	2.3	50	13	3	
3300235	2.35	50	13	3	
3300240	2.4	50	14	3	
3300245	2.45	50	14	3	
3300250	2.5	50	14	3	
3300255	2.55	50	14	3	
3300260	2.6	50	14	3	
3300265	2.65	50	14	3	
3300270	2.7	50	16	3	
3300275	2.75	50	16	3	
3300280	2.8	50	16	3	
3300285	2.85	50	16	3	
3300290	2.9	50	16	3	
3300295	2.95	50	16	3	
3300300	3	50	16	3	
3300305	3.05	56	18	4	
3300310	3.1	56	18	4	
3300315	3.15	56	18	4	
3300320	3.2	56	18	4	
3300325	3.25	56	18	4	
3300330	3.3	56	18	4	
3300335	3.35	56	18	4	
3300340	3.4	56	20	4	
3300345	3.45	56	20	4	
3300350	3.5	56	20	4	

EDP	D	L	l	d	€
3300355	3.55	56	20	4	
3300360	3.6	56	20	4	
3300365	3.65	56	20	4	
3300370	3.7	56	20	4	
3300375	3.75	56	20	4	
3300380	3.8	56	22	4	
3300385	3.85	56	22	4	
3300390	3.9	56	22	4	
3300395	3.95	56	22	4	
3300400	4	56	22	4	
3300405	4.05	64	22	5	
3300410	4.1	64	22	5	
3300415	4.15	64	22	5	
3300420	4.2	64	22	5	
3300425	4.25	64	22	5	
3300430	4.3	64	24	5	
3300435	4.35	64	24	5	
3300440	4.4	64	24	5	
3300445	4.45	64	24	5	
3300450	4.5	64	24	5	
3300455	4.55	64	24	5	
3300460	4.6	64	24	5	
3300465	4.65	64	24	5	
3300470	4.7	64	24	5	
3300475	4.75	64	24	5	
3300480	4.8	64	26	5	
3300485	4.85	64	26	5	
3300490	4.9	64	26	5	
3300495	4.95	64	26	5	
3300500	5	64	26	5	

Ultra  
WX

Applications - Anwendungen - Applicazioni - Applications									
WX-MS-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	◎	◎	○	○					○
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	○		◎	◎	◎	○	○		

Drills - Bohrer - Punte - Forets



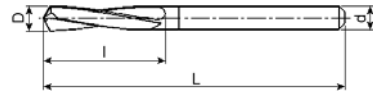
\* HIGH PERFORMANCE  
\* Solid Carbide

\* HIGH PERFORMANCE  
\* Vollhartmetall

\* ALTA PRESTAZIONE  
\* Carburo monoblocco

\* HAUTE PERFORMANCE  
\* Carbure monobloc

SH-DRL



P. 52

EDP	D	L	l	d	€
8560200	2	42	12	3	
8560210	2.1	42	12	3	
8560220	2.2	43	13	3	
8560230	2.3	43	13	3	
8560240	2.4	44	14	3	
8560250	2.5	44	14	3	
8560260	2.6	44	14	3	
8560270	2.7	46	16	3	
8560280	2.8	46	16	3	
8560290	2.9	46	16	3	
8560300	3	46	16	3	
8560310	3.1	48	18	4	
8560320	3.2	48	18	4	
8560330	3.3	48	18	4	
8560340	3.4	50	20	4	
8560350	3.5	50	20	4	
8560360	3.6	50	20	4	
8560370	3.7	50	20	4	
8560380	3.8	52	22	4	
8560390	3.9	52	22	4	
8560400	4	52	22	4	
8560410	4.1	65	25	6	
8560420	4.2	65	25	6	
8560430	4.3	68	28	6	
8560440	4.4	68	28	6	
8560450	4.5	68	28	6	
8560460	4.6	68	28	6	
8560470	4.7	68	28	6	
8560480	4.8	72	32	6	
8560490	4.9	72	32	6	
8560500	5	72	32	6	
8560510	5.1	72	32	6	
8560520	5.2	72	32	6	
8560530	5.3	72	32	6	
8560540	5.4	75	35	6	
8560550	5.5	75	35	6	
8560560	5.6	75	35	6	
8560570	5.7	75	35	6	
8560580	5.8	75	35	6	
8560590	5.9	75	35	6	
8560600	6	75	35	6	
8560610	6.1	80	40	6.1	
8560620	6.2	80	40	6.2	
8560630	6.3	80	40	6.3	
8560640	6.4	80	40	6.4	
8560650	6.5	80	40	6.5	
8560660	6.6	80	40	6.6	
8560670	6.7	80	40	6.7	
8560680	6.8	85	45	6.8	
8560690	6.9	85	45	6.9	
8560700	7	85	45	7	
8560710	7.1	85	45	7.1	
8560720	7.2	85	45	7.2	

EDP	D	L	l	d	€
8560730	7.3	85	45	7.3	
8560740	7.4	85	45	7.4	
8560750	7.5	85	45	7.5	
8560760	7.6	98	50	7.6	
8560770	7.7	98	50	7.7	
8560770	7.7	98	50	7.7	
8560780	7.8	98	50	7.8	
8560790	7.9	98	50	7.9	
8560800	8	98	50	8	
8560810	8.1	98	50	8.1	
8560820	8.2	98	50	8.2	
8560830	8.3	98	50	8.3	
8560840	8.4	98	50	8.4	
8560850	8.5	98	50	8.5	
8560860	8.6	105	57	8.6	
8560870	8.7	105	57	8.7	
8560880	8.8	105	57	8.8	
8560890	8.9	105	57	8.9	
8560900	9	105	57	9	
8560910	9.1	105	57	9.1	
8560920	9.2	105	57	9.2	
8560930	9.3	105	57	9.3	
8560940	9.4	105	57	9.4	
8560950	9.5	105	57	9.5	
8560960	9.6	111	63	9.6	
8560970	9.7	111	63	9.7	
8560980	9.8	111	63	9.8	
8560990	9.9	111	63	9.9	
8561000	10	111	63	10	
8561010	10.1	111	63	10.1	
8561020	10.2	111	63	10.2	
8561030	10.3	111	63	10.3	
8561040	10.4	111	63	10.4	
8561050	10.5	111	63	10.5	
8561060	10.6	111	63	10.6	
8561070	10.7	119	71	10.7	
8561080	10.8	119	71	10.8	
8561090	10.9	119	71	10.9	
8561100	11	119	71	11	
8561110	11.1	119	71	11.1	
8561120	11.2	119	71	11.2	
8561130	11.3	119	71	11.3	
8561140	11.4	119	71	11.4	
8561150	11.5	119	71	11.5	
8561160	11.6	119	71	11.6	
8561170	11.7	119	71	11.7	
8561180	11.8	119	71	11.8	
8561190	11.9	127	76	11.9	
8561200	12	127	76	12	
8561221	12.1	136	76	16	
8561226	12.6	139	79	16	
8561241	14.1	150	90	16	
8561246	14.6	150	90	16	

Drills - Bohrer - Punte - Forets

SH-DRL



EDP	D	L	l	d	€
8561256	15.6	156	96	16	
8561261	16.1	162	102	20	

EDP	D	L	l	d	€
8561266	16.6	162	102	20	

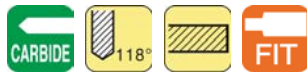
- \* **HIGH PERFORMANCE**
- \* Solide carbide
- \* For removing broken taps

- \* **HIGH PERFORMANCE**
- \* Vollhartmetall
- \* Zum entfernen von abgebrochenen Gewindebohren

- \* **ALTA PRESTAZIONE**
- \* Carburo monoblocco
- \* Per la rimozione di maschi rotti e bulloni danneggiati

- \* **HAUTE PERFORMANCE**
- \* Carbure monobloc
- \* Pour extraction de tarauds cassés

EX-H-DRL

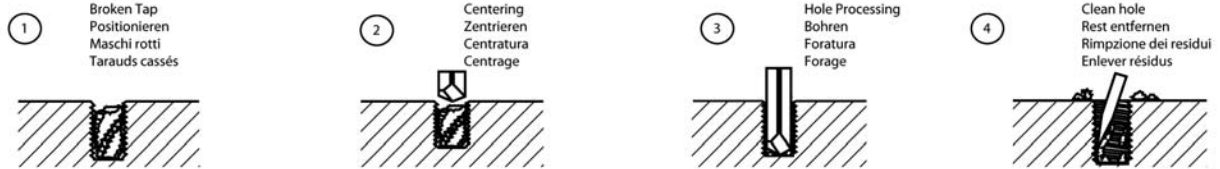


EDP	D	L	l	d	€
87702	2	30	10	2	
87703	3	40	15	3	
87704	4	45	20	4	
87705	5	50	25	5	
87706	6	60	30	6	
87707	7	80	35	8	

EDP	D	L	l	d	€
87708	8	80	40	8	
87709	9	100	45	10	
87710	10	100	50	10	
87781	11	156	55	12	
87782	12	162	60	12	

XPM

Work Procedure for removing damaged tap in hole



Cutting Conditions

1. Drilling speed of 20-25 m/min.
2. Feed rate of 0.01mm - 0.05mm/rev.
3. Use a rigid holder
4. Use liberal amounts of high quality cutting oil
5. This tool should not be used on soft steel, alu. alloy equivalents, or other soft materials.

Schnittwerte

1. Schnittgeschwindigkeit 20-25 m/min.
2. Vorschub 0.01mm - 0.05mm/u.
3. Stabile Werkzeugaufnahme benutzen.
4. Ausreichend Schneidöl verwenden.
5. Dieses Werkzeug nicht für andere Anwendungen benutzen.

Note e consigli d'utilizzo

1. Velocità consigliata : 20-25 m/min.
2. Avanzamento manuale : 0.01-0.05mm/rev.
3. Utilizzare un supporto rigido
4. Utilizzare un olio da taglio di buona qualità
5. Non utilizzare su acciaio dolce, alluminio, leghe equivalenti e materiali dolci

Conditions de coupe

1. Vitesse de coupe 20-25 m/min.
2. Avance 0.01mm - 0.05mm/rev.
3. Utiliser un support rigide
4. Utiliser importante quantité d'huile de coupe
5. Ne pas utiliser cet outil pour aciers doux, alu. alliages equivalents ou autres matières douces

Applications - Anwendungen - Applicazioni - Applications									
SH-DRL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
							○	◎	
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
EX-H-DRL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
							○	◎	
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl

Drills - Bohrer - Punte - Forets



\* HIGH PERFORMANCE  
\* Parabolic flute

\* HIGH PERFORMANCE  
\* Parabolische Nuten für  
Grosse Spanräume

\* ALTA PRESTAZIONE  
\* Geometria elicoidale

\* HAUTE PERFORMANCE  
\* Gougure parabolique

VP-GDR



P. 53

XPM

EDP	D	L	l	d	€
8593020	2	56	24	3	
8593021	2.1	56	24	3	
8593022	2.2	59	27	3	
8593023	2.3	59	27	3	
8593024	2.4	62	30	3	
8593025	2.5	62	30	3	
8593026	2.6	62	30	3	
8593027	2.7	65	33	3	
8593028	2.8	65	33	3	
8593029	2.9	65	33	3	
8593030	3	65	33	3	
8593031	3.1	68	36	4	
8593032	3.2	68	36	4	
8593033	3.3	68	36	4	
8593034	3.4	71	39	4	
8593035	3.5	71	39	4	
8593036	3.6	71	39	4	
8593037	3.7	71	39	4	
8593038	3.8	75	43	4	
8593039	3.9	75	43	4	
8593040	4	75	43	4	
8593041	4.1	87	43	6	
8593042	4.2	87	43	6	
8593043	4.3	91	47	6	
8593044	4.4	91	47	6	
8593045	4.5	91	47	6	
8593046	4.6	91	47	6	
8593047	4.7	91	47	6	
8593048	4.8	96	52	6	
8593049	4.9	96	52	6	
8593050	5	96	52	6	
8593051	5.1	96	52	6	
8593052	5.2	96	52	6	
8593053	5.3	96	52	6	
8593054	5.4	101	57	6	
8593055	5.5	101	57	6	
8593056	5.6	101	57	6	
8593057	5.7	101	57	6	
8593058	5.8	101	57	6	
8593059	5.9	101	57	6	
8593060	6	101	57	6	
8593061	6.1	107	63	8	
8593062	6.2	107	63	8	
8593063	6.3	107	63	8	
8593064	6.4	107	63	8	
8593065	6.5	107	63	8	
8593066	6.6	107	63	8	
8593067	6.7	107	63	8	
8593068	6.8	113	69	8	
8593069	6.9	113	69	8	
8593070	7	113	69	8	
8593071	7.1	113	69	8	

EDP	D	L	l	d	€
8593072	7.2	113	69	8	
8593073	7.3	113	69	8	
8593074	7.4	113	69	8	
8593075	7.5	113	69	8	
8593076	7.6	119	75	8	
8593077	7.7	119	75	8	
8593078	7.8	119	75	8	
8593079	7.9	119	75	8	
8593080	8	119	75	8	
8593081	8.1	125	75	10	
8593082	8.2	125	75	10	
8593083	8.3	125	75	10	
8593084	8.4	125	75	10	
8593085	8.5	125	75	10	
8593086	8.6	131	81	10	
8593087	8.7	131	81	10	
8593088	8.8	131	81	10	
8593089	8.9	131	81	10	
8593090	9	131	81	10	
8593091	9.1	131	81	10	
8593092	9.2	131	81	10	
8593093	9.3	131	81	10	
8593094	9.4	131	81	10	
8593095	9.5	131	81	10	
8593096	9.6	137	87	10	
8593097	9.7	137	87	10	
8593098	9.8	137	87	10	
8593099	9.9	137	87	10	
8593100	10	137	87	10	
8593101	10.1	144	87	12	
8593102	10.2	144	87	12	
8593103	10.3	144	87	12	
8593104	10.4	144	87	12	
8593105	10.5	144	87	12	
8593106	10.6	144	87	12	
8593107	10.7	151	94	12	
8593108	10.8	151	94	12	
8593109	10.9	151	94	12	
8593110	11	151	94	12	
8593111	11.1	151	94	12	
8593112	11.2	151	94	12	
8593113	11.3	151	94	12	
8593114	11.4	151	94	12	
8593115	11.5	151	94	12	
8593116	11.6	151	94	12	
8593117	11.7	151	94	12	
8593118	11.8	151	94	12	
8593119	11.9	158	101	12	
8593120	12	158	101	12	
8593121	12.1	158	101	12	
8593122	12.2	158	101	12	
8593123	12.3	158	101	12	

## Drills - Bohrer - Punte - Forets

VP-GDR



EDP	D	L	l	d	€
8593124	12.4	158	101	12	
8593125	12.5	158	101	12	
8593126	12.6	158	101	12	
8593127	12.7	158	101	12	
8593128	12.8	158	101	12	
8593129	12.9	158	101	12	
8593130	13	158	101	12	
8593135	13.5	166	106	16	
8593140	14	166	106	16	
8593145	14.5	169	109	16	
8593150	15	169	109	16	
8593155	15.5	172	112	16	
8593160	16	172	112	16	
8593165	16.5	181	115	20	
8593170	17	181	115	20	
8593175	17.5	184	118	20	
8593180	18	184	118	20	
8593185	18.5	188	122	20	
8593190	19	188	122	20	
8593195	19.5	191	125	20	

EDP	D	L	l	d	€
8593200	20	191	125	20	
8593205	20.5	204	128	25	
8593210	21	204	128	25	
8593215	21.5	208	132	25	
8593220	22	208	132	25	
8593225	22.5	212	136	25	
8593230	23	212	136	25	
8593235	23.5	212	136	25	
8593240	24	216	140	25	
8593245	24.5	216	140	25	
8593250	25	216	140	25	
8593255	25.5	225	145	32	
8593260	26	225	145	32	
8593265	26.5	225	145	32	
8593270	27	230	150	32	
8593280	28	230	150	32	
8593290	29	235	155	32	
8593300	30	235	155	32	
8593310	31	240	160	32	
8593320	32	245	165	32	

XPM

Applications - Anwendungen - Applicazioni - Applications									
VP-GDR	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	⊙	⊙	⊙	⊙	⊙	○			
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	⊙	⊙	⊙	○	○	⊙	○	○	○

## Drills - Bohrer - Punta - Forets



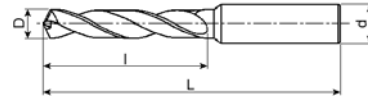
\* HIGH PERFORMANCE

\* HIGH PERFORMANCE

\* ALTA PRESTAZIONE

\* HAUTE PERFORMANCE

VPH-GDS



P. 54



EDP	D	L	l	d	€
8599020	2	44	12	3	
8599021	2.1	44	12	3	
8599022	2.2	45	13	3	
8599023	2.3	45	13	3	
8599024	2.4	46	14	3	
8599025	2.5	46	14	3	
8599026	2.6	46	14	3	
8599027	2.7	48	16	3	
8599028	2.8	48	16	3	
8599029	2.9	48	16	3	
8599030	3	48	16	3	
8599031	3.1	50	18	3	
8599032	3.2	50	18	3	
8599033	3.3	50	18	4	
8599034	3.4	52	20	4	
8599035	3.5	52	20	4	
8599036	3.6	52	20	4	
8599037	3.7	52	20	4	
8599038	3.8	54	22	4	
8599039	3.9	54	22	4	
8599040	4	54	22	4	
8599041	4.1	66	22	6	
8599042	4.2	66	22	6	
8599043	4.3	68	24	6	
8599044	4.4	68	24	6	
8599045	4.5	68	24	6	
8599046	4.6	68	24	6	
8599047	4.7	68	24	6	
8599048	4.8	70	26	6	
8599049	4.9	70	26	6	
8599050	5	70	26	6	
8599051	5.1	70	26	6	
8599052	5.2	70	26	6	
8599053	5.3	70	26	6	
8599054	5.4	72	28	6	
8599055	5.5	72	28	6	
8599056	5.6	72	28	6	
8599057	5.7	72	28	6	
8599058	5.8	72	28	6	
8599059	5.9	72	28	6	
8599060	6	72	28	6	
8599061	6.1	75	31	8	
8599062	6.2	75	31	8	
8599063	6.3	75	31	8	
8599064	6.4	75	31	8	
8599065	6.5	75	31	8	
8599066	6.6	75	31	8	
8599067	6.7	75	31	8	
8599068	6.8	78	34	8	
8599069	6.9	78	34	8	
8599070	7	78	34	8	
8599071	7.1	78	34	8	
8599072	7.2	78	34	8	
8599073	7.3	78	34	8	

EDP	D	L	l	d	€
8599074	7.4	78	34	8	
8599075	7.5	78	34	8	
8599076	7.6	81	37	8	
8599077	7.7	81	37	8	
8599078	7.8	81	37	8	
8599079	7.9	81	37	8	
8599080	8	81	37	8	
8599081	8.1	87	37	10	
8599082	8.2	87	37	10	
8599083	8.3	87	37	10	
8599084	8.4	87	37	10	
8599085	8.5	87	37	10	
8599086	8.6	90	40	10	
8599087	8.7	90	40	10	
8599088	8.8	90	40	10	
8599089	8.9	90	40	10	
8599090	9	90	40	10	
8599091	9.1	90	40	10	
8599092	9.2	90	40	10	
8599093	9.3	90	40	10	
8599094	9.4	90	40	10	
8599095	9.5	90	40	10	
8599096	9.6	93	43	10	
8599097	9.7	93	43	10	
8599098	9.8	93	43	10	
8599099	9.9	93	43	10	
8599100	10	93	43	10	
8599101	10.1	100	43	12	
8599102	10.2	100	43	12	
8599103	10.3	100	43	12	
8599104	10.4	100	43	12	
8599105	10.5	100	43	12	
8599106	10.6	100	43	12	
8599107	10.7	104	47	12	
8599108	10.8	104	47	12	
8599109	10.9	104	47	12	
8599110	11	104	47	12	
8599111	11.1	104	47	12	
8599112	11.2	104	47	12	
8599113	11.3	104	47	12	
8599114	11.4	104	47	12	
8599115	11.5	104	47	12	
8599116	11.6	104	47	12	
8599117	11.7	104	47	12	
8599118	11.8	104	47	12	
8599119	11.9	108	51	12	
8599120	12	108	51	12	
8599121	12.1	108	51	12	
8599122	12.2	108	51	12	
8599123	12.3	108	51	12	
8599124	12.4	108	51	12	
8599125	12.5	108	51	12	
8599126	12.6	108	51	12	
8599127	12.7	108	51	12	

XPM

Drills - Bohrer - Punte - Forets

VPH-GDS



EDP	D	L	l	d	€
8599128	12.8	108	51	12	
8599129	12.9	108	51	12	

EDP	D	L	l	d	€
8599130	13	108	51	12	

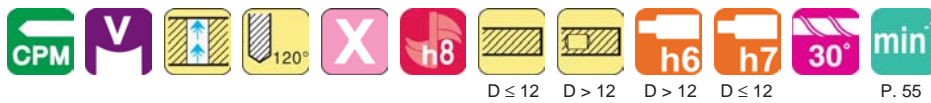
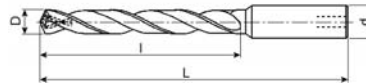
\* HIGH PERFORMANCE

\* HIGH PERFORMANCE

\* ALTA PRESTAZIONE

\* HAUTE PERFORMANCE

VP-HO-GDR



EDP	D	L	l	d	€
8593560	6	101	57	6	
8593565	6.5	107	63	6	
8593568	6.8	113	69	7	
8593570	7	113	69	7	
8593575	7.5	113	69	8	
8593580	8	119	75	8	
8593585	8.5	125	75	9	
8593586	8.6	131	81	9	
8593590	9	131	81	9	
8593595	9.5	131	81	10	
8593600	10	137	87	10	
8593603	10.3	144	87	11	
8593605	10.5	144	87	11	
8593610	11	151	94	11	
8593615	11.5	151	94	12	
8593620	12	158	101	12	
8593625	12.5	161	101	16	
8593630	13	161	101	16	
8593635	13.5	166	106	16	
8593640	14	166	106	16	
8593641	14.1	169	109	16	
8593645	14.5	169	109	16	
8593650	15	169	109	16	
8593655	15.5	172	112	16	
8593656	15.6	172	112	16	
8593660	16	172	112	16	
8593665	16.5	181	115	20	
8593670	17	181	115	20	

EDP	D	L	l	d	€
8593675	17.5	184	118	20	
8593676	17.6	184	118	20	
8593680	18	184	118	20	
8593685	18.5	188	122	20	
8593690	19	188	122	20	
8593695	19.5	191	125	20	
8593696	19.6	191	125	20	
8593700	20	191	125	20	
8593705	20.5	204	128	25	
8593710	21	204	128	25	
8593711	21.1	204	128	25	
8593715	21.5	208	132	25	
8593720	22	208	132	25	
8593725	22.5	212	136	25	
8593730	23	212	136	25	
8593735	23.5	212	136	25	
8593740	24	216	140	25	
8593745	24.5	216	140	25	
8593750	25	216	140	25	
8593755	25.5	225	145	32	
8593760	26	225	145	32	
8593765	26.5	225	145	32	
8593770	27	230	150	32	
8593780	28	230	150	32	
8593790	29	235	155	32	
8593800	30	235	155	32	
8593810	31	240	160	32	
8593820	32	245	165	32	

CPM

Applications - Anwendungen - Applicazioni - Applications									
VPH-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	○	○	○	○	⊙	⊙	⊙		
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	⊙
VP-HO-GDR	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	⊙	⊙	⊙	⊙	⊙	○			⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	⊙	⊙	⊙	⊙	○	⊙	⊙	⊙	○

Drills - Bohrer - Punte - Forets



\* **HIGH PERFORMANCE**  
\* Recommended for horizontal drilling

\* **HIGH PERFORMANCE**  
\* Für horizontalen Einsatz geeignet

\* **ALTA PRESTAZIONE**  
\* Racomandato per applicazione orizzontale

\* **HAUTE PERFORMANCE**  
\* Reconnu pour perçage horizontal

**V-HDO-GDR**



D ≤ 12    D > 12    D > 12    D ≤ 12    P. 56



**HSSE  
Co8**

EDP	D	L	l	d	€
43040600	6	101	57	6	
43040610	6.1	107	63	6	
43040620	6.2	107	63	6	
43040630	6.3	107	63	6	
43040640	6.4	107	63	6	
43040650	6.5	107	63	6	
43040660	6.6	107	63	7	
43040670	6.7	107	63	7	
43040680	6.8	113	69	7	
43040690	6.9	113	69	7	
43040700	7	113	69	7	
43040710	7.1	113	69	8	
43040720	7.2	113	69	8	
43040730	7.3	113	69	8	
43040740	7.4	113	69	8	
43040750	7.5	113	69	8	
43040760	7.6	119	75	8	
43040770	7.7	119	75	8	
43040780	7.8	119	75	8	
43040790	7.9	119	75	8	
43040800	8	119	75	8	
43040810	8.1	125	75	9	
43040820	8.2	125	75	9	
43040830	8.3	125	75	9	
43040840	8.4	125	75	9	
43040850	8.5	125	75	9	
43040860	8.6	131	81	9	
43040870	8.7	131	81	9	
43040880	8.8	131	81	9	
43040890	8.9	131	81	9	
43040900	9	131	81	9	
43040910	9.1	131	81	10	
43040920	9.2	131	81	10	
43040930	9.3	131	81	10	
43040940	9.4	131	81	10	
43040950	9.5	131	81	10	
43040960	9.6	137	87	10	
43040970	9.7	137	87	10	
43040980	9.8	137	87	10	
43040990	9.9	137	87	10	
43041000	10	137	87	10	
43041010	10.1	144	87	11	
43041020	10.2	144	87	11	
43041030	10.3	144	87	11	
43041040	10.4	144	87	11	
43041050	10.5	144	87	11	
43041060	10.6	144	87	11	
43041070	10.7	151	94	11	

EDP	D	L	l	d	€
43041080	10.8	151	94	11	
43041090	10.9	151	94	11	
43041100	11	151	94	11	
43041110	11.1	151	94	12	
43041120	11.2	151	94	12	
43041130	11.3	151	94	12	
43041140	11.4	151	94	12	
43041150	11.5	151	94	12	
43041160	11.6	151	94	12	
43041170	11.7	151	94	12	
43041180	11.8	151	94	12	
43041190	11.9	158	101	12	
43041200	12	158	101	12	
43041250	12.5	140	80	16	
43041300	13	145	85	16	
43041350	13.5	150	90	16	
43041400	14	150	90	16	
43041450	14.5	155	95	16	
43041500	15	161	95	20	
43041550	15.5	166	100	20	
43041600	16	166	100	20	
43041650	16.5	172	106	20	
43041700	17	172	106	20	
43041750	17.5	178	112	20	
43041800	18	178	112	20	
43041850	18.5	184	118	20	
43041900	19	194	118	25	
43041950	19.5	201	125	25	
43042000	20	201	125	25	
43042050	20.5	204	128	25	
43042100	21	204	128	25	
43042150	21.5	208	132	25	
43042200	22	208	132	25	
43042250	22.5	212	136	25	
43042300	23	212	136	25	
43042350	23.5	212	136	25	
43042400	24	220	140	32	
43042450	24.5	220	140	32	
43042500	25	220	140	32	
43042550	25.5	225	145	32	
43042600	26	225	145	32	
43042650	26.5	225	145	32	
43042700	27	230	150	32	
43042800	28	230	150	32	
43042900	29	235	155	32	
43043000	30	235	155	32	
43043100	31	240	160	32	
43043200	32	245	165	32	

		Applications - Anwendungen - Applicazioni - Applications									
V-HDO-GDR	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl	Inl	Inl
	○	○	⊙	⊙	○	○	○	○	○	○	○
	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS		

## Drills - Bohrer - Punta - Forets

- \* **HIGH PERFORMANCE**
- \* EX GOLD DRILL
- \* By **0.01** of D 0.5~6
- \* Special flute design to facilitate short chipping & accurate hole size
- \* For CNC high speed drilling

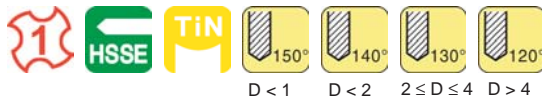
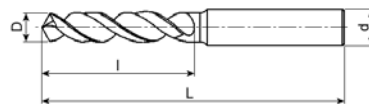
- \* **HIGH PERFORMANCE**
- \* EX GOLD DRILL
- \* Alle **0.01** von D 0.5~6
- \* Spezielle Schneidengeometrie für kurze Späne
- \* Speziell für CNC High Speed Bohren

- \* **ALTA PRESTAZIONE**
- \* EX GOLD DRILL
- \* Da **0.01** della D 0.5~6
- \* Il disegno speciale dell'elica della punta da origine a trucioli corti
- \* Per macchine CNC con avanzamento e velocità rapida

- \* **HAUTE PERFORMANCE**
- \* EX GOLD DRILL
- \* Par **0.01** de D 0.5~6
- \* Le design spécial de l'hélice du foret donne des copeaux courts
- \* Pour machine CNC avec avance et vitesse rapide



## EX-SUS-GDS



D < 1    D < 2    2 ≤ D ≤ 4    D > 4



D ≤ 12    D > 12

P. 57



EDP	D	L	l	d	€
61505	0.5	38	3	3	
8595051	0.51	38	3	3	
8595052	0.52	38	3	3	
8595053	0.53	38	3	3	
8595054	0.54	38	3.5	3	
8595055	0.55	38	3.5	3	
8595056	0.56	38	3.5	3	
8595057	0.57	38	3.5	3	
8595058	0.58	38	3.5	3	
8595059	0.59	38	3.5	3	
61506	0.6	38	3.5	3	
8595061	0.61	38	4	3	
8595062	0.62	38	4	3	
8595063	0.63	38	4	3	
8595064	0.64	38	4	3	
8595065	0.65	38	4	3	
8595066	0.66	38	4	3	
8595067	0.67	38	4	3	
8595068	0.68	38	4.5	3	
8595069	0.69	38	4.5	3	
61507	0.7	38	4.5	3	
8595071	0.71	38	4.5	3	
8595072	0.72	38	4.5	3	
8595073	0.73	38	4.5	3	
8595074	0.74	38	4.5	3	
8595075	0.75	38	4.5	3	
8595076	0.76	38	5	3	
8595077	0.77	38	5	3	
8595078	0.78	38	5	3	
8595079	0.79	38	5	3	
61508	0.8	38	5	3	
8595081	0.81	38	5	3	
8595082	0.82	38	5	3	
8595083	0.83	38	5	3	
8595084	0.84	38	5	3	
8595085	0.85	38	5	3	
8595086	0.86	38	5.5	3	
8595087	0.87	38	5.5	3	
8595088	0.88	38	5.5	3	
8595089	0.89	38	5.5	3	
61509	0.9	38	5.5	3	
8595091	0.91	38	5.5	3	
8595092	0.92	38	5.5	3	
8595093	0.93	38	5.5	3	
8595094	0.94	38	5.5	3	

EDP	D	L	l	d	€
8595095	0.95	38	6	3	
8595096	0.96	38	6	3	
8595097	0.97	38	6	3	
8595098	0.98	38	6	3	
8595099	0.99	38	6	3	
61510	1	38	6	3	
8595101	1.01	38	6	3	
8595102	1.02	38	6	3	
8595103	1.03	38	6	3	
8595104	1.04	38	6	3	
8595105	1.05	38	6	3	
8595106	1.06	38	6	3	
8595107	1.07	39	7	3	
8595108	1.08	39	7	3	
8595109	1.09	39	7	3	
61511	1.1	39	7	3	
8595111	1.11	39	7	3	
8595112	1.12	39	7	3	
8595113	1.13	39	7	3	
8595114	1.14	39	7	3	
8595115	1.15	39	7	3	
8595116	1.16	39	7	3	
8595117	1.17	39	7	3	
8595118	1.18	39	7	3	
8595119	1.19	40	8	3	
65512	1.2	40	8	3	
8595121	1.21	40	8	3	
8595122	1.22	40	8	3	
8595123	1.23	40	8	3	
8595124	1.24	40	8	3	
8595125	1.25	40	8	3	
8595126	1.26	40	8	3	
8595127	1.27	40	8	3	
8595128	1.28	40	8	3	
8595129	1.29	40	8	3	
61513	1.3	40	8	3	
8595131	1.31	40	8	3	
8595132	1.32	40	8	3	
8595133	1.33	41	9	3	
8595134	1.34	41	9	3	
8595135	1.35	41	9	3	
8595136	1.36	41	9	3	
8595137	1.37	41	9	3	
8595138	1.38	41	9	3	
8595139	1.39	41	9	3	

**HSSE**  
**V3**

## Drills - Bohrer - Punte - Forets

EX-SUS-GDS



EDP	D	L	l	d	€
61514	1.4	41	9	3	
8595141	1.41	41	9	3	
8595142	1.42	41	9	3	
8595143	1.43	41	9	3	
8595144	1.44	41	9	3	
8595145	1.45	41	9	3	
8595146	1.46	41	9	3	
8595147	1.47	41	9	3	
8595148	1.48	41	9	3	
8595149	1.49	41	9	3	
61515	1.5	41	9	3	
8595151	1.51	42	10	3	
8595152	1.52	42	10	3	
8595153	1.53	42	10	3	
8595154	1.54	42	10	3	
8595155	1.55	42	10	3	
8595156	1.56	42	10	3	
8595157	1.57	42	10	3	
8595158	1.58	42	10	3	
8595159	1.59	42	10	3	
61516	1.6	42	10	3	
8595161	1.61	42	10	3	
8595162	1.62	42	10	3	
8595163	1.63	42	10	3	
8595164	1.64	42	10	3	
8595165	1.65	42	10	3	
8595166	1.66	42	10	3	
8595167	1.67	42	10	3	
8595168	1.68	42	10	3	
8595169	1.69	42	10	3	
61517	1.7	42	10	3	
8595171	1.71	43	11	3	
8595172	1.72	43	11	3	
8595173	1.73	43	11	3	
8595174	1.74	43	11	3	
8595175	1.75	43	11	3	
8595176	1.76	43	11	3	
8595177	1.77	43	11	3	
8595178	1.78	43	11	3	
8595179	1.79	43	11	3	
61518	1.8	43	11	3	
8595181	1.81	43	11	3	
8595182	1.82	43	11	3	
8595183	1.83	43	11	3	
8595184	1.84	43	11	3	
8595185	1.85	43	11	3	
8595186	1.86	43	11	3	
8595187	1.87	43	11	3	
8595188	1.88	43	11	3	
8595189	1.89	43	11	3	
61519	1.9	43	11	3	
8595191	1.91	44	12	3	
8595192	1.92	44	12	3	
8595193	1.93	44	12	3	
8595194	1.94	44	12	3	
8595195	1.95	44	12	3	
8595196	1.96	44	12	3	
8595197	1.97	44	12	3	
8595198	1.98	44	12	3	
8595199	1.99	44	12	3	
61520	2	44	12	3	
8595201	2.01	44	12	3	
8595202	2.02	44	12	3	
8595203	2.03	44	12	3	
8595204	2.04	44	12	3	
8595205	2.05	44	12	3	
8595206	2.06	44	12	3	

EDP	D	L	l	d	€
8595207	2.07	44	12	3	
8595208	2.08	44	12	3	
8595209	2.09	44	12	3	
61521	2.1	44	12	3	
8595211	2.11	44	12	3	
8595212	2.12	44	12	3	
8595213	2.13	45	13	3	
8595214	2.14	45	13	3	
8595215	2.15	45	13	3	
8595216	2.16	45	13	3	
8595217	2.17	45	13	3	
8595218	2.18	45	13	3	
8595219	2.19	45	13	3	
61522	2.2	45	13	3	
8595221	2.21	45	13	3	
8595222	2.22	45	13	3	
8595223	2.23	45	13	3	
8595224	2.24	45	13	3	
8595225	2.25	45	13	3	
8595226	2.26	45	13	3	
8595227	2.27	45	13	3	
8595228	2.28	45	13	3	
8595229	2.29	45	13	3	
61523	2.3	45	13	3	
8595231	2.31	45	13	3	
8595232	2.32	45	13	3	
8595233	2.33	45	13	3	
8595234	2.34	45	13	3	
8595235	2.35	45	13	3	
8595236	2.36	45	13	3	
8595237	2.37	46	14	3	
8595238	2.38	46	14	3	
8595239	2.39	46	14	3	
61524	2.4	46	14	3	
8595241	2.41	46	14	3	
8595242	2.42	46	14	3	
8595243	2.43	46	14	3	
8595244	2.44	46	14	3	
8595245	2.45	46	14	3	
8595246	2.46	46	14	3	
8595247	2.47	46	14	3	
8595248	2.48	46	14	3	
8595249	2.49	46	14	3	
61525	2.5	46	14	3	
8595251	2.51	46	14	3	
8595252	2.52	46	14	3	
8595253	2.53	46	14	3	
8595254	2.54	46	14	3	
8595255	2.55	46	14	3	
8595256	2.56	46	14	3	
8595257	2.57	46	14	3	
8595258	2.58	46	14	3	
8595259	2.59	46	14	3	
61526	2.6	46	14	3	
8595261	2.61	46	14	3	
8595262	2.62	46	14	3	
8595263	2.63	46	14	3	
8595264	2.64	46	14	3	
8595265	2.65	46	14	3	
8595266	2.66	48	16	3	
8595267	2.67	48	16	3	
8595268	2.68	48	16	3	
8595269	2.69	48	16	3	
61527	2.7	48	16	3	
8595271	2.71	48	16	3	
8595272	2.72	48	16	3	
8595273	2.73	48	16	3	

HSSE  
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## Drills - Bohrer - Punte - Forets

EX-SUS-GDS



EDP	D	L	l	d	€
8595274	2.74	48	16	3	
8595275	2.75	48	16	3	
8595276	2.76	48	16	3	
8595277	2.77	48	16	3	
8595278	2.78	48	16	3	
8595279	2.79	48	16	3	
61528	2.8	48	16	3	
8595281	2.81	48	16	3	
8595282	2.82	48	16	3	
8595283	2.83	48	16	3	
8595284	2.84	48	16	3	
8595285	2.85	48	16	3	
8595286	2.86	48	16	3	
8595287	2.87	48	16	3	
8595288	2.88	48	16	3	
8595289	2.89	48	16	3	
61529	2.9	48	16	3	
8595291	2.91	48	16	3	
8595292	2.92	48	16	3	
8595293	2.93	48	16	3	
8595294	2.94	48	16	3	
8595295	2.95	48	16	3	
8595296	2.96	48	16	3	
8595297	2.97	48	16	3	
8595298	2.98	48	16	3	
8595299	2.99	48	16	3	
61530	3	48	16	3	
8595301	3.01	50	18	4	
8595302	3.02	50	18	4	
8595303	3.03	50	18	4	
8595304	3.04	50	18	4	
8595305	3.05	50	18	4	
8595306	3.06	50	18	4	
8595307	3.07	50	18	4	
8595308	3.08	50	18	4	
8595309	3.09	50	18	4	
61531	3.1	50	18	4	
8595311	3.11	50	18	4	
8595312	3.12	50	18	4	
8595313	3.13	50	18	4	
8595314	3.14	50	18	4	
8595315	3.15	50	18	4	
8595316	3.16	50	18	4	
8595317	3.17	50	18	4	
8595318	3.18	50	18	4	
8595319	3.19	50	18	4	
61532	3.2	50	18	4	
8595321	3.21	50	18	4	
8595322	3.22	50	18	4	
8595323	3.23	50	18	4	
8595324	3.24	50	18	4	
8595325	3.25	50	18	4	
8595326	3.26	50	18	4	
8595327	3.27	50	18	4	
8595328	3.28	50	18	4	
8595329	3.29	50	18	4	
61533	3.3	50	18	4	
8595331	3.31	50	18	4	
8595332	3.32	50	18	4	
8595333	3.33	50	18	4	
8595334	3.34	50	18	4	
8595335	3.35	50	18	4	
8595336	3.36	52	20	4	
8595337	3.37	52	20	4	
8595338	3.38	52	20	4	
8595339	3.39	52	20	4	
61534	3.4	52	20	4	

EDP	D	L	l	d	€
8595341	3.41	52	20	4	
8595342	3.42	52	20	4	
8595343	3.43	52	20	4	
8595344	3.44	52	20	4	
8595345	3.45	52	20	4	
8595346	3.46	52	20	4	
8595347	3.47	52	20	4	
8595348	3.48	52	20	4	
8595349	3.49	52	20	4	
61535	3.5	52	20	4	
8595351	3.51	52	20	4	
8595352	3.52	52	20	4	
8595353	3.53	52	20	4	
8595354	3.54	52	20	4	
8595355	3.55	52	20	4	
8595356	3.56	52	20	4	
8595357	3.57	52	20	4	
8595358	3.58	52	20	4	
8595359	3.59	52	20	4	
61536	3.6	52	20	4	
8595361	3.61	52	20	4	
8595362	3.62	52	20	4	
8595363	3.63	52	20	4	
8595364	3.64	52	20	4	
8595365	3.65	52	20	4	
8595366	3.66	52	20	4	
8595367	3.67	52	20	4	
8595368	3.68	52	20	4	
8595369	3.69	52	20	4	
61537	3.7	52	20	4	
8595371	3.71	52	20	4	
8595372	3.72	52	20	4	
8595373	3.73	52	20	4	
8595374	3.74	52	20	4	
8595375	3.75	52	20	4	
8595376	3.76	54	22	4	
8595377	3.77	54	22	4	
8595378	3.78	54	22	4	
8595379	3.79	54	22	4	
61538	3.8	54	22	4	
8595381	3.81	54	22	4	
8595382	3.82	54	22	4	
8595383	3.83	54	22	4	
8595384	3.84	54	22	4	
8595385	3.85	54	22	4	
8595386	3.86	54	22	4	
8595387	3.87	54	22	4	
8595388	3.88	54	22	4	
8595389	3.89	54	22	4	
61539	3.9	54	22	4	
8595391	3.91	54	22	4	
8595392	3.92	54	22	4	
8595393	3.93	54	22	4	
8595394	3.94	54	22	4	
8595395	3.95	54	22	4	
8595396	3.96	54	22	4	
8595397	3.97	54	22	4	
8595398	3.98	54	22	4	
8595399	3.99	54	22	4	
61540	4	54	22	4	
8595401	4.01	66	22	6	
8595402	4.02	66	22	6	
8595403	4.03	66	22	6	
8595404	4.04	66	22	6	
8595405	4.05	66	22	6	
8595406	4.06	66	22	6	
8595407	4.07	66	22	6	

HSSE  
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## Drills - Bohrer - Punte - Forets

EX-SUS-GDS



EDP	D	L	l	d	€
8595408	4.08	66	22	6	
8595409	4.09	66	22	6	
61541	4.1	66	22	6	
8595411	4.11	66	22	6	
8595412	4.12	66	22	6	
8595413	4.13	66	22	6	
8595414	4.14	66	22	6	
8595415	4.15	66	22	6	
8595416	4.16	66	22	6	
8595417	4.17	66	22	6	
8595418	4.18	66	22	6	
8595419	4.19	66	22	6	
61542	4.2	66	22	6	
8595421	4.21	66	22	6	
8595422	4.22	66	22	6	
8595423	4.23	66	22	6	
8595424	4.24	66	22	6	
8595425	4.25	66	22	6	
8595426	4.26	68	24	6	
8595427	4.27	68	24	6	
8595428	4.28	68	24	6	
8595429	4.29	68	24	6	
61543	4.3	68	24	6	
8595431	4.31	68	24	6	
8595432	4.32	68	24	6	
8595433	4.33	68	24	6	
8595434	4.34	68	24	6	
8595435	4.35	68	24	6	
8595436	4.36	68	24	6	
8595437	4.37	68	24	6	
8595438	4.38	68	24	6	
8595439	4.39	68	24	6	
61544	4.4	68	24	6	
8595441	4.41	68	24	6	
8595442	4.42	68	24	6	
8595443	4.43	68	24	6	
8595444	4.44	68	24	6	
8595445	4.45	68	24	6	
8595446	4.46	68	24	6	
8595447	4.47	68	24	6	
8595448	4.48	68	24	6	
8595449	4.49	68	24	6	
61545	4.5	68	24	6	
8595451	4.51	68	24	6	
8595452	4.52	68	24	6	
8595453	4.53	68	24	6	
8595454	4.54	68	24	6	
8595455	4.55	68	24	6	
8595456	4.56	68	24	6	
8595457	4.57	68	24	6	
8595458	4.58	68	24	6	
8595459	4.59	68	24	6	
61546	4.6	68	24	6	
8595461	4.61	68	24	6	
8595462	4.62	68	24	6	
8595463	4.63	68	24	6	
8595464	4.64	68	24	6	
8595465	4.65	68	24	6	
8595466	4.66	68	24	6	
8595467	4.67	68	24	6	
8595468	4.68	68	24	6	
8595469	4.69	68	24	6	
61547	4.7	68	24	6	
8595471	4.71	68	24	6	
8595472	4.72	68	24	6	
8595473	4.73	68	24	6	
8595474	4.74	68	24	6	

EDP	D	L	l	d	€
8595475	4.75	68	24	6	
8595476	4.76	70	26	6	
8595477	4.77	70	26	6	
8595478	4.78	70	26	6	
8595479	4.79	70	26	6	
61548	4.8	70	26	6	
8595481	4.81	70	26	6	
8595482	4.82	70	26	6	
8595483	4.83	70	26	6	
8595484	4.84	70	26	6	
8595485	4.85	70	26	6	
8595486	4.86	70	26	6	
8595487	4.87	70	26	6	
8595488	4.88	70	26	6	
8595489	4.89	70	26	6	
61549	4.9	70	26	6	
8595491	4.91	70	26	6	
8595492	4.92	70	26	6	
8595493	4.93	70	26	6	
8595494	4.94	70	26	6	
8595495	4.95	70	26	6	
8595496	4.96	70	26	6	
8595497	4.97	70	26	6	
8595498	4.98	70	26	6	
8595499	4.99	70	26	6	
61550	5	70	26	6	
8595501	5.01	70	26	6	
8595502	5.02	70	26	6	
8595503	5.03	70	26	6	
8595504	5.04	70	26	6	
8595505	5.05	70	26	6	
8595506	5.06	70	26	6	
8595507	5.07	70	26	6	
8595508	5.08	70	26	6	
8595509	5.09	70	26	6	
61551	5.1	70	26	6	
8595511	5.11	70	26	6	
8595512	5.12	70	26	6	
8595513	5.13	70	26	6	
8595514	5.14	70	26	6	
8595515	5.15	70	26	6	
8595516	5.16	70	26	6	
8595517	5.17	70	26	6	
8595518	5.18	70	26	6	
8595519	5.19	70	26	6	
61552	5.2	70	26	6	
8595521	5.21	70	26	6	
8595522	5.22	70	26	6	
8595523	5.23	70	26	6	
8595524	5.24	70	26	6	
8595525	5.25	70	26	6	
8595526	5.26	70	26	6	
8595527	5.27	70	26	6	
8595528	5.28	70	26	6	
8595529	5.29	70	26	6	
61553	5.3	70	26	6	
8595531	5.31	72	28	6	
8595532	5.32	72	28	6	
8595533	5.33	72	28	6	
8595534	5.34	72	28	6	
8595535	5.35	72	28	6	
8595536	5.36	72	28	6	
8595537	5.37	72	28	6	
8595538	5.38	72	28	6	
8595539	5.39	72	28	6	
61554	5.4	72	28	6	
8595541	5.41	72	28	6	

HSSE  
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## Drills - Bohrer - Punte - Forets

EX-SUS-GDS



EDP	D	L	l	d	€
8595542	5.42	72	28	6	
8595543	5.43	72	28	6	
8595544	5.44	72	28	6	
8595545	5.45	72	28	6	
8595546	5.46	72	28	6	
8595547	5.47	72	28	6	
8595548	5.48	72	28	6	
8595549	5.49	72	28	6	
61555	5.5	72	28	6	
8595551	5.51	72	28	6	
8595552	5.52	72	28	6	
8595553	5.53	72	28	6	
8595554	5.54	72	28	6	
8595555	5.55	72	28	6	
8595556	5.56	72	28	6	
8595557	5.57	72	28	6	
8595558	5.58	72	28	6	
8595559	5.59	72	28	6	
61556	5.6	72	28	6	
8595561	5.61	72	28	6	
8595562	5.62	72	28	6	
8595563	5.63	72	28	6	
8595564	5.64	72	28	6	
8595565	5.65	72	28	6	
8595566	5.66	72	28	6	
8595567	5.67	72	28	6	
8595568	5.68	72	28	6	
8595569	5.69	72	28	6	
61557	5.7	72	28	6	
8595571	5.71	72	28	6	
8595572	5.72	72	28	6	
8595573	5.73	72	28	6	
8595574	5.74	72	28	6	
8595575	5.75	72	28	6	
8595576	5.76	72	28	6	
8595577	5.77	72	28	6	
8595578	5.78	72	28	6	
8595579	5.79	72	28	6	
61558	5.8	72	28	6	
8595581	5.81	72	28	6	
8595582	5.82	72	28	6	
8595583	5.83	72	28	6	
8595584	5.84	72	28	6	
8595585	5.85	72	28	6	
8595586	5.86	72	28	6	
8595587	5.87	72	28	6	
8595588	5.88	72	28	6	
8595589	5.89	72	28	6	
61559	5.9	72	28	6	
8595591	5.91	72	28	6	
8595592	5.92	72	28	6	
8595593	5.93	72	28	6	
8595594	5.94	72	28	6	
8595595	5.95	72	28	6	
8595596	5.96	72	28	6	
8595597	5.97	72	28	6	
8595598	5.98	72	28	6	
8595599	5.99	72	28	6	
61560	6	72	28	6	
61561	6.1	75	31	8	
61562	6.2	75	31	8	
61563	6.3	75	31	8	
61564	6.4	75	31	8	
61565	6.5	75	31	8	
61566	6.6	75	31	8	
61567	6.7	75	31	8	
61568	6.8	78	34	8	

EDP	D	L	l	d	€
61569	6.9	78	34	8	
61570	7	78	34	8	
61571	7.1	78	34	8	
61572	7.2	78	34	8	
61573	7.3	78	34	8	
61574	7.4	78	34	8	
61575	7.5	78	34	8	
61576	7.6	81	37	8	
61577	7.7	81	37	8	
61578	7.8	81	37	8	
61579	7.9	81	37	8	
61580	8	81	37	8	
61581	8.1	87	37	10	
61582	8.2	87	37	10	
61583	8.3	87	37	10	
61584	8.4	87	37	10	
61585	8.5	87	37	10	
61586	8.6	90	40	10	
61587	8.7	90	40	10	
61588	8.8	90	40	10	
61589	8.9	90	40	10	
61590	9	90	40	10	
61591	9.1	90	40	10	
61592	9.2	90	40	10	
61593	9.3	90	40	10	
61594	9.4	90	40	10	
61595	9.5	90	40	10	
61596	9.6	93	43	10	
61597	9.7	93	43	10	
61598	9.8	93	43	10	
61599	9.9	93	43	10	
61600	10	93	43	10	
61601	10.1	100	43	12	
61602	10.2	100	43	12	
61603	10.3	100	43	12	
61604	10.4	100	43	12	
61605	10.5	100	43	12	
61606	10.6	100	43	12	
61607	10.7	104	47	12	
61608	10.8	104	47	12	
61609	10.9	104	47	12	
61610	11	104	47	12	
61611	11.1	104	47	12	
61612	11.2	104	47	12	
61613	11.3	104	47	12	
61614	11.4	104	47	12	
61615	11.5	104	47	12	
61616	11.6	104	47	12	
61617	11.7	104	47	12	
61618	11.8	104	47	12	
61619	11.9	108	51	12	
61620	12	108	51	12	
43011210	12.1	108	51	12	
43011220	12.2	108	51	12	
43011230	12.3	108	51	12	
43011240	12.4	108	51	12	
43011250	12.5	108	51	12	
43011260	12.6	108	51	12	
43011270	12.7	108	51	12	
43011280	12.8	108	51	12	
43011290	12.9	108	51	12	
43011300	13	108	51	12	
43011350	13.5	114	54	16	
43011400	14	114	54	16	
43011450	14.5	116	56	16	
43011500	15	116	56	16	
43011550	15.5	118	58	16	

HSSE  
V3

## Drills - Bohrer - Punte - Forets

## EX-SUS-GDS



EDP	D	L	l	d	€
43011600	16	118	58	16	
43011650	16.5	126	60	20	
43011700	17	126	60	20	
43011750	17.5	128	62	20	
43011800	18	128	62	20	

EDP	D	L	l	d	€
43011850	18.5	130	64	20	
43011900	19	130	64	20	
43011950	19.5	132	66	20	
43012000	20	132	66	20	

HSSE  
V3

Applications - Anwendungen - Applicazioni - Applications									
EX-SUS-GDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	⊙	○							⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
				⊙	⊙	○	⊙	⊙	

## Drills - Bohrer - Punta - Forets

- \* **HIGH PERFORMANCE**
- \* EX GOLD DRILL
- \* By **0.01** of D 2~6
- \* Special flute design to facilitate short chipping & accurate hole size
- \* For CNC high speed drilling

- \* **HIGH PERFORMANCE**
- \* EX GOLD DRILL
- \* Alle **0.01** von D 2~6
- \* Spezielle Schneidengeometrie für kurze Späne
- \* Speziell für CNC High Speed Bohren

- \* **ALTA PRESTAZIONE**
- \* EX GOLD DRILL
- \* Da **0.01** della D 2~6
- \* Il disegno speciale dell'elica della punta da origine a trucioli corti
- \* Per macchine CNC con avanzamento e velocità rapida

- \* **HAUTE PERFORMANCE**
- \* EX GOLD DRILL
- \* Par **0.01** de D 2~6
- \* Le design spécial de l'hélice du foret donne des copeaux courts
- \* Pour machine CNC avec avance et vitesse rapide



## EX-SUS-GDR



2 ≤ D ≤ 4 D &gt; 4

D ≤ 12 D &gt; 12

P. 57



EDP	D	L	l	d	€
62520	2	56	24	3	
8597201	2.01	56	24	3	
8597202	2.02	56	24	3	
8597203	2.03	56	24	3	
8597204	2.04	56	24	3	
8597205	2.05	56	24	3	
8597206	2.06	56	24	3	
8597207	2.07	56	24	3	
8597208	2.08	56	24	3	
8597209	2.09	56	24	3	
62521	2.1	56	24	3	
8597211	2.11	56	24	3	
8597212	2.12	56	24	3	
8597213	2.13	59	27	3	
8597214	2.14	59	27	3	
8597215	2.15	59	27	3	
8597216	2.16	59	27	3	
8597217	2.17	59	27	3	
8597218	2.18	59	27	3	
8597219	2.19	59	27	3	
62522	2.2	59	27	3	
8597221	2.21	59	27	3	
8597222	2.22	59	27	3	
8597223	2.23	59	27	3	
8597224	2.24	59	27	3	
8597225	2.25	59	27	3	
8597226	2.26	59	27	3	
8597227	2.27	59	27	3	
8597228	2.28	59	27	3	
8597229	2.29	59	27	3	
62523	2.3	59	27	3	
8597231	2.31	59	27	3	
8597232	2.32	59	27	3	
8597233	2.33	59	27	3	
8597234	2.34	59	27	3	
8597235	2.35	59	27	3	
8597236	2.36	59	27	3	
8597237	2.37	62	30	3	
8597238	2.38	62	30	3	
8597239	2.39	62	30	3	
62524	2.4	62	30	3	
8597241	2.41	62	30	3	
8597242	2.42	62	30	3	
8597243	2.43	62	30	3	
8597244	2.44	62	30	3	
8597245	2.45	62	30	3	

EDP	D	L	l	d	€
8597246	2.46	62	30	3	
8597247	2.47	62	30	3	
8597248	2.48	62	30	3	
8597249	2.49	62	30	3	
62525	2.5	62	30	3	
8597251	2.51	62	30	3	
8597252	2.52	62	30	3	
8597253	2.53	62	30	3	
8597254	2.54	62	30	3	
8597255	2.55	62	30	3	
8597256	2.56	62	30	3	
8597257	2.57	62	30	3	
8597258	2.58	62	30	3	
8597259	2.59	62	30	3	
62526	2.6	62	30	3	
8597261	2.61	62	30	3	
8597262	2.62	62	30	3	
8597263	2.63	62	30	3	
8597264	2.64	62	30	3	
8597265	2.65	62	30	3	
8597266	2.66	65	33	3	
8597267	2.67	65	33	3	
8597268	2.68	65	33	3	
8597269	2.69	65	33	3	
62527	2.7	65	33	3	
8597271	2.71	65	33	3	
8597272	2.72	65	33	3	
8597273	2.73	65	33	3	
8597274	2.74	65	33	3	
8597275	2.75	65	33	3	
8597276	2.76	65	33	3	
8597277	2.77	65	33	3	
8597278	2.78	65	33	3	
8597279	2.79	65	33	3	
62528	2.8	65	33	3	
8597281	2.81	65	33	3	
8597282	2.82	65	33	3	
8597283	2.83	65	33	3	
8597284	2.84	65	33	3	
8597285	2.85	65	33	3	
8597286	2.86	65	33	3	
8597287	2.87	65	33	3	
8597288	2.88	65	33	3	
8597289	2.89	65	33	3	
62529	2.9	65	33	3	
8597291	2.91	65	33	3	

**HSSE**  
**V3**

## Drills - Bohrer - Punte - Forets

EX-SUS-GDR



EDP	D	L	I	d	€
8597292	2.92	65	33	3	
8597293	2.93	65	33	3	
8597294	2.94	65	33	3	
8597295	2.95	65	33	3	
8597296	2.96	65	33	3	
8597297	2.97	65	33	3	
8597298	2.98	65	33	3	
8597299	2.99	65	33	3	
62530	3	65	33	3	
8597301	3.01	68	36	4	
8597302	3.02	68	36	4	
8597303	3.03	68	36	4	
8597304	3.04	68	36	4	
8597305	3.05	68	36	4	
8597306	3.06	68	36	4	
8597307	3.07	68	36	4	
8597308	3.08	68	36	4	
8597309	3.09	68	36	4	
62531	3.1	68	36	4	
8597311	3.11	68	36	4	
8597312	3.12	68	36	4	
8597313	3.13	68	36	4	
8597314	3.14	68	36	4	
8597315	3.15	68	36	4	
8597316	3.16	68	36	4	
8597317	3.17	68	36	4	
8597318	3.18	68	36	4	
8597319	3.19	68	36	4	
62532	3.2	68	36	4	
8597321	3.21	68	36	4	
8597322	3.22	68	36	4	
8597323	3.23	68	36	4	
8597324	3.24	68	36	4	
8597325	3.25	68	36	4	
8597326	3.26	68	36	4	
8597327	3.27	68	36	4	
8597328	3.28	68	36	4	
8597329	3.29	68	36	4	
62533	3.3	68	36	4	
8597331	3.31	68	36	4	
8597332	3.32	68	36	4	
8597333	3.33	68	36	4	
8597334	3.34	68	36	4	
8597335	3.35	68	36	4	
8597336	3.36	71	39	4	
8597337	3.37	71	39	4	
8597338	3.38	71	39	4	
8597339	3.39	71	39	4	
62534	3.4	71	39	4	
8597341	3.41	71	39	4	
8597342	3.42	71	39	4	
8597343	3.43	71	39	4	
8597344	3.44	71	39	4	
8597345	3.45	71	39	4	
8597346	3.46	71	39	4	
8597347	3.47	71	39	4	
8597348	3.48	71	39	4	
8597349	3.49	71	39	4	
62535	3.5	71	39	4	
8597351	3.51	71	39	4	
8597352	3.52	71	39	4	
8597353	3.53	71	39	4	
8597354	3.54	71	39	4	
8597355	3.55	71	39	4	
8597356	3.56	71	39	4	
8597357	3.57	71	39	4	
8597358	3.58	71	39	4	

EDP	D	L	I	d	€
8597359	3.59	71	39	4	
62536	3.6	71	39	4	
8597361	3.61	71	39	4	
8597362	3.62	71	39	4	
8597363	3.63	71	39	4	
8597364	3.64	71	39	4	
8597365	3.65	71	39	4	
8597366	3.66	71	39	4	
8597367	3.67	71	39	4	
8597368	3.68	71	39	4	
8597369	3.69	71	39	4	
62537	3.7	71	39	4	
8597371	3.71	71	39	4	
8597372	3.72	71	39	4	
8597373	3.73	71	39	4	
8597374	3.74	71	39	4	
8597375	3.75	71	39	4	
8597376	3.76	75	43	4	
8597377	3.77	75	43	4	
8597378	3.78	75	43	4	
8597379	3.79	75	43	4	
62538	3.8	75	43	4	
8597381	3.81	75	43	4	
8597382	3.82	75	43	4	
8597383	3.83	75	43	4	
8597384	3.84	75	43	4	
8597385	3.85	75	43	4	
8597386	3.86	75	43	4	
8597387	3.87	75	43	4	
8597388	3.88	75	43	4	
8597389	3.89	75	43	4	
62539	3.9	75	43	4	
8597391	3.91	75	43	4	
8597392	3.92	75	43	4	
8597393	3.93	75	43	4	
8597394	3.94	75	43	4	
8597395	3.95	75	43	4	
8597396	3.96	75	43	4	
8597397	3.97	75	43	4	
8597398	3.98	75	43	4	
8597399	3.99	75	43	4	
62540	4	75	43	4	
8597401	4.01	87	43	6	
8597402	4.02	87	43	6	
8597403	4.03	87	43	6	
8597404	4.04	87	43	6	
8597405	4.05	87	43	6	
8597406	4.06	87	43	6	
8597407	4.07	87	43	6	
8597408	4.08	87	43	6	
8597409	4.09	87	43	6	
62541	4.1	87	43	6	
8597411	4.11	87	43	6	
8597412	4.12	87	43	6	
8597413	4.13	87	43	6	
8597414	4.14	87	43	6	
8597415	4.15	87	43	6	
8597416	4.16	87	43	6	
8597417	4.17	87	43	6	
8597418	4.18	87	43	6	
8597419	4.19	87	43	6	
62542	4.2	87	43	6	
8597421	4.21	87	43	6	
8597422	4.22	87	43	6	
8597423	4.23	87	43	6	
8597424	4.24	87	43	6	
8597425	4.25	87	43	6	

HSSE  
V3

## Drills - Bohrer - Punte - Forets

EX-SUS-GDR



EDP	D	L	l	d	€
8597426	4.26	91	47	6	
8597427	4.27	91	47	6	
8597428	4.28	91	47	6	
8597429	4.29	91	47	6	
62543	4.3	91	47	6	
8597431	4.31	91	47	6	
8597432	4.32	91	47	6	
8597433	4.33	91	47	6	
8597434	4.34	91	47	6	
8597435	4.35	91	47	6	
8597436	4.36	91	47	6	
8597437	4.37	91	47	6	
8597438	4.38	91	47	6	
8597439	4.39	91	47	6	
62544	4.4	91	47	6	
8597441	4.41	91	47	6	
8597442	4.42	91	47	6	
8597443	4.43	91	47	6	
8597444	4.44	91	47	6	
8597445	4.45	91	47	6	
8597446	4.46	91	47	6	
8597447	4.47	91	47	6	
8597448	4.48	91	47	6	
8597449	4.49	91	47	6	
62545	4.5	91	47	6	
8597451	4.51	91	47	6	
8597452	4.52	91	47	6	
8597453	4.53	91	47	6	
8597454	4.54	91	47	6	
8597455	4.55	91	47	6	
8597456	4.56	91	47	6	
8597457	4.57	91	47	6	
8597458	4.58	91	47	6	
8597459	4.59	91	47	6	
62546	4.6	91	47	6	
8597461	4.61	91	47	6	
8597462	4.62	91	47	6	
8597463	4.63	91	47	6	
8597464	4.64	91	47	6	
8597465	4.65	91	47	6	
8597466	4.66	91	47	6	
8597467	4.67	91	47	6	
8597468	4.68	91	47	6	
8597469	4.69	91	47	6	
62547	4.7	91	47	6	
8597471	4.71	91	47	6	
8597472	4.72	91	47	6	
8597473	4.73	91	47	6	
8597474	4.74	91	47	6	
8597475	4.75	91	47	6	
8597476	4.76	96	52	6	
8597477	4.77	96	52	6	
8597478	4.78	96	52	6	
8597479	4.79	96	52	6	
62548	4.8	96	52	6	
8597481	4.81	96	52	6	
8597482	4.82	96	52	6	
8597483	4.83	96	52	6	
8597484	4.84	96	52	6	
8597485	4.85	96	52	6	
8597486	4.86	96	52	6	
8597487	4.87	96	52	6	
8597488	4.88	96	52	6	
8597489	4.89	96	52	6	
62549	4.9	96	52	6	
8597491	4.91	96	52	6	
8597492	4.92	96	52	6	

EDP	D	L	l	d	€
8597493	4.93	96	52	6	
8597494	4.94	96	52	6	
8597495	4.95	96	52	6	
8597496	4.96	96	52	6	
8597497	4.97	96	52	6	
8597498	4.98	96	52	6	
8597499	4.99	96	52	6	
62550	5	96	52	6	
8597501	5.01	96	52	6	
8597502	5.02	96	52	6	
8597503	5.03	96	52	6	
8597504	5.04	96	52	6	
8597505	5.05	96	52	6	
8597506	5.06	96	52	6	
8597507	5.07	96	52	6	
8597508	5.08	96	52	6	
8597509	5.09	96	52	6	
62551	5.1	96	52	6	
8597511	5.11	96	52	6	
8597512	5.12	96	52	6	
8597513	5.13	96	52	6	
8597514	5.14	96	52	6	
8597515	5.15	96	52	6	
8597516	5.16	96	52	6	
8597517	5.17	96	52	6	
8597518	5.18	96	52	6	
8597519	5.19	96	52	6	
62552	5.2	96	52	6	
8597521	5.21	96	52	6	
8597522	5.22	96	52	6	
8597523	5.23	96	52	6	
8597524	5.24	96	52	6	
8597525	5.25	96	52	6	
8597526	5.26	96	52	6	
8597527	5.27	96	52	6	
8597528	5.28	96	52	6	
8597529	5.29	96	52	6	
62553	5.3	96	52	6	
8597531	5.31	101	57	6	
8597532	5.32	101	57	6	
8597533	5.33	101	57	6	
8597534	5.34	101	57	6	
8597535	5.35	101	57	6	
8597536	5.36	101	57	6	
8597537	5.37	101	57	6	
8597538	5.38	101	57	6	
8597539	5.39	101	57	6	
62554	5.4	101	57	6	
8597541	5.41	101	57	6	
8597542	5.42	101	57	6	
8597543	5.43	101	57	6	
8597544	5.44	101	57	6	
8597545	5.45	101	57	6	
8597546	5.46	101	57	6	
8597547	5.47	101	57	6	
8597548	5.48	101	57	6	
8597549	5.49	101	57	6	
62555	5.5	101	57	6	
8597551	5.51	101	57	6	
8597552	5.52	101	57	6	
8597553	5.53	101	57	6	
8597554	5.54	101	57	6	
8597555	5.55	101	57	6	
8597556	5.56	101	57	6	
8597557	5.57	101	57	6	
8597558	5.58	101	57	6	
8597559	5.59	101	57	6	

HSSE  
V3

Drills - Bohrer - Punte - Forets

EX-SUS-GDR



EDP	D	L	I	d	€
62556	5.6	101	57	6	
8597561	5.61	101	57	6	
8597562	5.62	101	57	6	
8597563	5.63	101	57	6	
8597564	5.64	101	57	6	
8597565	5.65	101	57	6	
8597566	5.66	101	57	6	
8597567	5.67	101	57	6	
8597568	5.68	101	57	6	
8597569	5.69	101	57	6	
62557	5.7	101	57	6	
8597571	5.71	101	57	6	
8597572	5.72	101	57	6	
8597573	5.73	101	57	6	
8597574	5.74	101	57	6	
8597575	5.75	101	57	6	
8597576	5.76	101	57	6	
8597577	5.77	101	57	6	
8597578	5.78	101	57	6	
8597579	5.79	101	57	6	
62558	5.8	101	57	6	
8597581	5.81	101	57	6	
8597582	5.82	101	57	6	
8597583	5.83	101	57	6	
8597584	5.84	101	57	6	
8597585	5.85	101	57	6	
8597586	5.86	101	57	6	
8597587	5.87	101	57	6	
8597588	5.88	101	57	6	
8597589	5.89	101	57	6	
62559	5.9	101	57	6	
8597591	5.91	101	57	6	
8597592	5.92	101	57	6	
8597593	5.93	101	57	6	
8597594	5.94	101	57	6	
8597595	5.95	101	57	6	
8597596	5.96	101	57	6	
8597597	5.97	101	57	6	
8597598	5.98	101	57	6	
8597599	5.99	101	57	6	
62560	6	101	57	6	
62561	6.1	107	63	8	
62562	6.2	107	63	8	
62563	6.3	107	63	8	
62564	6.4	107	63	8	
62565	6.5	107	63	8	
62566	6.6	107	63	8	
62567	6.7	107	63	8	
62568	6.8	113	69	8	
62569	6.9	113	69	8	
62570	7	113	69	8	
62571	7.1	113	69	8	
62572	7.2	113	69	8	
62573	7.3	113	69	8	
62574	7.4	113	69	8	
62575	7.5	113	69	8	
62576	7.6	119	75	8	
62577	7.7	119	75	8	
62578	7.8	119	75	8	
62579	7.9	119	75	8	
62580	8	119	75	8	
62581	8.1	125	75	10	
62582	8.2	125	75	10	

EDP	D	L	I	d	€
62583	8.3	125	75	10	
62584	8.4	125	75	10	
62585	8.5	125	75	10	
62586	8.6	131	81	10	
62587	8.7	131	81	10	
62588	8.8	131	81	10	
62589	8.9	131	81	10	
62590	9	131	81	10	
62591	9.1	131	81	10	
62592	9.2	131	81	10	
62593	9.3	131	81	10	
62594	9.4	131	81	10	
62595	9.5	131	81	10	
62596	9.6	137	87	10	
62597	9.7	137	87	10	
62598	9.8	137	87	10	
62599	9.9	137	87	10	
62600	10	137	87	10	
62601	10.1	144	87	12	
62602	10.2	144	87	12	
62603	10.3	144	87	12	
62604	10.4	144	87	12	
62605	10.5	144	87	12	
62606	10.6	144	87	12	
62607	10.7	151	94	12	
62608	10.8	151	94	12	
62609	10.9	151	94	12	
62610	11	151	94	12	
62611	11.1	151	94	12	
62612	11.2	151	94	12	
62613	11.3	151	94	12	
62614	11.4	151	94	12	
62615	11.5	151	94	12	
62616	11.6	151	94	12	
62617	11.7	151	94	12	
62618	11.8	151	94	12	
62619	11.9	158	101	12	
62620	12	158	101	12	
43021210	12.1	158	101	12	
43021220	12.2	158	101	12	
43021230	12.3	158	101	12	
43021240	12.4	158	101	12	
43021250	12.5	158	101	12	
43021260	12.6	158	101	12	
43021270	12.7	158	101	12	
43021280	12.8	158	101	12	
43021290	12.9	158	101	12	
43021300	13	158	101	12	
43021350	13.5	166	106	16	
43021400	14	166	106	16	
43021450	14.5	169	109	16	
43021500	15	169	109	16	
43021550	15.5	172	112	16	
43021600	16	172	112	16	
43021650	16.5	181	115	20	
43021700	17	181	115	20	
43021750	17.5	184	118	20	
43021800	18	184	118	20	
43021850	18.5	188	122	20	
43021900	19	188	122	20	
43021950	19.5	191	125	20	
43022000	20	191	125	20	

HSSE  
V3

OSG Europe : www.osgeurope.com

Applications - Anwendungen - Applicazioni - Applications									
EX-SUS-GDR	Cs<0.2%	0.25<Cs<0.4%	C≥0.45%	SCM	-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	⊙								⊙
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
			⊙	⊙	○	⊙			

## Drills - Bohrer - Punte - Forets

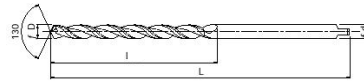
\* HIGH PERFORMANCE

\* HIGH PERFORMANCE

\* ALTA PRESTAZIONE

\* HAUTE PERFORMANCE

EX-GDXL



EDP	D	L	l	d	€
8590520	2	100	40	2	
8591020	2	100	50	2	
8590521	2.1	100	40	2.1	
8591021	2.1	100	50	2.1	
8590522	2.2	100	40	2.2	
8591022	2.2	100	50	2.2	
8590523	2.3	100	40	2.3	
8591023	2.3	100	50	2.3	
8590524	2.4	100	40	2.4	
8591024	2.4	100	50	2.4	
8591025	2.5	100	50	2.5	
8591026	2.6	100	50	2.6	
8591027	2.7	100	50	2.7	
8591028	2.8	100	50	2.8	
8591029	2.9	100	50	2.9	
8591030	3	100	55	3	
8591530	3	150	75	3	
8592030	3	200	100	3	
8591031	3.1	100	55	3.1	
8591531	3.1	150	75	3.1	
8592031	3.1	200	100	3.1	
8591032	3.2	100	55	3.2	
8591532	3.2	150	75	3.2	
8592032	3.2	200	100	3.2	
8591033	3.3	100	55	3.3	
8591533	3.3	150	75	3.3	
8592033	3.3	200	100	3.3	
8591034	3.4	100	55	3.4	
8591534	3.4	150	75	3.4	
8592034	3.4	200	100	3.4	
8591035	3.5	100	55	3.5	
8591535	3.5	150	75	3.5	
8592035	3.5	200	100	3.5	
8591036	3.6	100	55	3.6	
8591536	3.6	150	75	3.6	
8592036	3.6	200	100	3.6	
8591037	3.7	100	55	3.7	
8591537	3.7	150	75	3.7	
8592037	3.7	200	100	3.7	
8591038	3.8	100	55	3.8	
8591538	3.8	150	75	3.8	
8592038	3.8	200	100	3.8	
8591039	3.9	100	55	3.9	
8591539	3.9	150	75	3.9	
8592039	3.9	200	100	3.9	
8591040	4	100	60	4	
8591540	4	150	80	4	
8592040	4	200	100	4	
8591041	4.1	100	60	4.1	
8591541	4.1	150	80	4.1	
8592041	4.1	200	100	4.1	
8591042	4.2	100	60	4.2	
8591542	4.2	150	80	4.2	
8592042	4.2	200	100	4.2	
8591043	4.3	100	60	4.3	

EDP	D	L	l	d	€
8591543	4.3	150	80	4.3	
8592043	4.3	200	100	4.3	
8591044	4.4	100	60	4.4	
8591544	4.4	150	80	4.4	
8592044	4.4	200	100	4.4	
8591045	4.5	100	60	4.5	
8591545	4.5	150	80	4.5	
8592045	4.5	200	100	4.5	
8591046	4.6	100	60	4.6	
8591546	4.6	150	80	4.6	
8592046	4.6	200	100	4.6	
8591547	4.7	150	80	4.7	
8592047	4.7	200	100	4.7	
8591548	4.8	150	80	4.8	
8592048	4.8	200	100	4.8	
8591549	4.9	150	80	4.9	
8592049	4.9	200	100	4.9	
8591550	5	150	85	5	
8592050	5	200	105	5	
8592550	5	250	130	5	
8604050	5	250	160	5	
8591551	5.1	150	85	5.1	
8592051	5.1	200	105	5.1	
8604051	5.1	250	160	5.1	
8591552	5.2	150	85	5.2	
8592052	5.2	200	105	5.2	
8604052	5.2	250	160	5.2	
8591553	5.3	150	85	5.3	
8592053	5.3	200	105	5.3	
8604053	5.3	250	160	5.3	
8591554	5.4	150	85	5.4	
8592054	5.4	200	105	5.4	
8604054	5.4	250	160	5.4	
8591555	5.5	150	85	5.5	
8592055	5.5	200	105	5.5	
8604055	5.5	250	160	5.5	
8591556	5.6	150	85	5.6	
8592056	5.6	200	105	5.6	
8604056	5.6	250	160	5.6	
8591557	5.7	150	85	5.7	
8592057	5.7	200	105	5.7	
8604057	5.7	250	160	5.7	
8591558	5.8	150	85	5.8	
8592058	5.8	200	105	5.8	
8604058	5.8	250	160	5.8	
8591559	5.9	150	85	5.9	
8592059	5.9	200	105	5.9	
8604059	5.9	250	160	5.9	
8591560	6	150	90	6	
8592060	6	200	110	6	
8604060	6	250	160	6	
8604260	6	300	200	6	
8591561	6.1	150	90	6.1	
8592061	6.1	200	110	6.1	
8604061	6.1	250	160	6.1	

HSSE  
Co8

## Drills - Bohrer - Punte - Forets

EX-GDXL



EDP	D	L	l	d	€
8604261	6.1	300	200	6.1	
8591562	6.2	150	90	6.2	
8592062	6.2	200	110	6.2	
8604062	6.2	250	160	6.2	
8604262	6.2	300	200	6.2	
8591563	6.3	150	90	6.3	
8592063	6.3	200	110	6.3	
8604063	6.3	250	160	6.3	
8604263	6.3	300	200	6.3	
8591564	6.4	150	90	6.4	
8592064	6.4	200	110	6.4	
8604064	6.4	250	160	6.4	
8604264	6.4	300	200	6.4	
8591565	6.5	150	90	6.5	
8592065	6.5	200	110	6.5	
8604065	6.5	250	160	6.5	
8604265	6.5	300	200	6.5	
8591566	6.6	150	90	6.6	
8592066	6.6	200	110	6.6	
8604066	6.6	250	160	6.6	
8604266	6.6	300	200	6.6	
8591567	6.7	150	90	6.7	
8592067	6.7	200	110	6.7	
8604067	6.7	250	160	6.7	
8604267	6.7	300	200	6.7	
8591568	6.8	150	90	6.8	
8592068	6.8	200	110	6.8	
8604068	6.8	250	160	6.8	
8604268	6.8	300	200	6.8	
8591569	6.9	150	90	6.9	
8592069	6.9	200	110	6.9	
8604069	6.9	250	160	6.9	
8604269	6.9	300	200	6.9	
8591570	7	150	90	7	
8592070	7	200	110	7	
8604070	7	250	160	7	
8604270	7	300	200	7	
8591571	7.1	150	90	7.1	
8592071	7.1	200	110	7.1	
8604071	7.1	250	160	7.1	
8604271	7.1	300	200	7.1	
8591572	7.2	150	90	7.2	
8592072	7.2	200	110	7.2	
8604072	7.2	250	160	7.2	
8604272	7.2	300	200	7.2	
8591573	7.3	150	90	7.3	
8592073	7.3	200	110	7.3	
8604073	7.3	250	160	7.3	
8604273	7.3	300	200	7.3	
8591574	7.4	150	90	7.4	
8592074	7.4	200	110	7.4	
8604074	7.4	250	160	7.4	
8604274	7.4	300	200	7.4	
8591575	7.5	150	90	7.5	
8592075	7.5	200	110	7.5	
8604075	7.5	250	160	7.5	
8604275	7.5	300	200	7.5	
8592076	7.6	200	110	7.6	
8604076	7.6	250	160	7.6	
8604276	7.6	300	200	7.6	
8592077	7.7	200	110	7.7	
8604077	7.7	250	160	7.7	
8604277	7.7	300	200	7.7	
8592078	7.8	200	110	7.8	
8604078	7.8	250	160	7.8	
8604278	7.8	300	200	7.8	
8592079	7.9	200	110	7.9	

EDP	D	L	l	d	€
8604079	7.9	250	160	7.9	
8604279	7.9	300	200	7.9	
8592080	8	200	110	8	
8604080	8	250	160	8	
8604280	8	300	200	8	
8592081	8.1	200	115	8.1	
8604081	8.1	250	160	8.1	
8604281	8.1	300	200	8.1	
8592082	8.2	200	115	8.2	
8604082	8.2	250	160	8.2	
8604282	8.2	300	200	8.2	
8592083	8.3	200	115	8.3	
8604083	8.3	250	160	8.3	
8604283	8.3	300	200	8.3	
8592084	8.4	200	115	8.4	
8604084	8.4	250	160	8.4	
8604284	8.4	300	200	8.4	
8592085	8.5	200	115	8.5	
8604085	8.5	250	160	8.5	
8604285	8.5	300	200	8.5	
8592086	8.6	200	115	8.6	
8604086	8.6	250	160	8.6	
8604286	8.6	300	200	8.6	
8592087	8.7	200	115	8.7	
8604087	8.7	250	160	8.7	
8604287	8.7	300	200	8.7	
8592088	8.8	200	115	8.8	
8604088	8.8	250	160	8.8	
8604288	8.8	300	200	8.8	
8592089	8.9	200	115	8.9	
8604089	8.9	250	160	8.9	
8604289	8.9	300	200	8.9	
8592090	9	200	115	9	
8604090	9	250	160	9	
8604290	9	300	200	9	
8592091	9.1	200	115	9.1	
8604091	9.1	250	160	9.1	
8604291	9.1	300	200	9.1	
8590092	9.2	200	115	9.2	
8604092	9.2	250	160	9.2	
8604292	9.2	300	200	9.2	
8592093	9.3	200	115	9.3	
8604093	9.3	250	160	9.3	
8604293	9.3	300	200	9.3	
8592094	9.4	200	115	9.4	
8604094	9.4	250	160	9.4	
8604294	9.4	300	200	9.4	
8592095	9.5	200	115	9.5	
8604095	9.5	250	160	9.5	
8604295	9.5	300	200	9.5	
8592096	9.6	200	115	9.6	
8604096	9.6	250	160	9.6	
8604296	9.6	300	200	9.6	
8592097	9.7	200	115	9.7	
8604097	9.7	250	160	9.7	
8604297	9.7	300	200	9.7	
8592098	9.8	200	115	9.8	
8604098	9.8	250	160	9.8	
8604298	9.8	300	200	9.8	
8592099	9.9	200	115	9.9	
8604099	9.9	250	160	9.9	
8604299	9.9	300	200	9.9	
8592100	10	200	120	10	
8604100	10	250	160	10	
8604300	10	300	200	10	
8592101	10.1	200	120	10.1	
8604101	10.1	250	160	10.1	

HSSE  
Co8

## Drills - Bohrer - Punte - Forets

## EX-GDXL



EDP	D	L	l	d	€
8604301	10.1	300	200	10.1	
8592102	10.2	200	120	10.2	
8604102	10.2	250	160	10.2	
8604302	10.2	300	200	10.2	
8592103	10.3	200	120	10.3	
8604103	10.3	250	160	10.3	
8604303	10.3	300	200	10.3	
8592104	10.4	200	120	10.4	
8604104	10.4	250	160	10.4	
8604304	10.4	300	200	10.4	
8592105	10.5	200	120	10.5	
8604105	10.5	250	160	10.5	
8604305	10.5	300	200	10.5	
8592106	10.6	200	120	10.6	
8604106	10.6	250	160	10.6	
8604306	10.6	300	200	10.6	
8592107	10.7	200	120	10.7	
8604107	10.7	250	160	10.7	
8604307	10.7	300	200	10.7	
8592108	10.8	200	120	10.8	
8604108	10.8	250	160	10.8	
8604308	10.8	300	200	10.8	
8592109	10.9	200	120	10.9	
8604109	10.9	250	160	10.9	
8604309	10.9	300	200	10.9	
8592110	11	200	120	11	
8604110	11	250	160	11	
8604310	11	300	200	11	
8592111	11.1	200	120	11.1	
8604111	11.1	250	160	11.1	
8604311	11.1	300	200	11.1	
8592112	11.2	200	120	11.2	
8604112	11.2	250	160	11.2	
8604312	11.2	300	200	11.2	
8592113	11.3	200	120	11.3	
8604113	11.3	250	160	11.3	
8604313	11.3	300	200	11.3	
8592114	11.4	200	120	11.4	
8604114	11.4	250	160	11.4	
8604314	11.4	300	200	11.4	
8592115	11.5	200	120	11.5	
8604115	11.5	250	160	11.5	
8604315	11.5	300	200	11.5	
8592116	11.6	200	120	11.6	

EDP	D	L	l	d	€
8604116	11.6	250	160	11.6	
8604316	11.6	300	200	11.6	
8592117	11.7	200	120	11.7	
8604117	11.7	250	160	11.7	
8604317	11.7	300	200	11.7	
8592118	11.8	200	120	11.8	
8604118	11.8	250	160	11.8	
8604318	11.8	300	200	11.8	
8592119	11.9	200	120	11.9	
8604119	11.9	250	160	11.9	
8604319	11.9	300	200	11.9	
8592120	12	200	120	12	
8604120	12	250	160	12	
8604320	12	300	200	12	
8592121	12.1	200	120	12.1	
8604121	12.1	250	160	12.1	
8604321	12.1	300	200	12.1	
8592122	12.2	200	120	12.2	
8604122	12.2	250	160	12.2	
8604322	12.2	300	200	12.2	
8592123	12.3	200	120	12.3	
8604123	12.3	250	160	12.3	
8604323	12.3	300	200	12.3	
8592124	12.4	200	120	12.4	
8604124	12.4	250	160	12.4	
8604324	12.4	300	200	12.4	
8592125	12.5	200	120	12.5	
8604125	12.5	250	160	12.5	
8604325	12.5	300	200	12.5	
8592126	12.6	200	120	12.6	
8604126	12.6	250	160	12.6	
8604326	12.6	300	200	12.6	
8592127	12.7	200	120	12.7	
8604127	12.7	250	160	12.7	
8604327	12.7	300	200	12.7	
8592128	12.8	200	120	12.8	
8604128	12.8	250	160	12.8	
8604328	12.8	300	200	12.8	
8592129	12.9	200	120	12.9	
8604129	12.9	250	160	12.9	
8604329	12.9	300	200	12.9	
8592130	13	200	120	13	
8604130	13	250	160	13	
8604330	13	300	200	13	

**HSSE**  
**Co8**

Applications - Anwendungen - Applicazioni - Applications									
EX-GDXL	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	⊙	○	○	○	○				○
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
○	○	○	○	○	○	○	○	○	

## Drills - Bohrer - Punta - Forets



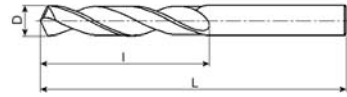
\* HIGH PERFORMANCE

\* HIGH PERFORMANCE

\* ALTA PRESTAZIONE

\* HAUTE PERFORMANCE

V-SDR



P. 58



EDP	D	L	I	€
8594020	2	49	24	
8594021	2.1	49	24	
8594022	2.2	53	27	
8594023	2.3	53	27	
8594024	2.4	57	30	
8594025	2.5	57	30	
8594026	2.6	57	30	
8594027	2.7	61	33	
8594028	2.8	61	33	
8594029	2.9	61	33	
8594030	3	61	33	
8594031	3.1	65	36	
8594032	3.2	65	36	
8594033	3.3	65	36	
8594034	3.4	70	39	
8594035	3.5	70	39	
8594036	3.6	70	39	
8594037	3.7	70	39	
8594038	3.8	75	43	
8594039	3.9	75	43	
8594040	4	75	43	
8594041	4.1	75	43	
8594042	4.2	75	43	
8594043	4.3	80	47	
8594044	4.4	80	47	
8594045	4.5	80	47	
8594046	4.6	80	47	
8594047	4.7	80	47	
8594048	4.8	86	52	
8594049	4.9	86	52	
8594050	5	86	52	
8594051	5.1	86	52	
8594052	5.2	86	52	
8594053	5.3	86	52	
8594054	5.4	93	57	
8594055	5.5	93	57	
8594056	5.6	93	57	
8594057	5.7	93	57	
8594058	5.8	93	57	
8594059	5.9	93	57	
8594060	6	93	57	
8594061	6.1	101	63	
8594062	6.2	101	63	
8594063	6.3	101	63	
8594064	6.4	101	63	
8594065	6.5	101	63	
8594066	6.6	101	63	
8594067	6.7	109	63	
8594068	6.8	109	69	
8594069	6.9	109	69	
8594070	7	109	69	
8594071	7.1	109	69	
8594072	7.2	109	69	
8594073	7.3	109	69	

EDP	D	L	I	€
8594074	7.4	109	69	
8594075	7.5	109	69	
8594076	7.6	117	75	
8594077	7.7	117	75	
8594078	7.8	117	75	
8594079	7.9	117	75	
8594080	8	117	75	
8594081	8.1	117	75	
8594082	8.2	117	75	
8594083	8.3	117	75	
8594084	8.4	117	75	
8594085	8.5	117	75	
8594086	8.6	125	81	
8594087	8.7	125	81	
8594088	8.8	125	81	
8594089	8.9	125	81	
8594090	9	125	81	
8594091	9.1	125	81	
8594092	9.2	125	81	
8594093	9.3	125	81	
8594094	9.4	125	81	
8594095	9.5	125	81	
8594096	9.6	133	87	
8594097	9.7	133	87	
8594098	9.8	133	87	
8594099	9.9	133	87	
8594100	10	133	87	
8594101	10.1	133	87	
8594102	10.2	133	87	
8594103	10.3	133	87	
8594104	10.4	133	87	
8594105	10.5	133	87	
8594106	10.6	133	87	
8594107	10.7	142	94	
8594108	10.8	142	94	
8594109	10.9	142	94	
8594110	11	142	94	
8594111	11.1	142	94	
8594112	11.2	142	94	
8594113	11.3	142	94	
8594114	11.4	142	94	
8594115	11.5	142	94	
8594116	11.6	142	94	
8594117	11.7	142	94	
8594118	11.8	142	94	
8594119	11.9	151	101	
8594120	12	151	101	
8594121	12.1	151	101	
8594122	12.2	151	101	
8594123	12.3	151	101	
8594124	12.4	151	101	
8594125	12.5	151	101	
8594126	12.6	151	101	
8594127	12.7	151	101	

HSSE  
V3

## Drills - Bohrer - Punte - Forets

V-SDR



EDP	D	L	I	€
8594128	12.8	151	101	
8594129	12.9	151	101	

EDP	D	L	I	€
8594130	13	151	101	

**HSSE**  
**V3**

Applications - Anwendungen - Applicazioni - Applications									
V-SDR	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35~45 HRC	45~50 HRC	50~70 HRC	SUS
	⊙	⊙	○	⊙					
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	○	○	○		○	○			

## Spotting drills - Anbohrer - Punte per centratura - Forets à centrer



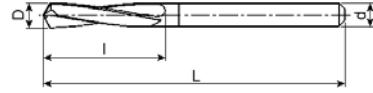
\* **HIGH PERFORMANCE**  
\* For centering and chamfering

\* **HIGH PERFORMANCE**  
\* Zum zentrieren und fräsen

\* **ALTA PRESTAZIONE**  
\* Per centratura e svasatura su centri di lavoro

\* **HAUTE PERFORMANCE**  
\* A centrer et à chanfreiner

FX-LDS



P. 58



EDP	D	L	I	€
8561503	3	48	9	
8561504	4	54	12	
8561506	6	72	15	
8561508	8	81	20	
8561510	10	93	24	

EDP	D	L	I	€
8561512	12	108	28	
8561516	16	118	41	
8561520	20	132	46	
8561525	25	151	53	

Ultra  
FX

Applications - Anwendungen - Applicazioni - Applications									
FX-LDS	C≤0.2%	0.25<C≤0.4%	C≥0.45%	SCM	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	☉	☉	○			
	SKD	GG	GGG	Cu	Al	AC	Ti	TiAl	Inl
	☉	☉	☉	○		○	○	○	○

## Spotting drills - Anbohrer - Punta per centratura - Forets à centrer

\* For centering and chamfering

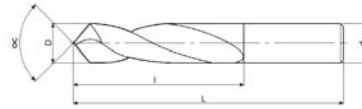
\* Zum zentrieren und fräsen

\* Per centratura e svasatura su centri di lavoro

\* A centrer et à chanfreiner



NC-LDS



P. 59



EDP	D	$\alpha$	L	l	d	€
62903	3	90	48	11	3	
62923	3	120	48	11	3	
62943	3	130	48	11	3	
62904	4	90	54	15	4	
62924	4	120	54	15	4	
62944	4	130	54	15	4	
62906	6	90	72	20	6	
62926	6	120	72	20	6	
62946	6	130	72	20	6	
62908	8	90	81	26	8	
62928	8	120	81	26	8	
62948	8	130	81	26	8	
62910	10	90	93	30	10	
62930	10	120	93	30	10	
62950	10	130	93	30	10	
62912	12	90	108	36	12	
62932	12	120	108	36	12	
62952	12	130	108	36	12	
62916	16	90	118	41	16	
62936	16	120	118	41	16	
62956	16	130	118	41	16	
62918	20	90	132	53	20	
62938	20	120	132	53	20	
62958	20	130	132	53	20	
62920	25	90	151	60	25	
62940	25	120	151	60	25	
62960	25	130	151	60	25	

HSS

Applications - Anwendungen - Applicazioni - Applications									
NC-LDS	C $\leq$ 0.2%	0.25<C $\leq$ 0.4%	C $\geq$ 0.45%	SCM	$\sim$ 35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	SUS
	☉	☉	☉	○					
	SKD	GG	GGG	Cu	Al	AC	Ti	Tiall	Inl
	○	○	○		○	○			

## Drill grinding machine - Bohreschleifmaschine - Affilatrice per punte - Affûteuse de forets



### \* COMPUTER PROGRAMMED

- \* For R & X point
- \* With grinder CBN Ø 150 x 12
- \* For point angles 118 ~ 135°
- \* For HSS-E and XPM drills L max. 220
- \* Max. lenght 220

### \* COMPUTER PROGRAMMATION

- \* Für R & X
- \* Mit Schleifstein CBN Ø 150 x 12
- \* Für Punktwinkel 118 ~ 135°
- \* Für HSS-E und XPM Bohrern
- \* Länge max. 220

### \* AUTOMATICA

- \* Affilatura R e X
- \* Con meule CBN Ø 150 x 12
- \* Per angoli di 118 ~ 135°
- \* Per punte HSS-E e XPM
- \* Lunghezza massima 220

### \* AUTOMATIQUE

- \* Affûtage R et X
- \* Avec meule CBN Ø 150 x 12
- \* Pour angle de 118 ~ 135°
- \* Pour forets HSS-E et XPM
- \* Longueur max. 220

**RDG-13**



EDP	Type - Typ - Tipo - Type	Dim.	V	W	kg	€
68610	RDG-13	Ø3 ~ 13	240	500	65	

### \* GRINDING WHEELS

### \* SCHLEIFSTEIN

### \* MOLE

### \* MEULES

EDP	Type - Typ - Tipo - Type	€
68611	CBN	
68613	Diamond - Diamant - Diamante - Diamant	

**Hyprocarb insert system - Wendeschneidplatten - Utensili multifunzione - Porte-plaquettes**

**\* MULTI-FUNCTIONAL**

- \* Centering, chamfering & V-slotting.
- \* Unique insert clamping system to eliminate vibrations

**\* MULTI-FUNKIONELL**

- \* Zentrieren, Fräsen und V-Nutenfräsen
- \* Einzigartig für Vibration-entfernung

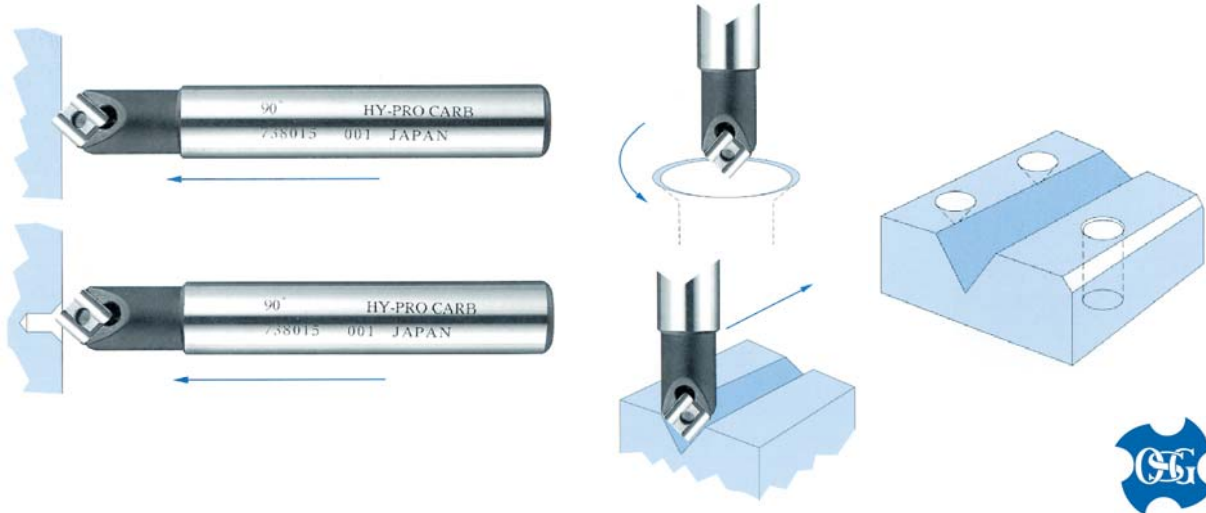
**\* UTENSILI MULTIFUNZIONE**

- \* Centatura, smussatura e scanalatura a V con un solo utensile
- \* Sistema di fissaggio unico che elimina le vibrazioni

**\* PORTE-OUTILS MULTIFONCTION**

- \* Centrage, chanfreinage et rainurage V avec un seul outil
- \* Système de fixation de plaquette unique éliminant les vibrations

**90° / 118°**



EDP	Angle - Winkel - Angolo - Angle	L	d	€
738015	90°	110	16	
738025	118°	110	16	

**\* Inserts**

**\* Wendeschneidplatten**

**\* Inserti**

**\* Plaquettes**



EDP	Type - Typ - Tipo - Type	For - Für - Per - Pour	📦	€
738120	NK 2020	Steel - Stahl - Acciaio - Acier	10	
738110	NK 1010	Al - GG	10	

Work material - Werkstoff Materiale - Matière à usiner	Speed (RPM) - Schnittgeschwindigkeit Velocità - Vitesse (min <sup>-1</sup> )	Centering & V-slotting - Zentrieren & V-Nutenfräsen Centratura e scanalatura a V - Centrage & rainurage V	Chamfering-Fräsen-Per smussatura-Chanfreinage
		Feed-Vorschub-Avanzamento-Avance (mm/min)	Feed-Vorschub-Avanzamento-Avance (mm/min)
Mild steels-Kohlenstoffstahl-Acciaio dolce-Acier doux	3000	80	200
SUS	2500	50	150
Hardened steels-Gehärteter Stahl-Acciaio duro-Acier dur	3000	50	150
GG	3000	150	200
Al	4000	150	300

**\* Fixing screw**

**\* Spannschraube**

**\* Viti di serraggio**

**\* Vis de serrage**



EDP	€
738011	



## Conditions - Schnittwerte - Condizioni - Conditions

## Standard drilling - Standard Bohren - Foratura standard - Coupe standard

FTO-GDN - FTO-GDS

Work material Werkstoff Materiale Matière	C<0.2%		SCM		SCM		35-45 HRC		45-50 HRC		50-70 HRC		GG		GGG	
	(C<0.3%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.3%) CK50* ~1060N/mm <sup>2</sup>		100Cr6* SUS440		SKD61 34-43 HRC		43-48 HRC		SKD11 48-53 HRC		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	80-150m/min		80-150m/min		63-100m/min		40-70m/min		32-50m/min		25-40m/min		80-150m/min		63-100m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	12.000	0.09-0.12	13.000	0.09-0.12	7.600	0.09-0.12	6.400	0.09-0.12	5.300	0.07-0.11	3.800	0.05-0.09	12.000	0.09-0.12	8.500	0.09-0.12
4	9.500	0.10-0.15	10.000	0.10-0.15	5.700	0.10-0.15	4.800	0.10-0.15	4.000	0.08-0.13	2.950	0.06-0.10	9.000	0.10-0.15	6.350	0.10-0.15
5	7.600	0.12-0.18	8.000	0.12-0.18	4.600	0.12-0.18	3.800	0.12-0.18	3.200	0.10-0.15	2.300	0.08-0.12	7.600	0.12-0.18	5.100	0.12-0.18
6	6.400	0.14-0.20	6.600	0.14-0.20	3.800	0.14-0.20	3.200	0.14-0.20	2.650	0.12-0.18	1.900	0.09-0.15	6.400	0.14-0.20	4.250	0.14-0.20
8	4.800	0.16-0.24	5.000	0.16-0.24	2.900	0.16-0.24	2.400	0.16-0.24	2.000	0.14-0.22	1.450	0.12-0.20	4.800	0.16-0.24	3.200	0.16-0.24
10	3.800	0.18-0.27	4.000	0.18-0.27	2.300	0.18-0.27	1.900	0.18-0.27	1.600	0.15-0.25	1.150	0.13-0.23	3.800	0.18-0.27	2.550	0.18-0.27
12	3.200	0.20-0.30	3.300	0.20-0.30	1.900	0.20-0.30	1.600	0.20-0.30	1.300	0.17-0.26	950	0.14-0.24	3.200	0.20-0.30	2.100	0.20-0.30
14	2.700	0.22-0.35	2.800	0.22-0.35	1.600	0.22-0.35	1.350	0.22-0.35	1.150	0.18-0.30	800	0.15-0.26	2.700	0.22-0.35	1.800	0.22-0.35
16	2.400	0.25-0.36	2.500	0.25-0.36	1.400	0.25-0.36	1.200	0.25-0.36	1.000	0.20-0.32	700	0.16-0.26	2.400	0.25-0.36	1.600	0.25-0.36
18	2.100	0.28-0.38	2.200	0.28-0.38	1.300	0.28-0.38	1.100	0.28-0.38	900	0.23-0.33	650	0.18-0.28	2.100	0.28-0.38	1.400	0.28-0.38
20	1.900	0.30-0.40	2.000	0.30-0.40	1.150	0.30-0.40	1.000	0.30-0.40	800	0.25-0.35	600	0.20-0.30	1.900	0.30-0.40	1.250	0.30-0.40

## High speed drilling - HSC Bohren - Foratura alta velocità - Coupe haute vitesse

FTO-GDN - FTO-GDS

Work material Werkstoff Materiale Matière	SCM		SCM		GG		GGG	
	(C<0.3%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.3%) CK50* ~1060N/mm <sup>2</sup>		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	150-200m/min		150-200m/min		150-200m/min		100-150m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	15.000	0.09-0.12	18.000	0.09-0.12	17.000	0.09-0.12	12.000	0.09-0.12
4	12.000	0.10-0.15	13.500	0.10-0.15	12.700	0.10-0.15	9.600	0.10-0.15
5	9.600	0.12-0.18	11.000	0.12-0.18	10.200	0.12-0.18	7.600	0.12-0.18
6	8.000	0.14-0.20	9.300	0.14-0.20	8.500	0.14-0.20	6.400	0.14-0.20
8	6.000	0.16-0.24	7.000	0.16-0.24	6.400	0.16-0.24	4.800	0.16-0.24
10	4.800	0.18-0.27	5.600	0.18-0.27	5.100	0.18-0.27	3.800	0.18-0.27
12	4.000	0.20-0.30	4.600	0.20-0.30	4.200	0.20-0.30	3.200	0.20-0.30
14	3.400	0.22-0.35	4.000	0.22-0.35	3.600	0.22-0.35	2.700	0.22-0.35
16	3.000	0.25-0.36	3.500	0.25-0.36	3.200	0.25-0.36	2.400	0.25-0.36
18	2.700	0.28-0.38	3.100	0.28-0.38	2.800	0.28-0.38	2.100	0.28-0.38
20	2.400	0.30-0.40	2.800	0.30-0.40	2.500	0.30-0.40	1.900	0.30-0.40

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## FS-GDS - FS-GDN

## Standard drilling - Standard Bohren - Foratura standard - Coupe standard

Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		35~45 HRC		45~50 HRC		50~70 HRC		GG		GGG	
	(C<0.3%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.3%) CK50* ~1060N/mm <sup>2</sup>		100Cr6* SUS440		SKD61 34-43 HRC		43-48 HRC		SKD11 48-53 HRC		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	80~125m/min		80~125m/min		63~80m/min		40~63m/min		32~45m/min		25~36m/min		80~125m/min		63~90m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	12.000	0.06-0.08	12.000	0.06-0.08	11.000	0.06-0.08	8.000	0.06-0.08	6.000	0.05-0.07	4.500	0.03-0.06	15.000	0.06-0.08	11.000	0.06-0.08
3	9.600	0.09-0.12	9.600	0.09-0.12	7.500	0.09-0.12	5.300	0.09-0.12	4.000	0.07-0.11	3.200	0.05-0.09	10.000	0.09-0.12	7.600	0.09-0.12
4	8.000	0.10-0.15	8.000	0.10-0.15	5.650	0.10-0.15	4.000	0.10-0.15	3.000	0.08-0.13	2.600	0.06-0.10	8.000	0.10-0.15	6.000	0.10-0.15
5	6.400	0.12-0.18	6.400	0.12-0.18	4.550	0.12-0.18	3.300	0.12-0.18	2.400	0.10-0.15	2.000	0.08-0.12	6.400	0.12-0.18	4.800	0.12-0.18
6	5.300	0.14-0.20	5.300	0.14-0.20	3.800	0.14-0.20	2.750	0.14-0.20	2.000	0.12-0.18	1.700	0.09-0.15	5.300	0.14-0.20	4.000	0.14-0.20
8	4.000	0.16-0.24	4.000	0.16-0.24	2.850	0.16-0.24	2.100	0.16-0.24	1.500	0.14-0.22	1.300	0.12-0.20	4.000	0.16-0.24	3.000	0.16-0.24
10	3.200	0.18-0.27	3.200	0.18-0.27	2.250	0.18-0.27	1.700	0.18-0.27	1.200	0.15-0.25	1.000	0.13-0.23	3.200	0.18-0.27	2.400	0.18-0.27
12	2.650	0.20-0.30	2.650	0.20-0.30	1.900	0.20-0.30	1.400	0.20-0.30	1.000	0.17-0.26	850	0.14-0.24	2.700	0.20-0.30	2.000	0.20-0.30
14	2.300	0.22-0.35	2.300	0.22-0.35	1.600	0.22-0.35	1.200	0.22-0.35	860	0.18-0.30	730	0.15-0.26	2.300	0.22-0.35	1.700	0.22-0.35
16	2.000	0.25-0.36	2.000	0.25-0.36	1.400	0.25-0.36	1.050	0.25-0.36	760	0.20-0.32	640	0.16-0.26	2.000	0.25-0.36	1.500	0.25-0.36
18	1.800	0.28-0.38	1.800	0.28-0.38	1.250	0.28-0.38	920	0.28-0.38	670	0.23-0.33	570	0.18-0.28	1.800	0.28-0.38	1.350	0.28-0.38
20	1.600	0.30-0.40	1.600	0.30-0.40	1.150	0.30-0.40	850	0.30-0.40	600	0.25-0.35	500	0.20-0.30	1.600	0.30-0.40	1.200	0.30-0.40

## FS-GDS - FS-GDN

## High speed drilling - HSC Bohren - Foratura alta velocità - Coupe haute vitesse

Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		GG		GGG	
	(C<0.3%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.3%) CK50* ~1060N/mm <sup>2</sup>		100Cr6* SUS440		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	125~150m/min		125~150m/min		80~100m/min		125~150m/min		90~125m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	20.000	0.06-0.08	20.000	0.06-0.08	14.000	0.06-0.08	20.000	0.06-0.08	17.000	0.06-0.08
3	13.000	0.09-0.12	14.000	0.09-0.12	9.500	0.09-0.12	14.000	0.09-0.12	11.000	0.09-0.12
4	10.000	0.10-0.15	10.000	0.10-0.15	7.100	0.10-0.15	11.000	0.10-0.15	8.700	0.10-0.15
5	8.000	0.12-0.18	8.600	0.12-0.18	5.700	0.12-0.18	9.000	0.12-0.18	7.000	0.12-0.18
6	6.650	0.14-0.20	7.200	0.14-0.20	4.700	0.14-0.20	7.500	0.14-0.20	5.800	0.14-0.20
8	5.000	0.16-0.24	5.400	0.16-0.24	3.600	0.16-0.24	5.600	0.16-0.24	4.400	0.16-0.24
10	4.000	0.18-0.27	4.300	0.18-0.27	2.900	0.18-0.27	4.500	0.18-0.27	3.500	0.18-0.27
12	3.300	0.20-0.30	3.600	0.20-0.30	2.400	0.20-0.30	3.800	0.20-0.30	3.000	0.20-0.30
14	2.900	0.22-0.35	3.100	0.22-0.35	2.100	0.22-0.35	3.200	0.22-0.35	2.500	0.22-0.35
16	2.500	0.25-0.36	2.700	0.25-0.36	1.800	0.25-0.36	2.800	0.25-0.36	2.200	0.25-0.36
18	2.200	0.28-0.38	2.400	0.28-0.38	1.600	0.28-0.38	2.500	0.28-0.38	2.000	0.28-0.38
20	2.000	0.30-0.40	2.200	0.30-0.40	1.450	0.30-0.40	2.300	0.30-0.40	1.800	0.30-0.40

## Conditions - Schnittwerte - Condizioni - Conditions

For dry drilling - Schnittwertempfehlung Trocken - Foratura a secco - Perçage à sec **FS-GDS - FS-GDN**

Work material Werkstoff Materiale Matière	C<0.2%		SCM		SCM		35~45 HRC		45~50 HRC		50~70 HRC		GG		GGG	
	(C<0.3%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.3%) CK50* ~1060N/mm <sup>2</sup>		100Cr6* SUS440		SKD61* 34~43 HRC		43~48 HRC		SKD11* 48~53 HRC		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	50~60m/min		40~60m/min		32~40m/min		25~40m/min		20~32m/min		16~25m/min		40~70m/min		32~60m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
<b>2</b>	8.000	0.03-0.06	7.000	0.03-0.06	5.000	0.03-0.06	4.450	0.05-0.07	3.500	0.03-0.06	2.850	0.03-0.06	8.000	0.03-0.06	6.350	0.0-0.06
<b>3</b>	5.500	0.05-0.09	5.000	0.05-0.09	3.500	0.05-0.09	3.000	0.07-0.11	2.400	0.05-0.09	1.950	0.05-0.09	5.500	0.05-0.09	4.250	0.05-0.09
<b>4</b>	4.200	0.06-0.10	3.800	0.06-0.10	2.700	0.06-0.10	2.350	0.08-0.13	1.900	0.06-0.10	1.500	0.06-0.10	4.300	0.06-0.10	3.350	0.06-0.10
<b>5</b>	3450	0.08-0.12	3.100	0.08-0.12	2.200	0.08-0.12	2.000	0.10-0.15	1.600	0.08-0.12	1.250	0.08-0.12	3.450	0.08-0.12	2.800	0.08-0.12
<b>6</b>	3.000	0.09-0.15	2.650	0.09-0.15	1.900	0.09-0.15	1.700	0.12-0.18	1.400	0.09-0.15	1.050	0.09-0.15	2.900	0.09-0.15	2.400	0.09-0.15
<b>8</b>	2.200	0.12-0.20	2.000	0.12-0.20	1.400	0.12-0.20	1.250	0.14-0.22	1.050	0.12-0.20	800	0.12-0.20	2.200	0.12-0.20	1.800	0.12-0.20
<b>10</b>	1.800	0.13-0.23	1.600	0.13-0.23	1.150	0.13-0.23	1.000	0.15-0.25	850	0.13-0.23	650	0.13-0.23	1.750	0.13-0.23	1.450	0.13-0.23
<b>12</b>	1.450	0.14-0.24	1.350	0.14-0.24	950	0.14-0.24	850	0.17-0.26	700	0.14-0.24	550	0.14-0.24	1.450	0.14-0.24	1.200	0.14-0.24
<b>14</b>	1.250	0.15-0.26	1.150	0.15-0.26	800	0.15-0.26	730	0.18-0.30	600	0.15-0.26	460	0.15-0.26	1.250	0.15-0.26	1.000	0.15-0.26
<b>16</b>	1.100	0.16-0.26	1.000	0.16-0.26	700	0.16-0.26	640	0.20-0.32	520	0.16-0.26	400	0.16-0.26	1.100	0.16-0.26	900	0.16-0.26
<b>18</b>	1.000	0.18-0.28	900	0.18-0.28	650	0.18-0.28	570	0.23-0.33	460	0.18-0.28	350	0.18-0.28	970	0.18-0.28	800	0.18-0.28
<b>20</b>	900	0.20-0.30	800	0.20-0.30	570	0.20-0.30	510	0.25-0.35	420	0.20-0.30	320	0.20-0.30	880	0.20-0.30	720	0.20-0.30

min<sup>-1</sup>

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## FT-GDS - FT-GDN

## Standard drilling - Standard Bohren - Foratura standard - Coupe standard

Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		SUS		35~45 HRC		45~50 HRC		GG		GGG	
	(C<0.35%) 41CrMo4* ~710N/mm <sup>2</sup>		(C≥0.35%) CK50* ~1060N/mm <sup>2</sup>		100Cr6* SUS440		Série SUS300 Série SUS400		SKD61* 34-43 HRC		43-48 HRC		GG25* ~350N/mm <sup>2</sup>		GGG40* ~500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	63~100m/min		63~100m/min		50~71m/min		25~40m/min		40~63m/min		32~45m/min		63~100m/min		50~80m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	11.000	0.06-0.08	11.000	0.06-0.08	9.000	0.06-0.08	4.700	0.06-0.08	7.600	0.06-0.08	6.000	0.06-0.08	12.000	0.06-0.08	10.000	0.06-0.08
3	8.000	0.09-0.12	8.000	0.09-0.12	6.000	0.09-0.12	3.200	0.05-0.09	5.000	0.09-0.12	4.000	0.09-0.12	8.000	0.09-0.12	6.900	0.09-0.12
4	6.300	0.10-0.15	6.300	0.10-0.15	4.750	0.10-0.15	2.400	0.06-0.10	3.800	0.10-0.15	3.000	0.10-0.15	6.300	0.10-0.15	5.200	0.10-0.15
5	5.000	0.12-0.18	5.000	0.12-0.18	3.800	0.12-0.18	1.900	0.08-0.12	3.000	0.12-0.18	2.450	0.12-0.18	5.000	0.12-0.18	4.100	0.12-0.18
6	4.200	0.14-0.20	4.200	0.14-0.20	3.200	0.14-0.20	1.600	0.09-0.15	2.550	0.14-0.20	2.050	0.14-0.20	4.200	0.14-0.20	3.450	0.14-0.20
8	3.200	0.16-0.24	3.200	0.16-0.24	2.400	0.16-0.24	1.200	0.12-0.20	1.900	0.16-0.24	1.550	0.16-0.24	3.200	0.16-0.24	2.600	0.16-0.24
10	2.550	0.18-0.27	2.550	0.18-0.27	1.900	0.18-0.27	950	0.13-0.23	1.550	0.18-0.27	1.250	0.18-0.27	2.600	0.18-0.27	2.100	0.18-0.27
12	2.100	0.20-0.30	2.100	0.20-0.30	1.600	0.20-0.30	800	0.14-0.24	1.300	0.20-0.30	1.050	0.20-0.30	2.200	0.20-0.30	1.750	0.20-0.30
14	1.800	0.22-0.35	1.800	0.22-0.35	1.350	0.22-0.35	700	0.15-0.26	1.100	0.22-0.35	880	0.22-0.35	1.800	0.22-0.35	1.500	0.22-0.35
16	1.600	0.25-0.36	1.600	0.25-0.36	1.200	0.25-0.36	600	0.16-0.26	950	0.25-0.36	770	0.25-0.36	1.600	0.25-0.36	1.300	0.25-0.36
18	1.400	0.28-0.38	1.400	0.28-0.38	1.050	0.28-0.38	530	0.18-0.28	850	0.28-0.38	680	0.28-0.38	1.400	0.28-0.38	1.200	0.28-0.38
20	1.300	0.30-0.40	1.300	0.30-0.40	960	0.30-0.40	480	0.20-0.30	760	0.30-0.40	640	0.30-0.40	1.300	0.30-0.40	1.050	0.30-0.40

## Conditions - Schnittwerte - Condizioni - Conditions

## Standard drilling - Standard Bohren - Foratura standard - Coupe standard

FTO-GDXL

Work material Werkstoff Materiale Matière	SCM (C $\geq$ 0.3%) S50C• SCM440 710-1060N/mm <sup>2</sup>		GG FC250• 250-350N/mm <sup>2</sup>		GGG FCD700• 400-700N/mm <sup>2</sup>		SUS Série SUS300 Série SUS400		C $\leq$ 0.2% (C<0.3%) SCr420• SCM420 ~710N/mm <sup>2</sup>	
	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	63-125m/min		63-125m/min		60-80m/min		50-80m/min		63-125m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	7.500	0.06-0.12	7.500	0.06-0.12	7.500	0.06-0.12	5.300	0.06-0.12	7.500	0.06-0.12
4	6.400	0.08-0.16	6.400	0.08-0.16	5.600	0.08-0.16	5.000	0.08-0.16	6.400	0.08-0.16
5	5.800	0.10-0.20	5.800	0.10-0.20	4.500	0.10-0.20	4.500	0.10-0.20	5.800	0.10-0.20
6	4.800	0.12-0.24	4.800	0.12-0.24	3.800	0.12-0.24	3.800	0.12-0.24	4.800	0.12-0.24
8	3.600	0.16-0.28	3.600	0.16-0.28	2.800	0.16-0.28	2.800	0.16-0.28	3.600	0.16-0.28
10	2.900	0.20-0.35	2.900	0.20-0.35	2.300	0.20-0.35	2.300	0.20-0.35	2.900	0.20-0.35
12	2.400	0.24-0.42	2.400	0.24-0.42	1.900	0.24-0.42	1.900	0.24-0.42	2.400	0.24-0.42

## Standard drilling - Standard Bohren - Foratura standard - Coupe standard

FTO-M-GDXL

Work material Werkstoff Materiale Matière	SCM S50C		~ 35 HRC (C $\geq$ 0.3%) SCM440• 28-34 HRC		35-45 HRC SKD61• 34-44 HRC		45-50 HRC SKD61• 44-46 HRC	
	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	70-90m/min		50-70m/min		40-60m/min		30-40m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
4	6.300	0.10-0.15	4.700	0.10-0.15	3.900	0.10-0.15	2.700	0.08-0.13
5	5.000	0.12-0.18	3.800	0.12-0.18	3.100	0.12-0.18	2.200	0.10-0.15
6	4.200	0.14-0.20	3.100	0.14-0.20	2.600	0.14-0.20	1.800	0.12-0.18
8	3.100	0.16-0.24	2.300	0.16-0.24	1.900	0.16-0.24	1.400	0.14-0.22
10	2.500	0.18-0.27	1.900	0.18-0.27	1.500	0.18-0.27	1.100	0.15-0.25

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## CAO-GDXL

Work material Werkstoff Materiale Matière	AC		Al		Al		Cu		Cu	
	ADC• AC		A20• A70		A50• A60		C1020• C1100		CrCu	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	80~200m/min		60~120m/min		80~200m/min		80~200m/min		60~120m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	12.800	0.09-0.15	10.700	0.09-0.15	12.800	0.06-0.12	12.800	0.06-0.12	10.700	0.05-0.09
4	9.600	0.12-0.20	8.000	0.12-0.20	9.600	0.08-0.16	9.600	0.08-0.16	8.000	0.06-0.10
5	7.700	0.15-0.25	6.400	0.15-0.25	7.700	0.10-0.20	7.700	0.10-0.20	6.400	0.06-0.10
6	6.400	0.18-0.30	5.400	0.18-0.30	6.400	0.12-0.20	6.400	0.12-0.20	5.400	0.06-0.10
8	4.800	0.20-0.40	4.000	0.20-0.40	4.800	0.12-0.25	4.800	0.12-0.25	4.000	0.08-0.15
10	3.900	0.25-0.50	3.200	0.25-0.50	3.900	0.15-0.25	3.900	0.15-0.25	3.200	0.08-0.15

## Conditions - Schnittwerte - Condizioni - Conditions

WX-MS-GDS



Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		Kovart		Cu		Al		AC	
	S15C-S50C -900N/mm <sup>2</sup>		SCM440 -1060N/mm <sup>2</sup>		SUS410• SUS440• SUJ2		FE-NI-CO		C1020• C2600		A5052• 7075		AC4C•ADC	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	20-80m/min		20-56m/min		20-36m/min		20-45m/min		20-45m/min		32-80m/min		32-63m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
0.2	25.000	0.002	25.000	0.002	25.000	0.002	25.000	0.002	25.000	0.002	25.000	0.004	25.000	0.002
0.3	20.000	0.003	20.000	0.003	20.000	0.003	20.000	0.003	20.000	0.003	20.000	0.007	20.000	0.003
0.5	15.000	0.007	14.000	0.007	13.000	0.007	13.000	0.007	13.000	0.007	15.000	0.015	15.000	0.007
1	12.000	0.020	11.000	0.020	10.000	0.020	6.400	0.010	6.400	0.010	12.000	0.030	12.000	0.010
1.5	10.000	0.02-0.04	8.400	0.02-0.04	6.800	0.03-0.05	4.800	0.012-0.03	4.800	0.012-0.03	10.000	0.03-0.08	10.000	0.12-0.03
2	8.000	0.03-0.05	6.500	0.03-0.05	5.000	0.04-0.06	4.000	0.016-0.04	4.000	0.016-0.04	8.000	0.04-0.01	8.000	0.016-0.04
3	5.500	0.04-0.07	4.500	0.04-0.07	3.400	0.06-0.09	3.000	0.024-0.06	3.000	0.024-0.06	6.500	0.06-0.15	6.500	0.024-0.06
4	4.000	0.06-0.10	3.200	0.06-0.10	2.500	0.08-0.12	2.500	0.03-0.08	2.500	0.03-0.08	5.000	0.08-0.20	5.000	0.03-0.08
5	3.200	0.07-0.12	2.600	0.07-0.12	2.000	0.10-0.15	2.000	0.04-0.10	2.000	0.04-0.10	4.000	0.10-0.25	4.000	0.04-0.10

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## SH-DRL

Work material Werkstoff Materiale Matière	SKD SKD61• 50-55 HRC		SKD SKD11•SKT•SUS440• 55-60 HRC		SKD SKD11•SKS•SKH• 60-70 HRC	
	14-22m/min		10-16m/min		8-13m/min	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
<b>Ø</b>						
<b>2</b>	2.860	-0.04	2.000	-0.04	1.900	-0.03
<b>3</b>	1.900	-0.04	1.330	-0.04	1.250	-0.04
<b>4</b>	1.430	-0.04	1.000	-0.04	950	-0.04
<b>5</b>	1.150	-0.04	800	-0.04	750	-0.04
<b>6</b>	960	-0.04	670	-0.04	630	-0.04
<b>8</b>	720	-0.04	500	-0.04	480	-0.04
<b>10</b>	570	-0.04	400	-0.04	380	-0.04
<b>12</b>	480	-0.04	330	-0.04	320	-0.04
<b>14.1</b>	435	-0.04	280	-0.04	270	-0.04
<b>16.1</b>	380	-0.04	250	-0.04	240	-0.04
<b>17.6</b>	325	-0.04	235	-0.04	190	-0.04
<b>18.6</b>	310	-0.04	220	-0.04	180	-0.04

## Conditions - Schnittwerte - Condizioni - Conditions

VP-GDR



Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		SCM				GG		AC	
	41CrMo4* ~500N/mm <sup>2</sup>		CK50* 500-710N/mm <sup>2</sup>		100Cr6* 710-900N/mm <sup>2</sup>		SKD61* ~28 HRC ~900N/mm <sup>2</sup>		SKD11* 28-34 HRC 900-1060N/mm <sup>2</sup>		GG25* ~350N/mm <sup>2</sup>		AC4C*ADC	
Surface speed range Bohrungsgeschwindigkeit Velocità di foratura Vitesse de perçage	38-50m/min		25-36m/min		25-32m/min		12-20m/min		10-16m/min		40-63m/min		70-120m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	6.350	0.06-0.09	5.100	0.06-0.09	4.450	0.06-0.09	2.550	0.06-0.09	2.050	0.06-0.09	8.435	0.08-0.11	15.000	0.12-0.18
3	4.250	0.10-0.13	3.400	0.10-0.13	2.970	0.10-0.13	1.700	0.10-0.13	1.370	0.10-0.13	5.620	0.11-0.16	10.000	0.20-0.28
4	3.200	0.11-0.15	2.550	0.11-0.15	2.230	0.11-0.15	1.270	0.11-0.15	1.035	0.11-0.15	4.220	0.13-0.19	8.000	0.24-0.38
5	2.550	0.12-0.18	2.040	0.12-0.18	1.780	0.12-0.18	1.020	0.12-0.18	825	0.12-0.18	3.375	0.16-0.22	6.350	0.28-0.40
6	2.100	0.13-0.19	1.700	0.13-0.19	1.490	0.13-0.19	850	0.13-0.19	690	0.13-0.19	2.810	0.19-0.26	5.300	0.34-0.48
8	1.600	0.16-0.24	1.270	0.16-0.24	1.110	0.16-0.24	635	0.16-0.24	515	0.16-0.24	2.110	0.21-0.30	4.000	0.38-0.53
10	1.270	0.20-0.28	1.020	0.20-0.28	890	0.20-0.28	510	0.20-0.28	410	0.20-0.28	1.690	0.25-0.36	3.200	0.45-0.63
12	1.060	0.24-0.34	850	0.24-0.34	740	0.24-0.34	425	0.24-0.34	345	0.24-0.34	1.410	0.30-0.42	2.700	0.53-0.75
13	980	0.26-0.36	780	0.26-0.36	690	0.26-0.36	390	0.26-0.36	320	0.26-0.36	1.300	0.31-0.42	2.500	0.56-0.79
14	900	0.28-0.39	720	0.28-0.39	640	0.28-0.39	360	0.28-0.39	300	0.28-0.39	1.200	0.32-0.44	2.300	0.57-0.81
16	800	0.30-0.43	640	0.30-0.43	560	0.30-0.43	320	0.30-0.43	260	0.30-0.43	1.050	0.34-0.46	2.000	0.61-0.85
18	700	0.34-0.49	560	0.34-0.49	500	0.34-0.49	280	0.34-0.49	230	0.34-0.49	950	0.36-0.50	1.800	0.63-0.90
20	650	0.36-0.50	500	0.36-0.50	450	0.36-0.50	260	0.36-0.50	210	0.36-0.50	830	0.40-0.56	1.600	0.68-0.98
22	580	0.40-0.55	460	0.40-0.55	400	0.40-0.55	230	0.40-0.55	190	0.40-0.55	750	0.42-0.59	1.500	0.73-1.06
24	530	0.41-0.60	420	0.41-0.60	370	0.41-0.60	210	0.41-0.60	170	0.41-0.60	700	0.46-0.65	1.350	0.77-1.13
26	500	0.42-0.65	400	0.42-0.65	340	0.42-0.65	200	0.42-0.65	160	0.42-0.65	650	0.47-0.68	1.250	0.81-1.20
28	450	0.45-0.70	360	0.45-0.70	320	0.45-0.70	180	0.45-0.70	150	0.45-0.70	600	0.50-0.73	1.150	0.84-1.26
30	420	0.48-0.75	340	0.48-0.75	300	0.48-0.75	170	0.48-0.75	140	0.48-0.75	550	0.54-0.78	1.100	0.87-1.32
32	400	0.51-0.80	320	0.51-0.80	280	0.51-0.80	160	0.51-0.80	130	0.51-0.80	520	0.58-0.83	1.000	0.90-1.38

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## VPH-GDS

Work material Werkstoff Materiale Matière	~ 35 HRC - 35~45 HRC - 45~50 HRC - 50~70 HRC						SKD				SCM	
	34~43 HRC <sup>•</sup> 1060~1400N/mm <sup>2</sup>		43~48 HRC <sup>•</sup> 1400~1600N/mm <sup>2</sup>		48~53 HRC <sup>•</sup> 1600~1900N/mm <sup>2</sup>		SKD11 <sup>•</sup> ~1060N/mm <sup>2</sup>		SKD61 <sup>•</sup> ~900N/mm <sup>2</sup>		100Cr6 710~900N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	12~18m/min		6~10m/min		5~8m/min		10~16m/min		12~20m/min		25~32m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	2.550	0.02-0.05	1.250	0.02-0.04	1.050	0.02-0.04	2.100	0.06-0.09	2.550	0.06-0.09	4.500	0.06-0.09
3	1.700	0.03-0.08	850	0.03-0.06	700	0.03-0.06	1.400	0.10-0.13	1.700	0.10-0.13	3.000	0.10-0.13
4	1.250	0.04-0.10	640	0.04-0.08	520	0.04-0.08	1.030	0.11-0.15	1.270	0.11-0.15	2.250	0.11-0.15
5	1.000	0.05-0.13	510	0.05-0.10	400	0.05-0.10	830	0.12-0.18	1.020	0.12-0.18	1.800	0.12-0.18
6	850	0.06-0.15	430	0.06-0.12	350	0.06-0.12	690	0.13-0.19	850	0.13-0.19	1.500	0.13-0.19
7	730	0.07-0.18	360	0.07-0.14	300	0.07-0.14	600	0.15-0.22	730	0.15-0.22	1.300	0.15-0.22
8	640	0.08-0.20	320	0.08-0.16	260	0.08-0.16	520	0.16-0.24	640	0.16-0.24	1.100	0.16-0.24
9	570	0.09-0.23	280	0.09-0.18	230	0.09-0.18	460	0.18-0.26	570	0.18-0.26	1.000	0.18-0.26
10	510	0.10-0.25	260	0.10-0.20	210	0.10-0.20	410	0.20-0.28	510	0.20-0.28	900	0.20-0.28
11	460	0.11-0.28	230	0.11-0.22	190	0.11-0.22	380	0.22-0.31	460	0.22-0.31	820	0.22-0.31
12	430	0.12-0.30	210	0.12-0.24	170	0.12-0.24	350	0.24-0.34	430	0.24-0.34	760	0.24-0.34
13	400	0.13-0.32	200	0.13-0.26	160	0.13-0.26	320	0.26-0.36	390	0.26-0.36	700	0.26-0.36

Work material Werkstoff Materiale Matière	TiAl		Inl		SCM		C<0.2%		GG	
	Ti-6Al-4V (32-38HRC)		(38-43HRC)		CK50 <sup>•</sup> 500~710N/mm <sup>2</sup>		(C<0.3%) 41CrMo4 <sup>•</sup> ~500N/mm <sup>2</sup>		GG25 <sup>•</sup> ~350N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	6~10m/min		6~8m/min		25~36m/min		38~50m/min		40~63m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	1.250	0.02-0.04	1.100	0.02-0.04	5.000	0.06-0.09	6.350	0.06-0.09	8.400	0.08-0.11
3	850	0.03-0.06	740	0.03-0.06	3.400	0.10-0.13	4.250	0.10-0.13	5.600	0.11-0.16
4	640	0.04-0.08	550	0.04-0.08	2.550	0.11-0.15	3.200	0.11-0.15	4.220	0.13-0.19
5	510	0.05-0.10	450	0.05-0.10	2.050	0.12-0.18	2.550	0.12-0.18	3.370	0.16-0.22
6	420	0.06-0.12	370	0.06-0.12	1.700	0.13-0.19	2.100	0.13-0.19	2.800	0.19-0.26
7	350	0.07-0.14	320	0.07-0.14	1.450	0.15-0.22	1.800	0.15-0.22	2.400	0.20-0.28
8	320	0.08-0.16	280	0.08-0.16	1.270	0.16-0.24	1.600	0.16-0.24	2.100	0.21-0.30
9	280	0.09-0.18	250	0.09-0.18	1.130	0.18-0.26	1.400	0.18-0.26	1.900	0.23-0.33
10	260	0.10-0.20	220	0.10-0.20	1.000	0.20-0.28	1.270	0.20-0.28	1.700	0.25-0.36
11	230	0.11-0.22	200	0.11-0.22	930	0.22-0.31	1.150	0.22-0.31	1.550	0.28-0.39
12	210	0.12-0.24	190	0.12-0.24	850	0.24-0.34	1.060	0.24-0.34	1.400	0.30-0.42
13	200	0.13-0.26	170	0.13-0.26	790	0.26-0.36	980	0.26-0.36	1.300	0.31-0.42

## Conditions - Schnittwerte - Condizioni - Conditions

VP-HO-GDR



Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		SUS		SCM				35~45 HRC		GG		AC	
	41CrMo4* ~500N/mm <sup>2</sup>		CK50* 500~710N/mm <sup>2</sup>		100Cr6* 710~900N/mm <sup>2</sup>		Série SUS300 Série SUS400		SKD61* ~28 HRC ~900N/mm <sup>2</sup>		SKD11* 28~34 HRC 900~1060N/mm <sup>2</sup>		34~43 HRC* 1060~1400N/mm <sup>2</sup>		GG25* ~350N/mm <sup>2</sup>		AC4C*ADC	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	36~80m/min		25~50m/min		25~36m/min		18~25m/min		12~22m/min		10~16m/min		9~13m/min		36~63m/min		70~140m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
6	3.000	0.13-0.19	1.900	0.13-0.19	1.500	0.13-0.19	1.100	0.13-0.19	850	0.13-0.19	660	0.13-0.19	630	0.08-0.15	2.500	0.19-0.26	5.300	0.34-0.48
8	2.300	0.17-0.24	1.400	0.17-0.24	1.100	0.17-0.24	830	0.17-0.24	640	0.17-0.24	450	0.17-0.24	470	0.13-0.20	1.900	0.21-0.30	4.000	0.38-0.53
10	1.800	0.20-0.28	1.100	0.20-0.28	950	0.20-0.28	660	0.20-0.28	500	0.20-0.28	400	0.20-0.28	380	0.16-0.24	1.500	0.25-0.36	3.200	0.45-0.63
12	1.500	0.24-0.34	950	0.24-0.34	800	0.24-0.34	550	0.24-0.34	420	0.24-0.34	330	0.24-0.34	320	0.19-0.28	1.250	0.30-0.342	2.700	0.53-0.75
13	1.400	0.26-0.36	900	0.26-0.36	750	0.26-0.36	510	0.26-0.36	400	0.26-0.36	300	0.26-0.36	290	0.20-0.30	1.200	0.31-0.42	2.500	0.56-0.79
14	1.350	0.28-0.39	820	0.28-0.39	700	0.28-0.39	470	0.28-0.39	360	0.28-0.39	280	0.28-0.39	270	0.20-0.32	1.100	0.32-0.44	2.300	0.57-0.81
16	1.200	0.30-0.43	720	0.30-0.43	600	0.30-0.43	420	0.30-0.43	320	0.30-0.43	250	0.30-0.43	240	0.22-0.32	1.000	0.34-0.46	2.000	0.61-0.85
18	1.100	0.34-0.49	650	0.34-0.49	550	0.34-0.49	370	0.34-0.49	280	0.34-0.49	220	0.34-0.49	210	0.24-0.40	900	0.36-0.50	1.800	0.63-0.90
20	950	0.36-0.50	580	0.36-0.50	480	0.36-0.50	330	0.36-0.50	260	0.36-0.50	200	0.36-0.50	190	0.27-0.45	800	0.40-0.56	1.600	0.68-0.98
22	850	0.40-0.55	520	0.40-0.55	450	0.40-0.55	300	0.40-0.55	230	0.40-0.55	180	0.40-0.55	170	0.28-0.48	700	0.42-0.59	1.500	0.73-1.06
24	800	0.41-0.60	480	0.41-0.60	400	0.41-0.60	280	0.41-0.60	210	0.41-0.60	170	0.41-0.60	160	0.29-0.52	650	0.46-0.65	1.350	0.77-1.13
26	750	0.42-0.65	450	0.42-0.65	370	0.42-0.65	250	0.42-0.65	200	0.42-0.65	150	0.42-0.65	150	0.30-0.56	600	0.47-0.68	1.250	0.81-1.20
28	700	0.45-0.70	410	0.45-0.70	350	0.45-0.70	240	0.45-0.70	180	0.45-0.70	140	0.45-0.70	140	0.31-0.59	550	0.50-0.73	1.150	0.84-1.26
30	650	0.48-0.75	400	0.48-0.75	320	0.48-0.75	220	0.48-0.75	170	0.48-0.75	130	0.48-0.75	130	0.32-0.63	500	0.54-0.78	1.100	0.87-1.32
32	600	0.51-0.80	360	0.51-0.80	300	0.51-0.80	200	0.51-0.80	160	0.51-0.80	120	0.51-0.80	120	0.32-0.67	480	0.58-0.83	1.000	0.90-1.38

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## V-HDO-GDR

Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		SUS		SKD		SKD		GG		AC	
	St37 <sup>■</sup> ~500N/mm <sup>2</sup>		CK50 <sup>■</sup> 500-710N/mm <sup>2</sup>		100Cr6 <sup>■</sup> 750-1200N/mm <sup>2</sup>		Série SUS300 <sup>■</sup> Série SUS400		SKD61 <sup>■</sup> ~35HRC		X40CrMoV51 <sup>■</sup> 35-40HRC		GG25 <sup>■</sup> GGG40		AIMG3 <sup>■</sup> AIMg51	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	32-63m/min		22-36m/min		20-32m/min		16-24m/min		10-18m/min		8-12m/min		32-50m/min		63-125m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
6	2.100	0.13-0.19	1.550	0.13-0.19	1.400	0.13-0.19	1.050	0.13-0.19	740	0.13-0.19	530	0.06-0.12	2.200	0.19-0.26	5.000	0.34-0.48
8	1.600	0.17-0.24	1.150	0.17-0.24	1.050	0.17-0.24	800	0.17-0.24	550	0.17-0.24	400	0.08-0.16	1.650	0.21-0.30	3.750	0.38-0.53
10	1.250	0.20-0.28	920	0.20-0.28	830	0.20-0.28	640	0.20-0.28	445	0.20-0.28	320	0.10-0.20	1.300	0.25-0.36	3.000	0.45-0.63
12	1.050	0.24-0.34	770	0.24-0.34	700	0.24-0.34	530	0.24-0.34	370	0.24-0.34	265	0.12-0.24	1.100	0.30-0.42	2.500	0.53-0.75
14	900	0.28-0.39	660	0.28-0.39	600	0.28-0.39	450	0.28-0.39	320	0.28-0.39	230	0.16-0.29	950	0.32-0.44	2.150	0.57-0.81
16	800	0.30-0.43	580	0.30-0.43	520	0.30-0.43	400	0.30-0.43	280	0.30-0.43	200	0.16-0.29	820	0.34-0.46	1.900	0.61-0.85
18	700	0.34-0.49	510	0.34-0.49	460	0.34-0.49	350	0.34-0.49	250	0.34-0.49	180	0.18-0.32	730	0.36-0.50	1.700	0.63-0.90
20	650	0.36-0.50	460	0.36-0.50	415	0.36-0.50	320	0.36-0.50	220	0.36-0.50	160	0.18-0.34	650	0.40-0.56	1.500	0.68-0.98
22	580	0.40-0.55	420	0.40-0.55	380	0.40-0.55	290	0.40-0.55	200	0.40-0.55	145	0.20-0.37	600	0.42-0.59	1.400	0.73-1.06
24	530	0.41-0.60	380	0.41-0.60	350	0.41-0.60	270	0.41-0.60	185	0.41-0.60	130	0.20-0.38	550	0.46-0.65	1.250	0.77-1.13
26	490	0.42-0.65	360	0.42-0.65	320	0.42-0.65	250	0.42-0.65	170	0.42-0.65	120	0.21-0.42	500	0.47-0.68	1.150	0.81-1.20
28	450	0.45-0.70	330	0.45-0.70	300	0.45-0.70	230	0.45-0.70	160	0.45-0.70	115	0.21-0.45	470	0.50-0.73	1.100	0.84-1.26
30	420	0.48-0.75	310	0.48-0.75	280	0.48-0.75	210	0.48-0.75	150	0.48-0.75	105	0.24-0.46	450	0.54-0.78	1.000	0.87-1.32
32	400	0.51-0.80	300	0.51-0.80	260	0.51-0.80	200	0.51-0.80	140	0.51-0.80	100	0.22-0.48	410	0.58-0.83	950	0.90-1.38

Conditions - Schnittwerte - Condizioni - Conditions

EX-SUS-GDS - EX-SUS-GDR



Work material Werkstoff Materiale Matière	SUS								Al		AC		Cu		C≤0.2%	
	Austenitic SUS304* SUS200		Martensitic SUS420* SUS440		Ferritic SUS430* SUS405		Precipitation SUS630* SUS631		A5052* 7025		AC4C* ADC		C1020* 2600		41CrMo4* -500N/mm <sup>2</sup>	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	13~18m/min		15~20m/min		15~20m/min		8~12m/min		32~63m/min		63~100m/min		25~50m/min		32~40m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
1	4.800	0.02-0.04	5.550	0.02-0.04	5.550	0.01-0.03	3.200	0.01-0.03	15.000	0.02-0.06	25.000	0.02-0.06	12.000	0.01-0.03	10.000	0.02-0.05
2	2.400	0.05-0.07	2.850	0.05-0.07	2.850	0.03-0.05	1.600	0.03-0.05	8.000	0.04-0.12	10.000	0.04-0.12	5.100	0.04-0.06	5.700	0.06-0.09
3	1.600	0.06-0.09	1.900	0.06-0.09	1.900	0.04-0.06	1.100	0.04-0.06	5.300	0.06-0.18	6.700	0.06-0.18	3.400	0.06-0.09	3.850	0.10-0.13
4	1.200	0.08-0.12	1.450	0.08-0.12	1.450	0.06-0.08	800	0.06-0.08	4.000	0.08-0.24	6.400	0.08-0.24	2.550	0.08-0.11	2.900	0.11-0.15
5	950	0.10-0.15	1.150	0.12-0.15	1.150	0.08-0.10	650	0.08-0.10	3.200	0.10-0.30	5.000	0.10-0.30	2.050	0.10-0.13	2.260	0.12-0.18
6	800	0.12-0.18	950	0.15-0.18	950	0.09-0.12	550	0.09-0.12	2.700	0.12-0.36	4.200	0.12-0.36	1.700	0.12-0.15	1.900	0.13-0.19
8	600	0.16-0.24	720	0.20-0.24	720	0.12-0.16	400	0.12-0.16	2.000	0.16-0.45	3.200	0.16-0.45	1.250	0.16-0.20	1.400	0.17-0.24
10	480	0.20-0.28	570	0.25-0.30	570	0.15-0.20	320	0.15-0.20	1.600	0.20-0.55	2.500	0.20-0.55	1.000	0.20-0.25	1.120	0.20-0.28
12	400	0.24-0.34	480	0.30-0.36	480	0.18-0.24	280	0.18-0.24	1.350	0.24-0.66	2.100	0.24-0.66	850	0.24-0.30	950	0.24-0.34
13	370	0.26-0.36	440	0.32-0.40	440	0.20-0.26	250	0.20-0.26	1.250	0.25-0.72	2.000	0.25-0.72	780	0.26-0.32	880	0.26-0.36
14	340	0.28-0.39	410	0.35-0.45	410	0.21-0.30	225	0.21-0.30	1.140	0.27-0.74	1.850	0.27-0.74	730	0.26-0.34	820	0.27-0.39
15	320	0.29-0.40	380	0.36-0.48	380	0.22-0.31	210	0.22-0.31	1.060	0.29-0.80	1.700	0.29-0.80	680	0.26-0.36	760	0.28-0.42
16	300	0.30-0.43	355	0.37-0.50	355	0.23-0.32	200	0.23-0.32	1.000	0.30-0.83	1.600	0.30-0.83	640	0.27-0.37	720	0.29-0.43
17	280	0.31-0.45	335	0.38-0.52	335	0.24-0.34	185	0.24-0.34	940	0.31-0.88	1.500	0.31-0.88	600	0.28-0.39	675	0.30-0.46
18	265	0.32-0.47	320	0.39-0.54	320	0.25-0.36	175	0.25-0.36	885	0.32-0.94	1.450	0.32-0.94	570	0.29-0.41	640	0.32-0.49
19	250	0.33-0.48	300	0.40-0.55	300	0.25-0.38	170	0.25-0.38	840	0.34-0.97	1.350	0.34-0.97	540	0.30-0.43	600	0.33-0.51
20	240	0.34-0.50	285	0.40-0.56	285	0.26-0.40	160	0.26-0.40	800	0.36-1.00	1.300	0.36-1.00	510	0.30-0.44	570	0.34-0.52
22	215	0.36-0.54	260	0.42-0.61	260	0.28-0.44	145	0.28-0.44	730	0.39-1.08	1.200	0.39-1.08	460	0.32-0.48	520	0.37-0.57
24	200	0.38-0.57	240	0.43-0.65	240	0.30-0.48	135	0.30-0.48	670	0.41-1.15	1.100	0.41-1.15	420	0.33-0.52	480	0.39-0.61
26	185	0.40-0.60	220	0.44-0.70	220	0.32-0.52	120	0.32-0.52	320	0.44-1.22	1.000	0.44-1.22	390	0.34-0.56	450	0.41-0.66
28	170	0.41-0.63	200	0.45-0.74	200	0.34-0.56	115	0.34-0.56	570	0.46-1.29	930	0.46-1.29	360	0.35-0.59	410	0.43-0.71
30	160	0.42-0.66	190	0.45-0.78	190	0.36-0.60	105	0.36-0.60	530	0.48-1.35	870	0.48-1.35	340	0.36-0.63	380	0.45-0.75
32	150	0.43-0.70	180	0.45-0.82	180	0.37-0.64	100	0.37-0.64	500	0.50-1.42	820	0.50-1.42	320	0.38-0.67	360	0.47-0.80

## Conditions - Schnittwerte - Condizioni - Conditions

min<sup>-1</sup>

## V-SDR

Work material Werkstoff Materiale Matière	C≤0.2%		SCM		SCM		SCM		SCM		GG		AC	
	41CrMo4 ~710N/mm <sup>2</sup>		CK45 CK50		SCM SNC SNCM		SKD61 35 HRC		SKD11		GG25 ~350N/mm <sup>2</sup>		AC4C+ADC	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	22~40m/min		16~30m/min		12~25m/min		8~16m/min		6~12m/min		22~40m/min		50~100m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
2	5.700	0.02-0.08	4.000	0.02-0.08	3.500	0.02-0.08	1.900	0.02-0.08	1.600	0.02-0.08	5.700	0.07-0.10	10.000	0.07-0.10
3	3.850	0.03-0.10	2.800	0.03-0.10	2.400	0.03-0.10	1.320	0.03-0.10	1.060	0.03-0.10	3.850	0.11-0.14	10.000	0.11-0.14
4	2.900	0.04-0.13	2.100	0.04-0.13	1.800	0.04-0.13	950	0.04-0.13	800	0.04-0.13	2.900	0.12-0.17	7.500	0.12-0.17
5	2.260	0.05-0.15	1.600	0.05-0.15	1.400	0.05-0.15	750	0.05-0.15	630	0.05-0.15	2.260	0.14-0.20	6.300	0.14-0.20
6	1.900	0.06-0.17	1.320	0.06-0.17	1.180	0.06-0.17	630	0.06-0.17	530	0.06-0.17	1.900	0.17-0.24	5.000	0.17-0.24
8	1.400	0.08-0.21	1.000	0.08-0.21	900	0.08-0.21	480	0.08-0.21	400	0.08-0.21	1.400	0.19-0.28	4.000	0.19-0.28
10	1.120	0.10-0.22	800	0.10-0.22	710	0.10-0.22	380	0.10-0.22	320	0.10-0.22	1.120	0.22-0.33	3.150	0.22-0.33
12	950	0.12-0.27	670	0.12-0.27	600	0.12-0.27	320	0.12-0.27	270	0.12-0.27	950	0.26-0.38	2.650	0.26-0.38
13	880	0.13-0.29	620	0.13-0.29	550	0.13-0.29	300	0.13-0.29	250	0.13-0.29	880	0.27-0.39	2.450	0.27-0.39

## FX-LDS

Work material Werkstoff Materiale Matière	C≤0.2%		C≤0.2%		SCM		SCM		SCM		GG		AC	
	SS400		CK45		SCM440		SKD61 35 HRC		SKD11 34 HRC		GG25 ~350N/mm <sup>2</sup>		AC4D	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	63~80m/min		40~63m/min		32~50m/min		20~28m/min		16~22m/min		63~100m/min		80~160m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	7.500	0.04-0.08	5.500	0.04-0.08	4.500	0.04-0.08	2.500	0.04-0.08	2.000	0.04-0.08	8.000	0.05-0.09	12.000	0.10-0.22
4	5.700	0.05-0.10	4.100	0.05-0.10	3.300	0.05-0.10	1.900	0.05-0.10	1.500	0.05-0.10	6.500	0.07-0.12	9.500	0.12-0.25
6	3.800	0.06-0.12	2.700	0.06-0.12	2.300	0.06-0.12	1.250	0.06-0.12	1.000	0.06-0.12	4.300	0.12-0.18	6.400	0.14-0.28
8	2.800	0.08-0.15	2.000	0.08-0.15	1.700	0.08-0.15	950	0.08-0.15	750	0.08-0.15	3.200	0.13-0.20	4.800	0.18-0.32
10	2.300	0.10-0.18	1.700	0.10-0.18	1.400	0.10-0.18	750	0.10-0.18	600	0.10-0.18	2.600	0.17-0.25	3.800	0.22-0.36
12	1.900	0.12-0.21	1.400	0.12-0.21	1.200	0.12-0.21	650	0.12-0.21	500	0.12-0.21	2.200	0.21-0.30	3.200	0.25-0.40
16	1.400	0.16-0.28	1.000	0.16-0.28	900	0.16-0.28	500	0.16-0.28	380	0.16-0.28	1.600	0.24-0.32	2.400	0.32-0.48
20	1.150	0.20-0.34	820	0.20-0.34	700	0.20-0.34	400	0.20-0.34	300	0.20-0.34	1.300	0.26-0.40	1.900	0.40-0.60
25	900	0.25-0.45	650	0.25-0.45	560	0.25-0.45	300	0.25-0.45	250	0.25-0.45	1.000	0.30-0.50	1.500	0.50-0.75

## Conditions - Schnittwerte - Condizioni - Conditions

NC-LDS



Work material Werkstoff Materiale Matière	C<0.2%		C<0.2%		SCM		SCM		SCM		GG		SUS		AC	
	SS400		CK45		SCM440		SKD61• 35 HRC		SKD11• 34 HRC		GG25• ~350N/mm <sup>2</sup>		SUS304		AC4D	
Surface speed range Bohrgeschwindigkeit Velocità di foratura Vitesse de perçage	32-40m/min		22-30m/min		20-25m/min		10-13m/min		8-12m/min		25-32m/min		8-12m/min		51-100m/min	
Ø	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)	S. (min <sup>-1</sup> )	F. (mm/rev.)
3	3.850	0.04-0.08	2.800	0.04-0.08	2.400	0.04-0.08	1.220	0.04-0.08	1.060	0.04-0.08	3.100	0.04-0.09	1.060	0.04-0.08	8.000	0.10-0.22
4	2.900	0.05-0.10	2.100	0.05-0.10	1.800	0.05-0.10	910	0.05-0.10	800	0.05-0.10	2.400	0.05-0.12	800	0.05-0.10	6.000	0.12-0.25
6	1.900	0.06-0.12	1.320	0.06-0.12	1.180	0.06-0.12	610	0.06-0.12	530	0.06-0.12	1.600	0.06-0.18	530	0.06-0.12	4.000	0.14-0.28
8	1.400	0.08-0.15	1.000	0.08-0.15	900	0.08-0.15	450	0.08-0.15	400	0.08-0.15	1.200	0.08-0.20	400	0.08-0.15	3.000	0.18-0.32
10	1.120	0.10-0.18	800	0.10-0.18	710	0.10-0.18	360	0.10-0.18	320	0.10-0.18	950	0.10-0.25	320	0.10-0.18	2.400	0.22-0.36
12	950	0.12-0.21	670	0.12-0.21	600	0.12-0.21	300	0.12-0.21	270	0.12-0.21	800	0.12-0.30	270	0.12-0.21	2.000	0.25-0.40
16	720	0.16-0.28	520	0.16-0.28	450	0.16-0.28	220	0.16-0.28	200	0.16-0.28	600	0.16-0.32	200	0.16-0.28	1.500	0.32-0.48
20	560	0.20-0.34	400	0.20-0.34	360	0.20-0.34	180	0.20-0.34	160	0.20-0.34	480	0.20-0.40	160	0.20-0.34	1.200	0.40-0.60
25	450	0.25-0.45	320	0.25-0.45	290	0.25-0.45	150	0.25-0.45	130	0.25-0.45	380	0.25-0.50	130	0.25-0.45	960	0.50-0.75



Hardness - Härte - Durezza - Dureté			
HRA	HRC	HV	HB
		120	114
		125	119
		130	123
		135	128
		140	133
		145	138
		150	142
		155	147
		160	152
		165	157
		170	161
		175	166
		180	171
		185	176
		190	180
		195	185
		200	190
		205	195
		210	199
		215	204
		220	209
		225	214
		230	218
		235	223
60.7	20.5	240	228
61.2	21.5	245	233
61.6	22.0	250	237
62.4	24.0	260	247
63.1	25.5	270	256
63.8	27.0	280	266
64.5	28.5	290	275
65.2	30.0	300	285
65.8	31.0	310	294
66.4	32.0	320	304
67.0	33.5	330	313
67.6	34.5	340	323
68.1	35.5	350	332
68.7	36.5	360	342
69.2	37.5	370	351
69.8	39.0	380	361
70.3	40.0	390	370
70.8	41.0	400	380
71.4	42.0	410	389
71.8	42.5	420	399
72.3	43.5	430	408
72.8	44.5	440	418
73.3	45.5	450	427
73.6	46.0	460	432
74.1	47.0	470	442
74.5	47.5	480	450
74.9	48.5	490	456
75.3	49.0	500	466
75.7	50.0	510	475
76.1	50.5	520	483
76.4	51.0	530	492
76.7	51.5	540	500
77.0	52.5	550	509
77.4	53.0	560	517
77.8	53.5	570	526
78.0	54.0	580	535
78.4	54.5	590	543
78.6	55.0	600	552
79.2	56.5	620	569
79.8	57.5	640	586
80.3	58.5	660	
80.8	59.0	680	
81.3	60.0	700	
81.8	61.0	720	
82.2	62.0	740	
82.6	62.5	760	
83.0	63.5	780	
83.4	64.0	800	
83.8	64.5	820	
84.1	65.5	840	
84.4	66.0	860	
84.7	66.5	880	
85.0	67.0	900	
85.3	67.5	920	
85.6	68.0	940	

Traction - Traktion - Trazione - Tracción	
Kgf/mm <sup>2</sup>	N/mm <sup>2</sup> ou Mpa
42	410
43	420
45	440
46	450
48	470
49	480
51	500
52	510
54	530
55	540
56	550
58	570
59	580
61	600
62	610
64.5	630
66.5	650
67.5	660
69.5	680
70.5	690
72.5	710
73.5	720
75.5	740
76.5	750
78.5	770
79.5	780
81.5	800
84.5	830
88	860
91	890
95	930
98	960
101	990
104	1020
108	1060
111	1090
114	1120
118	1160
121	1190
124	1220
129	1260
132	1290
136	1330
139	1360
143	1400
146	1430
150	1470
153	1500
157	1540
160	1570
164	1610
168	1650
171	1680
175	1720
180	1760
183	1790
187	1830
191	1870
195	1910
198	1940
202	1980
206	2020
214	2100
222	2180