



Vollhartmetall-Bohrerprogramm

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## **SuperV**


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 **STOCK**

Span – um Span – Spitze

# Suppe





# Hochleistungsbohrer für jede Anwendung

- Durchmesserbereich 0,1 bis 25,0 mm
- Bohrtiefen 3xD bis 40xD
- mit und ohne Innenkühlung
- aus anwendungsoptimierten Hartmetallsorten
- blank und mit TiN-, TiAlN nano-, TiAlSiN-, AlTiN+-, AlTiN- oder AlTiN nano-Beschichtung



## ISO-CODES

<b>P</b>	Stahl, hochlegierter Stahl
<b>M</b>	Rostfreier Stahl
<b>K</b>	Grauguss, Sphäroguss und Temperguss
<b>N</b>	Aluminium und andere Nichteisenmetalle
<b>S</b>	Sonder-, Super- und Titanlegierungen
<b>H</b>	Gehärteter Stahl und Hartguss

Auf den Produktseiten finden Sie zu jedem Werkzeug Empfehlungen zur Eignung für die Anwendungsgruppen:

- optimal geeignet
- bedingt geeignet

## PIKTOGRAMME



SCHNEIDSTOFF	<b>VHM</b>													
	Vollhartmetall													
BESCHICHTUNG	blank	TiAlN nano	AlTiN nano	TiN	Al-TiN	Al-TiN+	TiAl-SiN							
TOLERANZ	h6	h7	h8	m7										
BOHRTIEFE	3xD	~3xD	4xD	5xD	~5xD	7xD	8xD	10xD	12xD	15xD	20xD	25xD	30xD	40xD
SCHNEIDRICHTUNG	 rechts													
SCHAFTFORM	Cyl	HA	HB	HE										
SPITZENWINKEL	120°	130°	135°	140°										
NORM	DIN 6537K	DIN 6537L	DIN 6539	WN										
	Stock													
TYP	SuperV-F	SuperV- <b>IK-F</b>	SuperV- <b>IK-NX</b>	SuperV- <b>IK-U</b>	SuperV-M	SuperV-NX	SuperV-S	SuperV-T	SuperV-U	SuperV-UX	SuperV-VA	SuperV-83-GAL	SuperV-95-GG	SuperV-95-GN

# UNSERE GRUPPEN

## DIE UNIVERSELLEN

zur Bearbeitung verschiedenster Werkstoffe,  
Stähle bis 1400 N/mm<sup>2</sup>, Stahlguss, Guss,  
Aluminiumlegierungen mit einem hohen Si-Gehalt

Produktübersicht Seite 6-7  
Produktinformationen ab Seite 18

## DIE UNIVERSELLEN KLEINEN

von Durchmesser 0,1 bis 3,0 mm,  
zur Bearbeitung verschiedenster Stähle, rostfreier Materialien,  
Sonderlegierungen oder Aluminium bis 15xD

Produktübersicht Seite 8-9  
Produktinformationen ab Seite 41

## DIE UNIVERSELLEN LANGEN

ab Durchmesser 3,0 mm,  
zur Bearbeitung verschiedenster Werkstoffe wie Stähle,  
rostfreier Materialien, Titan- und Sonderlegierungen oder Aluminium

Produktübersicht Seite 10-11  
Produktinformationen ab Seite 47

## DIE SPEZIELLEN

zur Bearbeitung verschiedenster Werkstoffe wie Stähle,  
rostfreier Materialien, Titan- und Sonderlegierungen oder  
gehärtete Stähle bis max. 62 HRC

Produktübersicht Seite 12-13  
Produktinformationen ab Seite 53

## DIE ROSTFREIEN

zur Bearbeitung rostfreier Stähle

Produktübersicht Seite 14-15  
Produktinformationen ab Seite 72

## DIE LEICHTEN

zur Bearbeitung von Aluminium, NE-Metallen und Guss,  
für unterbrochene Schnitte/Bohrungen

Produktübersicht Seite 16-17  
Produktinformationen ab Seite 80

## ARBEITSRICHTWERTE

ab Seite 87

# SuperV

## DIE UNIVERSELLEN

zur Bearbeitung verschiedenster Werkstoffe, Stähle bis 1400 N/mm<sup>2</sup>,  
Stahlguss, Guss, Aluminiumlegierungen mit einem hohen Si-Gehalt

### SPITZENWINKEL

135° / 140°

### HARTMETALL

universelles Ultrafeinstkorn Hartmetall  
aus eigener Produktion

### BOHRTIEFE

3xD, 5xD, 7xD, 12xD

### MIT UND OHNE INNENKÜHLUNG

zur Erhöhung der Standzeiten, sowie zur  
verbesserten Spanabfuhr und optimalen Kühlung  
sind die SuperV-Bohrer z.T. auch mit  
innenliegenden Kühlkanälen erhältlich

### GEOMETRIE

universelle Geometrie für breites Materialspektrum

### BESCHICHTUNG

universelle TiAlN-nano

### TOLERANZEN

m7/h7,  
speziell abgestimmte Fertigungstoleranzen  
ermöglichen den Einsatz als Pilotierwerkzeug für  
nachfolgendes Tiefbohrwerkzeug

### DURCHMESSER-BEREICH

3,0 – 20,0mm

### SCHAFTFORM

HA, HE, HB,  
für die marktüblichen Spannsysteme



P	M	K	N	S	H	Typ	Schaftform	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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### SuperV-Bohrer ohne Innenkühlung

•		•	○	○	○	SuperV-U	HA	3xD	VHM	TiAlN nano	DIN 6537K	3,000 - 20,000	51873	18
•		•	○	○	○	SuperV-U	HE	3xD	VHM	TiAlN nano	DIN 6537K	3,000 - 20,000	51871	20
•		•	○	○	○	SuperV-U	HA	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51787	22
•		•	○	○	○	SuperV-U	HE	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51887	24
•		•	○	○	○	SuperV-U	HB	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51687	26

### SuperV-Bohrer mit Innenkühlung

•	○	•	○	○	○	SuperV-IK-U	HA	3xD	VHM	TiAlN nano	DIN 6537K	3,000 - 20,000	51776	28
•	○	•	○	○	○	SuperV-IK-U	HE	3xD	VHM	TiAlN nano	DIN 6537K	3,000 - 20,000	51876	30
•	○	•	○	○	○	SuperV-IK-U	HA	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51781	32
•	○	•	○	○	○	SuperV-IK-U	HE	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51881	34
•	○	•	○	○	○	SuperV-IK-U	HB	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51681	36
•	○	•	○	○	○	SuperV-IK-U	HA	7xD	VHM	TiAlN nano	Werksnorm	3,000 - 20,000	51789	38
•	○	•	○	○	○	SuperV-IK-U	HE	7xD	VHM	TiAlN nano	Werksnorm	3,000 - 20,000	51889	39
•	○	•	○	○	○	SuperV-IK-U	HA	12xD	VHM	TiAlN nano	Werksnorm	3,000 - 20,000	51893	40

# SuperV

## DIE UNIVERSELLEN KLEINEN

von Durchmesser 0,1 bis 3,0 mm,  
zur Bearbeitung verschiedenster Stähle, rostfreier Materialien,  
Sonderlegierungen oder Aluminium bis 15xD

### SPITZENWINKEL

135°/140°

### GEOMETRIE

SuperV-NX verfügen über eine spezielle  
Kleinstbohrergeometrie für exzellente  
Spanabfuhr auch in großen Bohrtiefen

### TOLERANZ

m7/h7,  
speziell abgestimmte Fertigungstoleranzen  
ermöglichen den Einsatz als Pilotierwerkzeug

### BESCHICHTUNG

TiAlN, AlTiN+,  
Vollbeschichtung bzw. Kopfbeschichtung

### BOHRTIEFE

4xD, 5xD, 7xD, 8xD, 15xD

### MIT UND OHNE INNENKÜHLUNG

zur Erhöhung der Standzeiten, sowie zur  
verbesserten Spanabfuhr und optimalen Kühlung sind  
die SuperV-Bohrer z.T. auch mit  
innenliegenden Kühlkanälen erhältlich

### SCHAFTFORM

HA





P	M	K	N	S	H	Typ	Schaft- form	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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### SuperV-M Universal-Kleinstbohrer



•	•	•	•	•	•	SuperV-M	HA		<b>VHM</b>	AlTiN	Werksnorm	0,100 - 3,000	<b>51720</b>	41
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### SuperV-NX Hochleistungs-Kleinstbohrer ohne Innenkühlung



•	○	•	○	○	○	SuperV-NX	HA	4xD	<b>VHM</b>	AlTiN+	Werksnorm	0,500 - 3,000	<b>71998</b>	42
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•	○	•	○	○	○	SuperV-NX	HA	7xD	<b>VHM</b>	AlTiN+	Werksnorm	0,500 - 3,000	<b>71999</b>	43
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### SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung



•	•	•	○	○	○	SuperV-IK- NX	HA	5xD	<b>VHM</b>	AlTiN	Werksnorm	1,400 - 3,000	<b>51997</b>	44
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•	•	•	○	○	○	SuperV-IK- NX	HA	8xD	<b>VHM</b>	AlTiN	Werksnorm	1,400 - 3,000	<b>51998</b>	45
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•	•	•	○	○	○	SuperV-IK- NX	HA	15xD	<b>VHM</b>	AlTiN	Werksnorm	1,400 - 3,000	<b>51999</b>	46
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# SuperV

## DIE UNIVERSELLEN LANGEN

ab Durchmesser 3,0 mm,  
zur Bearbeitung verschiedenster Werkstoffe wie Stähle,  
rostfreie Materialien, Titan- und Sonderlegierungen oder Aluminium

### SPITZENWINKEL

135°

### TOLERANZ

h7

### BOHRTIEFE

15xD, 20xD, 25xD, 30xD, 40xD

### GEOMETRIE

universelle Geometrie für breites Materialspektrum

### BESCHICHTUNG

AlTiN-Kopfbeschichtung  
für perfekte Spanabfuhr bei Bohrtiefen ab 15xD

### BESONDERHEIT

erweiterte und polierte Spannuten  
mit auslaufender 4. Fase

### SCHAFTFORM

HA



P	M	K	N	S	H	Typ	Schaft- form	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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## SuperV-Bohrer mit Innenkühlung

	•	•	•	○	○	SuperV-T	HA	15xD	VHM	AlTiN	Werksnorm	3,000 - 16,000	51764	47
	•	•	•	○	○	SuperV-T	HA	20xD	VHM	AlTiN	Werksnorm	3,000 - 16,000	51765	48
	•	•	•	○	○	SuperV-T	HA	25xD	VHM	AlTiN	Werksnorm	3,000 - 16,000	51766	49
	•	•	•	○	○	SuperV-T	HA	30xD	VHM	AlTiN	Werksnorm	3,000 - 14,000	51767	50
	•	•	•	○	○	SuperV-T	HA	40xD	VHM	AlTiN	Werksnorm	3,000 - 10,000	51768	51

# SuperV

## DIE SPEZIELLEN

zur Bearbeitung verschiedenster Werkstoffe wie Stähle, rostfreie Materialien, Titan- und Sonderlegierungen oder gehärtete Stähle bis max. 62 HRC

### MIKROGEOMETRIE

extrem glatte und stabile Schneidkanten, höchste Oberflächengüte an Schneiden und Nuten, Kegelmantel- und Flächenanschliff

### GEOMETRIE

Auslegung für höchste Schnittwerte, sehr gutes Eigenzentrierverhalten, Erzeugung kurzer Späne

### BOHRTIEFE

3xD, 5xD, 7xD, 8xD

### MIT UND OHNE INNENKÜHLUNG

zur Erhöhung der Standzeiten, sowie zur verbesserten Spanabfuhr und optimalen Kühlung sind die SuperV-Bohrer z.T. auch mit innenliegenden Kühlkanälen erhältlich

### BESCHICHTUNG

TiN, TiAlSiN oder TiAlN-nano, Kopfbeschichtung

### TOLERANZ

m7

### DURCHMESSER-BEREICH

3,0–25,0mm

### SCHAFTFORM

zylindrisch, HA, HE



STAHL-SPEZIALIST SuperV-UX	SONDERLEGIERUNGEN / HARTE WERKSTOFFE SuperV-S	FÜR ZÄHE WERKSTOFFE SuperV-F
51785	51750	61888
51790	51752	61880
	51753	
	51754	
	51755	
	51756	

P	M	K	N	S	H	Typ	Schaftform	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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### SuperV-Bohrer ohne Innenkühlung

	•			○	○	SuperV-S	HA	3xD	VHM	TiAlSiN	DIN 6537K	3,000 - 20,000	51750	53
	○	•	○	○	○	SuperV-F	zyl.	3xD	VHM	TiN	DIN 6539	3,000 - 12,000	61888	55

### SuperV-Bohrer mit Innenkühlung

	•	○	○	○	○	SuperV-UX	HA	5xD	VHM	TiAlN nano	DIN 6537L	3,000 - 20,000	51785	57
	•	○	○	○	○	SuperV-UX	HA	8xD	VHM	TiAlN nano	Werksnorm	3,000 - 20,000	51790	59
	•			○	○	SuperV-S	HA	3xD	VHM	TiAlSiN	DIN 6537K	3,000 - 20,000	51752	61
	•			○	○	SuperV-S	HE	3xD	VHM	TiAlSiN	DIN 6537K	3,000 - 20,000	51753	63
	•			○	○	SuperV-S	HA	5xD	VHM	TiAlSiN	DIN 6537L	3,000 - 20,000	51754	65
	•			○	○	SuperV-S	HE	5xD	VHM	TiAlSiN	DIN 6537L	3,000 - 20,000	51755	67
	•			○	○	SuperV-S	HA	7xD	VHM	TiAlSiN	Werksnorm	3,000 - 16,000	51756	69
	○	•	○	○	○	SuperV-IK-F	HE	5xD	VHM	TiN	DIN 6537L	4,000 - 25,000	61880	70

# SuperV

## DIE ROSTFREIEN

zur Bearbeitung rostfreier Stähle

SPITZENWINKEL

140°

BOHRTIEFE

3xD, 5xD

DURCHMESSER-BEREICH

3,0–20,0mm

SCHAFTFORM

HA, HE

GEOMETRIE

angepasstes Nutprofil für rostfreie Materialien

BESCHICHTUNG

AlTiN nano



P	M	K	N	S	H	Typ	Schaftform	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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## SuperV-Bohrer mit Innenkühlung

	•			○		SuperV-VA	HA	3xD	VHM	AlTiN nano	DIN 6537K	3,000 - 20,000	51770	72
	•			○		SuperV-VA	HE	3xD	VHM	AlTiN nano	DIN 6537K	3,000 - 20,000	51771	74
	•			○		SuperV-VA	HA	5xD	VHM	AlTiN nano	DIN 6537L	3,000 - 20,000	51772	76
	•			○		SuperV-VA	HE	5xD	VHM	AlTiN nano	DIN 6537L	3,000 - 20,000	51773	78

# SuperV

## DIE LEICHTEN

zur Bearbeitung von Aluminium, NE-Metallen und Guss,  
für unterbrochene Schnitte/Bohrungen





P	M	K	N	S	H	Typ	Schaftform	Bohrtiefe	Schneidstoff	Oberfläche	Norm	d1/mm	Katalog-Nr.	Progr. Seite
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### SuperV-Bohrer, 3-schneidig



		•	•			SuperV83-GAL	HA	5xD	VHM	blank	DIN 6537L	3,000 - 20,000	71862	80
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### SuperV-Bohrer mit Innenkühlung



		•	○			SuperV95-GG	HA	4xD	VHM	blank	Werksnorm	3,000 - 21,500	71995	81
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		•	○			SuperV95-GG	HA	7xD	VHM	blank	Werksnorm	3,000 - 20,000	71994	83
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		•	○			SuperV95-GG	HA	10xD	VHM	blank	Werksnorm	3,000 - 20,000	71996	84
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		•	○			SuperV95-GN	HA	15xD	VHM	blank	Werksnorm	5,000 - 14,000	71997	85
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## SuperV-Bohrer

## SuperV-Bohrer ohne Innenkühlung



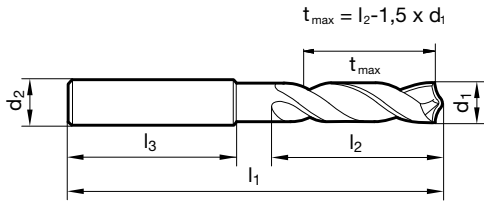
Katalog-Nr. 51873



P	M	K	N	S	H
●		●	○	○	○

 Arbeitsrichtwerte  
Seite 91

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	62,000	20,000	36,000	7,600	8,000	79,000	41,000	36,000
3,100	6,000	62,000	20,000	36,000	7,700	8,000	79,000	41,000	36,000
3,200	6,000	62,000	20,000	36,000	7,800	8,000	79,000	41,000	36,000
3,300	6,000	62,000	20,000	36,000	7,900	8,000	79,000	41,000	36,000
3,400	6,000	62,000	20,000	36,000	8,000	8,000	79,000	41,000	36,000
3,500	6,000	62,000	20,000	36,000	8,100	10,000	89,000	47,000	40,000
3,600	6,000	62,000	20,000	36,000	8,200	10,000	89,000	47,000	40,000
3,700	6,000	62,000	20,000	36,000	8,300	10,000	89,000	47,000	40,000
3,800	6,000	66,000	24,000	36,000	8,400	10,000	89,000	47,000	40,000
3,900	6,000	66,000	24,000	36,000	8,500	10,000	89,000	47,000	40,000
4,000	6,000	66,000	24,000	36,000	8,600	10,000	89,000	47,000	40,000
4,100	6,000	66,000	24,000	36,000	8,700	10,000	89,000	47,000	40,000
4,200	6,000	66,000	24,000	36,000	8,800	10,000	89,000	47,000	40,000
4,300	6,000	66,000	24,000	36,000	8,900	10,000	89,000	47,000	40,000
4,400	6,000	66,000	24,000	36,000	9,000	10,000	89,000	47,000	40,000
4,500	6,000	66,000	24,000	36,000	9,100	10,000	89,000	47,000	40,000
4,600	6,000	66,000	24,000	36,000	9,200	10,000	89,000	47,000	40,000
4,650	6,000	66,000	24,000	36,000	9,250	10,000	89,000	47,000	40,000
4,700	6,000	66,000	24,000	36,000	9,300	10,000	89,000	47,000	40,000
4,800	6,000	66,000	28,000	36,000	9,400	10,000	89,000	47,000	40,000
4,900	6,000	66,000	28,000	36,000	9,500	10,000	89,000	47,000	40,000
5,000	6,000	66,000	28,000	36,000	9,600	10,000	89,000	47,000	40,000
5,100	6,000	66,000	28,000	36,000	9,700	10,000	89,000	47,000	40,000
5,200	6,000	66,000	28,000	36,000	9,800	10,000	89,000	47,000	40,000
5,300	6,000	66,000	28,000	36,000	9,900	10,000	89,000	47,000	40,000
5,400	6,000	66,000	28,000	36,000	10,000	10,000	89,000	47,000	40,000
5,500	6,000	66,000	28,000	36,000	10,100	12,000	102,000	55,000	45,000
5,550	6,000	66,000	28,000	36,000	10,200	12,000	102,000	55,000	45,000
5,600	6,000	66,000	28,000	36,000	10,300	12,000	102,000	55,000	45,000
5,700	6,000	66,000	28,000	36,000	10,400	12,000	102,000	55,000	45,000
5,800	6,000	66,000	28,000	36,000	10,500	12,000	102,000	55,000	45,000
5,900	6,000	66,000	28,000	36,000	10,600	12,000	102,000	55,000	45,000
6,000	6,000	66,000	28,000	36,000	10,700	12,000	102,000	55,000	45,000
6,100	8,000	79,000	34,000	36,000	10,800	12,000	102,000	55,000	45,000
6,200	8,000	79,000	34,000	36,000	10,900	12,000	102,000	55,000	45,000
6,300	8,000	79,000	34,000	36,000	11,000	12,000	102,000	55,000	45,000
6,400	8,000	79,000	34,000	36,000	11,100	12,000	102,000	55,000	45,000
6,500	8,000	79,000	34,000	36,000	11,200	12,000	102,000	55,000	45,000
6,600	8,000	79,000	34,000	36,000	11,300	12,000	102,000	55,000	45,000
6,700	8,000	79,000	34,000	36,000	11,400	12,000	102,000	55,000	45,000
6,800	8,000	79,000	34,000	36,000	11,500	12,000	102,000	55,000	45,000
6,900	8,000	79,000	34,000	36,000	11,600	12,000	102,000	55,000	45,000
7,000	8,000	79,000	34,000	36,000	11,700	12,000	102,000	55,000	45,000
7,100	8,000	79,000	41,000	36,000	11,800	12,000	102,000	55,000	45,000
7,200	8,000	79,000	41,000	36,000	11,900	12,000	102,000	55,000	45,000
7,300	8,000	79,000	41,000	36,000	12,000	12,000	102,000	55,000	45,000
7,400	8,000	79,000	41,000	36,000	12,200	14,000	107,000	60,000	45,000
7,500	8,000	79,000	41,000	36,000	12,500	14,000	107,000	60,000	45,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
<b>12,700</b>	14,000	107,000	60,000	45,000	<b>16,000</b>	16,000	115,000	65,000	48,000
<b>13,000</b>	14,000	107,000	60,000	45,000	<b>16,500</b>	18,000	123,000	73,000	48,000
<b>13,500</b>	14,000	107,000	60,000	45,000	<b>17,000</b>	18,000	123,000	73,000	48,000
<b>13,700</b>	14,000	107,000	60,000	45,000	<b>17,500</b>	18,000	123,000	73,000	48,000
<b>14,000</b>	14,000	107,000	60,000	45,000	<b>18,000</b>	18,000	123,000	73,000	48,000
<b>14,200</b>	16,000	115,000	65,000	48,000	<b>18,500</b>	20,000	131,000	79,000	50,000
<b>14,500</b>	16,000	115,000	65,000	48,000	<b>19,000</b>	20,000	131,000	79,000	50,000
<b>14,700</b>	16,000	115,000	65,000	48,000	<b>19,500</b>	20,000	131,000	79,000	50,000
<b>15,000</b>	16,000	115,000	65,000	48,000	<b>20,000</b>	20,000	131,000	79,000	50,000
<b>15,200</b>	16,000	115,000	65,000	48,000					
<b>15,500</b>	16,000	115,000	65,000	48,000					
<b>15,700</b>	16,000	115,000	65,000	48,000					

## SuperV-Bohrer

## SuperV-Bohrer ohne Innenkühlung



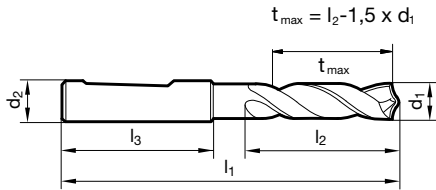
Katalog-Nr. 51871



P	M	K	N	S	H
●		●	○	○	○

 Arbeitsrichtwerte  
Seite 91

- Ausspitzung  $\geq \text{Ø } 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	62,000	20,000	36,000
3,100	6,000	62,000	20,000	36,000
3,170	6,000	62,000	20,000	36,000
3,200	6,000	62,000	20,000	36,000
3,300	6,000	62,000	20,000	36,000
3,400	6,000	62,000	20,000	36,000
3,500	6,000	62,000	20,000	36,000
3,570	6,000	62,000	20,000	36,000
3,600	6,000	62,000	20,000	36,000
3,700	6,000	62,000	20,000	36,000
3,800	6,000	66,000	24,000	36,000
3,900	6,000	66,000	24,000	36,000
3,970	6,000	66,000	24,000	36,000
4,000	6,000	66,000	24,000	36,000
4,100	6,000	66,000	24,000	36,000
4,200	6,000	66,000	24,000	36,000
4,300	6,000	66,000	24,000	36,000
4,370	6,000	66,000	24,000	36,000
4,400	6,000	66,000	24,000	36,000
4,500	6,000	66,000	24,000	36,000
4,600	6,000	66,000	24,000	36,000
4,700	6,000	66,000	24,000	36,000
4,760	6,000	66,000	28,000	36,000
4,800	6,000	66,000	28,000	36,000
4,900	6,000	66,000	28,000	36,000
5,000	6,000	66,000	28,000	36,000
5,100	6,000	66,000	28,000	36,000
5,160	6,000	66,000	28,000	36,000
5,200	6,000	66,000	28,000	36,000
5,300	6,000	66,000	28,000	36,000
5,400	6,000	66,000	28,000	36,000
5,500	6,000	66,000	28,000	36,000
5,550	6,000	66,000	28,000	36,000
5,560	6,000	66,000	28,000	36,000
5,600	6,000	66,000	28,000	36,000
5,700	6,000	66,000	28,000	36,000
5,800	6,000	66,000	28,000	36,000
5,900	6,000	66,000	28,000	36,000
5,950	6,000	66,000	28,000	36,000
6,000	6,000	66,000	28,000	36,000
6,100	8,000	79,000	34,000	36,000
6,200	8,000	79,000	34,000	36,000
6,300	8,000	79,000	34,000	36,000
6,350	8,000	79,000	34,000	36,000
6,400	8,000	79,000	34,000	36,000
6,500	8,000	79,000	34,000	36,000
6,600	8,000	79,000	34,000	36,000
6,700	8,000	79,000	34,000	36,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
6,750	8,000	79,000	34,000	36,000
6,800	8,000	79,000	34,000	36,000
6,900	8,000	79,000	34,000	36,000
7,000	8,000	79,000	34,000	36,000
7,100	8,000	79,000	41,000	36,000
7,140	8,000	79,000	41,000	36,000
7,200	8,000	79,000	41,000	36,000
7,300	8,000	79,000	41,000	36,000
7,400	8,000	79,000	41,000	36,000
7,500	8,000	79,000	41,000	36,000
7,540	8,000	79,000	41,000	36,000
7,600	8,000	79,000	41,000	36,000
7,700	8,000	79,000	41,000	36,000
7,800	8,000	79,000	41,000	36,000
7,900	8,000	79,000	41,000	36,000
7,940	8,000	79,000	41,000	36,000
8,000	8,000	79,000	41,000	36,000
8,100	10,000	89,000	47,000	40,000
8,200	10,000	89,000	47,000	40,000
8,300	10,000	89,000	47,000	40,000
8,330	10,000	89,000	47,000	40,000
8,400	10,000	89,000	47,000	40,000
8,500	10,000	89,000	47,000	40,000
8,600	10,000	89,000	47,000	40,000
8,700	10,000	89,000	47,000	40,000
8,730	10,000	89,000	47,000	40,000
8,800	10,000	89,000	47,000	40,000
8,900	10,000	89,000	47,000	40,000
9,000	10,000	89,000	47,000	40,000
9,100	10,000	89,000	47,000	40,000
9,130	10,000	89,000	47,000	40,000
9,200	10,000	89,000	47,000	40,000
9,250	10,000	89,000	47,000	40,000
9,300	10,000	89,000	47,000	40,000
9,400	10,000	89,000	47,000	40,000
9,500	10,000	89,000	47,000	40,000
9,520	10,000	89,000	47,000	40,000
9,600	10,000	89,000	47,000	40,000
9,700	10,000	89,000	47,000	40,000
9,800	10,000	89,000	47,000	40,000
9,900	10,000	89,000	47,000	40,000
9,920	10,000	89,000	47,000	40,000
10,000	10,000	89,000	47,000	40,000
10,100	12,000	102,000	55,000	45,000
10,200	12,000	102,000	55,000	45,000
10,300	12,000	102,000	55,000	45,000
10,400	12,000	102,000	55,000	45,000
10,500	12,000	102,000	55,000	45,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
10,600	12,000	102,000	55,000	45,000	14,200	16,000	115,000	65,000	48,000
10,700	12,000	102,000	55,000	45,000	14,300	16,000	115,000	65,000	48,000
10,800	12,000	102,000	55,000	45,000	14,400	16,000	115,000	65,000	48,000
10,900	12,000	102,000	55,000	45,000	14,500	16,000	115,000	65,000	48,000
11,000	12,000	102,000	55,000	45,000	14,700	16,000	115,000	65,000	48,000
11,100	12,000	102,000	55,000	45,000	15,000	16,000	115,000	65,000	48,000
11,200	12,000	102,000	55,000	45,000	15,200	16,000	115,000	65,000	48,000
11,300	12,000	102,000	55,000	45,000	15,500	16,000	115,000	65,000	48,000
11,400	12,000	102,000	55,000	45,000	15,600	16,000	115,000	65,000	48,000
11,500	12,000	102,000	55,000	45,000	15,700	16,000	115,000	65,000	48,000
11,600	12,000	102,000	55,000	45,000	15,800	16,000	115,000	65,000	48,000
11,700	12,000	102,000	55,000	45,000	16,000	16,000	115,000	65,000	48,000
11,800	12,000	102,000	55,000	45,000	16,100	18,000	123,000	73,000	48,000
11,900	12,000	102,000	55,000	45,000	16,200	18,000	123,000	73,000	48,000
12,000	12,000	102,000	55,000	45,000	16,300	18,000	123,000	73,000	48,000
12,100	14,000	107,000	60,000	45,000	16,500	18,000	123,000	73,000	48,000
12,200	14,000	107,000	60,000	45,000	17,000	18,000	123,000	73,000	48,000
12,300	14,000	107,000	60,000	45,000	17,500	18,000	123,000	73,000	48,000
12,400	14,000	107,000	60,000	45,000	18,000	18,000	123,000	73,000	48,000
12,500	14,000	107,000	60,000	45,000	18,300	20,000	131,000	79,000	50,000
12,600	14,000	107,000	60,000	45,000	18,500	20,000	131,000	79,000	50,000
12,700	14,000	107,000	60,000	45,000	19,000	20,000	131,000	79,000	50,000
13,000	14,000	107,000	60,000	45,000	19,500	20,000	131,000	79,000	50,000
13,200	14,000	107,000	60,000	45,000	20,000	20,000	131,000	79,000	50,000
13,300	14,000	107,000	60,000	45,000					
13,500	14,000	107,000	60,000	45,000					
13,700	14,000	107,000	60,000	45,000					
13,800	14,000	107,000	60,000	45,000					
14,000	14,000	107,000	60,000	45,000					
14,100	16,000	115,000	65,000	48,000					

## SuperV-Bohrer

## SuperV-Bohrer ohne Innenkühlung



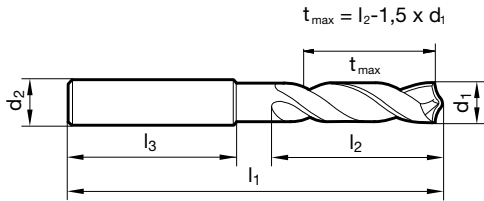
Katalog-Nr. 51787



P	M	K	N	S	H
●		●	○	○	○

 Arbeitsrichtwerte  
Seite 93

- Ausspitzung  $\geq \text{Ø } 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	66,000	28,000	36,000
3,100	6,000	66,000	28,000	36,000
3,200	6,000	66,000	28,000	36,000
3,300	6,000	66,000	28,000	36,000
3,400	6,000	66,000	28,000	36,000
3,500	6,000	66,000	28,000	36,000
3,600	6,000	66,000	28,000	36,000
3,700	6,000	66,000	28,000	36,000
3,800	6,000	74,000	36,000	36,000
3,900	6,000	74,000	36,000	36,000
4,000	6,000	74,000	36,000	36,000
4,100	6,000	74,000	36,000	36,000
4,200	6,000	74,000	36,000	36,000
4,300	6,000	74,000	36,000	36,000
4,400	6,000	74,000	36,000	36,000
4,500	6,000	74,000	36,000	36,000
4,600	6,000	74,000	36,000	36,000
4,700	6,000	74,000	36,000	36,000
4,760	6,000	82,000	44,000	36,000
4,800	6,000	82,000	44,000	36,000
4,900	6,000	82,000	44,000	36,000
5,000	6,000	82,000	44,000	36,000
5,100	6,000	82,000	44,000	36,000
5,200	6,000	82,000	44,000	36,000
5,300	6,000	82,000	44,000	36,000
5,400	6,000	82,000	44,000	36,000
5,500	6,000	82,000	44,000	36,000
5,600	6,000	82,000	44,000	36,000
5,700	6,000	82,000	44,000	36,000
5,800	6,000	82,000	44,000	36,000
5,900	6,000	82,000	44,000	36,000
6,000	6,000	82,000	44,000	36,000
6,100	8,000	91,000	53,000	36,000
6,200	8,000	91,000	53,000	36,000
6,300	8,000	91,000	53,000	36,000
6,350	8,000	91,000	53,000	36,000
6,400	8,000	91,000	53,000	36,000
6,500	8,000	91,000	53,000	36,000
6,600	8,000	91,000	53,000	36,000
6,700	8,000	91,000	53,000	36,000
6,800	8,000	91,000	53,000	36,000
6,900	8,000	91,000	53,000	36,000
7,000	8,000	91,000	53,000	36,000
7,100	8,000	91,000	53,000	36,000
7,200	8,000	91,000	53,000	36,000
7,300	8,000	91,000	53,000	36,000
7,400	8,000	91,000	53,000	36,000
7,500	8,000	91,000	53,000	36,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
7,600	8,000	91,000	53,000	36,000
7,700	8,000	91,000	53,000	36,000
7,800	8,000	91,000	53,000	36,000
7,900	8,000	91,000	53,000	36,000
8,000	8,000	91,000	53,000	36,000
8,100	10,000	103,000	61,000	40,000
8,200	10,000	103,000	61,000	40,000
8,300	10,000	103,000	61,000	40,000
8,400	10,000	103,000	61,000	40,000
8,500	10,000	103,000	61,000	40,000
8,600	10,000	103,000	61,000	40,000
8,700	10,000	103,000	61,000	40,000
8,800	10,000	103,000	61,000	40,000
8,900	10,000	103,000	61,000	40,000
9,000	10,000	103,000	61,000	40,000
9,100	10,000	103,000	61,000	40,000
9,200	10,000	103,000	61,000	40,000
9,300	10,000	103,000	61,000	40,000
9,400	10,000	103,000	61,000	40,000
9,500	10,000	103,000	61,000	40,000
9,600	10,000	103,000	61,000	40,000
9,700	10,000	103,000	61,000	40,000
9,800	10,000	103,000	61,000	40,000
9,900	10,000	103,000	61,000	40,000
10,000	10,000	103,000	61,000	40,000
10,100	12,000	118,000	71,000	45,000
10,200	12,000	118,000	71,000	45,000
10,300	12,000	118,000	71,000	45,000
10,400	12,000	118,000	71,000	45,000
10,500	12,000	118,000	71,000	45,000
10,600	12,000	118,000	71,000	45,000
10,700	12,000	118,000	71,000	45,000
10,800	12,000	118,000	71,000	45,000
10,900	12,000	118,000	71,000	45,000
11,000	12,000	118,000	71,000	45,000
11,100	12,000	118,000	71,000	45,000
11,200	12,000	118,000	71,000	45,000
11,300	12,000	118,000	71,000	45,000
11,400	12,000	118,000	71,000	45,000
11,500	12,000	118,000	71,000	45,000
11,600	12,000	118,000	71,000	45,000
11,700	12,000	118,000	71,000	45,000
11,800	12,000	118,000	71,000	45,000
11,900	12,000	118,000	71,000	45,000
12,000	12,000	118,000	71,000	45,000
12,200	14,000	124,000	77,000	45,000
12,500	14,000	124,000	77,000	45,000
12,700	14,000	124,000	77,000	45,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
<b>13,000</b>	14,000	124,000	77,000	45,000	<b>16,500</b>	18,000	143,000	93,000	48,000
<b>13,500</b>	14,000	124,000	77,000	45,000	<b>17,000</b>	18,000	143,000	93,000	48,000
<b>13,700</b>	14,000	124,000	77,000	45,000	<b>17,500</b>	18,000	143,000	93,000	48,000
<b>14,000</b>	14,000	124,000	77,000	45,000	<b>18,000</b>	18,000	143,000	93,000	48,000
<b>14,200</b>	16,000	133,000	83,000	48,000	<b>18,500</b>	20,000	153,000	101,000	50,000
<b>14,500</b>	16,000	133,000	83,000	48,000	<b>19,000</b>	20,000	153,000	101,000	50,000
<b>14,700</b>	16,000	133,000	83,000	48,000	<b>19,500</b>	20,000	153,000	101,000	50,000
<b>15,000</b>	16,000	133,000	83,000	48,000	<b>20,000</b>	20,000	153,000	101,000	50,000
<b>15,200</b>	16,000	133,000	83,000	48,000					
<b>15,500</b>	16,000	133,000	83,000	48,000					
<b>15,700</b>	16,000	133,000	83,000	48,000					
<b>16,000</b>	16,000	133,000	83,000	48,000					

## SuperV-Bohrer

## SuperV-Bohrer ohne Innenkühlung



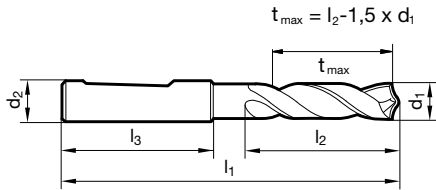
Katalog-Nr. 51887



P	M	K	N	S	H
●		●	○	○	○

 Arbeitsrichtwerte  
Seite 93

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	66,000	28,000	36,000
3,100	6,000	66,000	28,000	36,000
3,170	6,000	66,000	28,000	36,000
3,200	6,000	66,000	28,000	36,000
3,300	6,000	66,000	28,000	36,000
3,400	6,000	66,000	28,000	36,000
3,500	6,000	66,000	28,000	36,000
3,570	6,000	66,000	28,000	36,000
3,600	6,000	66,000	28,000	36,000
3,700	6,000	66,000	28,000	36,000
3,800	6,000	74,000	36,000	36,000
3,900	6,000	74,000	36,000	36,000
3,970	6,000	74,000	36,000	36,000
4,000	6,000	74,000	36,000	36,000
4,100	6,000	74,000	36,000	36,000
4,200	6,000	74,000	36,000	36,000
4,300	6,000	74,000	36,000	36,000
4,370	6,000	74,000	36,000	36,000
4,400	6,000	74,000	36,000	36,000
4,500	6,000	74,000	36,000	36,000
4,600	6,000	74,000	36,000	36,000
4,700	6,000	74,000	36,000	36,000
4,760	6,000	82,000	44,000	36,000
4,800	6,000	82,000	44,000	36,000
4,900	6,000	82,000	44,000	36,000
5,000	6,000	82,000	44,000	36,000
5,100	6,000	82,000	44,000	36,000
5,160	6,000	82,000	44,000	36,000
5,200	6,000	82,000	44,000	36,000
5,300	6,000	82,000	44,000	36,000
5,400	6,000	82,000	44,000	36,000
5,500	6,000	82,000	44,000	36,000
5,560	6,000	82,000	44,000	36,000
5,600	6,000	82,000	44,000	36,000
5,700	6,000	82,000	44,000	36,000
5,800	6,000	82,000	44,000	36,000
5,900	6,000	82,000	44,000	36,000
5,950	6,000	82,000	44,000	36,000
6,000	6,000	82,000	44,000	36,000
6,100	8,000	91,000	53,000	36,000
6,200	8,000	91,000	53,000	36,000
6,300	8,000	91,000	53,000	36,000
6,350	8,000	91,000	53,000	36,000
6,400	8,000	91,000	53,000	36,000
6,500	8,000	91,000	53,000	36,000
6,600	8,000	91,000	53,000	36,000
6,700	8,000	91,000	53,000	36,000
6,750	8,000	91,000	53,000	36,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
6,800	8,000	91,000	53,000	36,000
6,900	8,000	91,000	53,000	36,000
7,000	8,000	91,000	53,000	36,000
7,100	8,000	91,000	53,000	36,000
7,140	8,000	91,000	53,000	36,000
7,200	8,000	91,000	53,000	36,000
7,300	8,000	91,000	53,000	36,000
7,400	8,000	91,000	53,000	36,000
7,500	8,000	91,000	53,000	36,000
7,540	8,000	91,000	53,000	36,000
7,600	8,000	91,000	53,000	36,000
7,700	8,000	91,000	53,000	36,000
7,800	8,000	91,000	53,000	36,000
7,900	8,000	91,000	53,000	36,000
7,940	8,000	91,000	53,000	36,000
8,000	8,000	91,000	53,000	36,000
8,100	10,000	103,000	61,000	40,000
8,200	10,000	103,000	61,000	40,000
8,300	10,000	103,000	61,000	40,000
8,330	10,000	103,000	61,000	40,000
8,400	10,000	103,000	61,000	40,000
8,500	10,000	103,000	61,000	40,000
8,600	10,000	103,000	61,000	40,000
8,700	10,000	103,000	61,000	40,000
8,730	10,000	103,000	61,000	40,000
8,800	10,000	103,000	61,000	40,000
8,900	10,000	103,000	61,000	40,000
9,000	10,000	103,000	61,000	40,000
9,100	10,000	103,000	61,000	40,000
9,130	10,000	103,000	61,000	40,000
9,200	10,000	103,000	61,000	40,000
9,300	10,000	103,000	61,000	40,000
9,400	10,000	103,000	61,000	40,000
9,500	10,000	103,000	61,000	40,000
9,520	10,000	103,000	61,000	40,000
9,600	10,000	103,000	61,000	40,000
9,700	10,000	103,000	61,000	40,000
9,800	10,000	103,000	61,000	40,000
9,900	10,000	103,000	61,000	40,000
9,920	10,000	103,000	61,000	40,000
10,000	10,000	103,000	61,000	40,000
10,100	12,000	118,000	71,000	45,000
10,200	12,000	118,000	71,000	45,000
10,300	12,000	118,000	71,000	45,000
10,400	12,000	118,000	71,000	45,000
10,500	12,000	118,000	71,000	45,000
10,600	12,000	118,000	71,000	45,000
10,700	12,000	118,000	71,000	45,000



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
10,800	12,000	118,000	71,000	45,000	14,700	16,000	133,000	83,000	48,000
10,900	12,000	118,000	71,000	45,000	15,000	16,000	133,000	83,000	48,000
11,000	12,000	118,000	71,000	45,000	15,200	16,000	133,000	83,000	48,000
11,100	12,000	118,000	71,000	45,000	15,500	16,000	133,000	83,000	48,000
11,200	12,000	118,000	71,000	45,000	15,700	16,000	133,000	83,000	48,000
11,300	12,000	118,000	71,000	45,000	16,000	16,000	133,000	83,000	48,000
11,400	12,000	118,000	71,000	45,000	16,500	18,000	143,000	93,000	48,000
11,500	12,000	118,000	71,000	45,000	17,000	18,000	143,000	93,000	48,000
11,600	12,000	118,000	71,000	45,000	17,500	18,000	143,000	93,000	48,000
11,700	12,000	118,000	71,000	45,000	18,000	18,000	143,000	93,000	48,000
11,800	12,000	118,000	71,000	45,000	18,500	20,000	153,000	101,000	50,000
11,900	12,000	118,000	71,000	45,000	19,000	20,000	153,000	101,000	50,000
12,000	12,000	118,000	71,000	45,000	19,500	20,000	153,000	101,000	50,000
12,100	14,000	124,000	77,000	45,000	20,000	20,000	153,000	101,000	50,000
12,200	14,000	124,000	77,000	45,000					
12,500	14,000	124,000	77,000	45,000					
12,700	14,000	124,000	77,000	45,000					
13,000	14,000	124,000	77,000	45,000					
13,500	14,000	124,000	77,000	45,000					
13,700	14,000	124,000	77,000	45,000					
14,000	14,000	124,000	77,000	45,000					
14,100	16,000	133,000	83,000	48,000					
14,200	16,000	133,000	83,000	48,000					
14,500	16,000	133,000	83,000	48,000					

## SuperV-Bohrer

## SuperV-Bohrer ohne Innenkühlung



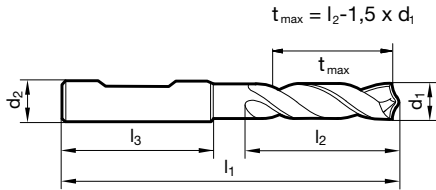
Katalog-Nr. 51687



P	M	K	N	S	H
●		●	○	○	○

 Arbeitsrichtwerte  
Seite 93

- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	66,000	28,000	36,000
3,100	6,000	66,000	28,000	36,000
3,170	6,000	66,000	28,000	36,000
3,200	6,000	66,000	28,000	36,000
3,250	6,000	66,000	28,000	36,000
3,300	6,000	66,000	28,000	36,000
3,400	6,000	66,000	28,000	36,000
3,500	6,000	66,000	28,000	36,000
3,570	6,000	66,000	28,000	36,000
3,600	6,000	66,000	28,000	36,000
3,700	6,000	66,000	28,000	36,000
3,800	6,000	74,000	36,000	36,000
3,900	6,000	74,000	36,000	36,000
3,970	6,000	74,000	36,000	36,000
4,000	6,000	74,000	36,000	36,000
4,100	6,000	74,000	36,000	36,000
4,200	6,000	74,000	36,000	36,000
4,300	6,000	74,000	36,000	36,000
4,370	6,000	74,000	36,000	36,000
4,400	6,000	74,000	36,000	36,000
4,500	6,000	74,000	36,000	36,000
4,600	6,000	74,000	36,000	36,000
4,650	6,000	74,000	36,000	36,000
4,700	6,000	74,000	36,000	36,000
4,760	6,000	82,000	44,000	36,000
4,800	6,000	82,000	44,000	36,000
4,900	6,000	82,000	44,000	36,000
5,000	6,000	82,000	44,000	36,000
5,100	6,000	82,000	44,000	36,000
5,160	6,000	82,000	44,000	36,000
5,200	6,000	82,000	44,000	36,000
5,300	6,000	82,000	44,000	36,000
5,400	6,000	82,000	44,000	36,000
5,500	6,000	82,000	44,000	36,000
5,550	6,000	82,000	44,000	36,000
5,560	6,000	82,000	44,000	36,000
5,600	6,000	82,000	44,000	36,000
5,700	6,000	82,000	44,000	36,000
5,800	6,000	82,000	44,000	36,000
5,900	6,000	82,000	44,000	36,000
5,950	6,000	82,000	44,000	36,000
6,000	6,000	82,000	44,000	36,000
6,100	8,000	91,000	53,000	36,000
6,200	8,000	91,000	53,000	36,000
6,300	8,000	91,000	53,000	36,000
6,350	8,000	91,000	53,000	36,000
6,400	8,000	91,000	53,000	36,000
6,500	8,000	91,000	53,000	36,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
6,600	8,000	91,000	53,000	36,000
6,700	8,000	91,000	53,000	36,000
6,750	8,000	91,000	53,000	36,000
6,800	8,000	91,000	53,000	36,000
6,900	8,000	91,000	53,000	36,000
7,000	8,000	91,000	53,000	36,000
7,100	8,000	91,000	53,000	36,000
7,140	8,000	91,000	53,000	36,000
7,200	8,000	91,000	53,000	36,000
7,300	8,000	91,000	53,000	36,000
7,400	8,000	91,000	53,000	36,000
7,500	8,000	91,000	53,000	36,000
7,540	8,000	91,000	53,000	36,000
7,600	8,000	91,000	53,000	36,000
7,700	8,000	91,000	53,000	36,000
7,800	8,000	91,000	53,000	36,000
7,900	8,000	91,000	53,000	36,000
7,940	8,000	91,000	53,000	36,000
8,000	8,000	91,000	53,000	36,000
8,100	10,000	103,000	61,000	40,000
8,200	10,000	103,000	61,000	40,000
8,300	10,000	103,000	61,000	40,000
8,330	10,000	103,000	61,000	40,000
8,400	10,000	103,000	61,000	40,000
8,500	10,000	103,000	61,000	40,000
8,600	10,000	103,000	61,000	40,000
8,700	10,000	103,000	61,000	40,000
8,730	10,000	103,000	61,000	40,000
8,800	10,000	103,000	61,000	40,000
8,900	10,000	103,000	61,000	40,000
9,000	10,000	103,000	61,000	40,000
9,100	10,000	103,000	61,000	40,000
9,130	10,000	103,000	61,000	40,000
9,200	10,000	103,000	61,000	40,000
9,250	10,000	103,000	61,000	40,000
9,300	10,000	103,000	61,000	40,000
9,400	10,000	103,000	61,000	40,000
9,500	10,000	103,000	61,000	40,000
9,520	10,000	103,000	61,000	40,000
9,600	10,000	103,000	61,000	40,000
9,700	10,000	103,000	61,000	40,000
9,800	10,000	103,000	61,000	40,000
9,900	10,000	103,000	61,000	40,000
9,920	10,000	103,000	61,000	40,000
10,000	10,000	103,000	61,000	40,000
10,100	12,000	118,000	71,000	45,000
10,200	12,000	118,000	71,000	45,000
10,300	12,000	118,000	71,000	45,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
10,320	12,000	118,000	71,000	45,000	13,500	14,000	124,000	77,000	45,000
10,400	12,000	118,000	71,000	45,000	13,700	14,000	124,000	77,000	45,000
10,500	12,000	118,000	71,000	45,000	14,000	14,000	124,000	77,000	45,000
10,600	12,000	118,000	71,000	45,000	14,200	16,000	133,000	83,000	48,000
10,700	12,000	118,000	71,000	45,000	14,290	16,000	133,000	83,000	48,000
10,800	12,000	118,000	71,000	45,000	14,500	16,000	133,000	83,000	48,000
10,900	12,000	118,000	71,000	45,000	14,700	16,000	133,000	83,000	48,000
11,000	12,000	118,000	71,000	45,000	15,000	16,000	133,000	83,000	48,000
11,100	12,000	118,000	71,000	45,000	15,200	16,000	133,000	83,000	48,000
11,110	12,000	118,000	71,000	45,000	15,500	16,000	133,000	83,000	48,000
11,200	12,000	118,000	71,000	45,000	15,700	16,000	133,000	83,000	48,000
11,300	12,000	118,000	71,000	45,000	16,000	16,000	133,000	83,000	48,000
11,400	12,000	118,000	71,000	45,000	16,500	18,000	143,000	93,000	48,000
11,500	12,000	118,000	71,000	45,000	17,000	18,000	143,000	93,000	48,000
11,600	12,000	118,000	71,000	45,000	17,500	18,000	143,000	93,000	48,000
11,700	12,000	118,000	71,000	45,000	18,000	18,000	143,000	93,000	48,000
11,800	12,000	118,000	71,000	45,000	18,500	20,000	153,000	101,000	50,000
11,900	12,000	118,000	71,000	45,000	19,000	20,000	153,000	101,000	50,000
11,910	12,000	118,000	71,000	45,000	19,500	20,000	153,000	101,000	50,000
12,000	12,000	118,000	71,000	45,000	20,000	20,000	153,000	101,000	50,000
12,200	14,000	124,000	77,000	45,000					
12,500	14,000	124,000	77,000	45,000					
12,700	14,000	124,000	77,000	45,000					
13,000	14,000	124,000	77,000	45,000					

## SuperV-Bohrer

## SuperV-Bohrer mit Innenkühlung



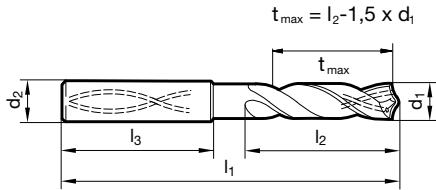
Katalog-Nr. 51776



P	M	K	N	S	H
●	○	●	○	○	○

 Arbeitsrichtwerte  
Seite 91

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	62,000	20,000	36,000	7,500		8,000	79,000	41,000	36,000
3,100		6,000	62,000	20,000	36,000	7,600		8,000	79,000	41,000	36,000
3,200		6,000	62,000	20,000	36,000	7,700		8,000	79,000	41,000	36,000
3,300		6,000	62,000	20,000	36,000	7,800		8,000	79,000	41,000	36,000
3,400		6,000	62,000	20,000	36,000	7,900		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	8,000		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	8,100		10,000	89,000	47,000	40,000
3,700		6,000	62,000	20,000	36,000	8,200		10,000	89,000	47,000	40,000
3,800		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
3,900		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,000		6,000	66,000	24,000	36,000	8,500		10,000	89,000	47,000	40,000
4,100		6,000	66,000	24,000	36,000	8,600		10,000	89,000	47,000	40,000
4,200		6,000	66,000	24,000	36,000	8,700		10,000	89,000	47,000	40,000
4,300		6,000	66,000	24,000	36,000	8,800		10,000	89,000	47,000	40,000
4,400		6,000	66,000	24,000	36,000	8,900		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	9,000		10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	9,100		10,000	89,000	47,000	40,000
4,650		6,000	66,000	24,000	36,000	9,200		10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	9,250		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,900		10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	10,000		10,000	89,000	47,000	40,000
5,550		6,000	66,000	28,000	36,000	10,100		12,000	102,000	55,000	45,000
5,600		6,000	66,000	28,000	36,000	10,200		12,000	102,000	55,000	45,000
5,700		6,000	66,000	28,000	36,000	10,300		12,000	102,000	55,000	45,000
5,800		6,000	66,000	28,000	36,000	10,400		12,000	102,000	55,000	45,000
5,900		6,000	66,000	28,000	36,000	10,500		12,000	102,000	55,000	45,000
6,000		6,000	66,000	28,000	36,000	10,600		12,000	102,000	55,000	45,000
6,100		8,000	79,000	34,000	36,000	10,700		12,000	102,000	55,000	45,000
6,200		8,000	79,000	34,000	36,000	10,800		12,000	102,000	55,000	45,000
6,300		8,000	79,000	34,000	36,000	10,900		12,000	102,000	55,000	45,000
6,350	1/4	8,000	79,000	34,000	36,000	11,000		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	11,100		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	11,200		12,000	102,000	55,000	45,000
6,600		8,000	79,000	34,000	36,000	11,300		12,000	102,000	55,000	45,000
6,700		8,000	79,000	34,000	36,000	11,400		12,000	102,000	55,000	45,000
6,800		8,000	79,000	34,000	36,000	11,500		12,000	102,000	55,000	45,000
6,900		8,000	79,000	34,000	36,000	11,600		12,000	102,000	55,000	45,000
7,000		8,000	79,000	34,000	36,000	11,700		12,000	102,000	55,000	45,000
7,100		8,000	79,000	41,000	36,000	11,800		12,000	102,000	55,000	45,000
7,200		8,000	79,000	41,000	36,000	11,900		12,000	102,000	55,000	45,000
7,300		8,000	79,000	41,000	36,000	12,000		12,000	102,000	55,000	45,000
7,400		8,000	79,000	41,000	36,000	12,200		14,000	107,000	60,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
12,500		14,000	107,000	60,000	45,000	18,000		18,000	123,000	73,000	48,000
12,700	1/2	14,000	107,000	60,000	45,000	18,500		20,000	131,000	79,000	50,000
13,000		14,000	107,000	60,000	45,000	18,700		20,000	131,000	79,000	50,000
13,500		14,000	107,000	60,000	45,000	19,000		20,000	131,000	79,000	50,000
13,700		14,000	107,000	60,000	45,000	19,500		20,000	131,000	79,000	50,000
14,000		14,000	107,000	60,000	45,000	19,700		20,000	131,000	79,000	50,000
14,200		16,000	115,000	65,000	48,000	20,000		20,000	131,000	79,000	50,000
14,500		16,000	115,000	65,000	48,000						
14,700		16,000	115,000	65,000	48,000						
15,000		16,000	115,000	65,000	48,000						
15,200		16,000	115,000	65,000	48,000						
15,500		16,000	115,000	65,000	48,000						
15,700		16,000	115,000	65,000	48,000						
16,000		16,000	115,000	65,000	48,000						
16,500		18,000	123,000	73,000	48,000						
16,700		18,000	123,000	73,000	48,000						
17,000		18,000	123,000	73,000	48,000						
17,500		18,000	123,000	73,000	48,000						

## SuperV-Bohrer

## SuperV-Bohrer mit Innenkühlung

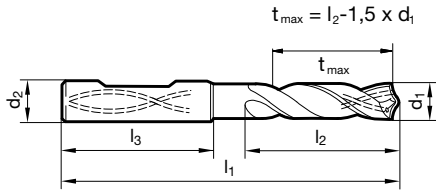


Katalog-Nr. 51876



P	M	K	N	S	H	Arbeitsrichtwerte Seite 91
●	○	●	○	○	○	

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000	7,100		8,000	79,000	41,000	36,000
3,100		6,000	62,000	20,000	36,000	7,140	9/32	8,000	79,000	41,000	36,000
3,200		6,000	62,000	20,000	36,000	7,200		8,000	79,000	41,000	36,000
3,300		6,000	62,000	20,000	36,000	7,300		8,000	79,000	41,000	36,000
3,400		6,000	62,000	20,000	36,000	7,400		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	7,500		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	7,540	19/64	8,000	79,000	41,000	36,000
3,700		6,000	62,000	20,000	36,000	7,600		8,000	79,000	41,000	36,000
3,800		6,000	66,000	24,000	36,000	7,700		8,000	79,000	41,000	36,000
3,900		6,000	66,000	24,000	36,000	7,800		8,000	79,000	41,000	36,000
4,000		6,000	66,000	24,000	36,000	7,900		8,000	79,000	41,000	36,000
4,100		6,000	66,000	24,000	36,000	7,940	5/16	8,000	79,000	41,000	36,000
4,200		6,000	66,000	24,000	36,000	8,000		8,000	79,000	41,000	36,000
4,300		6,000	66,000	24,000	36,000	8,100		10,000	89,000	47,000	40,000
4,370	11/64	6,000	66,000	24,000	36,000	8,200		10,000	89,000	47,000	40,000
4,400		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	8,330	21/64	10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	8,500		10,000	89,000	47,000	40,000
4,760	3/16	6,000	66,000	28,000	36,000	8,600		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	8,700		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	8,730	11/32	10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	8,800		10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	8,900		10,000	89,000	47,000	40,000
5,160	13/64	6,000	66,000	28,000	36,000	9,000		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,100		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,130	23/64	10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,200		10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
5,560	7/32	6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,600		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,700		6,000	66,000	28,000	36,000	9,520	3/8	10,000	89,000	47,000	40,000
5,800		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,900		6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
5,950	15/64	6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
6,000		6,000	66,000	28,000	36,000	9,900		10,000	89,000	47,000	40,000
6,100		8,000	79,000	34,000	36,000	9,920	25/64	10,000	89,000	47,000	40,000
6,200		8,000	79,000	34,000	36,000	10,000		10,000	89,000	47,000	40,000
6,300		8,000	79,000	34,000	36,000	10,100		12,000	102,000	55,000	45,000
6,350	1/4	8,000	79,000	34,000	36,000	10,200		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	10,300		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	10,320	13/32	12,000	102,000	55,000	45,000
6,600		8,000	79,000	34,000	36,000	10,400		12,000	102,000	55,000	45,000
6,700		8,000	79,000	34,000	36,000	10,500		12,000	102,000	55,000	45,000
6,750	17/64	8,000	79,000	34,000	36,000	10,600		12,000	102,000	55,000	45,000
6,800		8,000	79,000	34,000	36,000	10,700		12,000	102,000	55,000	45,000
6,900		8,000	79,000	34,000	36,000	10,800		12,000	102,000	55,000	45,000
7,000		8,000	79,000	34,000	36,000	10,900		12,000	102,000	55,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
11,000		12,000	102,000	55,000	45,000	14,100		16,000	115,000	65,000	48,000
11,100		12,000	102,000	55,000	45,000	14,200		16,000	115,000	65,000	48,000
11,110	7/16	12,000	102,000	55,000	45,000	14,290	9/16	16,000	115,000	65,000	48,000
11,200		12,000	102,000	55,000	45,000	14,300		16,000	115,000	65,000	48,000
11,300		12,000	102,000	55,000	45,000	14,500		16,000	115,000	65,000	48,000
11,400		12,000	102,000	55,000	45,000	14,700		16,000	115,000	65,000	48,000
11,500		12,000	102,000	55,000	45,000	14,900		16,000	115,000	65,000	48,000
11,600		12,000	102,000	55,000	45,000	15,000		16,000	115,000	65,000	48,000
11,700		12,000	102,000	55,000	45,000	15,200		16,000	115,000	65,000	48,000
11,800		12,000	102,000	55,000	45,000	15,500		16,000	115,000	65,000	48,000
11,900		12,000	102,000	55,000	45,000	15,600		16,000	115,000	65,000	48,000
11,910	15/32	12,000	102,000	55,000	45,000	15,700		16,000	115,000	65,000	48,000
12,000		12,000	102,000	55,000	45,000	16,000		16,000	115,000	65,000	48,000
12,100		14,000	107,000	60,000	45,000	16,100		18,000	123,000	73,000	48,000
12,200		14,000	107,000	60,000	45,000	16,200		18,000	123,000	73,000	48,000
12,300	31/64	14,000	107,000	60,000	45,000	16,500		18,000	123,000	73,000	48,000
12,400		14,000	107,000	60,000	45,000	17,000		18,000	123,000	73,000	48,000
12,500		14,000	107,000	60,000	45,000	17,500		18,000	123,000	73,000	48,000
12,700	1/2	14,000	107,000	60,000	45,000	17,700		18,000	123,000	73,000	48,000
13,000		14,000	107,000	60,000	45,000	18,000		18,000	123,000	73,000	48,000
13,200		14,000	107,000	60,000	45,000	18,500		20,000	131,000	79,000	50,000
13,500		14,000	107,000	60,000	45,000	19,000		20,000	131,000	79,000	50,000
13,700		14,000	107,000	60,000	45,000	19,500		20,000	131,000	79,000	50,000
14,000		14,000	107,000	60,000	45,000	20,000		20,000	131,000	79,000	50,000

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



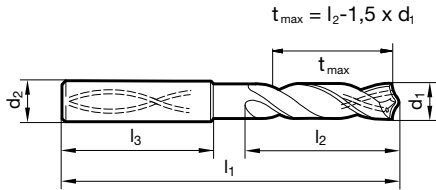
Katalog-Nr. 51781



P	M	K	N	S	H
●	○	●	○	○	○

Arbeitsrichtwerte  
Seite 95

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000
3,100		6,000	66,000	28,000	36,000
3,200		6,000	66,000	28,000	36,000
3,300		6,000	66,000	28,000	36,000
3,400		6,000	66,000	28,000	36,000
3,500		6,000	66,000	28,000	36,000
3,600		6,000	66,000	28,000	36,000
3,700		6,000	66,000	28,000	36,000
3,800		6,000	74,000	36,000	36,000
3,900		6,000	74,000	36,000	36,000
4,000		6,000	74,000	36,000	36,000
4,100		6,000	74,000	36,000	36,000
4,200		6,000	74,000	36,000	36,000
4,300		6,000	74,000	36,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000
4,400		6,000	74,000	36,000	36,000
4,500		6,000	74,000	36,000	36,000
4,600		6,000	74,000	36,000	36,000
4,650		6,000	74,000	36,000	36,000
4,700		6,000	74,000	36,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000
4,800		6,000	82,000	44,000	36,000
4,900		6,000	82,000	44,000	36,000
5,000		6,000	82,000	44,000	36,000
5,100		6,000	82,000	44,000	36,000
5,160	13/64	6,000	82,000	44,000	36,000
5,200		6,000	82,000	44,000	36,000
5,300		6,000	82,000	44,000	36,000
5,400		6,000	82,000	44,000	36,000
5,500		6,000	82,000	44,000	36,000
5,550		6,000	82,000	44,000	36,000
5,560	7/32	6,000	82,000	44,000	36,000
5,600		6,000	82,000	44,000	36,000
5,700		6,000	82,000	44,000	36,000
5,800		6,000	82,000	44,000	36,000
5,900		6,000	82,000	44,000	36,000
5,950	15/64	6,000	82,000	44,000	36,000
6,000		6,000	82,000	44,000	36,000
6,100		8,000	91,000	53,000	36,000
6,200		8,000	91,000	53,000	36,000
6,300		8,000	91,000	53,000	36,000
6,350	1/4	8,000	91,000	53,000	36,000
6,400		8,000	91,000	53,000	36,000
6,500		8,000	91,000	53,000	36,000
6,600		8,000	91,000	53,000	36,000
6,700		8,000	91,000	53,000	36,000
6,750	17/64	8,000	91,000	53,000	36,000
6,800		8,000	91,000	53,000	36,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
6,900		8,000	91,000	53,000	36,000
7,000		8,000	91,000	53,000	36,000
7,100		8,000	91,000	53,000	36,000
7,140	9/32	8,000	91,000	53,000	36,000
7,200		8,000	91,000	53,000	36,000
7,300		8,000	91,000	53,000	36,000
7,400		8,000	91,000	53,000	36,000
7,500		8,000	91,000	53,000	36,000
7,540	19/64	8,000	91,000	53,000	36,000
7,600		8,000	91,000	53,000	36,000
7,700		8,000	91,000	53,000	36,000
7,800		8,000	91,000	53,000	36,000
7,900		8,000	91,000	53,000	36,000
7,940	5/16	8,000	91,000	53,000	36,000
8,000		8,000	91,000	53,000	36,000
8,100		10,000	103,000	61,000	40,000
8,200		10,000	103,000	61,000	40,000
8,300		10,000	103,000	61,000	40,000
8,330	21/64	10,000	103,000	61,000	40,000
8,400		10,000	103,000	61,000	40,000
8,500		10,000	103,000	61,000	40,000
8,600		10,000	103,000	61,000	40,000
8,700		10,000	103,000	61,000	40,000
8,730	11/32	10,000	103,000	61,000	40,000
8,800		10,000	103,000	61,000	40,000
8,900		10,000	103,000	61,000	40,000
9,000		10,000	103,000	61,000	40,000
9,100		10,000	103,000	61,000	40,000
9,130	23/64	10,000	103,000	61,000	40,000
9,200		10,000	103,000	61,000	40,000
9,250		10,000	103,000	61,000	40,000
9,300		10,000	103,000	61,000	40,000
9,400		10,000	103,000	61,000	40,000
9,500		10,000	103,000	61,000	40,000
9,520	3/8	10,000	103,000	61,000	40,000
9,600		10,000	103,000	61,000	40,000
9,700		10,000	103,000	61,000	40,000
9,800		10,000	103,000	61,000	40,000
9,900		10,000	103,000	61,000	40,000
9,920	25/64	10,000	103,000	61,000	40,000
10,000		10,000	103,000	61,000	40,000
10,100		12,000	118,000	71,000	45,000
10,200		12,000	118,000	71,000	45,000
10,300		12,000	118,000	71,000	45,000
10,320	13/32	12,000	118,000	71,000	45,000
10,400		12,000	118,000	71,000	45,000
10,500		12,000	118,000	71,000	45,000
10,600		12,000	118,000	71,000	45,000



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,700		12,000	118,000	71,000	45,000	14,000		14,000	124,000	77,000	45,000
10,720	27/64	12,000	118,000	71,000	45,000	14,100		16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	14,200		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	15,600		16,000	133,000	83,000	48,000
11,500		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,600		12,000	118,000	71,000	45,000	15,800		16,000	133,000	83,000	48,000
11,700		12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,800		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,900		12,000	118,000	71,000	45,000	16,700		18,000	143,000	93,000	48,000
11,910	15/32	12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
12,000		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
12,100		14,000	124,000	77,000	45,000	17,700		18,000	143,000	93,000	48,000
12,200		14,000	124,000	77,000	45,000	18,000		18,000	143,000	93,000	48,000
12,300	31/64	14,000	124,000	77,000	45,000	18,500		20,000	153,000	101,000	50,000
12,400		14,000	124,000	77,000	45,000	18,700		20,000	153,000	101,000	50,000
12,500		14,000	124,000	77,000	45,000	19,000		20,000	153,000	101,000	50,000
12,700	1/2	14,000	124,000	77,000	45,000	19,500		20,000	153,000	101,000	50,000
13,000		14,000	124,000	77,000	45,000	19,700		20,000	153,000	101,000	50,000
13,200		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
13,500		14,000	124,000	77,000	45,000						
13,600		14,000	124,000	77,000	45,000						
13,700		14,000	124,000	77,000	45,000						
13,800		14,000	124,000	77,000	45,000						
13,900		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

## SuperV-Bohrer mit Innenkühlung



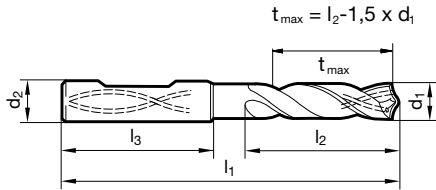
Katalog-Nr. 51881



P	M	K	N	S	H
●	○	●	○	○	○

 Arbeitsrichtwerte  
Seite 95

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,500		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,600		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,370	11/64	6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,400		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,500		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,900		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,350	1/4	8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,320	13/32	12,000	118,000	71,000	45,000
6,600		8,000	91,000	53,000	36,000	10,400		12,000	118,000	71,000	45,000
6,700		8,000	91,000	53,000	36,000	10,500		12,000	118,000	71,000	45,000
6,750	17/64	8,000	91,000	53,000	36,000	10,600		12,000	118,000	71,000	45,000
6,800		8,000	91,000	53,000	36,000	10,700		12,000	118,000	71,000	45,000
6,900		8,000	91,000	53,000	36,000	10,800		12,000	118,000	71,000	45,000
7,000		8,000	91,000	53,000	36,000	10,900		12,000	118,000	71,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
11,000		12,000	118,000	71,000	45,000	14,000		14,000	124,000	77,000	45,000
11,100		12,000	118,000	71,000	45,000	14,100		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	14,200		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
11,500		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
11,600		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
11,700		12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,800		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,900		12,000	118,000	71,000	45,000	15,800		16,000	133,000	83,000	48,000
11,910	15/32	12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
12,000		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
12,100		14,000	124,000	77,000	45,000	17,000		18,000	143,000	93,000	48,000
12,200		14,000	124,000	77,000	45,000	17,300		18,000	143,000	93,000	48,000
12,300	31/64	14,000	124,000	77,000	45,000	17,500		18,000	143,000	93,000	48,000
12,400		14,000	124,000	77,000	45,000	18,000		18,000	143,000	93,000	48,000
12,500		14,000	124,000	77,000	45,000	18,200		20,000	153,000	101,000	50,000
12,700	1/2	14,000	124,000	77,000	45,000	18,500		20,000	153,000	101,000	50,000
13,000		14,000	124,000	77,000	45,000	18,600		20,000	153,000	101,000	50,000
13,500		14,000	124,000	77,000	45,000	19,000		20,000	153,000	101,000	50,000
13,700		14,000	124,000	77,000	45,000	19,500		20,000	153,000	101,000	50,000
13,800		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
13,900		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

## SuperV-Bohrer mit Innenkühlung

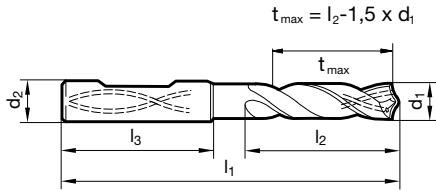


Katalog-Nr. 51681



P	M	K	N	S	H	Arbeitsrichtwerte Seite 95
●	○	●	○	○	○	

- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,500		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,400		6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,650		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,500		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,900		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,350	1/4	8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000
6,600		8,000	91,000	53,000	36,000	10,320	13/32	12,000	118,000	71,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,400		12,000	118,000	71,000	45,000	13,700		14,000	124,000	77,000	45,000
10,500		12,000	118,000	71,000	45,000	14,000		14,000	124,000	77,000	45,000
10,600		12,000	118,000	71,000	45,000	14,200		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,500		12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	18,000		18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	18,500		20,000	153,000	101,000	50,000
11,900		12,000	118,000	71,000	45,000	19,000		20,000	153,000	101,000	50,000
11,910	15/32	12,000	118,000	71,000	45,000	19,050	3/4	20,000	153,000	101,000	50,000
12,000		12,000	118,000	71,000	45,000	19,500		20,000	153,000	101,000	50,000
12,200		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
12,500		14,000	124,000	77,000	45,000						
12,700	1/2	14,000	124,000	77,000	45,000						
13,000		14,000	124,000	77,000	45,000						
13,500		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



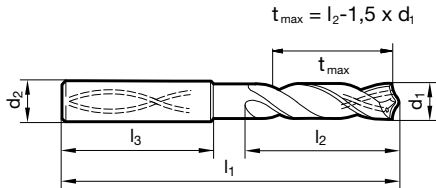
Katalog-Nr. 51789



P	M	K	N	S	H
●	○	●	○	○	○

Arbeitsrichtwerte  
Seite 97

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- vier Führungsfasen



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,100		6,000	70,000	30,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000
3,200		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,570	9/64	6,000	75,000	35,500	36,000
3,600		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
3,800		6,000	75,000	37,500	36,000
3,900		6,000	75,000	37,500	36,000
3,970	5/32	6,000	75,000	37,500	36,000
4,000		6,000	75,000	37,500	36,000
4,100		6,000	75,000	37,500	36,000
4,200		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,400		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,600		6,000	85,000	45,000	36,000
4,700		6,000	85,000	45,000	36,000
4,800		6,000	90,000	50,000	36,000
4,900		6,000	90,000	50,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,300		6,000	90,000	50,000	36,000
5,400		6,000	97,000	57,000	36,000
5,500		6,000	97,000	57,000	36,000
5,700		6,000	97,000	57,000	36,000
5,800		6,000	97,000	57,000	36,000
5,900		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,200		8,000	106,000	66,000	36,000
6,300		8,000	106,000	66,000	36,000
6,500		8,000	106,000	66,000	36,000
6,600		8,000	106,000	66,000	36,000
6,700		8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,100		8,000	116,000	76,000	36,000
7,200		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,600		8,000	116,000	76,000	36,000
7,700		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
8,000		8,000	116,000	76,000	36,000
8,100		10,000	131,000	87,000	40,000
8,200		10,000	131,000	87,000	40,000
8,400		10,000	131,000	87,000	40,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,700		10,000	131,000	87,000	40,000
8,800		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000
9,100		10,000	139,000	95,000	40,000
9,200		10,000	139,000	95,000	40,000
9,300		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
9,700		10,000	139,000	95,000	40,000
9,800		10,000	139,000	95,000	40,000
9,900		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,200		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
11,800		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,200		14,000	182,000	133,000	45,000
12,500		14,000	182,000	133,000	45,000
12,700	1/2	14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,200		16,000	204,000	152,000	48,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000
16,500		18,000	223,000	171,000	48,000
17,000		18,000	223,000	171,000	48,000
17,500		18,000	223,000	171,000	48,000
18,000		18,000	223,000	171,000	48,000
18,500		20,000	244,000	190,000	50,000
19,000		20,000	244,000	190,000	50,000
19,500		20,000	244,000	190,000	50,000
20,000		20,000	244,000	190,000	50,000

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



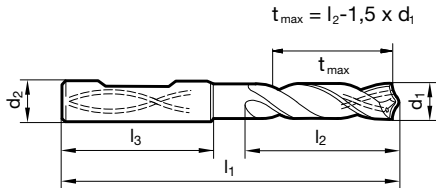
Katalog-Nr. 51889



P	M	K	N	S	H
●	○	●	○	○	○

Arbeitsrichtwerte  
Seite 97

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- vier Führungsfasen



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000	8,000		8,000	116,000	76,000	36,000
3,100		6,000	70,000	30,000	36,000	8,100		10,000	131,000	87,000	40,000
3,170	1/8	6,000	70,000	30,000	36,000	8,200		10,000	131,000	87,000	40,000
3,200		6,000	70,000	30,000	36,000	8,400		10,000	131,000	87,000	40,000
3,250		6,000	70,000	30,000	36,000	8,500		10,000	131,000	87,000	40,000
3,300		6,000	70,000	30,000	36,000	8,600		10,000	131,000	87,000	40,000
3,400		6,000	75,000	35,500	36,000	8,700		10,000	131,000	87,000	40,000
3,500		6,000	75,000	35,500	36,000	8,800		10,000	131,000	87,000	40,000
3,570	9/64	6,000	75,000	35,500	36,000	9,000		10,000	131,000	87,000	40,000
3,600		6,000	75,000	35,500	36,000	9,100		10,000	139,000	95,000	40,000
3,700		6,000	75,000	35,500	36,000	9,200		10,000	139,000	95,000	40,000
3,800		6,000	75,000	37,500	36,000	9,300		10,000	139,000	95,000	40,000
3,900		6,000	75,000	37,500	36,000	9,400		10,000	139,000	95,000	40,000
3,970	5/32	6,000	75,000	37,500	36,000	9,500		10,000	139,000	95,000	40,000
4,000		6,000	75,000	37,500	36,000	9,700		10,000	139,000	95,000	40,000
4,100		6,000	75,000	37,500	36,000	9,800		10,000	139,000	95,000	40,000
4,200		6,000	75,000	37,500	36,000	9,900		10,000	139,000	95,000	40,000
4,300		6,000	85,000	45,000	36,000	10,000		10,000	139,000	95,000	40,000
4,400		6,000	85,000	45,000	36,000	10,200		12,000	155,000	106,000	45,000
4,500		6,000	85,000	45,000	36,000	10,300		12,000	155,000	106,000	45,000
4,600		6,000	85,000	45,000	36,000	10,500		12,000	155,000	106,000	45,000
4,700		6,000	85,000	45,000	36,000	10,800		12,000	155,000	106,000	45,000
4,800		6,000	90,000	50,000	36,000	11,000		12,000	155,000	106,000	45,000
4,900		6,000	90,000	50,000	36,000	11,200		12,000	163,000	114,000	45,000
5,000		6,000	90,000	50,000	36,000	11,500		12,000	163,000	114,000	45,000
5,100		6,000	90,000	50,000	36,000	11,800		12,000	163,000	114,000	45,000
5,200		6,000	90,000	50,000	36,000	12,000		12,000	163,000	114,000	45,000
5,300		6,000	90,000	50,000	36,000	12,100		14,000	182,000	133,000	45,000
5,400		6,000	97,000	57,000	36,000	12,200		14,000	182,000	133,000	45,000
5,500		6,000	97,000	57,000	36,000	12,500		14,000	182,000	133,000	45,000
5,700		6,000	97,000	57,000	36,000	12,700	1/2	14,000	182,000	133,000	45,000
5,800		6,000	97,000	57,000	36,000	13,000		14,000	182,000	133,000	45,000
5,900		6,000	97,000	57,000	36,000	13,500		14,000	182,000	133,000	45,000
6,000		6,000	97,000	57,000	36,000	14,000		14,000	182,000	133,000	45,000
6,200		8,000	106,000	66,000	36,000	14,100		16,000	204,000	152,000	48,000
6,300		8,000	106,000	66,000	36,000	14,200		16,000	204,000	152,000	48,000
6,500		8,000	106,000	66,000	36,000	14,500		16,000	204,000	152,000	48,000
6,600		8,000	106,000	66,000	36,000	15,000		16,000	204,000	152,000	48,000
6,700		8,000	106,000	66,000	36,000	15,500		16,000	204,000	152,000	48,000
6,800		8,000	106,000	66,000	36,000	16,000		16,000	204,000	152,000	48,000
6,900		8,000	116,000	76,000	36,000	16,500		18,000	223,000	171,000	48,000
7,000		8,000	116,000	76,000	36,000	17,000		18,000	223,000	171,000	48,000
7,100		8,000	116,000	76,000	36,000	17,500		18,000	223,000	171,000	48,000
7,200		8,000	116,000	76,000	36,000	18,000		18,000	223,000	171,000	48,000
7,500		8,000	116,000	76,000	36,000	18,500		20,000	244,000	190,000	50,000
7,600		8,000	116,000	76,000	36,000	19,000		20,000	244,000	190,000	50,000
7,700		8,000	116,000	76,000	36,000	19,500		20,000	244,000	190,000	50,000
7,800		8,000	116,000	76,000	36,000	20,000		20,000	244,000	190,000	50,000

## SuperV-Bohrer

## SuperV-Bohrer mit Innenkühlung

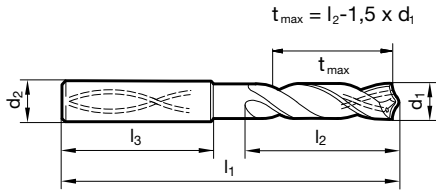


Katalog-Nr. 51893



P	M	K	N	S	H	Arbeitsrichtwerte Seite 99
●	○	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Kopfbeschichtung
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- vier Führungsfasen



d1	inch	d2	l1	l2	l3	d1	inch	d2	l1	l2	l3
mm		mm	mm	mm	mm	mm		mm	mm	mm	mm
3,000		6,000	90,000	50,000	36,000	7,800		8,000	146,000	108,000	36,000
3,100		6,000	90,000	50,000	36,000	7,900		8,000	146,000	108,000	36,000
3,200		6,000	90,000	50,000	36,000	8,000		8,000	146,000	108,000	36,000
3,300		6,000	90,000	50,000	36,000	8,100		10,000	162,000	120,000	40,000
3,400		6,000	90,000	50,000	36,000	8,200		10,000	162,000	120,000	40,000
3,500		6,000	90,000	50,000	36,000	8,300		10,000	162,000	120,000	40,000
3,600		6,000	90,000	50,000	36,000	8,400		10,000	162,000	120,000	40,000
3,700		6,000	90,000	50,000	36,000	8,500		10,000	162,000	120,000	40,000
3,800		6,000	102,000	64,000	36,000	8,600		10,000	162,000	120,000	40,000
3,900		6,000	102,000	64,000	36,000	8,700		10,000	162,000	120,000	40,000
4,000		6,000	102,000	64,000	36,000	8,800		10,000	162,000	120,000	40,000
4,100		6,000	102,000	64,000	36,000	8,900		10,000	162,000	120,000	40,000
4,200		6,000	102,000	64,000	36,000	9,000		10,000	162,000	120,000	40,000
4,300		6,000	102,000	64,000	36,000	9,100		10,000	162,000	120,000	40,000
4,400		6,000	102,000	64,000	36,000	9,200		10,000	162,000	120,000	40,000
4,500		6,000	102,000	64,000	36,000	9,300		10,000	162,000	120,000	40,000
4,600		6,000	102,000	64,000	36,000	9,400		10,000	162,000	120,000	40,000
4,700		6,000	102,000	64,000	36,000	9,500		10,000	162,000	120,000	40,000
4,800		6,000	116,000	78,000	36,000	9,600		10,000	162,000	120,000	40,000
4,900		6,000	116,000	78,000	36,000	9,700		10,000	162,000	120,000	40,000
5,000		6,000	116,000	78,000	36,000	9,800		10,000	162,000	120,000	40,000
5,100		6,000	116,000	78,000	36,000	9,900		10,000	162,000	120,000	40,000
5,200		6,000	116,000	78,000	36,000	10,000		10,000	162,000	120,000	40,000
5,300		6,000	116,000	78,000	36,000	10,200		12,000	204,000	156,000	45,000
5,400		6,000	116,000	78,000	36,000	10,500		12,000	204,000	156,000	45,000
5,500		6,000	116,000	78,000	36,000	11,000		12,000	204,000	156,000	45,000
5,600		6,000	116,000	78,000	36,000	11,500		12,000	204,000	156,000	45,000
5,700		6,000	116,000	78,000	36,000	12,000		12,000	204,000	156,000	45,000
5,800		6,000	116,000	78,000	36,000	12,500		14,000	230,000	182,000	45,000
5,900		6,000	116,000	78,000	36,000	12,700	1/2	14,000	230,000	182,000	45,000
6,000		6,000	116,000	78,000	36,000	13,000		14,000	230,000	182,000	45,000
6,100		8,000	146,000	108,000	36,000	13,500		14,000	230,000	182,000	45,000
6,200		8,000	146,000	108,000	36,000	14,000		14,000	230,000	182,000	45,000
6,300		8,000	146,000	108,000	36,000	14,500		16,000	260,000	208,000	48,000
6,400		8,000	146,000	108,000	36,000	15,000		16,000	260,000	208,000	48,000
6,500		8,000	146,000	108,000	36,000	15,500		16,000	260,000	208,000	48,000
6,600		8,000	146,000	108,000	36,000	16,000		16,000	260,000	208,000	48,000
6,700		8,000	146,000	108,000	36,000	16,500		18,000	285,000	234,000	48,000
6,800		8,000	146,000	108,000	36,000	17,000		18,000	285,000	234,000	48,000
6,900		8,000	146,000	108,000	36,000	17,500		18,000	285,000	234,000	48,000
7,000		8,000	146,000	108,000	36,000	18,000		18,000	285,000	234,000	48,000
7,100		8,000	146,000	108,000	36,000	18,500		20,000	310,000	258,000	50,000
7,200		8,000	146,000	108,000	36,000	19,000		20,000	310,000	258,000	50,000
7,300		8,000	146,000	108,000	36,000	19,500		20,000	310,000	258,000	50,000
7,400		8,000	146,000	108,000	36,000	20,000		20,000	310,000	258,000	50,000
7,500		8,000	146,000	108,000	36,000						
7,600		8,000	146,000	108,000	36,000						
7,700		8,000	146,000	108,000	36,000						



## SuperV-Bohrer

### SuperV-M Universal-Kleinstbohrer



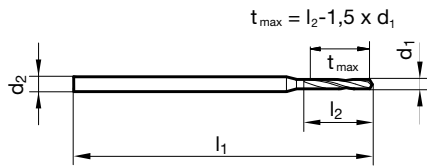
Katalog-Nr. 51720



P	M	K	N	S	H
•		•			

Arbeitsrichtwerte  
Seite 101

- Ausspitzung  $\geq \varnothing 0,800$
- Flächenanschliff
- Hauptschneidenform gerade



d1 mm	inch	d2 mm	l1 mm	l2 mm
0,100		3,000	38,000	1,200
0,200		3,000	38,000	2,500
0,300		3,000	38,000	5,000
0,400		3,000	38,000	7,000
0,500		3,000	38,000	7,000
0,600		3,000	38,000	7,000
0,700		3,000	38,000	8,000
0,800		3,000	38,000	10,000
0,900		3,000	38,000	10,000
1,000		3,000	38,000	10,000
1,100		3,000	38,000	10,000
1,200		3,000	38,000	10,000

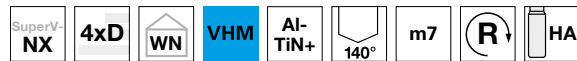
d1 mm	inch	d2 mm	l1 mm	l2 mm
1,400		3,000	38,000	10,000
1,500		3,000	38,000	10,000
1,600		3,000	38,000	12,000
1,700		3,000	38,000	12,000
1,800		3,000	38,000	12,000
1,900		3,000	38,000	12,000
2,000		3,000	38,000	12,000
2,100		3,000	38,000	12,000
2,400		3,000	38,000	12,000
2,500		3,000	38,000	12,000
2,600		3,000	38,000	12,000
3,000		3,000	38,000	12,000

## SuperV-Bohrer

### SuperV-NX Hochleistungs-Kleinstbohrer ohne Innenkühlung



Katalog-Nr. 71998

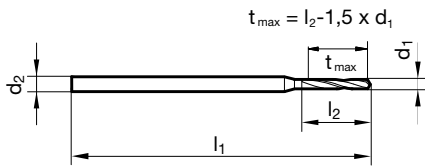


P	M	K	N	S	H
●	○	●	○	○	

Arbeitsrichtwerte  
Seite 101

- Ausspitzung  $\geq \varnothing 0,500$
- Flächenanschliff
- Hauptschneidenform gerade
- geschliffener Schneidenabzug

Die Universellen  
Kleinen



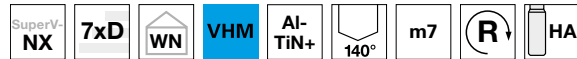
d1		d2	l1	l2	d1		d2	l1	l2
mm	inch	mm	mm	mm	mm	inch	mm	mm	mm
0,500		3,000	47,000	3,000	1,950		3,000	52,000	11,700
0,550		3,000	47,000	3,300	1,980	5/64	4,000	59,000	12,000
0,600		3,000	47,000	3,600	2,000		4,000	59,000	12,000
0,650		3,000	47,000	3,900	2,050		4,000	59,000	12,300
0,700		3,000	47,000	4,200	2,100		4,000	59,000	12,600
0,750		3,000	47,000	4,500	2,150		4,000	59,000	12,900
0,800		3,000	47,000	4,800	2,200		4,000	59,000	13,200
0,850		3,000	47,000	5,100	2,250		4,000	59,000	13,500
0,900		3,000	47,000	5,400	2,300		4,000	59,000	13,800
0,950		3,000	47,000	5,700	2,350		4,000	59,000	14,100
1,000		3,000	47,000	6,000	2,380	3/32	4,000	59,000	14,400
1,050		3,000	47,000	6,300	2,400		4,000	59,000	14,400
1,100		3,000	47,000	6,600	2,450		4,000	59,000	14,700
1,150		3,000	47,000	6,900	2,500		4,000	59,000	15,000
1,200		3,000	47,000	7,200	2,550		4,000	59,000	15,300
1,250		3,000	47,000	7,500	2,600		4,000	59,000	15,600
1,300		3,000	47,000	7,800	2,650		4,000	59,000	15,900
1,350		3,000	47,000	8,100	2,700		4,000	59,000	16,200
1,400		3,000	47,000	8,400	2,750		4,000	59,000	16,500
1,450		3,000	47,000	8,700	2,780	7/64	4,000	59,000	16,800
1,500		3,000	47,000	9,000	2,800		4,000	59,000	16,800
1,550		3,000	47,000	9,300	2,850		4,000	59,000	17,100
1,590	1/16	3,000	47,000	9,600	2,900		4,000	59,000	17,400
1,600		3,000	47,000	9,600	2,950		4,000	59,000	17,700
1,650		3,000	47,000	9,900	3,000		4,000	59,000	18,000
1,700		3,000	47,000	10,200					
1,750		3,000	47,000	10,500					
1,800		3,000	52,000	10,800					
1,850		3,000	52,000	11,100					
1,900		3,000	52,000	11,400					

## SuperV-Bohrer

### SuperV-NX Hochleistungs-Kleinstbohrer ohne Innenkühlung



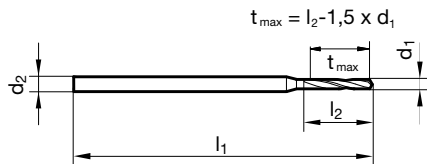
Katalog-Nr. 71999



P	M	K	N	S	H
●	○	●	○	○	

Arbeitsrichtwerte  
Seite 101

- Ausspitzung  $\geq \varnothing 0,500$
- Flächenanschliff
- Hauptschneidenform gerade
- geschliffener Schneidenabzug



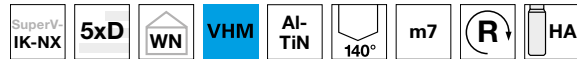
d1	inch	d2	l1	l2	d1	inch	d2	l1	l2
mm		mm	mm	mm	mm		mm	mm	mm
0,500		3,000	47,000	4,000	1,950		3,000	52,000	17,600
0,550		3,000	47,000	4,400	1,980	5/64	4,000	63,000	18,000
0,600		3,000	47,000	4,800	2,000		4,000	63,000	18,000
0,650		3,000	47,000	5,200	2,050		4,000	63,000	18,500
0,700		3,000	47,000	5,600	2,100		4,000	63,000	18,900
0,750		3,000	47,000	6,000	2,150		4,000	63,000	19,400
0,800		3,000	47,000	6,400	2,200		4,000	63,000	19,800
0,850		3,000	47,000	6,800	2,250		4,000	63,000	20,300
0,900		3,000	47,000	7,200	2,300		4,000	63,000	20,700
0,950		3,000	47,000	7,600	2,350		4,000	63,000	21,200
1,000		3,000	47,000	8,000	2,380	3/32	4,000	63,000	21,600
1,050		3,000	47,000	8,400	2,400		4,000	63,000	21,600
1,100		3,000	47,000	8,800	2,450		4,000	63,000	22,100
1,150		3,000	47,000	9,200	2,500		4,000	63,000	22,500
1,200		3,000	52,000	10,800	2,550		4,000	63,000	23,000
1,250		3,000	52,000	11,300	2,600		4,000	67,000	23,400
1,300		3,000	52,000	11,700	2,650		4,000	67,000	23,900
1,350		3,000	52,000	12,200	2,700		4,000	67,000	24,300
1,400		3,000	52,000	12,600	2,750		4,000	67,000	24,800
1,450		3,000	52,000	13,100	2,780	7/64	4,000	67,000	25,200
1,500		3,000	52,000	13,500	2,800		4,000	67,000	25,200
1,550		3,000	52,000	14,000	2,850		4,000	67,000	25,700
1,590	1/16	3,000	52,000	14,400	2,900		4,000	67,000	26,100
1,600		3,000	52,000	14,400	2,950		4,000	67,000	26,600
1,650		3,000	52,000	14,900	3,000		4,000	67,000	27,000
1,700		3,000	52,000	15,300					
1,750		3,000	52,000	15,800					
1,800		3,000	52,000	16,200					
1,850		3,000	52,000	16,700					
1,900		3,000	52,000	17,100					

## SuperV-Bohrer

### SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung



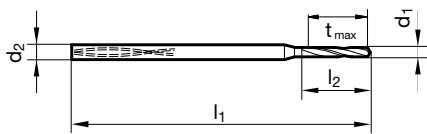
Katalog-Nr. 51997



P	M	K	N	S	H	Arbeitsrichtwerte Seite 101
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 1,400$
- Flächenanschliff
- Hauptschneidenform gerade
- geschliffener Schneidenabzug
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)

$$t_{\max} = l_2 - 1,5 \times d_1$$



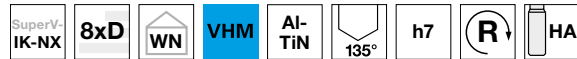
d1 mm	inch	d2 mm	l1 mm	l2 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm
1,400		4,000	52,000	11,000	2,450		4,000	62,000	20,000
1,450		4,000	52,000	12,000	2,500		4,000	62,000	20,000
1,500		4,000	52,000	12,000	2,550		4,000	62,000	20,000
1,550		4,000	52,000	12,000	2,600		4,000	66,000	21,000
1,590	1/16	4,000	52,000	13,000	2,650		4,000	66,000	21,000
1,600		4,000	52,000	13,000	2,700		4,000	66,000	22,000
1,650		4,000	52,000	13,000	2,750		4,000	66,000	22,000
1,700		4,000	56,000	14,000	2,780	7/64	4,000	66,000	22,000
1,750		4,000	56,000	14,000	2,800		4,000	66,000	22,000
1,800		4,000	56,000	14,000	2,850		4,000	66,000	23,000
1,850		4,000	56,000	15,000	2,900		4,000	66,000	23,000
1,900		4,000	56,000	15,000	2,950		4,000	66,000	24,000
1,950		4,000	56,000	16,000	3,000		4,000	66,000	24,000
1,980	5/64	4,000	56,000	16,000					
2,000		4,000	56,000	16,000					
2,050		4,000	56,000	16,000					
2,100		4,000	62,000	17,000					
2,150		4,000	62,000	17,000					
2,200		4,000	62,000	18,000					
2,250		4,000	62,000	18,000					
2,300		4,000	62,000	18,000					
2,350		4,000	62,000	19,000					
2,380	3/32	4,000	62,000	19,000					
2,400		4,000	62,000	19,000					

## SuperV-Bohrer

### SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung

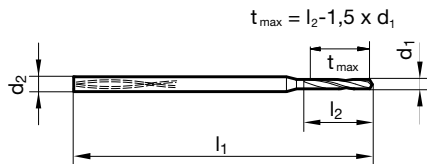


Katalog-Nr. 51998



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 101
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 1,400$
- Flächenanschliff
- Hauptschneidenform gerade
- geschliffener Schneidenabzug
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1 mm	inch	d2 mm	l1 mm	l2 mm
1,400		4,000	52,000	15,000
1,450		4,000	52,000	16,000
1,500		4,000	52,000	17,000
1,550		4,000	52,000	17,000
1,590	1/16	4,000	52,000	18,000
1,600		4,000	52,000	18,000
1,650		4,000	52,000	18,000
1,700		4,000	56,000	19,000
1,750		4,000	56,000	19,000
1,800		4,000	56,000	20,000
1,850		4,000	56,000	20,000
1,900		4,000	56,000	21,000
1,950		4,000	56,000	21,000
1,980	5/64	4,000	56,000	22,000
2,000		4,000	56,000	22,000
2,050		4,000	56,000	23,000
2,100		4,000	62,000	23,000
2,150		4,000	62,000	24,000
2,200		4,000	62,000	24,000
2,250		4,000	62,000	25,000
2,300		4,000	62,000	25,000
2,350		4,000	62,000	26,000
2,380	3/32	4,000	62,000	26,000
2,400		4,000	62,000	26,000

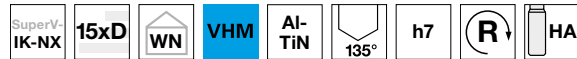
d1 mm	inch	d2 mm	l1 mm	l2 mm
2,450		4,000	62,000	27,000
2,500		4,000	62,000	28,000
2,550		4,000	62,000	28,000
2,600		4,000	66,000	29,000
2,650		4,000	66,000	29,000
2,700		4,000	66,000	30,000
2,750		4,000	66,000	30,000
2,780	7/64	4,000	66,000	31,000
2,800		4,000	66,000	31,000
2,850		4,000	66,000	31,000
2,900		4,000	66,000	32,000
2,950		4,000	66,000	32,000
3,000		4,000	66,000	33,000

## SuperV-Bohrer

### SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung



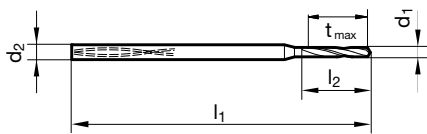
Katalog-Nr. 51999



P	M	K	N	S	H	Arbeitsrichtwerte Seite 101
●	●	●	○	○		

- Ausspitzung  $\geq \text{Ø } 1,400$
- Flächenanschliff
- Kopfbeschichtung
- Hauptschneidenform gerade
- geschliffener Schneidenabzug
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)

$$t_{\max} = l_2 - 1,5 \times d_1$$



d1 mm	inch	d2 mm	l1 mm	l2 mm
1,400		4,000	62,000	25,000
1,500		4,000	62,000	27,000
1,590	1/16	4,000	62,000	29,000
1,600		4,000	62,000	29,000
1,700		4,000	70,000	31,000
1,800		4,000	70,000	32,000
1,900		4,000	70,000	34,000
1,980	5/64	4,000	70,000	36,000
2,000		4,000	70,000	36,000
2,100		4,000	78,000	38,000
2,200		4,000	78,000	40,000
2,300		4,000	78,000	42,000

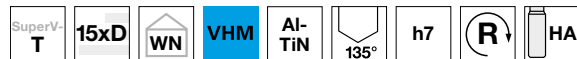
d1 mm	inch	d2 mm	l1 mm	l2 mm
2,380	3/32	4,000	78,000	44,000
2,400		4,000	78,000	44,000
2,500		4,000	78,000	45,000
2,600		4,000	87,000	47,000
2,700		4,000	87,000	48,000
2,780	7/64	4,000	87,000	50,000
2,800		4,000	87,000	50,000
2,900		4,000	87,000	52,000
3,000		4,000	87,000	54,000

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

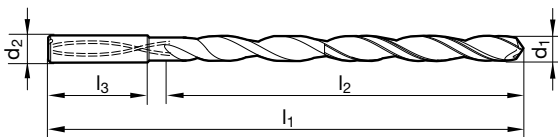


Katalog-Nr. 51764



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 99
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Kopfbeschichtung
- Kegelmantelschliff
- Hauptschneidenform konkav
- optimierter Nutquerschnitt
- maximaler Kühlkanalquerschnitt
- Einsatz im Hydraulik-Dehnspannfutter
- vier Führungsfasen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	95,000	55,000	36,000
3,100		6,000	106,000	67,000	36,000
3,170	1/8	6,000	106,000	67,000	36,000
3,200		6,000	106,000	67,000	36,000
3,300		6,000	106,000	67,000	36,000
3,500		6,000	116,000	76,000	36,000
3,570	9/64	6,000	116,000	76,000	36,000
3,700		6,000	116,000	76,000	36,000
3,800		6,000	116,000	76,000	36,000
3,970	5/32	6,000	116,000	76,000	36,000
4,000		6,000	116,000	76,000	36,000
4,200		6,000	133,000	93,000	36,000
4,300		6,000	133,000	93,000	36,000
4,370	11/64	6,000	133,000	93,000	36,000
4,500		6,000	133,000	93,000	36,000
4,600		6,000	133,000	93,000	36,000
4,760	3/16	6,000	133,000	93,000	36,000
4,800		6,000	133,000	93,000	36,000
5,000		6,000	133,000	93,000	36,000
5,100		6,000	150,000	110,000	36,000
5,160	13/64	6,000	150,000	110,000	36,000
5,410		6,000	150,000	110,000	36,000
5,500		6,000	150,000	110,000	36,000
5,560	7/32	6,000	150,000	110,000	36,000
5,800		6,000	150,000	110,000	36,000
5,950	15/64	6,000	150,000	110,000	36,000
6,000		6,000	150,000	110,000	36,000
6,300		8,000	167,000	127,000	36,000
6,350	1/4	8,000	167,000	127,000	36,000
6,500		8,000	167,000	127,000	36,000
6,750	17/64	8,000	167,000	127,000	36,000
6,800		8,000	167,000	127,000	36,000
7,000		8,000	167,000	127,000	36,000
7,140	9/32	8,000	183,000	143,000	36,000
7,500		8,000	183,000	143,000	36,000
7,540	19/64	8,000	183,000	143,000	36,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
7,800		8,000	183,000	143,000	36,000
7,940	5/16	8,000	183,000	143,000	36,000
8,000		8,000	183,000	143,000	36,000
8,330	21/64	10,000	204,000	160,000	40,000
8,500		10,000	204,000	160,000	40,000
8,730	11/32	10,000	204,000	160,000	40,000
8,800		10,000	204,000	160,000	40,000
9,000		10,000	204,000	160,000	40,000
9,130	23/64	10,000	221,000	177,000	40,000
9,520	3/8	10,000	221,000	177,000	40,000
9,800		10,000	221,000	177,000	40,000
9,920	25/64	10,000	221,000	177,000	40,000
10,000		10,000	221,000	177,000	40,000
10,320	13/32	12,000	247,000	198,000	45,000
10,500		12,000	247,000	198,000	45,000
10,720	27/64	12,000	247,000	198,000	45,000
11,000		12,000	247,000	198,000	45,000
11,110	7/16	12,000	263,000	214,000	45,000
11,510	29/64	12,000	263,000	214,000	45,000
11,800		12,000	263,000	214,000	45,000
11,910	15/32	12,000	263,000	214,000	45,000
12,000		12,000	263,000	214,000	45,000
12,300	31/64	14,000	297,000	248,000	45,000
12,500		14,000	297,000	248,000	45,000
12,700	1/2	14,000	297,000	248,000	45,000
13,000		14,000	297,000	248,000	45,000
13,100	33/64	14,000	297,000	248,000	45,000
13,490	17/32	14,000	297,000	248,000	45,000
13,890	35/64	14,000	297,000	248,000	45,000
14,000		14,000	297,000	248,000	45,000
14,290	9/16	16,000	333,000	281,000	48,000
15,000		16,000	333,000	281,000	48,000
15,870	5/8	16,000	333,000	281,000	48,000
16,000		16,000	333,000	281,000	48,000

Die Universellen  
Langen

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

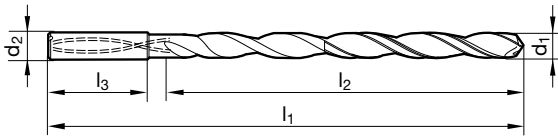


Katalog-Nr. 51765



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 99
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelschliff
- Kopfbeschichtung
- Hauptschneidenform konkav
- optimierter Nutquerschnitt
- maximaler Kühlkanalquerschnitt
- Einsatz im Hydraulik-Dehnspannfutter
- vier Führungsfasen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



Die Universellen  
Langen

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	110,000	70,000	36,000
3,100		6,000	123,000	83,000	36,000
3,200		6,000	123,000	83,000	36,000
3,300		6,000	123,000	83,000	36,000
3,500		6,000	136,000	96,000	36,000
3,570	9/64	6,000	136,000	96,000	36,000
3,700		6,000	136,000	96,000	36,000
3,800		6,000	136,000	96,000	36,000
3,970	5/32	6,000	136,000	96,000	36,000
4,000		6,000	136,000	96,000	36,000
4,200		6,000	158,000	118,000	36,000
4,300		6,000	158,000	118,000	36,000
4,370	11/64	6,000	158,000	118,000	36,000
4,500		6,000	158,000	118,000	36,000
4,600		6,000	158,000	118,000	36,000
4,760	3/16	6,000	158,000	118,000	36,000
4,800		6,000	158,000	118,000	36,000
5,000		6,000	158,000	118,000	36,000
5,100		6,000	180,000	140,000	36,000
5,160	13/64	6,000	180,000	140,000	36,000
5,410		6,000	180,000	140,000	36,000
5,500		6,000	180,000	140,000	36,000
5,560	7/32	6,000	180,000	140,000	36,000
5,800		6,000	180,000	140,000	36,000
5,950	15/64	6,000	180,000	140,000	36,000
6,000		6,000	180,000	140,000	36,000
6,350	1/4	8,000	202,000	162,000	36,000
6,500		8,000	202,000	162,000	36,000
6,750	17/64	8,000	202,000	162,000	36,000
6,800		8,000	202,000	162,000	36,000
7,000		8,000	202,000	162,000	36,000
7,140	9/32	8,000	223,000	183,000	36,000
7,500		8,000	223,000	183,000	36,000
7,540	19/64	8,000	223,000	183,000	36,000
7,800		8,000	223,000	183,000	36,000
7,940	5/16	8,000	223,000	183,000	36,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
8,000		8,000	223,000	183,000	36,000
8,330	21/64	10,000	249,000	205,000	40,000
8,500		10,000	249,000	205,000	40,000
8,730	11/32	10,000	249,000	205,000	40,000
8,800		10,000	249,000	205,000	40,000
9,000		10,000	249,000	205,000	40,000
9,130	23/64	10,000	271,000	227,000	40,000
9,520	3/8	10,000	271,000	227,000	40,000
10,000		10,000	271,000	227,000	40,000
10,200		12,000	302,000	253,000	45,000
10,320	13/32	12,000	302,000	253,000	45,000
10,500		12,000	302,000	253,000	45,000
10,720	27/64	12,000	302,000	253,000	45,000
11,000		12,000	302,000	253,000	45,000
11,110	7/16	12,000	323,000	274,000	45,000
11,510	29/64	12,000	323,000	274,000	45,000
11,800		12,000	323,000	274,000	45,000
11,910	15/32	12,000	323,000	274,000	45,000
12,000		12,000	323,000	274,000	45,000
12,500		14,000	367,000	318,000	45,000
12,700	1/2	14,000	367,000	318,000	45,000
13,000		14,000	367,000	318,000	45,000
13,490	17/32	14,000	367,000	318,000	45,000
14,000		14,000	367,000	318,000	45,000
14,290	9/16	16,000	413,000	361,000	48,000
15,000		16,000	413,000	361,000	48,000
15,870	5/8	16,000	413,000	361,000	48,000
16,000		16,000	413,000	361,000	48,000

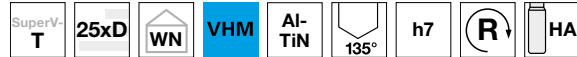


## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

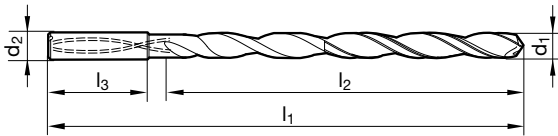


Katalog-Nr. 51766



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 99
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelschliff
- Kopfbeschichtung
- Hauptschneidenform konkav
- optimierter Nutquerschnitt
- maximaler Kühlkanalquerschnitt
- Einsatz im Hydraulik-Dehnspannfutter
- vier Führungsfasen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	125,000	85,000	36,000
3,100		6,000	141,000	101,000	36,000
3,200		6,000	141,000	101,000	36,000
3,300		6,000	141,000	101,000	36,000
3,500		6,000	156,000	116,000	36,000
3,570	9/64	6,000	156,000	116,000	36,000
3,700		6,000	156,000	116,000	36,000
3,800		6,000	156,000	116,000	36,000
3,970	5/32	6,000	156,000	116,000	36,000
4,000		6,000	156,000	116,000	36,000
4,200		6,000	183,000	143,000	36,000
4,300		6,000	183,000	143,000	36,000
4,370	11/64	6,000	183,000	143,000	36,000
4,500		6,000	183,000	143,000	36,000
4,600		6,000	183,000	143,000	36,000
4,760	3/16	6,000	183,000	143,000	36,000
4,800		6,000	183,000	143,000	36,000
5,000		6,000	183,000	143,000	36,000
5,100		6,000	210,000	170,000	36,000
5,160	13/64	6,000	210,000	170,000	36,000
5,410		6,000	210,000	170,000	36,000
5,500		6,000	210,000	170,000	36,000
5,560	7/32	6,000	210,000	170,000	36,000
5,800		6,000	210,000	170,000	36,000
5,950	15/64	6,000	210,000	170,000	36,000
6,000		6,000	210,000	170,000	36,000
6,300		8,000	237,000	197,000	36,000
6,350	1/4	8,000	237,000	197,000	36,000
6,500		8,000	237,000	197,000	36,000
6,750	17/64	8,000	237,000	197,000	36,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
6,800		8,000	237,000	197,000	36,000
7,000		8,000	237,000	197,000	36,000
7,140	9/32	8,000	263,000	223,000	36,000
7,500		8,000	263,000	223,000	36,000
7,540	19/64	8,000	263,000	223,000	36,000
7,940	5/16	8,000	263,000	223,000	36,000
8,000		8,000	263,000	223,000	36,000
8,330	21/64	10,000	294,000	250,000	40,000
8,500		10,000	294,000	250,000	40,000
8,730	11/32	10,000	294,000	250,000	40,000
8,800		10,000	294,000	250,000	40,000
9,000		10,000	294,000	250,000	40,000
9,130	23/64	10,000	321,000	277,000	40,000
9,520	3/8	10,000	321,000	277,000	40,000
10,000		10,000	321,000	277,000	40,000
10,720	27/64	12,000	359,000	310,000	45,000
11,000		12,000	359,000	310,000	45,000
11,110	7/16	12,000	386,000	337,000	45,000
12,000		12,000	386,000	337,000	45,000
12,300	31/64	14,000	437,000	388,000	45,000
12,700	1/2	14,000	437,000	388,000	45,000
13,000		14,000	437,000	388,000	45,000
13,100	33/64	14,000	437,000	388,000	45,000
13,490	17/32	14,000	437,000	388,000	45,000
13,890	35/64	14,000	437,000	388,000	45,000
14,000		14,000	437,000	388,000	45,000
14,290	9/16	16,000	493,000	441,000	48,000
15,000		16,000	493,000	441,000	48,000
15,870	5/8	16,000	493,000	441,000	48,000
16,000		16,000	493,000	441,000	48,000

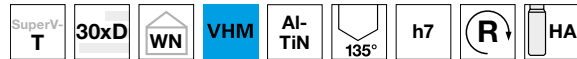
Die Universellen  
Langen

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

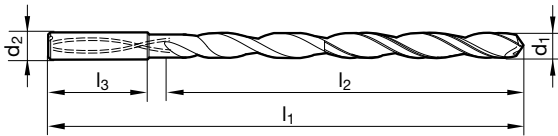


Katalog-Nr. 51767



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 99
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Kopfbeschichtung
- Hauptschneidenform konkav
- optimierter Nutquerschnitt
- maximaler Kühlkanalquerschnitt
- Einsatz im Hydraulik-Dehnspannfutter
- vier Führungsfasen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



Die Universellen  
Langen

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	140,000	100,000	36,000
3,100		6,000	158,000	118,000	36,000
3,200		6,000	158,000	118,000	36,000
3,300		6,000	158,000	118,000	36,000
3,500		6,000	176,000	136,000	36,000
3,570	9/64	6,000	176,000	136,000	36,000
3,700		6,000	176,000	136,000	36,000
3,800		6,000	176,000	136,000	36,000
3,970	5/32	6,000	176,000	136,000	36,000
4,000		6,000	176,000	136,000	36,000
4,200		6,000	208,000	168,000	36,000
4,370	11/64	6,000	208,000	168,000	36,000
4,500		6,000	208,000	168,000	36,000
4,760	3/16	6,000	208,000	168,000	36,000
5,000		6,000	208,000	168,000	36,000
5,100		6,000	240,000	200,000	36,000
5,160	13/64	6,000	240,000	200,000	36,000
5,410		6,000	240,000	200,000	36,000
5,500		6,000	240,000	200,000	36,000
5,560	7/32	6,000	240,000	200,000	36,000
5,950	15/64	6,000	240,000	200,000	36,000
6,000		6,000	240,000	200,000	36,000
6,300		8,000	272,000	232,000	36,000
6,350	1/4	8,000	272,000	232,000	36,000
6,500		8,000	272,000	232,000	36,000
6,750	17/64	8,000	272,000	232,000	36,000
6,800		8,000	272,000	232,000	36,000
7,000		8,000	272,000	232,000	36,000
7,140	9/32	8,000	303,000	263,000	36,000
7,500		8,000	303,000	263,000	36,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
7,540	19/64	8,000	303,000	263,000	36,000
7,940	5/16	8,000	303,000	263,000	36,000
8,000		8,000	303,000	263,000	36,000
8,330	21/64	10,000	339,000	295,000	40,000
8,500		10,000	339,000	295,000	40,000
8,730	11/32	10,000	339,000	295,000	40,000
8,800		10,000	339,000	295,000	40,000
9,000		10,000	339,000	295,000	40,000
9,130	23/64	10,000	371,000	327,000	40,000
9,520	3/8	10,000	371,000	327,000	40,000
10,000		10,000	371,000	327,000	40,000
10,320	13/32	12,000	412,000	363,000	45,000
10,720	27/64	12,000	412,000	363,000	45,000
11,000		12,000	412,000	363,000	45,000
11,110	7/16	12,000	443,000	394,000	45,000
11,510	29/64	12,000	443,000	394,000	45,000
11,910	15/32	12,000	443,000	394,000	45,000
12,000		12,000	443,000	394,000	45,000
12,300	31/64	14,000	507,000	458,000	45,000
12,700	1/2	14,000	507,000	458,000	45,000
13,000		14,000	507,000	458,000	45,000
13,100	33/64	14,000	507,000	458,000	45,000
13,490	17/32	14,000	507,000	458,000	45,000
13,890	35/64	14,000	507,000	458,000	45,000
14,000		14,000	507,000	458,000	45,000

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

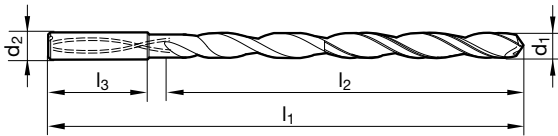


Katalog-Nr. 51768



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 99
●	●	●	○	○		

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelschliff
- Kopfbeschichtung
- Hauptschneidenform konkav
- optimierter Nutquerschnitt
- maximaler Kühlkanalquerschnitt
- Einsatz im Hydraulik-Dehnspannfutter
- vier Führungsfasen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	170,000	130,000	36,000
3,100		6,000	193,000	153,000	36,000
3,170	1/8	6,000	193,000	153,000	36,000
3,200		6,000	193,000	153,000	36,000
3,300		6,000	193,000	153,000	36,000
3,500		6,000	193,000	153,000	36,000
3,800		6,000	216,000	176,000	36,000
3,970	5/32	6,000	216,000	176,000	36,000
4,000		6,000	216,000	176,000	36,000
4,200		6,000	238,000	198,000	36,000
4,500		6,000	238,000	198,000	36,000
4,760	3/16	6,000	258,000	218,000	36,000
5,000		6,000	258,000	218,000	36,000
5,100		6,000	280,000	240,000	36,000
5,500		6,000	280,000	240,000	36,000
5,560	7/32	6,000	300,000	260,000	36,000
6,000		6,000	300,000	260,000	36,000
6,300		8,000	322,000	282,000	36,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
6,350	1/4	8,000	322,000	282,000	36,000
6,500		8,000	322,000	282,000	36,000
6,800		8,000	342,000	302,000	36,000
7,000		8,000	342,000	302,000	36,000
7,140	9/32	8,000	363,000	323,000	36,000
7,500		8,000	363,000	323,000	36,000
8,000		8,000	383,000	343,000	36,000
8,500		10,000	409,000	365,000	40,000
9,000		10,000	429,000	386,000	40,000
10,000		10,000	471,000	427,000	40,000

Die Universellen  
Langen



# SuperV-S

- extrem stabiler Bohrer
- Kegelmantelanschliff
- Doppelfase
- hochharte TiAlSiN-Beschichtung
- zum Bohren hochfester Materialien

## SuperV-Bohrer

### SuperV-Bohrer ohne Innenkühlung

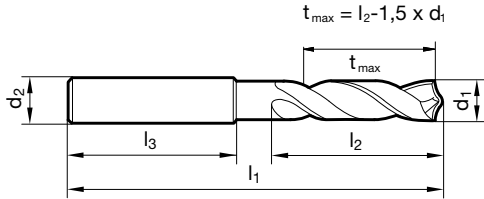


Katalog-Nr. 51750



P	M	K	N	S	H	Arbeitsrichtwerte Seite 91
●				○	○	

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	62,000	20,000	36,000	6,600		8,000	79,000	34,000	36,000
3,100		6,000	62,000	20,000	36,000	6,700		8,000	79,000	34,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000	6,750	17/64	8,000	79,000	34,000	36,000
3,200		6,000	62,000	20,000	36,000	6,800		8,000	79,000	34,000	36,000
3,250		6,000	62,000	20,000	36,000	6,900		8,000	79,000	34,000	36,000
3,300		6,000	62,000	20,000	36,000	7,000		8,000	79,000	34,000	36,000
3,400		6,000	62,000	20,000	36,000	7,100		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	7,140	9/32	8,000	79,000	41,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000	7,200		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	7,300		8,000	79,000	41,000	36,000
3,700		6,000	62,000	20,000	36,000	7,400		8,000	79,000	41,000	36,000
3,800		6,000	66,000	24,000	36,000	7,500		8,000	79,000	41,000	36,000
3,900		6,000	66,000	24,000	36,000	7,540	19/64	8,000	79,000	41,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000	7,600		8,000	79,000	41,000	36,000
4,000		6,000	66,000	24,000	36,000	7,700		8,000	79,000	41,000	36,000
4,100		6,000	66,000	24,000	36,000	7,800		8,000	79,000	41,000	36,000
4,200		6,000	66,000	24,000	36,000	7,900		8,000	79,000	41,000	36,000
4,300		6,000	66,000	24,000	36,000	7,940	5/16	8,000	79,000	41,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000	8,000		8,000	79,000	41,000	36,000
4,400		6,000	66,000	24,000	36,000	8,100		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	8,200		10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
4,650		6,000	66,000	24,000	36,000	8,330	21/64	10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,760	3/16	6,000	66,000	28,000	36,000	8,500		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	8,600		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	8,700		10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	8,730	11/32	10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	8,800		10,000	89,000	47,000	40,000
5,160	13/64	6,000	66,000	28,000	36,000	8,900		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,000		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,100		10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,130	23/64	10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	9,200		10,000	89,000	47,000	40,000
5,550		6,000	66,000	28,000	36,000	9,250		10,000	89,000	47,000	40,000
5,560	7/32	6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
5,600		6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,700		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,800		6,000	66,000	28,000	36,000	9,520	3/8	10,000	89,000	47,000	40,000
5,900		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,950	15/64	6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
6,000		6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
6,100		8,000	79,000	34,000	36,000	9,900		10,000	89,000	47,000	40,000
6,200		8,000	79,000	34,000	36,000	9,920	25/64	10,000	89,000	47,000	40,000
6,300		8,000	79,000	34,000	36,000	10,000		10,000	89,000	47,000	40,000
6,350	1/4	8,000	79,000	34,000	36,000	10,100		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	10,200		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	10,300		12,000	102,000	55,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	102,000	55,000	45,000	14,290	9/16	16,000	115,000	65,000	48,000
10,400		12,000	102,000	55,000	45,000	14,300		16,000	115,000	65,000	48,000
10,500		12,000	102,000	55,000	45,000	14,500		16,000	115,000	65,000	48,000
10,600		12,000	102,000	55,000	45,000	14,700		16,000	115,000	65,000	48,000
10,700		12,000	102,000	55,000	45,000	15,000		16,000	115,000	65,000	48,000
10,800		12,000	102,000	55,000	45,000	15,200		16,000	115,000	65,000	48,000
10,900		12,000	102,000	55,000	45,000	15,300		16,000	115,000	65,000	48,000
11,000		12,000	102,000	55,000	45,000	15,500		16,000	115,000	65,000	48,000
11,100		12,000	102,000	55,000	45,000	15,700		16,000	115,000	65,000	48,000
11,110	7/16	12,000	102,000	55,000	45,000	16,000		16,000	115,000	65,000	48,000
11,200		12,000	102,000	55,000	45,000	16,300		18,000	123,000	73,000	48,000
11,300		12,000	102,000	55,000	45,000	16,500		18,000	123,000	73,000	48,000
11,400		12,000	102,000	55,000	45,000	16,900		18,000	123,000	73,000	48,000
11,500		12,000	102,000	55,000	45,000	17,000		18,000	123,000	73,000	48,000
11,600		12,000	102,000	55,000	45,000	17,300		18,000	123,000	73,000	48,000
11,700		12,000	102,000	55,000	45,000	17,500		18,000	123,000	73,000	48,000
11,800		12,000	102,000	55,000	45,000	18,000		18,000	123,000	73,000	48,000
11,900		12,000	102,000	55,000	45,000	18,500		20,000	131,000	79,000	50,000
11,910	15/32	12,000	102,000	55,000	45,000	18,900		20,000	131,000	79,000	50,000
12,000		12,000	102,000	55,000	45,000	19,000		20,000	131,000	79,000	50,000
12,200		14,000	107,000	60,000	45,000	19,050	3/4	20,000	131,000	79,000	50,000
12,500		14,000	107,000	60,000	45,000	19,300		20,000	131,000	79,000	50,000
12,700	1/2	14,000	107,000	60,000	45,000	19,500		20,000	131,000	79,000	50,000
12,800		14,000	107,000	60,000	45,000	20,000		20,000	131,000	79,000	50,000
13,000		14,000	107,000	60,000	45,000						
13,300		14,000	107,000	60,000	45,000						
13,500		14,000	107,000	60,000	45,000						
13,700		14,000	107,000	60,000	45,000						
14,000		14,000	107,000	60,000	45,000						
14,200		16,000	115,000	65,000	48,000						

## SuperV-Bohrer

### SuperV-Bohrer ohne Innenkühlung



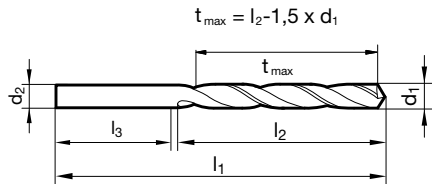
Katalog-Nr. 61888



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>
○	●	○	○	●	○

Arbeitsrichtwerte  
Seite 91

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelschliff
- Hauptschneidenform konkav
- optimierte Schneidengeometrie
- scharfes Schnittverhalten



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	3,000	46,000	16,000	30,000
3,100	3,100	49,000	18,000	31,000
3,200	3,200	49,000	18,000	31,000
3,400	3,400	52,000	20,000	32,000
3,500	3,500	52,000	20,000	32,000
3,600	3,600	52,000	20,000	32,000
4,000	4,000	55,000	22,000	33,000
4,200	4,200	55,000	22,000	33,000
4,300	4,300	58,000	24,000	34,000
4,500	4,500	58,000	24,000	34,000
4,700	4,700	58,000	24,000	34,000
5,000	5,000	62,000	26,000	36,000
5,100	5,100	62,000	26,000	36,000
5,200	5,200	62,000	26,000	36,000
5,500	5,500	66,000	28,000	38,000
5,700	5,700	66,000	28,000	38,000
5,800	5,800	66,000	28,000	38,000
6,000	6,000	66,000	28,000	38,000
6,100	6,100	70,000	31,000	39,000
6,200	6,200	70,000	31,000	39,000
6,400	6,400	70,000	31,000	39,000
6,500	6,500	70,000	31,000	39,000
6,600	6,600	70,000	31,000	39,000
6,700	6,700	70,000	31,000	39,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
6,800	6,800	74,000	34,000	40,000
7,000	7,000	74,000	34,000	40,000
7,200	7,200	74,000	34,000	40,000
7,300	7,300	74,000	34,000	40,000
7,500	7,500	74,000	34,000	40,000
7,700	7,700	79,000	37,000	42,000
7,800	7,800	79,000	37,000	42,000
8,000	8,000	79,000	37,000	42,000
8,400	8,400	79,000	37,000	42,000
8,500	8,500	79,000	37,000	42,000
8,700	8,700	84,000	40,000	44,000
8,900	8,900	84,000	40,000	44,000
9,000	9,000	84,000	40,000	44,000
9,100	9,100	84,000	40,000	44,000
9,200	9,200	84,000	40,000	44,000
9,300	9,300	84,000	40,000	44,000
9,400	9,400	84,000	40,000	44,000
9,500	9,500	84,000	40,000	44,000
9,700	9,700	89,000	43,000	46,000
10,000	10,000	89,000	43,000	46,000
10,100	10,100	89,000	43,000	46,000
10,200	10,200	89,000	43,000	46,000
12,000	12,000	102,000	51,000	51,000



# SuperV-UX

- für höchste Schnittwerte und Standzeiten
- optimierte Mikrogeometrie
- TiAlN-Kopfbeschichtung mit polierten Spannuten
- höchste Oberflächenqualität

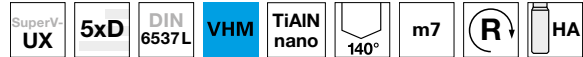


## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

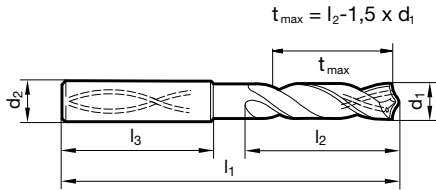


Katalog-Nr. 51785



P	M	K	N	S	H	Arbeitsrichtwerte Seite 95
●	○	○	○	○	○	

- Ausspitzung  $\geq \varnothing 3,000$
- spezielle Mikrogeometrie
- Flächenanschliff
- Hauptschneidenform gerade
- Kopfbeschichtung
- polierte Spannuten
- hohe konstante Standzeiten
- hohe Schnittparameter möglich



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	66,000	28,000	36,000	6,300		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,350	1/4	8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,400		8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,500		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	6,530		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	6,600		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,100		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,200		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,300		8,000	91,000	53,000	36,000
4,040		6,000	74,000	36,000	36,000	7,400		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,500		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	7,550		8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
4,400		6,000	74,000	36,000	36,000	7,650		8,000	91,000	53,000	36,000
4,500		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,600		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,650		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,700		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,760	3/16	6,000	82,000	44,000	36,000	8,000		8,000	91,000	53,000	36,000
4,800		6,000	82,000	44,000	36,000	8,100		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,200		10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,300		10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
5,110		6,000	82,000	44,000	36,000	8,400		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	8,500		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,410		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,550		6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,650		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,340		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,550		10,000	103,000	61,000	40,000

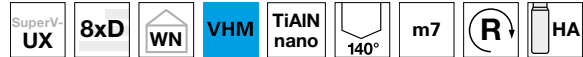
d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
9,600		10,000	103,000	61,000	40,000	14,100		16,000	133,000	83,000	48,000
9,700		10,000	103,000	61,000	40,000	14,200		16,000	133,000	83,000	48,000
9,800		10,000	103,000	61,000	40,000	14,290	9/16	16,000	133,000	83,000	48,000
9,900		10,000	103,000	61,000	40,000	14,400		16,000	133,000	83,000	48,000
9,920	25/64	10,000	103,000	61,000	40,000	14,500		16,000	133,000	83,000	48,000
10,000		10,000	103,000	61,000	40,000	14,600		16,000	133,000	83,000	48,000
10,100		12,000	118,000	71,000	45,000	14,680	37/64	16,000	133,000	83,000	48,000
10,200		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
10,300		12,000	118,000	71,000	45,000	14,800		16,000	133,000	83,000	48,000
10,320	13/32	12,000	118,000	71,000	45,000	14,900		16,000	133,000	83,000	48,000
10,400		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
10,500		12,000	118,000	71,000	45,000	15,080	19/32	16,000	133,000	83,000	48,000
10,600		12,000	118,000	71,000	45,000	15,100		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
10,720	27/64	12,000	118,000	71,000	45,000	15,300		16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	15,400		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	15,480	39/64	16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,550		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	15,600		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	15,800		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	15,870	5/8	16,000	133,000	83,000	48,000
11,500		12,000	118,000	71,000	45,000	15,900		16,000	133,000	83,000	48,000
11,510	29/64	12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,550		12,000	118,000	71,000	45,000	16,270	41/64	18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	16,670	21/32	18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	16,700		18,000	143,000	93,000	48,000
11,900		12,000	118,000	71,000	45,000	16,900		18,000	143,000	93,000	48,000
11,910	15/32	12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
12,000		12,000	118,000	71,000	45,000	17,070	43/64	18,000	143,000	93,000	48,000
12,100		14,000	124,000	77,000	45,000	17,460	11/16	18,000	143,000	93,000	48,000
12,200		14,000	124,000	77,000	45,000	17,500		18,000	143,000	93,000	48,000
12,300	31/64	14,000	124,000	77,000	45,000	17,550		18,000	143,000	93,000	48,000
12,400		14,000	124,000	77,000	45,000	17,700		18,000	143,000	93,000	48,000
12,500		14,000	124,000	77,000	45,000	17,860	45/64	18,000	143,000	93,000	48,000
12,600		14,000	124,000	77,000	45,000	18,000		18,000	143,000	93,000	48,000
12,700	1/2	14,000	124,000	77,000	45,000	18,260	23/32	20,000	153,000	101,000	50,000
12,800		14,000	124,000	77,000	45,000	18,500		20,000	153,000	101,000	50,000
12,900		14,000	124,000	77,000	45,000	18,700		20,000	153,000	101,000	50,000
13,000		14,000	124,000	77,000	45,000	18,900		20,000	153,000	101,000	50,000
13,100	33/64	14,000	124,000	77,000	45,000	19,000		20,000	153,000	101,000	50,000
13,200		14,000	124,000	77,000	45,000	19,050	3/4	20,000	153,000	101,000	50,000
13,300		14,000	124,000	77,000	45,000	19,250		20,000	153,000	101,000	50,000
13,400		14,000	124,000	77,000	45,000	19,300		20,000	153,000	101,000	50,000
13,490	17/32	14,000	124,000	77,000	45,000	19,500		20,000	153,000	101,000	50,000
13,500		14,000	124,000	77,000	45,000	19,550		20,000	153,000	101,000	50,000
13,600		14,000	124,000	77,000	45,000	19,700		20,000	153,000	101,000	50,000
13,700		14,000	124,000	77,000	45,000	19,840	25/32	20,000	153,000	101,000	50,000
13,800		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
13,890	35/64	14,000	124,000	77,000	45,000						
13,900		14,000	124,000	77,000	45,000						
14,000		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

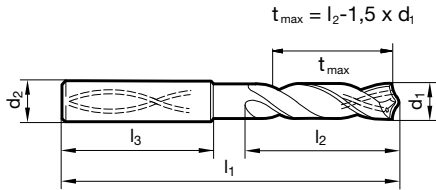


Katalog-Nr. 51790



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 97
●	○	○	○	○	○	

- Ausspitzung  $\geq \varnothing 3,000$
- spezielle Mikrogeometrie
- Flächenanschliff
- Hauptschneidenform gerade
- Kopfbeschichtung
- polierte Spanntuten
- hohe konstante Standzeiten
- hohe Schnittparameter möglich



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	70,000	30,000	36,000	6,400		8,000	106,000	66,000	36,000
3,170	1/8	6,000	70,000	30,000	36,000	6,500		8,000	106,000	66,000	36,000
3,200		6,000	70,000	30,000	36,000	6,530		8,000	106,000	66,000	36,000
3,250		6,000	70,000	30,000	36,000	6,600		8,000	106,000	66,000	36,000
3,300		6,000	70,000	30,000	36,000	6,700		8,000	106,000	66,000	36,000
3,400		6,000	75,000	35,500	36,000	6,750	17/64	8,000	106,000	66,000	36,000
3,500		6,000	75,000	35,500	36,000	6,800		8,000	106,000	66,000	36,000
3,570	9/64	6,000	75,000	35,500	36,000	6,900		8,000	116,000	76,000	36,000
3,600		6,000	75,000	35,500	36,000	7,000		8,000	116,000	76,000	36,000
3,700		6,000	75,000	35,500	36,000	7,100		8,000	116,000	76,000	36,000
3,800		6,000	75,000	37,500	36,000	7,140	9/32	8,000	116,000	76,000	36,000
3,900		6,000	75,000	37,500	36,000	7,200		8,000	116,000	76,000	36,000
3,970	5/32	6,000	75,000	37,500	36,000	7,300		8,000	116,000	76,000	36,000
4,000		6,000	75,000	37,500	36,000	7,400		8,000	116,000	76,000	36,000
4,040		6,000	75,000	37,500	36,000	7,500		8,000	116,000	76,000	36,000
4,100		6,000	75,000	37,500	36,000	7,540	19/64	8,000	116,000	76,000	36,000
4,200		6,000	75,000	37,500	36,000	7,600		8,000	116,000	76,000	36,000
4,300		6,000	85,000	45,000	36,000	7,700		8,000	116,000	76,000	36,000
4,370	11/64	6,000	85,000	45,000	36,000	7,800		8,000	116,000	76,000	36,000
4,400		6,000	85,000	45,000	36,000	7,900		8,000	116,000	76,000	36,000
4,500		6,000	85,000	45,000	36,000	7,940	5/16	8,000	116,000	76,000	36,000
4,600		6,000	85,000	45,000	36,000	8,000		8,000	116,000	76,000	36,000
4,650		6,000	85,000	45,000	36,000	8,100		10,000	131,000	87,000	40,000
4,700		6,000	85,000	45,000	36,000	8,200		10,000	131,000	87,000	40,000
4,760	3/16	6,000	90,000	50,000	36,000	8,300		10,000	131,000	87,000	40,000
4,800		6,000	90,000	50,000	36,000	8,330	21/64	10,000	131,000	87,000	40,000
4,900		6,000	90,000	50,000	36,000	8,400		10,000	131,000	87,000	40,000
5,000		6,000	90,000	50,000	36,000	8,500		10,000	131,000	87,000	40,000
5,100		6,000	90,000	50,000	36,000	8,600		10,000	131,000	87,000	40,000
5,110		6,000	90,000	50,000	36,000	8,700		10,000	131,000	87,000	40,000
5,160	13/64	6,000	90,000	50,000	36,000	8,730	11/32	10,000	131,000	87,000	40,000
5,200		6,000	90,000	50,000	36,000	8,800		10,000	131,000	87,000	40,000
5,300		6,000	90,000	50,000	36,000	8,900		10,000	131,000	87,000	40,000
5,400		6,000	97,000	57,000	36,000	9,000		10,000	131,000	87,000	40,000
5,410		6,000	97,000	57,000	36,000	9,100		10,000	139,000	95,000	40,000
5,500		6,000	97,000	57,000	36,000	9,130	23/64	10,000	139,000	95,000	40,000
5,550		6,000	97,000	57,000	36,000	9,200		10,000	139,000	95,000	40,000
5,560	7/32	6,000	97,000	57,000	36,000	9,250		10,000	139,000	95,000	40,000
5,600		6,000	97,000	57,000	36,000	9,300		10,000	139,000	95,000	40,000
5,700		6,000	97,000	57,000	36,000	9,340		10,000	139,000	95,000	40,000
5,800		6,000	97,000	57,000	36,000	9,400		10,000	139,000	95,000	40,000
5,900		6,000	97,000	57,000	36,000	9,500		10,000	139,000	95,000	40,000
5,950	15/64	6,000	97,000	57,000	36,000	9,520	3/8	10,000	139,000	95,000	40,000
6,000		6,000	97,000	57,000	36,000	9,600		10,000	139,000	95,000	40,000
6,100		8,000	106,000	66,000	36,000	9,700		10,000	139,000	95,000	40,000
6,200		8,000	106,000	66,000	36,000	9,800		10,000	139,000	95,000	40,000
6,300		8,000	106,000	66,000	36,000	9,900		10,000	139,000	95,000	40,000
6,350	1/4	8,000	106,000	66,000	36,000	9,920	25/64	10,000	139,000	95,000	40,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,000		10,000	139,000	95,000	40,000	13,890	35/64	14,000	182,000	133,000	45,000
10,100		12,000	155,000	106,000	45,000	14,000		14,000	182,000	133,000	45,000
10,200		12,000	155,000	106,000	45,000	14,100		16,000	204,000	152,000	48,000
10,300		12,000	155,000	106,000	45,000	14,200		16,000	204,000	152,000	48,000
10,320	13/32	12,000	155,000	106,000	45,000	14,290	9/16	16,000	204,000	152,000	48,000
10,400		12,000	155,000	106,000	45,000	14,500		16,000	204,000	152,000	48,000
10,500		12,000	155,000	106,000	45,000	14,700		16,000	204,000	152,000	48,000
10,600		12,000	155,000	106,000	45,000	15,000		16,000	204,000	152,000	48,000
10,700		12,000	155,000	106,000	45,000	15,100		16,000	204,000	152,000	48,000
10,720	27/64	12,000	155,000	106,000	45,000	15,480	39/64	16,000	204,000	152,000	48,000
10,800		12,000	155,000	106,000	45,000	15,500		16,000	204,000	152,000	48,000
10,900		12,000	155,000	106,000	45,000	15,700		16,000	204,000	152,000	48,000
11,000		12,000	155,000	106,000	45,000	15,870	5/8	16,000	204,000	152,000	48,000
11,100		12,000	163,000	114,000	45,000	16,000		16,000	204,000	152,000	48,000
11,110	7/16	12,000	163,000	114,000	45,000	16,500		18,000	223,000	171,000	48,000
11,200		12,000	163,000	114,000	45,000	16,900		18,000	223,000	171,000	48,000
11,300		12,000	163,000	114,000	45,000	17,000		18,000	223,000	171,000	48,000
11,400		12,000	163,000	114,000	45,000	17,500		18,000	223,000	171,000	48,000
11,500		12,000	163,000	114,000	45,000	17,700		18,000	223,000	171,000	48,000
11,510	29/64	12,000	163,000	114,000	45,000	18,000		18,000	223,000	171,000	48,000
11,600		12,000	163,000	114,000	45,000	18,500		20,000	244,000	190,000	50,000
11,700		12,000	163,000	114,000	45,000	18,900		20,000	244,000	190,000	50,000
11,800		12,000	163,000	114,000	45,000	19,000		20,000	244,000	190,000	50,000
11,900		12,000	163,000	114,000	45,000	19,050	3/4	20,000	244,000	190,000	50,000
11,910	15/32	12,000	163,000	114,000	45,000	19,500		20,000	244,000	190,000	50,000
12,000		12,000	163,000	114,000	45,000	20,000		20,000	244,000	190,000	50,000
12,100		14,000	182,000	133,000	45,000						
12,200		14,000	182,000	133,000	45,000						
12,300	31/64	14,000	182,000	133,000	45,000						
12,500		14,000	182,000	133,000	45,000						
12,700	1/2	14,000	182,000	133,000	45,000						
13,000		14,000	182,000	133,000	45,000						
13,100	33/64	14,000	182,000	133,000	45,000						
13,490	17/32	14,000	182,000	133,000	45,000						
13,500		14,000	182,000	133,000	45,000						
13,700		14,000	182,000	133,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

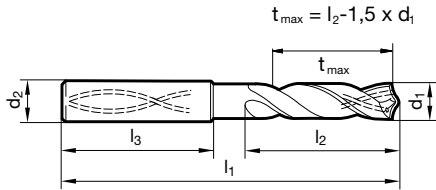


Katalog-Nr. 51752



P	M	K	N	S	H	Arbeitsrichtwerte Seite 93
●				●	○	

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	62,000	20,000	36,000	6,600		8,000	79,000	34,000	36,000
3,100		6,000	62,000	20,000	36,000	6,700		8,000	79,000	34,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000	6,750	17/64	8,000	79,000	34,000	36,000
3,200		6,000	62,000	20,000	36,000	6,800		8,000	79,000	34,000	36,000
3,250		6,000	62,000	20,000	36,000	6,900		8,000	79,000	34,000	36,000
3,300		6,000	62,000	20,000	36,000	7,000		8,000	79,000	34,000	36,000
3,400		6,000	62,000	20,000	36,000	7,100		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	7,140	9/32	8,000	79,000	41,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000	7,200		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	7,300		8,000	79,000	41,000	36,000
3,700		6,000	62,000	20,000	36,000	7,400		8,000	79,000	41,000	36,000
3,800		6,000	66,000	24,000	36,000	7,500		8,000	79,000	41,000	36,000
3,900		6,000	66,000	24,000	36,000	7,540	19/64	8,000	79,000	41,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000	7,600		8,000	79,000	41,000	36,000
4,000		6,000	66,000	24,000	36,000	7,700		8,000	79,000	41,000	36,000
4,100		6,000	66,000	24,000	36,000	7,800		8,000	79,000	41,000	36,000
4,200		6,000	66,000	24,000	36,000	7,900		8,000	79,000	41,000	36,000
4,300		6,000	66,000	24,000	36,000	7,940	5/16	8,000	79,000	41,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000	8,000		8,000	79,000	41,000	36,000
4,400		6,000	66,000	24,000	36,000	8,100		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	8,200		10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
4,650		6,000	66,000	24,000	36,000	8,330	21/64	10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,760	3/16	6,000	66,000	28,000	36,000	8,500		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	8,600		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	8,700		10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	8,730	11/32	10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	8,800		10,000	89,000	47,000	40,000
5,160	13/64	6,000	66,000	28,000	36,000	8,900		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,000		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,100		10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,130	23/64	10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	9,200		10,000	89,000	47,000	40,000
5,550		6,000	66,000	28,000	36,000	9,250		10,000	89,000	47,000	40,000
5,560	7/32	6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
5,600		6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,700		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,800		6,000	66,000	28,000	36,000	9,520	3/8	10,000	89,000	47,000	40,000
5,900		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,950	15/64	6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
6,000		6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
6,100		8,000	79,000	34,000	36,000	9,900		10,000	89,000	47,000	40,000
6,200		8,000	79,000	34,000	36,000	9,920	25/64	10,000	89,000	47,000	40,000
6,300		8,000	79,000	34,000	36,000	10,000		10,000	89,000	47,000	40,000
6,350	1/4	8,000	79,000	34,000	36,000	10,100		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	10,200		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	10,300		12,000	102,000	55,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	102,000	55,000	45,000	14,290	9/16	16,000	115,000	65,000	48,000
10,400		12,000	102,000	55,000	45,000	14,300		16,000	115,000	65,000	48,000
10,500		12,000	102,000	55,000	45,000	14,500		16,000	115,000	65,000	48,000
10,600		12,000	102,000	55,000	45,000	14,700		16,000	115,000	65,000	48,000
10,700		12,000	102,000	55,000	45,000	15,000		16,000	115,000	65,000	48,000
10,800		12,000	102,000	55,000	45,000	15,200		16,000	115,000	65,000	48,000
10,900		12,000	102,000	55,000	45,000	15,300		16,000	115,000	65,000	48,000
11,000		12,000	102,000	55,000	45,000	15,500		16,000	115,000	65,000	48,000
11,100		12,000	102,000	55,000	45,000	15,700		16,000	115,000	65,000	48,000
11,110	7/16	12,000	102,000	55,000	45,000	16,000		16,000	115,000	65,000	48,000
11,200		12,000	102,000	55,000	45,000	16,300		18,000	123,000	73,000	48,000
11,300		12,000	102,000	55,000	45,000	16,500		18,000	123,000	73,000	48,000
11,400		12,000	102,000	55,000	45,000	16,900		18,000	123,000	73,000	48,000
11,500		12,000	102,000	55,000	45,000	17,000		18,000	123,000	73,000	48,000
11,600		12,000	102,000	55,000	45,000	17,300		18,000	123,000	73,000	48,000
11,700		12,000	102,000	55,000	45,000	17,500		18,000	123,000	73,000	48,000
11,800		12,000	102,000	55,000	45,000	18,000		18,000	123,000	73,000	48,000
11,900		12,000	102,000	55,000	45,000	18,500		20,000	131,000	79,000	50,000
11,910	15/32	12,000	102,000	55,000	45,000	18,900		20,000	131,000	79,000	50,000
12,000		12,000	102,000	55,000	45,000	19,000		20,000	131,000	79,000	50,000
12,200		14,000	107,000	60,000	45,000	19,050	3/4	20,000	131,000	79,000	50,000
12,500		14,000	107,000	60,000	45,000	19,300		20,000	131,000	79,000	50,000
12,700	1/2	14,000	107,000	60,000	45,000	19,500		20,000	131,000	79,000	50,000
12,800		14,000	107,000	60,000	45,000	20,000		20,000	131,000	79,000	50,000
13,000		14,000	107,000	60,000	45,000						
13,300		14,000	107,000	60,000	45,000						
13,500		14,000	107,000	60,000	45,000						
13,700		14,000	107,000	60,000	45,000						
14,000		14,000	107,000	60,000	45,000						
14,200		16,000	115,000	65,000	48,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

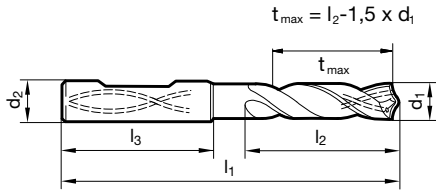


Katalog-Nr. 51753



P	M	K	N	S	H	Arbeitsrichtwerte Seite 93
●				●	○	

- Ausspitzung  $\geq \text{Ø } 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	62,000	20,000	36,000	6,600		8,000	79,000	34,000	36,000
3,100		6,000	62,000	20,000	36,000	6,700		8,000	79,000	34,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000	6,750	17/64	8,000	79,000	34,000	36,000
3,200		6,000	62,000	20,000	36,000	6,800		8,000	79,000	34,000	36,000
3,250		6,000	62,000	20,000	36,000	6,900		8,000	79,000	34,000	36,000
3,300		6,000	62,000	20,000	36,000	7,000		8,000	79,000	34,000	36,000
3,400		6,000	62,000	20,000	36,000	7,100		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	7,140	9/32	8,000	79,000	41,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000	7,200		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	7,300		8,000	79,000	41,000	36,000
3,700		6,000	62,000	20,000	36,000	7,400		8,000	79,000	41,000	36,000
3,800		6,000	66,000	24,000	36,000	7,500		8,000	79,000	41,000	36,000
3,900		6,000	66,000	24,000	36,000	7,540	19/64	8,000	79,000	41,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000	7,600		8,000	79,000	41,000	36,000
4,000		6,000	66,000	24,000	36,000	7,700		8,000	79,000	41,000	36,000
4,100		6,000	66,000	24,000	36,000	7,800		8,000	79,000	41,000	36,000
4,200		6,000	66,000	24,000	36,000	7,900		8,000	79,000	41,000	36,000
4,300		6,000	66,000	24,000	36,000	7,940	5/16	8,000	79,000	41,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000	8,000		8,000	79,000	41,000	36,000
4,400		6,000	66,000	24,000	36,000	8,100		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	8,200		10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
4,650		6,000	66,000	24,000	36,000	8,330	21/64	10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,760	3/16	6,000	66,000	28,000	36,000	8,500		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	8,600		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	8,700		10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	8,730	11/32	10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	8,800		10,000	89,000	47,000	40,000
5,160	13/64	6,000	66,000	28,000	36,000	8,900		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,000		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,100		10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,130	23/64	10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	9,200		10,000	89,000	47,000	40,000
5,550		6,000	66,000	28,000	36,000	9,250		10,000	89,000	47,000	40,000
5,560	7/32	6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
5,600		6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,700		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,800		6,000	66,000	28,000	36,000	9,520	3/8	10,000	89,000	47,000	40,000
5,900		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,950	15/64	6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
6,000		6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
6,100		8,000	79,000	34,000	36,000	9,900		10,000	89,000	47,000	40,000
6,200		8,000	79,000	34,000	36,000	9,920	25/64	10,000	89,000	47,000	40,000
6,300		8,000	79,000	34,000	36,000	10,000		10,000	89,000	47,000	40,000
6,350	1/4	8,000	79,000	34,000	36,000	10,100		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	10,200		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	10,300		12,000	102,000	55,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	102,000	55,000	45,000	14,290	9/16	16,000	115,000	65,000	48,000
10,400		12,000	102,000	55,000	45,000	14,300		16,000	115,000	65,000	48,000
10,500		12,000	102,000	55,000	45,000	14,500		16,000	115,000	65,000	48,000
10,600		12,000	102,000	55,000	45,000	14,700		16,000	115,000	65,000	48,000
10,700		12,000	102,000	55,000	45,000	15,000		16,000	115,000	65,000	48,000
10,800		12,000	102,000	55,000	45,000	15,200		16,000	115,000	65,000	48,000
10,900		12,000	102,000	55,000	45,000	15,300		16,000	115,000	65,000	48,000
11,000		12,000	102,000	55,000	45,000	15,500		16,000	115,000	65,000	48,000
11,100		12,000	102,000	55,000	45,000	15,700		16,000	115,000	65,000	48,000
11,110	7/16	12,000	102,000	55,000	45,000	16,000		16,000	115,000	65,000	48,000
11,200		12,000	102,000	55,000	45,000	16,300		18,000	123,000	73,000	48,000
11,300		12,000	102,000	55,000	45,000	16,500		18,000	123,000	73,000	48,000
11,400		12,000	102,000	55,000	45,000	16,900		18,000	123,000	73,000	48,000
11,500		12,000	102,000	55,000	45,000	17,000		18,000	123,000	73,000	48,000
11,600		12,000	102,000	55,000	45,000	17,300		18,000	123,000	73,000	48,000
11,700		12,000	102,000	55,000	45,000	17,500		18,000	123,000	73,000	48,000
11,800		12,000	102,000	55,000	45,000	18,000		18,000	123,000	73,000	48,000
11,900		12,000	102,000	55,000	45,000	18,500		20,000	131,000	79,000	50,000
11,910	15/32	12,000	102,000	55,000	45,000	18,900		20,000	131,000	79,000	50,000
12,000		12,000	102,000	55,000	45,000	19,000		20,000	131,000	79,000	50,000
12,200		14,000	107,000	60,000	45,000	19,050	3/4	20,000	131,000	79,000	50,000
12,500		14,000	107,000	60,000	45,000	19,300		20,000	131,000	79,000	50,000
12,700	1/2	14,000	107,000	60,000	45,000	19,500		20,000	131,000	79,000	50,000
12,800		14,000	107,000	60,000	45,000	20,000		20,000	131,000	79,000	50,000
13,000		14,000	107,000	60,000	45,000						
13,300		14,000	107,000	60,000	45,000						
13,500		14,000	107,000	60,000	45,000						
13,700		14,000	107,000	60,000	45,000						
14,000		14,000	107,000	60,000	45,000						
14,200		16,000	115,000	65,000	48,000						



## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

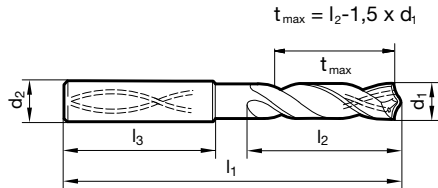


Katalog-Nr. 51754



P	M	K	N	S	H	Arbeitsrichtwerte Seite 95
●				●	○	

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000	6,600		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,500		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,400		6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,650		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,500		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,550		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,900		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,350	1/4	8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
10,400		12,000	118,000	71,000	45,000	14,300		16,000	133,000	83,000	48,000
10,500		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
10,600		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	15,300		16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	16,300		18,000	143,000	93,000	48,000
11,300		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,400		12,000	118,000	71,000	45,000	16,900		18,000	143,000	93,000	48,000
11,500		12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	17,300		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	18,000		18,000	143,000	93,000	48,000
11,900		12,000	118,000	71,000	45,000	18,500		20,000	153,000	101,000	50,000
11,910	15/32	12,000	118,000	71,000	45,000	18,900		20,000	153,000	101,000	50,000
12,000		12,000	118,000	71,000	45,000	19,000		20,000	153,000	101,000	50,000
12,200		14,000	124,000	77,000	45,000	19,050	3/4	20,000	153,000	101,000	50,000
12,500		14,000	124,000	77,000	45,000	19,300		20,000	153,000	101,000	50,000
12,700	1/2	14,000	124,000	77,000	45,000	19,500		20,000	153,000	101,000	50,000
12,800		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
13,000		14,000	124,000	77,000	45,000						
13,300		14,000	124,000	77,000	45,000						
13,500		14,000	124,000	77,000	45,000						
13,700		14,000	124,000	77,000	45,000						
14,000		14,000	124,000	77,000	45,000						
14,200		16,000	133,000	83,000	48,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

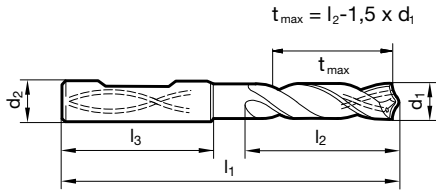


Katalog-Nr. 51755



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>	Arbeitsrichtwerte Seite 95
●				●	○	

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000	6,600		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,500		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,400		6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,650		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,500		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,550		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,900		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,350	1/4	8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
10,400		12,000	118,000	71,000	45,000	14,300		16,000	133,000	83,000	48,000
10,500		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
10,600		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	15,300		16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	16,300		18,000	143,000	93,000	48,000
11,300		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,400		12,000	118,000	71,000	45,000	16,900		18,000	143,000	93,000	48,000
11,500		12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	17,300		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	18,000		18,000	143,000	93,000	48,000
11,900		12,000	118,000	71,000	45,000	18,500		20,000	153,000	101,000	50,000
11,910	15/32	12,000	118,000	71,000	45,000	18,900		20,000	153,000	101,000	50,000
12,000		12,000	118,000	71,000	45,000	19,000		20,000	153,000	101,000	50,000
12,200		14,000	124,000	77,000	45,000	19,050	3/4	20,000	153,000	101,000	50,000
12,500		14,000	124,000	77,000	45,000	19,300		20,000	153,000	101,000	50,000
12,700	1/2	14,000	124,000	77,000	45,000	19,500		20,000	153,000	101,000	50,000
12,800		14,000	124,000	77,000	45,000	20,000		20,000	153,000	101,000	50,000
13,000		14,000	124,000	77,000	45,000						
13,300		14,000	124,000	77,000	45,000						
13,500		14,000	124,000	77,000	45,000						
13,700		14,000	124,000	77,000	45,000						
14,000		14,000	124,000	77,000	45,000						
14,200		16,000	133,000	83,000	48,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



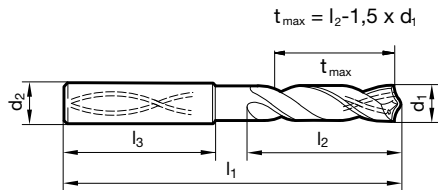
Katalog-Nr. 51756



P	M	K	N	S	H
●				●	○

Arbeitsrichtwerte  
Seite 97

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschliff
- Hauptschneidenform konkav
- sehr harte Beschichtung
- vier Führungsfasen



d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
3,000		6,000	70,000	30,000	36,000
3,250		6,000	70,000	30,000	36,000
3,300		6,000	70,000	30,000	36,000
3,400		6,000	75,000	35,500	36,000
3,500		6,000	75,000	35,500	36,000
3,700		6,000	75,000	35,500	36,000
4,000		6,000	75,000	37,500	36,000
4,200		6,000	75,000	37,500	36,000
4,300		6,000	85,000	45,000	36,000
4,500		6,000	85,000	45,000	36,000
4,650		6,000	85,000	45,000	36,000
5,000		6,000	90,000	50,000	36,000
5,100		6,000	90,000	50,000	36,000
5,200		6,000	90,000	50,000	36,000
5,500		6,000	97,000	57,000	36,000
5,550		6,000	97,000	57,000	36,000
6,000		6,000	97,000	57,000	36,000
6,500		8,000	106,000	66,000	36,000
6,750	17/64	8,000	106,000	66,000	36,000
6,800		8,000	106,000	66,000	36,000
6,900		8,000	116,000	76,000	36,000
7,000		8,000	116,000	76,000	36,000
7,400		8,000	116,000	76,000	36,000
7,500		8,000	116,000	76,000	36,000
7,800		8,000	116,000	76,000	36,000
8,000		8,000	116,000	76,000	36,000
8,500		10,000	131,000	87,000	40,000
8,600		10,000	131,000	87,000	40,000
8,800		10,000	131,000	87,000	40,000
9,000		10,000	131,000	87,000	40,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
9,250		10,000	139,000	95,000	40,000
9,400		10,000	139,000	95,000	40,000
9,500		10,000	139,000	95,000	40,000
10,000		10,000	139,000	95,000	40,000
10,200		12,000	155,000	106,000	45,000
10,400		12,000	155,000	106,000	45,000
10,500		12,000	155,000	106,000	45,000
10,800		12,000	155,000	106,000	45,000
11,000		12,000	155,000	106,000	45,000
11,300		12,000	163,000	114,000	45,000
11,400		12,000	163,000	114,000	45,000
11,500		12,000	163,000	114,000	45,000
12,000		12,000	163,000	114,000	45,000
12,500		14,000	182,000	133,000	45,000
13,000		14,000	182,000	133,000	45,000
13,100	33/64	14,000	182,000	133,000	45,000
13,500		14,000	182,000	133,000	45,000
14,000		14,000	182,000	133,000	45,000
14,500		16,000	204,000	152,000	48,000
15,000		16,000	204,000	152,000	48,000
15,100		16,000	204,000	152,000	48,000
15,500		16,000	204,000	152,000	48,000
16,000		16,000	204,000	152,000	48,000

Die Speziellen

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



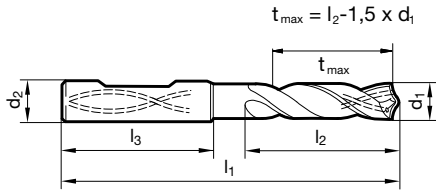
Katalog-Nr. 61880



<b>P</b>	<b>M</b>	<b>K</b>	<b>N</b>	<b>S</b>	<b>H</b>
○	●	○	○	●	○

Arbeitsrichtwerte  
Seite 93

- Ausspitzung  $\geq \varnothing 4,000$
- Kegelmantelschliff
- Hauptschneidenform konkav
- optimierte Schneidengeometrie
- scharfes Schnittverhalten



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
4,000		6,000	74,000	36,000	36,000	11,000		12,000	118,000	71,000	45,000
4,100		6,000	74,000	36,000	36,000	11,400		12,000	118,000	71,000	45,000
4,200		6,000	74,000	36,000	36,000	11,500		12,000	118,000	71,000	45,000
4,300		6,000	74,000	36,000	36,000	11,600		12,000	118,000	71,000	45,000
4,500		6,000	74,000	36,000	36,000	11,700		12,000	118,000	71,000	45,000
4,800		6,000	82,000	44,000	36,000	11,800		12,000	118,000	71,000	45,000
4,900		6,000	82,000	44,000	36,000	12,000		12,000	118,000	71,000	45,000
5,000		6,000	82,000	44,000	36,000	12,100		14,000	124,000	77,000	45,000
5,100		6,000	82,000	44,000	36,000	12,200		14,000	124,000	77,000	45,000
5,200		6,000	82,000	44,000	36,000	12,500		14,000	124,000	77,000	45,000
5,400		6,000	82,000	44,000	36,000	12,800		14,000	124,000	77,000	45,000
5,500		6,000	82,000	44,000	36,000	12,900		14,000	124,000	77,000	45,000
5,700		6,000	82,000	44,000	36,000	13,000		14,000	124,000	77,000	45,000
5,800		6,000	82,000	44,000	36,000	13,200		14,000	124,000	77,000	45,000
5,900		6,000	82,000	44,000	36,000	13,500		14,000	124,000	77,000	45,000
6,000		6,000	82,000	44,000	36,000	13,800		14,000	124,000	77,000	45,000
6,100		8,000	91,000	53,000	36,000	14,000		14,000	124,000	77,000	45,000
6,200		8,000	91,000	53,000	36,000	14,100		16,000	133,000	83,000	48,000
6,500		8,000	91,000	53,000	36,000	14,200		16,000	133,000	83,000	48,000
6,600		8,000	91,000	53,000	36,000	14,500		16,000	133,000	83,000	48,000
6,750	17/64	8,000	91,000	53,000	36,000	15,000		16,000	133,000	83,000	48,000
6,800		8,000	91,000	53,000	36,000	15,500		16,000	133,000	83,000	48,000
6,900		8,000	91,000	53,000	36,000	15,800		16,000	133,000	83,000	48,000
7,000		8,000	91,000	53,000	36,000	16,000		16,000	133,000	83,000	48,000
7,140	9/32	8,000	91,000	53,000	36,000	16,500		18,000	143,000	93,000	48,000
7,200		8,000	91,000	53,000	36,000	17,000		18,000	143,000	93,000	48,000
7,500		8,000	91,000	53,000	36,000	17,500		18,000	143,000	93,000	48,000
7,600		8,000	91,000	53,000	36,000	18,000		18,000	143,000	93,000	48,000
7,700		8,000	91,000	53,000	36,000	18,500		20,000	153,000	101,000	50,000
7,800		8,000	91,000	53,000	36,000	19,000		20,000	153,000	101,000	50,000
7,900		8,000	91,000	53,000	36,000	20,000		20,000	153,000	101,000	50,000
8,000		8,000	91,000	53,000	36,000	21,000		25,000	165,000	105,000	56,000
8,100		10,000	103,000	61,000	40,000	22,000		25,000	165,000	105,000	56,000
8,200		10,000	103,000	61,000	40,000	23,500		25,000	180,000	117,000	56,000
8,300		10,000	103,000	61,000	40,000	24,000		25,000	180,000	117,000	56,000
8,500		10,000	103,000	61,000	40,000	24,500		25,000	180,000	117,000	56,000
8,600		10,000	103,000	61,000	40,000	25,000	63/64	25,000	180,000	117,000	56,000
8,700		10,000	103,000	61,000	40,000						
8,800		10,000	103,000	61,000	40,000						
9,000		10,000	103,000	61,000	40,000						
9,100		10,000	103,000	61,000	40,000						
9,300		10,000	103,000	61,000	40,000						
9,500		10,000	103,000	61,000	40,000						
9,700		10,000	103,000	61,000	40,000						
10,000		10,000	103,000	61,000	40,000						
10,200		12,000	118,000	71,000	45,000						
10,500		12,000	118,000	71,000	45,000						
10,800		12,000	118,000	71,000	45,000						

Die Spezialien



# SuperV70-NX

- weite offene Nuten
- 40° Spiralwinkel für geringere Schnittkräfte und besseren Spantransport
- TiSiN Beschichtung speziell für langspanende Materialien und hohe Standzeiten

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



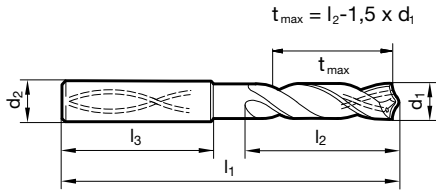
Katalog-Nr. 51770



P	M	K	N	S	H
	●			○	

Arbeitsrichtwerte  
Seite 93

- Ausspitzung  $\geq \text{Ø } 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- besonders geeignet für rostfreie Stähle



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	62,000	20,000	36,000	6,600	8,000	79,000	34,000	36,000
3,100	6,000	62,000	20,000	36,000	6,700	8,000	79,000	34,000	36,000
3,170	6,000	62,000	20,000	36,000	6,750	8,000	79,000	34,000	36,000
3,200	6,000	62,000	20,000	36,000	6,800	8,000	79,000	34,000	36,000
3,250	6,000	62,000	20,000	36,000	6,900	8,000	79,000	34,000	36,000
3,300	6,000	62,000	20,000	36,000	7,000	8,000	79,000	34,000	36,000
3,400	6,000	62,000	20,000	36,000	7,100	8,000	79,000	41,000	36,000
3,500	6,000	62,000	20,000	36,000	7,140	8,000	79,000	41,000	36,000
3,570	6,000	62,000	20,000	36,000	7,200	8,000	79,000	41,000	36,000
3,600	6,000	62,000	20,000	36,000	7,300	8,000	79,000	41,000	36,000
3,700	6,000	62,000	20,000	36,000	7,400	8,000	79,000	41,000	36,000
3,800	6,000	66,000	24,000	36,000	7,500	8,000	79,000	41,000	36,000
3,900	6,000	66,000	24,000	36,000	7,540	8,000	79,000	41,000	36,000
3,970	6,000	66,000	24,000	36,000	7,600	8,000	79,000	41,000	36,000
4,000	6,000	66,000	24,000	36,000	7,700	8,000	79,000	41,000	36,000
4,100	6,000	66,000	24,000	36,000	7,800	8,000	79,000	41,000	36,000
4,200	6,000	66,000	24,000	36,000	7,900	8,000	79,000	41,000	36,000
4,300	6,000	66,000	24,000	36,000	7,940	8,000	79,000	41,000	36,000
4,370	6,000	66,000	24,000	36,000	8,000	8,000	79,000	41,000	36,000
4,400	6,000	66,000	24,000	36,000	8,100	10,000	89,000	47,000	40,000
4,500	6,000	66,000	24,000	36,000	8,200	10,000	89,000	47,000	40,000
4,600	6,000	66,000	24,000	36,000	8,300	10,000	89,000	47,000	40,000
4,650	6,000	66,000	24,000	36,000	8,330	10,000	89,000	47,000	40,000
4,700	6,000	66,000	24,000	36,000	8,400	10,000	89,000	47,000	40,000
4,760	6,000	66,000	28,000	36,000	8,500	10,000	89,000	47,000	40,000
4,800	6,000	66,000	28,000	36,000	8,600	10,000	89,000	47,000	40,000
4,900	6,000	66,000	28,000	36,000	8,700	10,000	89,000	47,000	40,000
5,000	6,000	66,000	28,000	36,000	8,730	10,000	89,000	47,000	40,000
5,100	6,000	66,000	28,000	36,000	8,800	10,000	89,000	47,000	40,000
5,160	6,000	66,000	28,000	36,000	8,900	10,000	89,000	47,000	40,000
5,200	6,000	66,000	28,000	36,000	9,000	10,000	89,000	47,000	40,000
5,300	6,000	66,000	28,000	36,000	9,100	10,000	89,000	47,000	40,000
5,400	6,000	66,000	28,000	36,000	9,130	10,000	89,000	47,000	40,000
5,500	6,000	66,000	28,000	36,000	9,200	10,000	89,000	47,000	40,000
5,550	6,000	66,000	28,000	36,000	9,250	10,000	89,000	47,000	40,000
5,560	6,000	66,000	28,000	36,000	9,300	10,000	89,000	47,000	40,000
5,600	6,000	66,000	28,000	36,000	9,400	10,000	89,000	47,000	40,000
5,700	6,000	66,000	28,000	36,000	9,500	10,000	89,000	47,000	40,000
5,800	6,000	66,000	28,000	36,000	9,520	10,000	89,000	47,000	40,000
5,900	6,000	66,000	28,000	36,000	9,600	10,000	89,000	47,000	40,000
5,950	6,000	66,000	28,000	36,000	9,700	10,000	89,000	47,000	40,000
6,000	6,000	66,000	28,000	36,000	9,800	10,000	89,000	47,000	40,000
6,100	8,000	79,000	34,000	36,000	9,900	10,000	89,000	47,000	40,000
6,200	8,000	79,000	34,000	36,000	9,920	10,000	89,000	47,000	40,000
6,300	8,000	79,000	34,000	36,000	10,000	10,000	89,000	47,000	40,000
6,350	8,000	79,000	34,000	36,000	10,100	12,000	102,000	55,000	45,000
6,400	8,000	79,000	34,000	36,000	10,200	12,000	102,000	55,000	45,000
6,500	8,000	79,000	34,000	36,000	10,300	12,000	102,000	55,000	45,000

Die Roststreifen



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
10,320	12,000	102,000	55,000	45,000	13,500	14,000	107,000	60,000	45,000
10,400	12,000	102,000	55,000	45,000	13,700	14,000	107,000	60,000	45,000
10,500	12,000	102,000	55,000	45,000	14,000	14,000	107,000	60,000	45,000
10,600	12,000	102,000	55,000	45,000	14,200	16,000	115,000	65,000	48,000
10,700	12,000	102,000	55,000	45,000	14,290	16,000	115,000	65,000	48,000
10,800	12,000	102,000	55,000	45,000	14,500	16,000	115,000	65,000	48,000
10,900	12,000	102,000	55,000	45,000	14,700	16,000	115,000	65,000	48,000
11,000	12,000	102,000	55,000	45,000	15,000	16,000	115,000	65,000	48,000
11,100	12,000	102,000	55,000	45,000	15,200	16,000	115,000	65,000	48,000
11,110	12,000	102,000	55,000	45,000	15,500	16,000	115,000	65,000	48,000
11,200	12,000	102,000	55,000	45,000	15,700	16,000	115,000	65,000	48,000
11,300	12,000	102,000	55,000	45,000	16,000	16,000	115,000	65,000	48,000
11,400	12,000	102,000	55,000	45,000	16,500	18,000	123,000	73,000	48,000
11,500	12,000	102,000	55,000	45,000	17,000	18,000	123,000	73,000	48,000
11,600	12,000	102,000	55,000	45,000	17,500	18,000	123,000	73,000	48,000
11,700	12,000	102,000	55,000	45,000	18,000	18,000	123,000	73,000	48,000
11,800	12,000	102,000	55,000	45,000	18,500	20,000	131,000	79,000	50,000
11,900	12,000	102,000	55,000	45,000	19,000	20,000	131,000	79,000	50,000
11,910	12,000	102,000	55,000	45,000	19,500	20,000	131,000	79,000	50,000
12,000	12,000	102,000	55,000	45,000	20,000	20,000	131,000	79,000	50,000
12,200	14,000	107,000	60,000	45,000					
12,500	14,000	107,000	60,000	45,000					
12,700	14,000	107,000	60,000	45,000					
13,000	14,000	107,000	60,000	45,000					

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

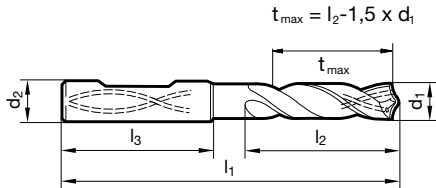


Katalog-Nr. 51771



P	M	K	N	S	H	Arbeitsrichtwerte Seite 93
	●			○		

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- besonders geeignet für rostfreie Stähle



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	62,000	20,000	36,000	6,600		8,000	79,000	34,000	36,000
3,100		6,000	62,000	20,000	36,000	6,700		8,000	79,000	34,000	36,000
3,170	1/8	6,000	62,000	20,000	36,000	6,750	17/64	8,000	79,000	34,000	36,000
3,200		6,000	62,000	20,000	36,000	6,800		8,000	79,000	34,000	36,000
3,250		6,000	62,000	20,000	36,000	6,900		8,000	79,000	34,000	36,000
3,300		6,000	62,000	20,000	36,000	7,000		8,000	79,000	34,000	36,000
3,400		6,000	62,000	20,000	36,000	7,100		8,000	79,000	41,000	36,000
3,500		6,000	62,000	20,000	36,000	7,140	9/32	8,000	79,000	41,000	36,000
3,570	9/64	6,000	62,000	20,000	36,000	7,200		8,000	79,000	41,000	36,000
3,600		6,000	62,000	20,000	36,000	7,300		8,000	79,000	41,000	36,000
3,700		6,000	62,000	20,000	36,000	7,400		8,000	79,000	41,000	36,000
3,800		6,000	66,000	24,000	36,000	7,500		8,000	79,000	41,000	36,000
3,900		6,000	66,000	24,000	36,000	7,540	19/64	8,000	79,000	41,000	36,000
3,970	5/32	6,000	66,000	24,000	36,000	7,600		8,000	79,000	41,000	36,000
4,000		6,000	66,000	24,000	36,000	7,700		8,000	79,000	41,000	36,000
4,100		6,000	66,000	24,000	36,000	7,800		8,000	79,000	41,000	36,000
4,200		6,000	66,000	24,000	36,000	7,900		8,000	79,000	41,000	36,000
4,300		6,000	66,000	24,000	36,000	7,940	5/16	8,000	79,000	41,000	36,000
4,370	11/64	6,000	66,000	24,000	36,000	8,000		8,000	79,000	41,000	36,000
4,400		6,000	66,000	24,000	36,000	8,100		10,000	89,000	47,000	40,000
4,500		6,000	66,000	24,000	36,000	8,200		10,000	89,000	47,000	40,000
4,600		6,000	66,000	24,000	36,000	8,300		10,000	89,000	47,000	40,000
4,650		6,000	66,000	24,000	36,000	8,330	21/64	10,000	89,000	47,000	40,000
4,700		6,000	66,000	24,000	36,000	8,400		10,000	89,000	47,000	40,000
4,760	3/16	6,000	66,000	28,000	36,000	8,500		10,000	89,000	47,000	40,000
4,800		6,000	66,000	28,000	36,000	8,600		10,000	89,000	47,000	40,000
4,900		6,000	66,000	28,000	36,000	8,700		10,000	89,000	47,000	40,000
5,000		6,000	66,000	28,000	36,000	8,730	11/32	10,000	89,000	47,000	40,000
5,100		6,000	66,000	28,000	36,000	8,800		10,000	89,000	47,000	40,000
5,160	13/64	6,000	66,000	28,000	36,000	8,900		10,000	89,000	47,000	40,000
5,200		6,000	66,000	28,000	36,000	9,000		10,000	89,000	47,000	40,000
5,300		6,000	66,000	28,000	36,000	9,100		10,000	89,000	47,000	40,000
5,400		6,000	66,000	28,000	36,000	9,130	23/64	10,000	89,000	47,000	40,000
5,500		6,000	66,000	28,000	36,000	9,200		10,000	89,000	47,000	40,000
5,550		6,000	66,000	28,000	36,000	9,250		10,000	89,000	47,000	40,000
5,560	7/32	6,000	66,000	28,000	36,000	9,300		10,000	89,000	47,000	40,000
5,600		6,000	66,000	28,000	36,000	9,400		10,000	89,000	47,000	40,000
5,700		6,000	66,000	28,000	36,000	9,500		10,000	89,000	47,000	40,000
5,800		6,000	66,000	28,000	36,000	9,520	3/8	10,000	89,000	47,000	40,000
5,900		6,000	66,000	28,000	36,000	9,600		10,000	89,000	47,000	40,000
5,950	15/64	6,000	66,000	28,000	36,000	9,700		10,000	89,000	47,000	40,000
6,000		6,000	66,000	28,000	36,000	9,800		10,000	89,000	47,000	40,000
6,100		8,000	79,000	34,000	36,000	9,900		10,000	89,000	47,000	40,000
6,200		8,000	79,000	34,000	36,000	9,920	25/64	10,000	89,000	47,000	40,000
6,300		8,000	79,000	34,000	36,000	10,000		10,000	89,000	47,000	40,000
6,350	1/4	8,000	79,000	34,000	36,000	10,100		12,000	102,000	55,000	45,000
6,400		8,000	79,000	34,000	36,000	10,200		12,000	102,000	55,000	45,000
6,500		8,000	79,000	34,000	36,000	10,300		12,000	102,000	55,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	102,000	55,000	45,000	13,500		14,000	107,000	60,000	45,000
10,400		12,000	102,000	55,000	45,000	13,700		14,000	107,000	60,000	45,000
10,500		12,000	102,000	55,000	45,000	14,000		14,000	107,000	60,000	45,000
10,600		12,000	102,000	55,000	45,000	14,200		16,000	115,000	65,000	48,000
10,700		12,000	102,000	55,000	45,000	14,290	9/16	16,000	115,000	65,000	48,000
10,800		12,000	102,000	55,000	45,000	14,500		16,000	115,000	65,000	48,000
10,900		12,000	102,000	55,000	45,000	14,700		16,000	115,000	65,000	48,000
11,000		12,000	102,000	55,000	45,000	15,000		16,000	115,000	65,000	48,000
11,100		12,000	102,000	55,000	45,000	15,200		16,000	115,000	65,000	48,000
11,110	7/16	12,000	102,000	55,000	45,000	15,500		16,000	115,000	65,000	48,000
11,200		12,000	102,000	55,000	45,000	15,700		16,000	115,000	65,000	48,000
11,300		12,000	102,000	55,000	45,000	16,000		16,000	115,000	65,000	48,000
11,400		12,000	102,000	55,000	45,000	16,500		18,000	123,000	73,000	48,000
11,500		12,000	102,000	55,000	45,000	17,000		18,000	123,000	73,000	48,000
11,600		12,000	102,000	55,000	45,000	17,500		18,000	123,000	73,000	48,000
11,700		12,000	102,000	55,000	45,000	18,000		18,000	123,000	73,000	48,000
11,800		12,000	102,000	55,000	45,000	18,500		20,000	131,000	79,000	50,000
11,900		12,000	102,000	55,000	45,000	19,000		20,000	131,000	79,000	50,000
11,910	15/32	12,000	102,000	55,000	45,000	19,500		20,000	131,000	79,000	50,000
12,000		12,000	102,000	55,000	45,000	20,000		20,000	131,000	79,000	50,000
12,200		14,000	107,000	60,000	45,000						
12,500		14,000	107,000	60,000	45,000						
12,700	1/2	14,000	107,000	60,000	45,000						
13,000		14,000	107,000	60,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

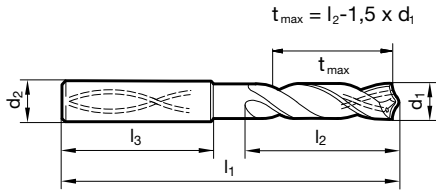


Katalog-Nr. 51772



P	M	K	N	S	H	Arbeitsrichtwerte Seite 95
	●			○		

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- besonders geeignet für rostfreie Stähle



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000	6,600		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,500		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,400		6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,650		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,500		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,550		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,900		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,350	1/4	8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	118,000	71,000	45,000	13,500		14,000	124,000	77,000	45,000
10,400		12,000	118,000	71,000	45,000	13,700		14,000	124,000	77,000	45,000
10,500		12,000	118,000	71,000	45,000	14,000		14,000	124,000	77,000	45,000
10,600		12,000	118,000	71,000	45,000	14,200		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,500		12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	18,000		18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	18,500		20,000	153,000	101,000	50,000
11,900		12,000	118,000	71,000	45,000	19,000		20,000	153,000	101,000	50,000
11,910	15/32	12,000	118,000	71,000	45,000	19,500		20,000	153,000	101,000	50,000
12,000		12,000	118,000	71,000	45,000	20,000		20,000	153,000	101,000	50,000
12,200		14,000	124,000	77,000	45,000						
12,500		14,000	124,000	77,000	45,000						
12,700	1/2	14,000	124,000	77,000	45,000						
13,000		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

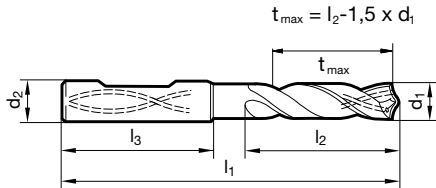


Katalog-Nr. 51773



P	M	K	N	S	H	Arbeitsrichtwerte Seite 95
	●			○		

- Ausspitzung  $\geq \varnothing 3,000$
- Flächenanschliff
- Hauptschneidenform gerade
- optimierte Schneidengeometrie
- besonders geeignet für rostfreie Stähle



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	28,000	36,000	6,600		8,000	91,000	53,000	36,000
3,100		6,000	66,000	28,000	36,000	6,700		8,000	91,000	53,000	36,000
3,170	1/8	6,000	66,000	28,000	36,000	6,750	17/64	8,000	91,000	53,000	36,000
3,200		6,000	66,000	28,000	36,000	6,800		8,000	91,000	53,000	36,000
3,250		6,000	66,000	28,000	36,000	6,900		8,000	91,000	53,000	36,000
3,300		6,000	66,000	28,000	36,000	7,000		8,000	91,000	53,000	36,000
3,400		6,000	66,000	28,000	36,000	7,100		8,000	91,000	53,000	36,000
3,500		6,000	66,000	28,000	36,000	7,140	9/32	8,000	91,000	53,000	36,000
3,570	9/64	6,000	66,000	28,000	36,000	7,200		8,000	91,000	53,000	36,000
3,600		6,000	66,000	28,000	36,000	7,300		8,000	91,000	53,000	36,000
3,700		6,000	66,000	28,000	36,000	7,400		8,000	91,000	53,000	36,000
3,800		6,000	74,000	36,000	36,000	7,500		8,000	91,000	53,000	36,000
3,900		6,000	74,000	36,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,970	5/32	6,000	74,000	36,000	36,000	7,600		8,000	91,000	53,000	36,000
4,000		6,000	74,000	36,000	36,000	7,700		8,000	91,000	53,000	36,000
4,100		6,000	74,000	36,000	36,000	7,800		8,000	91,000	53,000	36,000
4,200		6,000	74,000	36,000	36,000	7,900		8,000	91,000	53,000	36,000
4,300		6,000	74,000	36,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,370	11/64	6,000	74,000	36,000	36,000	8,000		8,000	91,000	53,000	36,000
4,400		6,000	74,000	36,000	36,000	8,100		10,000	103,000	61,000	40,000
4,500		6,000	74,000	36,000	36,000	8,200		10,000	103,000	61,000	40,000
4,600		6,000	74,000	36,000	36,000	8,300		10,000	103,000	61,000	40,000
4,650		6,000	74,000	36,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,700		6,000	74,000	36,000	36,000	8,400		10,000	103,000	61,000	40,000
4,760	3/16	6,000	82,000	44,000	36,000	8,500		10,000	103,000	61,000	40,000
4,800		6,000	82,000	44,000	36,000	8,600		10,000	103,000	61,000	40,000
4,900		6,000	82,000	44,000	36,000	8,700		10,000	103,000	61,000	40,000
5,000		6,000	82,000	44,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
5,100		6,000	82,000	44,000	36,000	8,800		10,000	103,000	61,000	40,000
5,160	13/64	6,000	82,000	44,000	36,000	8,900		10,000	103,000	61,000	40,000
5,200		6,000	82,000	44,000	36,000	9,000		10,000	103,000	61,000	40,000
5,300		6,000	82,000	44,000	36,000	9,100		10,000	103,000	61,000	40,000
5,400		6,000	82,000	44,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,500		6,000	82,000	44,000	36,000	9,200		10,000	103,000	61,000	40,000
5,550		6,000	82,000	44,000	36,000	9,250		10,000	103,000	61,000	40,000
5,560	7/32	6,000	82,000	44,000	36,000	9,300		10,000	103,000	61,000	40,000
5,600		6,000	82,000	44,000	36,000	9,400		10,000	103,000	61,000	40,000
5,700		6,000	82,000	44,000	36,000	9,500		10,000	103,000	61,000	40,000
5,800		6,000	82,000	44,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,900		6,000	82,000	44,000	36,000	9,600		10,000	103,000	61,000	40,000
5,950	15/64	6,000	82,000	44,000	36,000	9,700		10,000	103,000	61,000	40,000
6,000		6,000	82,000	44,000	36,000	9,800		10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	9,900		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,300		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,350	1/4	8,000	91,000	53,000	36,000	10,100		12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	10,300		12,000	118,000	71,000	45,000

Die Roststreifen

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
10,320	13/32	12,000	118,000	71,000	45,000	13,500		14,000	124,000	77,000	45,000
10,400		12,000	118,000	71,000	45,000	13,700		14,000	124,000	77,000	45,000
10,500		12,000	118,000	71,000	45,000	14,000		14,000	124,000	77,000	45,000
10,600		12,000	118,000	71,000	45,000	14,200		16,000	133,000	83,000	48,000
10,700		12,000	118,000	71,000	45,000	14,290	9/16	16,000	133,000	83,000	48,000
10,800		12,000	118,000	71,000	45,000	14,500		16,000	133,000	83,000	48,000
10,900		12,000	118,000	71,000	45,000	14,700		16,000	133,000	83,000	48,000
11,000		12,000	118,000	71,000	45,000	15,000		16,000	133,000	83,000	48,000
11,100		12,000	118,000	71,000	45,000	15,200		16,000	133,000	83,000	48,000
11,110	7/16	12,000	118,000	71,000	45,000	15,500		16,000	133,000	83,000	48,000
11,200		12,000	118,000	71,000	45,000	15,700		16,000	133,000	83,000	48,000
11,300		12,000	118,000	71,000	45,000	16,000		16,000	133,000	83,000	48,000
11,400		12,000	118,000	71,000	45,000	16,500		18,000	143,000	93,000	48,000
11,500		12,000	118,000	71,000	45,000	17,000		18,000	143,000	93,000	48,000
11,600		12,000	118,000	71,000	45,000	17,500		18,000	143,000	93,000	48,000
11,700		12,000	118,000	71,000	45,000	18,000		18,000	143,000	93,000	48,000
11,800		12,000	118,000	71,000	45,000	18,500		20,000	153,000	101,000	50,000
11,900		12,000	118,000	71,000	45,000	19,000		20,000	153,000	101,000	50,000
11,910	15/32	12,000	118,000	71,000	45,000	19,500		20,000	153,000	101,000	50,000
12,000		12,000	118,000	71,000	45,000	20,000		20,000	153,000	101,000	50,000
12,200		14,000	124,000	77,000	45,000						
12,500		14,000	124,000	77,000	45,000						
12,700	1/2	14,000	124,000	77,000	45,000						
13,000		14,000	124,000	77,000	45,000						

## SuperV-Bohrer

### SuperV-Bohrer, 3-schneidig



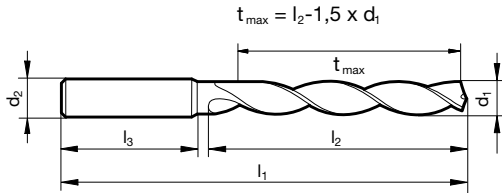
Katalog-Nr. 71862



P	M	K	N	S	H
		•	•		

Arbeitsrichtwerte  
Seite 95

- Ausspitzung  $\geq \varnothing 3,000$
- Spiropointanschiff
- weite Spannuten
- optimales Zentrieren
- für unterbrochenen Schnitt geeignet



d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
3,000	6,000	66,000	28,000	36,000
3,100	6,000	66,000	28,000	36,000
3,200	6,000	66,000	28,000	36,000
3,300	6,000	66,000	28,000	36,000
3,500	6,000	66,000	28,000	36,000
3,700	6,000	66,000	28,000	36,000
3,800	6,000	74,000	36,000	36,000
4,000	6,000	74,000	36,000	36,000
4,100	6,000	74,000	36,000	36,000
4,200	6,000	74,000	36,000	36,000
4,500	6,000	74,000	36,000	36,000
4,800	6,000	82,000	44,000	36,000
5,000	6,000	82,000	44,000	36,000
5,100	6,000	82,000	44,000	36,000
5,200	6,000	82,000	44,000	36,000
5,300	6,000	82,000	44,000	36,000
5,500	6,000	82,000	44,000	36,000
5,800	6,000	82,000	44,000	36,000
6,000	6,000	82,000	44,000	36,000
6,100	8,000	91,000	53,000	36,000
6,200	8,000	91,000	53,000	36,000
6,400	8,000	91,000	53,000	36,000
6,500	8,000	91,000	53,000	36,000
6,700	8,000	91,000	53,000	36,000
6,800	8,000	91,000	53,000	36,000
6,900	8,000	91,000	53,000	36,000
7,000	8,000	91,000	53,000	36,000
7,100	8,000	91,000	53,000	36,000
7,400	8,000	91,000	53,000	36,000
7,500	8,000	91,000	53,000	36,000
7,800	8,000	91,000	53,000	36,000
8,000	8,000	91,000	53,000	36,000
8,100	10,000	103,000	61,000	40,000
8,200	10,000	103,000	61,000	40,000
8,400	10,000	103,000	61,000	40,000
8,500	10,000	103,000	61,000	40,000

d1 mm	d2 mm	l1 mm	l2 mm	l3 mm
8,600	10,000	103,000	61,000	40,000
8,700	10,000	103,000	61,000	40,000
8,800	10,000	103,000	61,000	40,000
9,000	10,000	103,000	61,000	40,000
9,100	10,000	103,000	61,000	40,000
9,500	10,000	103,000	61,000	40,000
9,800	10,000	103,000	61,000	40,000
10,000	10,000	103,000	61,000	40,000
10,100	12,000	118,000	71,000	45,000
10,200	12,000	118,000	71,000	45,000
10,300	12,000	118,000	71,000	45,000
10,500	12,000	118,000	71,000	45,000
11,000	12,000	118,000	71,000	45,000
11,200	12,000	118,000	71,000	45,000
11,500	12,000	118,000	71,000	45,000
11,800	12,000	118,000	71,000	45,000
12,000	12,000	118,000	71,000	45,000
12,100	14,000	124,000	77,000	45,000
12,500	14,000	124,000	77,000	45,000
13,000	14,000	124,000	77,000	45,000
13,500	14,000	124,000	77,000	45,000
14,000	14,000	124,000	77,000	45,000
14,100	16,000	133,000	83,000	48,000
14,500	16,000	133,000	83,000	48,000
15,000	16,000	133,000	83,000	48,000
15,500	16,000	133,000	83,000	48,000
16,000	16,000	133,000	83,000	48,000
16,500	18,000	143,000	93,000	48,000
17,000	18,000	143,000	93,000	48,000
17,500	18,000	143,000	93,000	48,000
18,000	18,000	143,000	93,000	48,000
18,500	20,000	153,000	101,000	50,000
19,000	20,000	153,000	101,000	50,000
19,500	20,000	153,000	101,000	50,000
20,000	20,000	153,000	101,000	50,000



## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

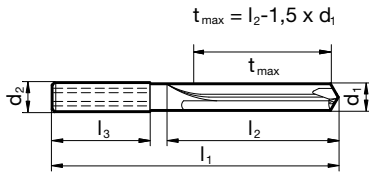


Katalog-Nr. 71995



P	M	K	N	S	H	Arbeitsrichtwerte Seite 93
		●	○			

- Ausspitzung  $\geq \text{Ø } 3,000$
- Kegelmantelanschliff
- enge Durchmessertoleranzen
- sehr gute Bohrschuldenoberflächen
- Kühlmittel druck beachten (s. Diagramm „Kühlmitteltempfehlungen“)



d1		d2	l1	l2	l3	d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm	mm	inch	mm	mm	mm	mm
3,000		6,000	66,000	24,000	36,000	7,200		8,000	91,000	53,000	36,000
3,100		6,000	66,000	24,000	36,000	7,300		8,000	91,000	53,000	36,000
3,200		6,000	66,000	24,000	36,000	7,400		8,000	91,000	53,000	36,000
3,300		6,000	66,000	24,000	36,000	7,500		8,000	91,000	53,000	36,000
3,400		6,000	66,000	24,000	36,000	7,540	19/64	8,000	91,000	53,000	36,000
3,500		6,000	66,000	24,000	36,000	7,600		8,000	91,000	53,000	36,000
3,600		6,000	66,000	24,000	36,000	7,700		8,000	91,000	53,000	36,000
3,700		6,000	66,000	24,000	36,000	7,800		8,000	91,000	53,000	36,000
3,800		6,000	74,000	30,000	36,000	7,900		8,000	91,000	53,000	36,000
3,900		6,000	74,000	30,000	36,000	7,940	5/16	8,000	91,000	53,000	36,000
4,000		6,000	74,000	30,000	36,000	8,000		8,000	91,000	53,000	36,000
4,100		6,000	74,000	30,000	36,000	8,100		10,000	103,000	61,000	40,000
4,200		6,000	74,000	30,000	36,000	8,200		10,000	103,000	61,000	40,000
4,300		6,000	74,000	30,000	36,000	8,300		10,000	103,000	61,000	40,000
4,400		6,000	74,000	30,000	36,000	8,330	21/64	10,000	103,000	61,000	40,000
4,500		6,000	74,000	30,000	36,000	8,400		10,000	103,000	61,000	40,000
4,600		6,000	74,000	30,000	36,000	8,500		10,000	103,000	61,000	40,000
4,700		6,000	74,000	30,000	36,000	8,700		10,000	103,000	61,000	40,000
4,800		6,000	74,000	36,000	36,000	8,730	11/32	10,000	103,000	61,000	40,000
4,900		6,000	74,000	36,000	36,000	8,800		10,000	103,000	61,000	40,000
5,000		6,000	74,000	36,000	36,000	8,900		10,000	103,000	61,000	40,000
5,100		6,000	74,000	36,000	36,000	9,000		10,000	103,000	61,000	40,000
5,160	13/64	6,000	74,000	36,000	36,000	9,100		10,000	103,000	61,000	40,000
5,200		6,000	74,000	36,000	36,000	9,130	23/64	10,000	103,000	61,000	40,000
5,300		6,000	74,000	36,000	36,000	9,200		10,000	103,000	61,000	40,000
5,400		6,000	74,000	36,000	36,000	9,300		10,000	103,000	61,000	40,000
5,500		6,000	74,000	36,000	36,000	9,400		10,000	103,000	61,000	40,000
5,560	7/32	6,000	74,000	36,000	36,000	9,500		10,000	103,000	61,000	40,000
5,600		6,000	74,000	36,000	36,000	9,520	3/8	10,000	103,000	61,000	40,000
5,700		6,000	74,000	36,000	36,000	9,600		10,000	103,000	61,000	40,000
5,800		6,000	74,000	36,000	36,000	9,700		10,000	103,000	61,000	40,000
5,900		6,000	74,000	36,000	36,000	9,800		10,000	103,000	61,000	40,000
5,950	15/64	6,000	74,000	36,000	36,000	9,900		10,000	103,000	61,000	40,000
6,000		6,000	74,000	36,000	36,000	9,920	25/64	10,000	103,000	61,000	40,000
6,100		8,000	91,000	53,000	36,000	10,000		10,000	103,000	61,000	40,000
6,200		8,000	91,000	53,000	36,000	10,200		12,000	118,000	71,000	45,000
6,300		8,000	91,000	53,000	36,000	10,500		12,000	118,000	71,000	45,000
6,350	1/4	8,000	91,000	53,000	36,000	10,720	27/64	12,000	118,000	71,000	45,000
6,400		8,000	91,000	53,000	36,000	11,000		12,000	118,000	71,000	45,000
6,500		8,000	91,000	53,000	36,000	11,110	7/16	12,000	118,000	71,000	45,000
6,600		8,000	91,000	53,000	36,000	11,200		12,000	118,000	71,000	45,000
6,700		8,000	91,000	53,000	36,000	11,500		12,000	118,000	71,000	45,000
6,750	17/64	8,000	91,000	53,000	36,000	11,510	29/64	12,000	118,000	71,000	45,000
6,800		8,000	91,000	53,000	36,000	11,910	15/32	12,000	118,000	71,000	45,000
6,900		8,000	91,000	53,000	36,000	12,000		12,000	118,000	71,000	45,000
7,000		8,000	91,000	53,000	36,000	12,300	31/64	14,000	124,000	74,000	45,000
7,100		8,000	91,000	53,000	36,000	12,500		14,000	124,000	74,000	45,000
7,140	9/32	8,000	91,000	53,000	36,000	12,700	1/2	14,000	124,000	74,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm	d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
13,000		14,000	124,000	74,000	45,000	19,000		20,000	153,000	101,000	50,000
13,500		14,000	124,000	74,000	45,000	19,500		20,000	153,000	101,000	50,000
14,000		14,000	124,000	74,000	45,000	20,000		20,000	153,000	101,000	50,000
14,500		16,000	133,000	83,000	48,000	21,500		25,000	168,000	110,000	56,000
15,000		16,000	133,000	83,000	48,000						
15,500		16,000	133,000	83,000	48,000						
16,000		16,000	133,000	83,000	48,000						
16,500		18,000	143,000	93,000	48,000						
17,000		18,000	143,000	93,000	48,000						
17,500		18,000	143,000	93,000	48,000						
18,000		18,000	143,000	93,000	48,000						
18,500		20,000	153,000	101,000	50,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

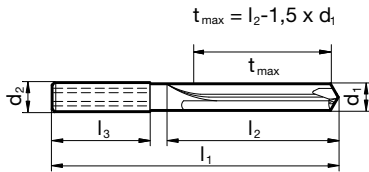


Katalog-Nr. 71994



P	M	K	N	S	H	Arbeitsrichtwerte Seite 97
		●	○			

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelschliff
- enge Durchmessertoleranzen
- sehr gute Bohrschuldenoberflächen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1	inch	d2	l1	l2	l3	d1	inch	d2	l1	l2	l3
mm		mm	mm	mm	mm	mm		mm	mm	mm	mm
3,000		6,000	74,000	32,000	36,000	10,000		10,000	139,000	95,000	40,000
3,100		6,000	74,000	32,000	36,000	10,200		12,000	163,000	114,000	45,000
3,200		6,000	74,000	32,000	36,000	10,500		12,000	163,000	114,000	45,000
3,300		6,000	74,000	32,000	36,000	11,000		12,000	163,000	114,000	45,000
3,500		6,000	74,000	34,000	36,000	11,500		12,000	163,000	114,000	45,000
3,600		6,000	74,000	34,000	36,000	12,000		12,000	163,000	114,000	45,000
3,700		6,000	74,000	34,000	36,000	12,300	31/64	14,000	182,000	133,000	45,000
3,800		6,000	97,000	45,000	36,000	12,500		14,000	182,000	133,000	45,000
3,900		6,000	97,000	45,000	36,000	12,700	1/2	14,000	182,000	133,000	45,000
4,000		6,000	97,000	45,000	36,000	13,000		14,000	182,000	133,000	45,000
4,100		6,000	97,000	45,000	36,000	13,500		14,000	182,000	133,000	45,000
4,200		6,000	97,000	45,000	36,000	14,000		14,000	182,000	133,000	45,000
4,300		6,000	97,000	45,000	36,000	14,500		16,000	204,000	152,000	48,000
4,400		6,000	97,000	45,000	36,000	15,000		16,000	204,000	152,000	48,000
4,500		6,000	97,000	45,000	36,000	15,500		16,000	204,000	152,000	48,000
4,700		6,000	97,000	45,000	36,000	16,000		16,000	204,000	152,000	48,000
4,800		6,000	97,000	57,000	36,000	16,500		18,000	223,000	171,000	48,000
4,900		6,000	97,000	57,000	36,000	17,000		18,000	223,000	171,000	48,000
5,000		6,000	97,000	57,000	36,000	17,500		18,000	223,000	171,000	48,000
5,500		6,000	97,000	57,000	36,000	18,000		18,000	223,000	171,000	48,000
6,000		6,000	97,000	57,000	36,000	18,500		20,000	244,000	190,000	50,000
6,500		8,000	116,000	76,000	36,000	19,000		20,000	244,000	190,000	50,000
6,800		8,000	116,000	76,000	36,000	19,500		20,000	244,000	190,000	50,000
7,000		8,000	116,000	76,000	36,000	20,000		20,000	244,000	190,000	50,000
7,500		8,000	116,000	76,000	36,000						
7,800		8,000	116,000	76,000	36,000						
8,000		8,000	116,000	76,000	36,000						
8,500		10,000	139,000	95,000	40,000						
9,000		10,000	139,000	95,000	40,000						
9,500		10,000	139,000	95,000	40,000						

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung

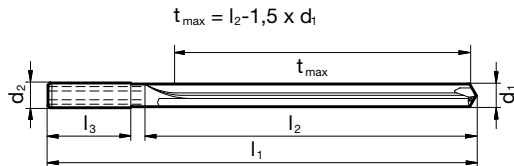


Katalog-Nr. 71996



P	M	K	N	S	H	Arbeitsrichtwerte Seite 97
		●	○			

- Ausspitzung  $\geq \varnothing 3,000$
- Kegelmantelanschiff
- enge Durchmessertoleranzen
- sehr gute Bohrungsoberflächen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)



d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
3,000		6,000	91,000	42,000	36,000
3,300		6,000	91,000	42,000	36,000
3,500		6,000	91,000	48,000	36,000
3,800		6,000	121,000	77,000	36,000
4,000		6,000	121,000	77,000	36,000
4,200		6,000	121,000	77,000	36,000
4,500		6,000	121,000	77,000	36,000
4,700		6,000	121,000	77,000	36,000
4,800		6,000	121,000	82,000	36,000
5,000		6,000	121,000	82,000	36,000
5,500		6,000	121,000	82,000	36,000
6,000		6,000	121,000	82,000	36,000
6,350	1/4	8,000	146,000	106,000	36,000
6,500		8,000	146,000	106,000	36,000
6,800		8,000	146,000	106,000	36,000
7,000		8,000	146,000	106,000	36,000
7,500		8,000	146,000	106,000	36,000
7,800		8,000	146,000	106,000	36,000
8,000		8,000	146,000	106,000	36,000
8,500		10,000	175,000	130,000	40,000
9,000		10,000	175,000	130,000	40,000
9,500		10,000	175,000	130,000	40,000
10,000		10,000	175,000	130,000	40,000
10,200		12,000	209,000	159,000	45,000

d1		d2	l1	l2	l3
mm	inch	mm	mm	mm	mm
10,500		12,000	209,000	159,000	45,000
11,000		12,000	209,000	159,000	45,000
11,500		12,000	209,000	159,000	45,000
12,000		12,000	209,000	159,000	45,000
12,500		14,000	233,000	183,000	45,000
12,700	1/2	14,000	233,000	183,000	45,000
13,000		14,000	233,000	183,000	45,000
13,500		14,000	233,000	183,000	45,000
14,000		14,000	233,000	183,000	45,000
14,500		16,000	260,000	207,000	48,000
15,000		16,000	260,000	207,000	48,000
15,500		16,000	260,000	207,000	48,000
16,000		16,000	260,000	207,000	48,000
16,500		18,000	284,000	231,000	48,000
17,000		18,000	284,000	231,000	48,000
17,500		18,000	284,000	231,000	48,000
18,000		18,000	284,000	231,000	48,000
18,500		20,000	308,000	255,000	50,000
19,000		20,000	308,000	255,000	50,000
19,500		20,000	308,000	255,000	50,000
20,000		20,000	308,000	255,000	50,000

## SuperV-Bohrer

### SuperV-Bohrer mit Innenkühlung



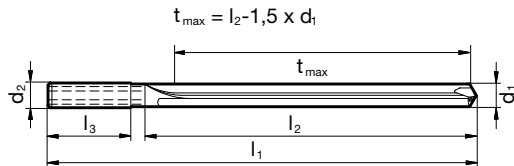
Katalog-Nr. 71997



P	M	K	N	S	H
		•	○		

Arbeitsrichtwerte  
Seite 99

- Ausspitzung  $\geq \varnothing 5,000$
- Kegelmantelschliff
- negative Steigung
- für sehr maßhaltige Bohrungen
- sehr gute Bohrungsflächen
- Kühlmitteldruck beachten (s. Diagramm „Kühlmittlempfehlungen“)

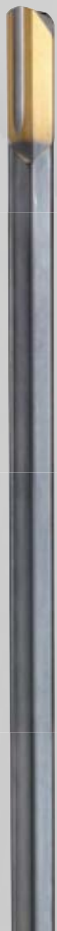


d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
5,000		6,000	145,000	105,000	36,000
6,000		6,000	145,000	105,000	36,000
8,000		8,000	180,000	137,000	36,000
9,000		10,000	217,000	170,000	40,000
10,000		10,000	217,000	170,000	40,000
11,000		12,000	258,000	205,000	45,000

d1 mm	inch	d2 mm	l1 mm	l2 mm	l3 mm
12,000		12,000	258,000	205,000	45,000
14,000		14,000	290,000	236,000	45,000

Weitere Bohrwerkzeuge  
finden Sie im Hauptkatalog

SuperV-AP  
SuperT



**STOCK**



ANWENDUNGSHINWEISE +  

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ARBEITSRICHTWERTE

# Anwendung

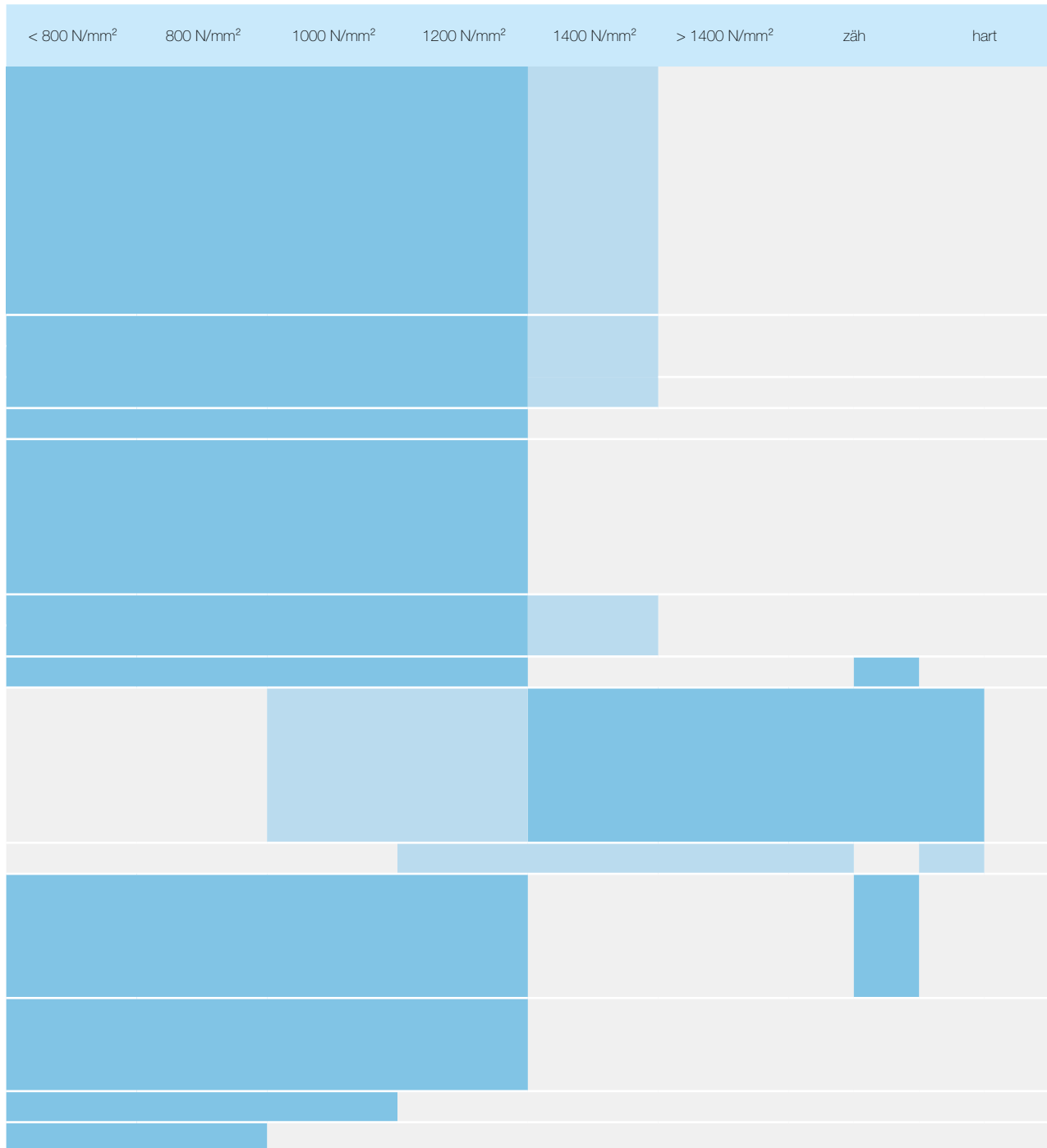
## Zuordnung nach Werkstoffen

	Typ	Katalog-Nr.		Nichteisenmetalle, Aluminium	Stähle	GG, GGG	rost- und säurebest. Stähle	Nickel, Ti- Legierungen	Gehärtete Stähle
		ohne IK	mit IK						
Die Universellen	SuperV-U	51873	51776		■				
		51871	51876		■				
		51787	51781		■				
		51887	51881		■				
		51687	51789		■				
			51889		■				
			51893		■				
			51681		■				
Die Universellen Kleinen	SuperV-NX	71998	51997		■				
		71999	51998		■				
			51999		■				
	SuperV-M	51720			■				
Die Universellen Langen	SuperV-T		51764		■		■		
			51765		■		■		
			51766		■		■		
			51767		■		■		
			51768		■		■		
Die Speziellen	SuperV-UX		51785		■				
			51790		verbesserte Schnittwerte				
	SuperV70-NX	51783	51784		■		■		
	SuperV-S	51750	51752		■		■	■	
			51753		■		■	■	
			51754		■		■	■	
			51755		■		■	■	
	51756		■		■	■			
SuperV-F	61888	61880		■		■			
Die Rostfreien	SuperV-VA		51770		■		■	■	
			51771		■		■	■	
			51772		■		■	■	
			51773		■		■	■	
Die Leichten	SuperV95-GG		71995		■	■			
			71994		■	■			
			71996		■	■			
	SuperV95-GN		71997		■	■			
	SuperV83-GAL	71862			■	■			

■ optimal    ■ gut geeignet



## Zuordnung nach Zugfestigkeit



# SuperV-Bohrer

## Arbeitsrichtwerte

Vorschubreihen											
Code-Buchstabe	A	B	C	D	E	F	G	H	I		
Werkzeug-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019	Vorschübe f (mm/U)
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025	
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160	
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200	
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315	
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400	
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630	
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800	
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250	

Werkzeuge mit fett gedruckten Vorschubreihen-Codebuchstaben sind für die entsprechende Werkstoffgruppe vorrangig einzusetzen.

### K, P, K/P

Die universelle Einsetzbarkeit unserer neuen K-Hartmetalle hat u.a. auch zur Folge, dass wir die HM-Anwendungsgruppen nur noch mit K bzw. K/P definieren.

Bedeutung der Kennbuchstaben bei den Typbezeichnungen:

- G** für Guss, AlSi-Legierungen
- S** für hochfeste Werkstoffe
- U/F** für Universalbearbeitung, Kohlenstoffstähle
- VA** für rostfreie Werkstoffe
- UX** für Stahlbearbeitung

\* stark verjüngte Werkzeuge einsetzen

### Kühlmitteleinsatz:

- Schneidöl, hochaktiviert
- Bohrölemulsion
- ohne Schmiermittel
- nur Luftkühlung

Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	>850-≤1000 ≥1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kugelgraphit- und Temperguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMw-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0790</b> CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, duroplastisch	Epoxidharz, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
thermoplastisch	Plexiglas, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kunststoffe, aramidfaserverstärkt	Kevlar		-	<input type="checkbox"/>
glas-/kohlefaserverstärkt	GFK/CFK		-	<input type="checkbox"/>



# SuperV-Bohrer

## Arbeitsrichtwerte

Vorschubreihen										
Code-Buchstabe	A	B	C	D	E	F	G	H	I	
Werkzeug-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Werkzeuge mit fett gedruckten Vorschubreihen-Codebuchstaben sind für die entsprechende Werkstoffgruppe vorrangig einzusetzen.

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\* stark verjüngte Werkzeuge einsetzen

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- Schneidöl, hochaktiviert
- Bohrölemulsion
- ohne Schmiermittel
- nur Luftkühlung

Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	>850-≤1000 ≥1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kugelgraphit- und Temperguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMw-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0790</b> CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, duroplastisch	Epoxidharz, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
thermoplastisch	Plexiglas, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kunststoffe, aramidfaserverstärkt	Kevlar		-	<input type="checkbox"/>
glas-/kohlefaserverstärkt	GFK/CFK		-	<input type="checkbox"/>



# SuperV-Bohrer

## Arbeitsrichtwerte

Vorschubreihen										
Code-Buchstabe	A	B	C	D	E	F	G	H	I	
Werkzeug-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Werkzeuge mit fett gedruckten Vorschubreihen-Codebuchstaben sind für die entsprechende Werkstoffgruppe vorrangig einzusetzen.

### K, P, K/P

Die universelle Einsetzbarkeit unserer neuen K-Hartmetalle hat u.a. auch zur Folge, dass wir die HM-Anwendungsgruppen nur noch mit K bzw. K/P definieren.

Bedeutung der Kennbuchstaben bei den Typbezeichnungen:

- G** für Guss, AlSi-Legierungen
- S** für hochfeste Werkstoffe
- U/F** für Universalbearbeitung, Kohlenstoffstähle
- VA** für rostfreie Werkstoffe
- UX** für Stahlbearbeitung

\* stark verjüngte Werkzeuge einsetzen

### Kühlmitteleinsatz:

- Schneidöl, hochaktiviert
- Bohrölemulsion
- ohne Schmiermittel
- nur Luftkühlung

Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kugelgraphit- und Temperguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMw-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si > 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend langspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 >600-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, duroplastisch thermoplastisch	Epoxidharz, Resopal, Pertinax, Moltopren Plexiglas, Hostalen, Novodur, Makralon		-	<input type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, aramidfaserverstärkt glas-/kohlefaserverstärkt	Kevlar GFK/CFK		-	<input type="checkbox"/> <input type="checkbox"/>

# ≤5×D Bohrtiefe

Katalog-Nr.	<b>51681</b>	<b>51781</b>	<b>51881</b>
Schneidstoff	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>
HM-Anwendgsgr.	K/P	K/P	K/P
Oberfläche	TiAlN nano	TiAlN nano	TiAlN nano
DIN/Form	<b>6537L</b>	<b>6537L</b>	<b>6537L</b>
Typ	U	U	U
Innenkühlung	<b>mit</b>	<b>mit</b>	<b>mit</b>
Katalogseite	36	32	34

<b>51754</b>	<b>51755</b>
<b>VHM</b>	<b>VHM</b>
K/P	K/P
TiAlSiN	TiAlSiN
<b>6537L</b>	<b>6537L</b>
S	S
<b>mit</b>	<b>mit</b>
65	67

<b>51772</b>	<b>51773</b>
<b>VHM</b>	<b>VHM</b>
K/P	K/P
AlTiN nano	AlTiN nano
<b>6537L</b>	<b>6537L</b>
VA	VA
<b>mit</b>	<b>mit</b>
76	78

<b>51785</b>
<b>VHM</b>
K/P
TiAlN nano
<b>6537L</b>
UX
<b>mit</b>
57

<b>71862</b>
<b>VHM</b>
K
blank
<b>6537L</b>
V83-GAL
<b>ohne</b>
80



V <sub>c</sub> m/min	VR-Code			V <sub>c</sub> m/min	VR-Code			V <sub>c</sub> m/min	VR-Code			V <sub>c</sub> m/min	VR-Code		
145	G	G	G	145	G	G		145-230	H						
120	F	F	F	120	F	F		120-220	G						
170	H	H	H	170	H	H		170-260	H						
145	H	H	H	145	H	H		145-230	H						
130	H	H	H	130	H	H		130-220	H						
125	G	G	G	125	G	G		125-210	G						
120	G	G	G	120	G	G		120-200	G						
120	G	G	G	120	G	G		120-210	G						
105	G	G	G	105	G	G		105-200	G						
145	H	H	H	145	H	H		145-230	H						
120	G	G	G	120	G	G		120-210	G						
85	E	E	E	85	E	E		105-200	F						
105	G	G	G	110	G	G		110-150	G						
100	E	E	E	105	E	E		100-150	E						
70	F	F	F	80	F	F		70-120	F						
55	E	E	E	65	E	E		55-100	E						
60	E	E	E	60	D	D		60-100	E						
60	C	C	C	60	C	C		60-100	E						
55	C	C	C	55	C	C									
35	B	B	B	35	B	B									
60	E	E	E				80	E	E						
55	B	B	B				60	B-C	B-C						
50	E	E	E				80	E	E						
195	I	I	I								100	F			
160	I	I	I								80	F			
140	I	I	I								80	F			
130	H	H	H								70	F			
40	C	C	C												
35	D	D	D	35	D	D	30	D	D						
45	D	D	D	45	D	D	45	D	D						
40	C	C	C	40	C	C	40	C	C						
310	I	I	I								180	G			
310	I	I	I								160	G			
260	I	I	I								150	G			
220	I	I	I								120	F			
280	H	H	H								180	F			
125	G	G	G												
325	H	H	H								180	F			
220	G	G	G												
125	G	G	G												
105	F	F	F												
90	F	F	F												
80	F	F	F												

# SuperV-Bohrer

## Arbeitsrichtwerte

Vorschubreihen										
Code-Buchstabe	A	B	C	D	E	F	G	H	I	
Werkzeug-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
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	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
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	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

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\* stark verjüngte Werkzeuge einsetzen

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- Bohrölemulsion
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Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kugelgraphit- und Temperguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMw-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9	≤600		<input checked="" type="checkbox"/>
> 10 % Si	<b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600		<input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5812.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0790</b> CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, duroplastisch	Epoxidharz, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
thermoplastisch	Plexiglas, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kunststoffe, aramidfaserverstärkt	Kevlar		-	<input type="checkbox"/>
glas-/kohlefaserverstärkt	GFK/CFK		-	<input type="checkbox"/>



# ≤7×D Bohrtiefe

# ≤8×D

# ≤10×D

Katalog-Nr.	51789	51889	51756	71994	51790	71996
Schneidstoff	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>
HM-Anwendgsgr.	K/P	K/P	K/P	K	K	K
Oberfläche	TiAlN nano	TiAlN nano	TiAlSiN	blank	TiAlN nano	blank
DIN/Form	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>
Typ	U	U	S	V95-GG	UX	V95-GG
Innenkühlung	<b>mit</b>	<b>mit</b>	<b>mit</b>	<b>mit</b>	<b>mit</b>	<b>mit</b>
Katalogseite	38	39	69	83	59	84



V <sub>c</sub> m/min	VR-Code		V <sub>c</sub> m/min	VR-Code		V <sub>c</sub> m/min	VR-Code		V <sub>c</sub> m/min	VR-Code	
145	F	F	145	F		145-230	G				
120	E	E	120	E		120-220	F				
170	G	G	170	G		170-260	G				
145	G	G	145	G		145-230	G				
130	G	G	130	G		130-220	G				
125	F	F	125	F		125-210	F				
120	F	F	120	F		120-200	F				
120	F	F	120	F		120-210	F				
105	F	F	105	F		105-200	F				
145	G	G	145	G		145-230	G				
120	F	F	120	F		120-210	F				
85	D	D	85	D		105-200	E				
110	F	F	110	F		110-150	F				
105	D	D	105	D		100-150	D				
80	E	E	80	E		70-120	E				
65	D	D	65	D		65-100	D				
60	D	D	60	C		60-100	D				
60	B	B	60	B		60-100	D				
55	B	B	55	B							
35	A	A	35	A							
60	D	D									
55	B	B									
45	D	D									
195	H	H			120	F			120	F	
160	H	H			100	F			100	F	
140	H	H			90	F			90	F	
130	G	G			80	F			80	F	
40	B	B			40	B			40	A	
35	C	C	35	C							
40	C	C	45	C							
40	B	B	40	D							
310	H	H			410	H			410	H	
310	H	H			410	H			410	H	
260	H	H			380	H			380	H	
220	H	H			330	H			330	H	
280	G	G									
125	F	F									
325	G	G			280	G			280	G	
220	F	F									
125	F	F			110	F			110	F	
105	E	E			80	E			80	E	
90	E	E									
80	E	E									

# SuperV-Bohrer

## Arbeitsrichtwerte

		Vorschubreihen								
Code-Buchstabe	A	B	C	D	E	F	G	H	I	
Werkzeug-Ø mm	0,50	0,004	0,006	0,007	0,008	0,010	0,012	0,014	0,016	0,019
	1,00	0,006	0,008	0,012	0,014	0,016	0,018	0,020	0,023	0,025
	2,00	0,020	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125
	2,50	0,025	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160
	3,15	0,032	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,160
	4,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,200
	5,00	0,040	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250
	6,30	0,050	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315
	8,00	0,063	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,315
	10,00	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,400
	12,50	0,080	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500
	16,00	0,100	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630
	20,00	0,125	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,630
	25,00	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	0,800
	31,50	0,160	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000
	40,00	0,200	0,250	0,315	0,400	0,500	0,630	0,800	1,000	1,250

Werkzeuge mit fett gedruckten Vorschubreihen-Codebuchstaben sind für die entsprechende Werkstoffgruppe vorrangig einzusetzen.

### K, P, K/P

Die universelle Einsetzbarkeit unserer neuen K-Hartmetalle hat u.a. auch zur Folge, dass wir die HM-Anwendungsgruppen nur noch mit K bzw. K/P definieren.

Bedeutung der Kennbuchstaben bei den Typbezeichnungen:

**G** für Guss, AlSi-Legierungen

**S** für hochfeste Werkstoffe

**U/F** für Universalbearbeitung, Kohlenstoffstähle

**VA** für rostfreie Werkstoffe

**UX** für Stahlbearbeitung

\* stark verjüngte Werkzeuge einsetzen

### Einsatzhinweise SuperV-T-Bohrer:

Um bei tiefen Bohrungen optimale Bearbeitungsergebnisse zu erzielen, empfehlen wir:

- Herstellen einer zylindrischen Pilotbohrung (Toleranz F9), Bohrtiefe 1 x D mit unseren SuperV-Bohrern Typ U bzw. VA (140° Spitzwinkel, Ø-Toleranz m7). Alternativ kann auch der Pilotbohrfräser Artikel-Nr. 54700 eingesetzt werden.
- Einfahren in Pilotbohrung: Drehzahl ca. 300 U/min, Vorschub ca. 500 mm/min.
- Einstellen des Kühlschmierstoffdruckes und der Drehzahl.
- Kontinuierliches Bohren auf volle Bohrtiefe ohne Entspanzyklus.
- Bei Durchgangsbohrungen mit geradem (90°) Austritt,  $v_f$  ca. 1 mm vor dem Durchbrechen auf 50% reduzieren.
- Bei Durchgangsbohrungen mit schrägem Austritt,  $v_f$  ca. 1 mm vor dem Durchbrechen auf 40% reduzieren.
- Nach Erreichen der Bohrtiefe Drehzahl und Kühlschmierstoff abschalten, Ausfahren im Eilgang.

### Kühlmitteleinsatz:

- Schneidöl, hochaktiviert
- Bohrölemulsion
- ohne Schmiermittel
- nur Luftkühlung

Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kugelgraphit- und Temperguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMw-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si > 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend langspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2 <b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600 ≤600		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn <b>2.0790</b> CuNi18Zn19Pb	≤600 >600-850		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Kunststoffe, duroplastisch	Epoxidharz, Resopal, Pertinax, Moltopren		-	<input type="checkbox"/>
thermoplastisch	Plexiglas, Hostalen, Novodur, Makralon		-	<input checked="" type="checkbox"/>
Kunststoffe, aramidfaserverstärkt	Kevlar		-	<input type="checkbox"/>
glas-/kohlefaserverstärkt	GFK/CFK		-	<input type="checkbox"/>

≤12×D

≤15×D

≤20×D

≤25×D

≤30×D

≤40×D

Katalog-Nr.	<b>51893</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	TiAlN nano
DIN/Form	<b>WN</b>
Typ	U
Innenkühlung	<b>mit</b>
Katalogeseite	40

Katalog-Nr.	<b>71997</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K
Oberfläche	blank
DIN/Form	<b>WN</b>
Typ	V95-GN
Innenkühlung	<b>mit</b>
Katalogeseite	85

Katalog-Nr.	<b>51764</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	AlTiN
DIN/Form	<b>WN</b>
Typ	T
Innenkühlung	<b>mit</b>
Katalogeseite	47

Katalog-Nr.	<b>51765</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	AlTiN
DIN/Form	<b>WN</b>
Typ	T
Innenkühlung	<b>mit</b>
Katalogeseite	48

Katalog-Nr.	<b>51766</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	AlTiN
DIN/Form	<b>WN</b>
Typ	T
Innenkühlung	<b>mit</b>
Katalogeseite	49

Katalog-Nr.	<b>51767</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	AlTiN
DIN/Form	<b>WN</b>
Typ	T
Innenkühlung	<b>mit</b>
Katalogeseite	50

Katalog-Nr.	<b>51768</b>
Schneidstoff	<b>VHM</b>
HM-Anwendgsgr.	K/P
Oberfläche	AlTiN
DIN/Form	<b>WN</b>
Typ	T
Innenkühlung	<b>mit</b>
Katalogeseite	51



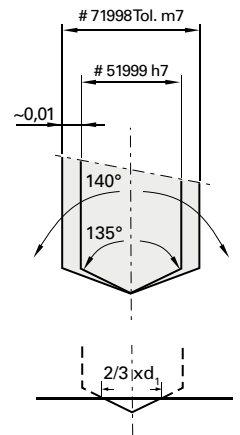
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110	F			110	H	110	H	100	H	80	G	80	G
110	E			110	H	110	H	100	H	80	G	80	G
110	G			120	H	120	H	120	H	100	H	100	H
100	G			120	H	120	H	100	H	100	H	100	H
110	G			110	F	110	F	110	F	110	F	110	F
110	F			110	H	110	H	100	H	80	G	80	G
100	F			100	G	100	G	100	G	80	G	80	G
110	F			110	G	110	G	100	G	80	G	80	F-G
105	F			110	F	110	F	100	F	80	F	80	F
110	G			110	H	110	H	100	H	80	G	80	G
110	F			110	G	110	G	100	G	80	F	80	F
85	D			110	F	110	F	100	F	80	F	80	F
100	F			100	E	100	E	80	E	80	E	80	E
80	D			80	E	80	E	60	E	60	E	60	E
80	E			100	F-G	100	F	90	F	80	F	80	F-G
65	D			80	E	80	E	70	D	70	D	70	D
50	D			50	E	50	E	50	D	50	D	50	D
50	B			50	E	50	E	50	D	50	D	50	D
				50	D	50	D	50	D	50	D	50	D
60	D			100	E	100	E	100	E	80	E	80	E
55	B			70	B-C	60	C	60	C	60	C	70	B-C
45	D			100	E	100	E	100	E	80	E	80	E
120	H	120	E	140	H	140	H	130	H	120	H	120	H
120	H	100	E	100	H	100	H	90	H	80	H	80	H
100	H	90	E	140	H	140	H	130	H	120	H	120	H
90	G	80	E	100	H	100	H	90	H	80	H	80	H
		40	A										
				100	F	100	F	90	F	80	F	80	F
				100	F	100	F	90	F	80	F	80	F
				90	H	90	H	80	H	70	H	70	H
				30	B	30	B	30	B	30	B	30	B
150	H	410	F										
150	H	410	F										
150	H	380	G										
120	H	330	G										
150	H												
80	F			120	A	120	A	120	A	120	A	120	A
120	G	280	F	120	H	120	H	110	H	100	H	100	H
120	F												
40	F	110	E										
		80	D										
40	E									F		F	
										F		F	
										H		H	

# SuperV-NX Hochleistungs-Kleinstbohrer

## Arbeitsrichtwerte

Vorschubreihen für Hochleistungs-Kleinstbohrer

Vorschub-Code	A	B	C	D	E	F	G	H	I	J	K	L	M	
Werkzeug-Ø mm	0,50	0,006	0,012	0,018	0,022	0,030	0,035	0,040	0,045	0,050	0,050	0,055	0,060	0,060
	0,80	0,008	0,016	0,024	0,032	0,040	0,050	0,060	0,070	0,080	0,080	0,080	0,090	0,090
	1,00	0,012	0,022	0,032	0,042	0,060	0,070	0,080	0,090	0,100	0,100	0,110	0,110	0,120
	1,50	0,021	0,036	0,051	0,066	0,090	0,100	0,120	0,130	0,150	0,150	0,160	0,170	0,180
	2,00	0,032	0,052	0,072	0,092	0,120	0,140	0,160	0,180	0,200	0,210	0,220	0,230	0,240
	2,50	0,045	0,070	0,095	0,120	0,150	0,170	0,200	0,220	0,250	0,260	0,270	0,280	0,300
	3,00	0,060	0,090	0,120	0,150	0,180	0,210	0,240	0,270	0,300	0,310	0,330	0,340	0,360



Werkzeuge mit **fett gedruckten** Vorschubreihen-Codebuchstaben sind für die entsprechende Werkstoffgruppe vorrangig einzusetzen.

**Sicherheitshinweise:** Enorm wichtig ist, dass aus Sicherheitsgründen kein Bohrer ohne Abstützung mit einer höheren Drehzahl als  $n = 6.000$  U/min frei drehen darf. Die Zentrifugalkräfte könnten sonst die langen Werkzeuge schon vor dem Erreichen der Werkstückoberfläche brechen!

**Allgemeine Hinweise:** Spielarme Spindeln, fluchtungsgenaue Werkzeugaufnahmen. Wir empfehlen die Anwendung von Hydraulik-Dehnspannfuttern oder Schrumpffuttern sowie Kühlschmierung durch Emulsion oder Öl, Druck min. 40 bar.

### Pilotbohrung

Beim Einsatz des SuperV-NX-Bohrers 15xD empfehlen wir die Herstellung einer Pilotbohrung mit 1xD bis 2xD Tiefe. Der SuperV-NX-Bohrer 4xD ist optimal für diese Pilotbohrung geeignet. Sein Spitzenwinkel und seine Durchmesser-toleranz sind darauf abgestimmt.

### Zentrieren

Um bei den SuperV-NX-Bohrern ab 8xD Bohrtiefe die volle Leistung zu erreichen, empfehlen wir das Zentrieren. Hierzu kann der SuperV-NX-Bohrer bis 4xD, Katalog-Nr. 71998, verwendet werden. Der Zentrierdurchmesser sollte ca. 2/3xD haben. Alternativ kann die Zentrierung auch mit dem Stock NC-Anbohrer 142°, Katalog-Nr. 71189, erstellt werden.

### Kühlmitteleinsatz:

- Schneidöl, hochaktiviert
- Bohrölemulsion
- ohne Schmiermittel
- nur Luftkühlung

Werkstoffgruppe	Werkstoffbeispiele, <b>neue Bezeichnung</b> (in Klammern alte Bezeichnung) Fettgedruckte Zahlen = Werkstoff-Nr. nach DIN EN	Zugfestigkeit MPa (N/mm <sup>2</sup> )	Härte	Kühl- mittel
Allgemeine Baustähle	<b>1.0035</b> S185(St33), <b>1.0486</b> P275N(StE285), <b>1.0345</b> P235GH(H1), <b>1.0425</b> P265GH(H2) <b>1.0050</b> E295 (St50-2), <b>1.0070</b> E360 (St70-2), <b>1.8937</b> P500NH (WStE500)	≤500 >500-850		<input checked="" type="checkbox"/>
Automatenstähle	<b>1.0718</b> 11SMnPb30 (9SMnPb28), <b>1.0736</b> 11SMn37 (9SMn36) <b>1.0727</b> 46S20 (45S20), <b>1.0728</b> (60S20), <b>1.0757</b> 46SPb20 (45SPb20)	≤850 850-1000		<input checked="" type="checkbox"/>
Unlegierte Vergütungsstähle	<b>1.0402</b> C22, <b>1.1178</b> C30E (Ck30) <b>1.0503</b> C45, <b>1.1191</b> C45E (Ck45) <b>1.0601</b> C60, <b>1.1221</b> C60E (Ck60)	≤ 700 700-850 850-1000		<input checked="" type="checkbox"/>
Legierte Vergütungsstähle	<b>1.5131</b> 50MnSi4, <b>1.7003</b> 38Cr2, <b>1.7030</b> 28Cr4 <b>1.5710</b> 36NiCr6, <b>1.7035</b> 41Cr4, <b>1.7225</b> 42CrMo4	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Unlegierte Einsatzstähle	<b>1.0301</b> (C10), <b>1.1121</b> C10E (Ck10)	≤750		<input checked="" type="checkbox"/>
Legierte Einsatzstähle	<b>1.7043</b> 38Cr4 <b>1.5752</b> 15NiCr13 (15NiCr13), <b>1.7131</b> 16MnCr5, <b>1.7264</b> 20CrMo5	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Nitrierstähle	<b>1.8504</b> 34CrAl6 <b>1.8519</b> 31CrMoV9, <b>1.8550</b> 34CrAlNi7	≥850-≤1000 >1000-1200		<input checked="" type="checkbox"/>
Werkzeugstähle	<b>1.1750</b> C75W, <b>1.2067</b> 102Cr6, <b>1.2307</b> 29CrMoV9 <b>1.2080</b> X210Cr12, <b>1.2083</b> X42Cr13, <b>1.2419</b> 105WCr6, <b>1.2767</b> X45NiCrMo4	≤850 >850-1000		<input checked="" type="checkbox"/>
Schnellarbeitsstähle	<b>1.3243</b> S 6-5-2-5, <b>1.3343</b> S 6-5-2, <b>1.3344</b> S 6-5-3	≥650-1000		<input checked="" type="checkbox"/>
Federstähle	<b>1.5026</b> 55Si7, <b>1.7176</b> 55Cr3, <b>1.8159</b> 51CrV4 (51CrV4)		≤330 HB	<input checked="" type="checkbox"/>
Gehärtete Stähle	-		≤40-48 HRC >48-60 HRC	<input checked="" type="checkbox"/>
Rostfreie Stähle, geschwefelt austenitisch martensitisch	<b>1.4005</b> X12CrS13, <b>1.4104</b> X14CrMoS17, <b>1.4105</b> X6CrMoS17, <b>1.4305</b> X8CrNiS18-9 <b>1.4301</b> X5CrNi18-10 (V2A), <b>1.4541</b> X6CrNiTi18-10, <b>1.4571</b> X6CrNiMoTi 17-12-2 (V4A) <b>1.4057</b> X20CrNi 17 2 (X17CrNi16-2), <b>1.4122</b> X39CrMo17-1, <b>1.4521</b> X2CrMoTi18-2	≤850 ≤850 ≤850		<input checked="" type="checkbox"/>
Gusseisen	<b>0.6010</b> EN-GJL-100(GG10), <b>0.6020</b> EN-GJL-200(GG20) <b>0.6025</b> EN-GJL-250(GG25), <b>0.6035</b> EN-GJL-350(GG35)	850-≤1000 1000-1200		<input checked="" type="checkbox"/>
Kugelgraphit- und Tempereguss	<b>0.7050</b> EN-GJS-500-7(GGG50), <b>0.8035</b> EN-GJMW-350-4(GTW35) <b>0.7070</b> EN-GJS-700-2(GGG70), <b>0.8170</b> EN-GJMB-700-2(GTS70)		≤240 HB <300 HB	<input checked="" type="checkbox"/>
Hartguss	-		≤350 HB	<input checked="" type="checkbox"/>
Neue Gusswerkstoffe GGV	<b>EN-GJV250</b> (GGV25), <b>EN-GJV350</b> (GGV35) <b>EN-GJV400</b> (GGV40), <b>EN-GJV500</b> (GGV50), SiMo6			<input checked="" type="checkbox"/>
Neue Gusswerkstoffe ADI	<b>EN-GJS-800-8</b> (ADI800), <b>EN-GJS-1000-5</b> (ADI1000) <b>EN-GJS-1200-2</b> (ADI1200), <b>EN-GJS-1400-1</b> (ADI1400)	800-1000 1200-1400		<input checked="" type="checkbox"/>
Sonderlegierungen	Nimonic, Inconel, Monel, Hastelloy	≤1200		<input checked="" type="checkbox"/>
Titan und Titan-Legierungen	<b>3.7024</b> Ti99,5, <b>3.7114</b> TiAl5Sn2,5, <b>3.7124</b> TiCu2 <b>3.7154</b> TiAl6Zr5, <b>3.7165</b> TiAl6V4, <b>3.7184</b> TiAl4Mo4Sn2,5, - TiAl8Mo1V1	≤850 >850-1200		<input checked="" type="checkbox"/>
Aluminium und Al-Legierungen	<b>3.0255</b> Al99,5, <b>3.2315</b> AlMgSi1, <b>3.3515</b> AlMg1	≤400		<input checked="" type="checkbox"/>
Al-Knetlegierungen	<b>3.0615</b> AlMgSiPb, <b>3.1325</b> AlCuMg1, <b>3.3245</b> AlMg3Si, <b>3.4365</b> AlZnMgCu1,5	≤450		<input checked="" type="checkbox"/>
Al-Gusslegierungen ≤ 10 % Si > 10 % Si	<b>3.2131</b> G-AlSi5Cu1, <b>3.2153</b> G-AlSi7Cu3, <b>3.2573</b> G-AlSi9 <b>3.2581</b> G-AlSi12, <b>3.2583</b> G-AlSi12Cu, - G-AlSi12CuNiMg	≤600 ≤600		<input checked="" type="checkbox"/>
Magnesium-Legierungen	<b>3.5200</b> MgMn2, <b>3.5812.05</b> G-MgAl8Zn1, <b>3.5612.05</b> G-MgAl6Zn1	≤450		<input type="checkbox"/>
Kupfer, niedriglegiert	<b>2.0070</b> SE-Cu, <b>2.1020</b> CuSn6, <b>2.1096</b> G-CuSn5ZnPb	≤400		<input checked="" type="checkbox"/>
Messing, kurzspanend	<b>2.0380</b> CuZn39Pb2, <b>2.0401</b> CuZn39Pb3, <b>2.0410</b> CuZn43Pb2	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0250</b> CuZn20, <b>2.0280</b> CuZn33, <b>2.0332</b> CuZn37Pb0,5	≤600		<input checked="" type="checkbox"/>
Bronzen, kurzspanend	<b>2.1090</b> CuSn7ZnPb, <b>2.1170</b> CuPb5Sn5, <b>2.1176</b> CuPb10Sn	≤600		<input checked="" type="checkbox"/>
langspanend	<b>2.0790</b> CuNi18Zn19Pb	>600-850		<input checked="" type="checkbox"/>
Bronzen, langspanend	<b>2.0916</b> CuAl5, <b>2.0960</b> CuAl9Mn, <b>2.1050</b> CuSn10 <b>2.0980</b> CuAl11Ni, <b>2.1247</b> CuBe2	≤850 >850-1000		<input checked="" type="checkbox"/>

$\leq 4 \times D$        $\leq 7 \times D$        $\leq 5 \times D$        $\leq 8 \times D$        $\leq 15 \times D$

Katalog-Nr.	<b>51720</b>	<b>71998</b>	<b>71999</b>	<b>51997</b>	<b>51998</b>	<b>51999</b>
Schneidstoff	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>	<b>VHM</b>
Oberfläche	AlTiN	AlTiN+	AlTiN+	AlTiN	AlTiN	AlTiN
DIN/Form	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>	<b>WN</b>
Typ	M	NX	NX	NX	NX	NX
Innenkühlung	<b>ohne</b>	<b>ohne</b>	<b>ohne</b>	<b>mit</b>	<b>mit</b>	<b>mit</b>
Katalogseite	41	42	43	44	45	46



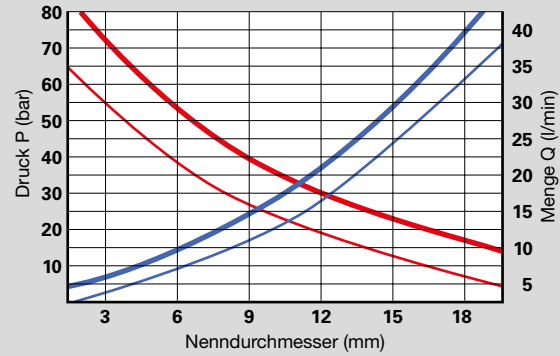
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100	G	100	I	100	G			105	C	105	C
100	G	100	I	100	G			100	C	100	C
100	G	100	I	100	G			105	D	105	D
90	F	90	H	90	F			90	D	90	D
90	G	90	I	90	G			95	C	95	C
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60	E	60	G	60	E			50	C	50	C
		60	B	60	B			50	B	50	B
		60	B	60	B			50	B	50	B
		30	B	30	B			70	B	70	B
		15	A	15	A			60	A	60	A
		30	B	30	B			70	B	70	B
130	K	130	M	130	K	120	E	150	E	150	E
130	K	130	M	130	K	100	E	140	E	140	E
130	K	130	M	130	K	90	E	140	E	140	E
120	J	120	L	120	J	80	E	130	E	130	E
						40	A				
		10	A	10	A			25	A	25	A
		15	A	15	A			35	A	35	A
		15	A	15	A			35	A	35	A
		70	M	70	M	410	F	70	M	70	M
		70	M	70	M	410	F	70	M	70	M
		135	D	135	D	380	G	135	D	135	D
		135	D	135	D	330	G	135	D	135	D
						280	F				
						110	E				
						80	D				

# SuperV-Bohrer

## Kühlmittelempfehlungen

**Kühlmittel-Werte SuperV-T**

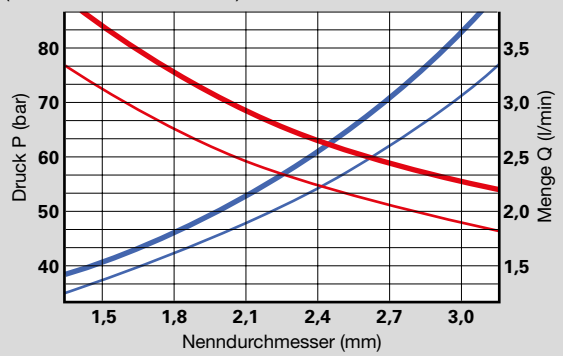
(Richtwerte für Emulsion)



— max. Kühlmitteldruck      — max. Kühlmittelmenge  
 - - - min. Kühlmitteldruck      - - - min. Kühlmittelmenge

**Kühlmittel-Werte SuperV-NX**

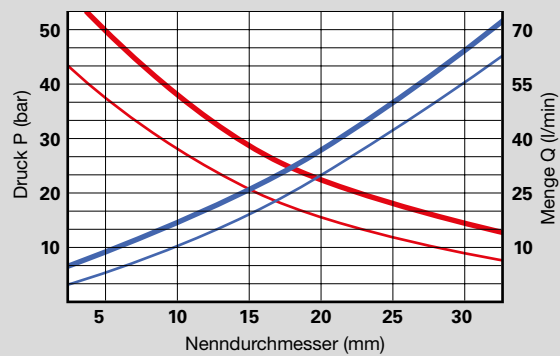
(Richtwerte für Emulsion)



— max. Kühlmitteldruck      — max. Kühlmittelmenge  
 - - - min. Kühlmitteldruck      - - - min. Kühlmittelmenge

**Kühlmittel-Werte SuperV 95-GG/GN**

(Richtwerte für Emulsion)



— max. Kühlmitteldruck      — max. Kühlmittelmenge  
 - - - min. Kühlmitteldruck      - - - min. Kühlmittelmenge

Katalog-Nr.	Seite	Norm	Oberfläche	Bezeichnung	Schneidstoff	Typ
51681	36	DIN 6537L	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51687	26	DIN 6537L	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-U
51720	41	Werksnorm	AlTiN	SuperV-M Universal-Kleinstbohrer	VHM	SuperV-M
51750	53	DIN 6537K	TiAlSiN	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-S
51752	61	DIN 6537K	TiAlSiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-S
51753	63	DIN 6537K	TiAlSiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-S
51754	65	DIN 6537L	TiAlSiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-S
51755	67	DIN 6537L	TiAlSiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-S
51756	69	Werksnorm	TiAlSiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-S
51764	47	Werksnorm	AlTiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-T
51765	48	Werksnorm	AlTiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-T
51766	49	Werksnorm	AlTiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-T
51767	50	Werksnorm	AlTiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-T
51768	51	Werksnorm	AlTiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-T
51770	72	DIN 6537K	AlTiN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-VA
51771	74	DIN 6537K	AlTiN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-VA
51772	76	DIN 6537L	AlTiN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-VA
51773	78	DIN 6537L	AlTiN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-VA
51776	28	DIN 6537K	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51781	32	DIN 6537L	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-IK-U
51785	57	DIN 6537L	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-UX
51787	22	DIN 6537L	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-U
51789	38	Werksnorm	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51790	59	Werksnorm	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-UX
51871	20	DIN 6537K	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-U
51873	18	DIN 6537K	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-U
51876	30	DIN 6537K	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51881	34	DIN 6537L	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51887	24	DIN 6537L	TiAIN nano	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-U
51889	39	Werksnorm	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51893	40	Werksnorm	TiAIN nano	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-U
51997	44	Werksnorm	AlTiN	SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung	VHM	SuperV-IK-NX
51998	45	Werksnorm	AlTiN	SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung	VHM	SuperV-IK-NX
51999	46	Werksnorm	AlTiN	SuperV-NX Hochleistungs-Kleinstbohrer mit Innenkühlung	VHM	SuperV-IK-NX
61880	70	DIN 6537L	TiN	SuperV-Bohrer mit Innenkühlung	VHM	SuperV-IK-F
61888	55	DIN 6539	TiN	SuperV-Bohrer ohne Innenkühlung	VHM	SuperV-F
71862	80	DIN 6537L	blank	SuperV-Bohrer, 3-schneidig	VHM	SuperV83-GAL
71994	83	Werksnorm	blank	SuperV-Bohrer mit Innenkühlung	VHM	SuperV95-GG
71995	81	Werksnorm	blank	SuperV-Bohrer mit Innenkühlung	VHM	SuperV95-GG
71996	84	Werksnorm	blank	SuperV-Bohrer mit Innenkühlung	VHM	SuperV95-GG
71997	85	Werksnorm	blank	SuperV-Bohrer mit Innenkühlung	VHM	SuperV95-GN
71998	42	Werksnorm	AlTiN+	SuperV-NX Hochleistungs-Kleinstbohrer ohne Innenkühlung	VHM	SuperV-NX
71999	43	Werksnorm	AlTiN+	SuperV-NX Hochleistungs-Kleinstbohrer ohne Innenkühlung	VHM	SuperV-NX



# SuperV

## Vollhartmetall-Bohrerprogramm

### Unser Programm

#### Produkte

Bohrwerkzeuge  
Gewindewerkzeuge  
Fräswerkzeuge  
Reibwerkzeuge  
Senkwerkzeuge  
Faswerkzeuge  
Sonderwerkzeuge aus HSS, PKD und Hartmetall  
(nach Zeichnung oder Eigenentwicklung)  
Werkzeugaufnahmen

#### Dienstleistungen

Nachschleifen  
Sonderanschliffe  
Nachbeschichten  
Lohnbeschichten  
Entschichten  
Intelligente Werkzeugdepotsysteme  
Anwendungstechnische Beratung

Ihr Ansprechpartner vor Ort:



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