

**AUTOMOTIVE / DIE & MOLD / AEROSPACE / DEFENCE**

**HM**  
HARD MATERIAL



**MAKINA TAKIM**

[www.makinatakim.com.tr](http://www.makinatakim.com.tr)


## 500 TONS OF PRODUCTION ANNUALLY WITH STATE OF THE ART MANUFACTURING TECHNOLOGIES

Being one of the oldest companies of Turkish industry and consequently having worked with many other companies involved within Turkish industry over a long period, patent, know-how and workbench production knowledge it obtained or transferred from the greatest technology producers since its establishment, its high quality in the produced products with the engineer, employee crew it trained in its own factory, its capacity size and with its accumulation of knowledge and manufacturing technology, enable Makina Takim brand to be one of the leading cutting tool brand of Turkey. In addition, it is among the known brands most preferred in the industry abroad.

Makina Takim Endüstrisi A.Ş. meets the increasing demands of its customers by following technological innovations in the cutting-tool sector, and through its knowledge and experience, all of which ensure internal and external customer satisfaction. It provides reliable services to all the cutting-tool users before and after sale through its İstanbul, Bursa, Ankara, and İzmir Branches, and through its broad network of dealers throughout Turkey.

IDEAL TOOL GEOMETRY  
WITH PRECISION 

LATEST TECHNOLOGY  
PRODUCTION MACHINES 

HIGH QUALITY  
RAW MATERIALS WITH  
HIGH PERFORMANCE 

WIDE RANGE OF  
PRODUCTS 

10000 m<sup>2</sup> NEW PRODUCTION  
AREA WITH MODERN PRODUCTION  
TECHNOLOGY 

MAXIMUM STOCK LEVELS 

STRONG DISTRIBUTION  
CHANNELS 

TECHNICAL SUPPORT 

## VISION MISSION QUALITY POLICY STATEMENT

**Makina Takim Endüstrisi A.Ş. (MTE), WAS ESTABLISHED IN 1957 AS THE FIRST CUTTING TOOL MANUFACTURER OF TURKEY. 3 YEARS AFTER ITS ESTABLISHMENT, IT BEGAN TO EXPORT ITS PRODUCTS TO USA IN 1960 AND BECAME THE FIRST ESTABLISHMENT THAT EXPORT INDUSTRIAL PRODUCTS IN TURKEY.**

### Our vision







As a follower and developer of technological innovation in the cutting tool sector and sustainable leading manufacturer of Turkey and the region, becoming an international brand that can respond local and global demand in a dynamic way.

### Our mission

To meet the requirements of Turkish industries by providing products and services of the highest quality and at the most appropriate prices; to contribute in the development of the industries we serve by closely following developments in the cutting-tools and machining industries of the greater world; to minimize the foreign-source dependency of the cutting-tools and products industry in Turkey; and to increase our contributions to shareholders, internal and external customers, society, and the protection of environment.

### Quality Policy

To meet customer needs and expectations in the line of Makina Takim vision, develops high performance products with wide product range, produces on time and provides after - sell service.

<b>Material</b>	HM									
<b>Standard</b>	MTE	Din 6539	Din 6528	Din 6527	ALTAY	SARP	FIRTINA	ATAK	UFUK	DORUK
<b>Coating</b>	TiAlN	TiSiN	AlTiN	AlCrN	TiN					
<b>Type</b>										
<b>Point Angle</b>										
<b>Helix Angle</b>	R30°	R35° R38°	R45°	R52°						
<b>The Shank</b>										
<b>Suited for Hardened Steels</b>	HRC 65									
<b>Radius</b>										
<b>Drilling Depth</b>	3xD	5xD	8xD	12xD	15xD					
<b>Double Margin</b>										
<b>Coolant</b>										
<b>Cutting Property</b>	HSC	HPC								

Tool Type / Takım Tipi	Standard	Coating	Page No
HM SOLID SHORT DRILL / KSM SOLID KISA MATKAP	<b>Din 6539</b>	<b>TiAIN</b>	5
HM SOLID DRILL 3XD / KSM SOLID 3XD MATKAP	<b>MTE</b>		6-7-8
HM SOLID DRILL 3XD - INTERNAL COOLANT / KSM SOLID 3XD MATKAP - İÇTEN SU VERMELİ	<b>MTE</b>		9-10-11
HM SOLID DRILL 5XD / KSM SOLID 5XD MATKAP	<b>MTE</b>		12-13-14
HM SOLID DRILL 5XD - INTERNAL COOLANT / KSM SOLID 5XD MATKAP - İÇTEN SU VERMELİ	<b>MTE</b>		15-16-17
HM SOLID STRAIGHT FLUTE DRILL 5XD - INTERNAL COOLANT / KSM SOLID DÜZ KANALLI MATKAP 5XD - İÇTEN SU VERMELİ	<b>MTE</b>		18
HM SOLID STRAIGHT FLUTE DRILL 8XD - INTERNAL COOLANT / KSM SOLID DÜZ KANAL MATKAP 8XD - İÇTEN SU VERMELİ	<b>MTE</b>		19
HM SOLID NC CENTERING DRILL - 90 DEGREE / KSM SOLID NC MERKEZLEME MATKABI - 90 DERECE	<b>MTE</b>		20
HM SOLID NC CENTERING DRILL - 120 DEGREE / KSM SOLID NC MERKEZLEME MATKABI - 120 DERECE	<b>MTE</b>		20
HM SOLID CENTER DRILL / KSM SOLID PUNTA MATKABI	<b>MTE</b>		21
HM SOLID DRILL 3XD - SARP / KSM SOLID 3XD MATKAP - SARP	<b>SARP</b>	<b>TiAIN</b>	23-24-25
HM SOLID DRILL 3XD - INTERNAL COOLANT - SARP / KSM SOLID 3XD MATKAP - İÇTEN SU VERMELİ - SARP	<b>SARP</b>		26-27-28
HM SOLID DRILL 5XD - SARP / KSM SOLID 5XD MATKAP - SARP	<b>SARP</b>		29-30-31
HM SOLID DRILL 5XD - INTERNAL COOLANT - SARP / KSM SOLID 5XD MATKAP - İÇTEN SU VERMELİ - SARP	<b>SARP</b>		32-33-34
HM SOLID DRILL 8XD - INTERNAL COOLANT - SARP / KSM SOLID 8XD MATKAP - İÇTEN SU VERMELİ - SARP	<b>SARP</b>		35-36-37
HM SOLID DRILL 12XD - INTERNAL COOLANT - SARP / KSM SOLID 12XD MATKAP - İÇTEN SU VERMELİ - SARP	<b>SARP</b>		38
HM SOLID DRILL 15XD - INTERNAL COOLANT - SARP / KSM SOLID 15XD MATKAP - İÇTEN SU VERMELİ - SARP	<b>SARP</b>		39
HM SOLID MICRO DRILL - UFUK / KSM SOLID MİKRO MATKAP - UFUK	<b>UFUK</b>		41
HM SOLID MICRO MILL - RIB PROCESSING / KSM SOLID MİKRO FREZE - DALMA BOYUNLU	<b>UFUK</b>		42-43
HM SOLID MICRO MILL - RIB PROCESSING(55-65 HRC) / KSM SOLID MİKRO FREZE - DALMA BOYUNLU(55-65 HRC)	<b>UFUK</b>		44-45
HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING / KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU	<b>UFUK</b>	46-47-48	
HM SOLID MICRO MILL WITH COR. RAD.- RIB PROCESSING(55-65 HRC) / KSM SOLID KÖŞE RAD. MİKRO FREZE - D. BOYUNLU(55-65 HRC)	<b>UFUK</b>	49-50-51	
HM SOLID BALL NOSE MICRO MILL- RIB PROCESSING / KSM SOLID KÜRE MİKRO FREZE - DALMA BOYUNLU	<b>UFUK</b>	52	
HM SOLID BALL NOSE MICRO MILL- RIB PROCESSING(55-65 HRC) / KSM SOLID KÜRE MİKRO FREZE - DALMA BOYUNLU(55-65 HRC)	<b>UFUK</b>	53	
HM SOLID THREAD MILL / KSM SOLID DIŞ FREZESİ - DORUK	<b>DORUK</b>	55	
HM SOLID END MILL-2 FLUTES / KSM SOLID FREZE-2 AĞIZLI	<b>MTE</b>	57	
HM SOLID END MILL-2 FLUTE WELDON SHANK / KSM SOLID FREZE-2 AĞIZLI WELDONLU	<b>MTE</b>	57	
HM SOLID EXTRA LONG END MILL-2 FLUTE / KSM SOLID EKSTRA UZUN FREZE-2 AĞIZLI	<b>MTE</b>	58	
HM SOLID EXTRA LONG END MILL-2 FLUTE WELDON SHANK / KSM SOLID EKSTRA UZUN FREZE-2 AĞIZLI WELDONLU	<b>MTE</b>	58	
HM SOLID END MILL-3 FLUTES / KSM SOLID FREZE-3 AĞIZLI	<b>MTE</b>	59	
HM SOLID END MILL-3 FLUTE WELDON SHANK / KSM SOLID FREZE-3 AĞIZLI WELDONLU	<b>MTE</b>	59	
HM SOLID EXTRA LONG END MILL-3 FLUTE / KSM SOLID EKSTRA UZUN FREZE-3 AĞIZLI	<b>MTE</b>	60	
HM SOLID EXTRA LONG END MILL-3 FLUTE WELDON SHANK / KSM SOLID EKSTRA UZUN FREZE-3 AĞIZLI WELDONLU	<b>MTE</b>	60	
HM SOLID END MILL-4 FLUTE / KSM SOLID FREZE-4 AĞIZLI	<b>MTE</b>	61	
HM SOLID END MILL-4 FLUTE WELDON SHANK / KSM SOLID FREZE-4 AĞIZLI WELDONLU	<b>MTE</b>	61	
HM SOLID LONG END MILL-4 FLUTE / KSM SOLID UZUN FREZE-4 AĞIZLI	<b>MTE</b>	62	
HM SOLID LONG END MILL-4 FLUTE WELDON SHANK / KSM SOLID UZUN FREZE-4 AĞIZLI WELDONLU	<b>MTE</b>	62	
HM SOLID EXTRA LONG END MILL-4 FLUTE / KSM SOLID EKSTRA UZUN FREZE-4 AĞIZLI	<b>MTE</b>	63	
HM SOLID EXTRA LONG END MILL-4 FLUTE WELDON SHANK / KSM SOLID EKSTRA UZUN FREZE-4 AĞIZLI WELDONLU	<b>MTE</b>	63	
HM SOLID END MILL WITH CHAMFER - 3 FLUTE - INOX / KSM SOLID KÖŞE RADYÜSLÜ FREZE - 3 AĞIZLI - INOX	<b>MTE</b>	<b>AlTiN</b>	64
HM SOLID END MILL WITH CHAMFER - 4 FLUTE - INOX / KSM SOLID KÖŞE RADYÜSLÜ FREZE - 4 AĞIZLI - INOX	<b>MTE</b>		64
HM SOLID END MILL 35/38 WITH CHAMFER - 4 FLUTE - INOX / KSM SOLID 35/38 KÖŞE RADYÜSLÜ FREZE - 4 AĞIZLI - INOX	<b>MTE</b>		65
HM SOLID BALL NOSE SHORT END MILL - 2 FLUTE / KSM SOLID KÜRE KISA FREZE - 2 AĞIZLI	<b>MTE</b>	<b>TiAIN</b>	65
HM SOLID BALL NOSE LONG END MILL - 2 FLUTE / KSM SOLID KÜRE UZUN FREZE - 2 AĞIZLI	<b>MTE</b>		66
HM SOLID BALL NOSE EXTRA LONG END MILL - 2 FLUTE / KSM SOLID KÜRE EKSTRA UZUN FREZE - 2 AĞIZLI	<b>MTE</b>		66
HM SOLID BALL NOSE SHORT END MILL - 4 FLUTE / KSM SOLID KÜRE KISA FREZE - 4 AĞIZLI	<b>MTE</b>		67
HM SOLID BALL NOSE LONG END MILL - 4 FLUTE / KSM SOLID KÜRE UZUN FREZE - 4 AĞIZLI	<b>MTE</b>		67
HM SOLID BALL NOSE EXTRA LONG END MILL - 4 FLUTE / KSM SOLID KÜRE EKSTRA UZUN FREZE - 4 AĞIZLI	<b>MTE</b>		68
HM SOLID CHIP BREAKER END MILL - 4 FLUTE / KSM SOLID KABA TALAŞ KIRICILI FREZE - 4 FLUTE	<b>MTE</b>		69
HM SOLID TAPERED END MILL - SHARP CORNER / KSM SOLID KONİK FREZE - KESKİN KÖŞE	<b>MTE</b>		70-71
HM SOLID TAPERED END MILL - BALL NOSE / KSM SOLID KONİK FREZE - KÜRE	<b>MTE</b>		72-73
HM SOLID ALUMINIUM END MILL - 2 FLUTE / KSM SOLID ALÜMİNYUM FREZE - 2 AĞIZLI	<b>ALTAY</b>		Non-coating CrCN coating ZrN coating Mayura coating
HM SOLID ALUMINIUM END MILL - 3 FLUTE / KSM SOLID ALÜMİNYUM FREZE - 3 AĞIZLI	<b>ALTAY</b>	75	
HM SOLID ALUMINIUM END MILL - 3 FLUTE - WITH NECK / KSM SOLID ALÜMİNYUM FREZE - 3 AĞIZLI - BOYUNLU	<b>ALTAY</b>	76	
HM SOLID ALUMINIUM END MILL - 1 FLUTE - (25°) / KSM SOLID ALÜMİNYUM FREZE - 1 AĞIZLI - (25°)	<b>ALTAY</b>	77	
HM SOLID ALUMINIUM END MILL - 1 FLUTE - (40°) / KSM SOLID ALÜMİNYUM FREZE - 1 AĞIZLI - (40°)	<b>ALTAY</b>	77	
HM SOLID END MILL - 4 FLUTE - WITH CORNER CHAMFER / KSM SOLID FREZE - 4 AĞIZLI - KÖŞE PAHLI	<b>ATAK</b>	<b>AlCrN</b>	79
HM SOLID END MILL - 4 FLUTE - SHARP CORNER / KSM SOLID FREZE - 4 AĞIZLI - KESKİN KÖŞE	<b>ATAK</b>		79
HM SOLID END MILL WITH WELDON SHANK - 4 FLUTE - CORNER CHAMFER / KSM SOLID WELDONLU FREZE - 4 AĞIZLI - KÖŞE PAHLI	<b>ATAK</b>		80
HM SOLID END MILL WITH WELDON SHANK - 4 FLUTE - SHARP CORNER / KSM SOLID WELDONLU FREZE - 4 AĞIZLI - KESKİN KÖŞE	<b>ATAK</b>		80
HM SOLID END MILL WITH CORNER RADIUS - 4 FLUTE / KSM SOLID KÖŞE RADYÜSLÜ FREZE - 4 AĞIZLI	<b>ATAK</b>		81
HM SOLID END MILL WITH CHAMFER - 6 FLUTE / KSM SOLID KÖŞE PAHLI FREZE - 6 AĞIZLI	<b>ATAK</b>		81
HM SOLID END MILL WITH CHAMFER - 4,5,6 FLUTE - 65 HRC / KSM SOLID KÖŞE PAHLI FREZE - 4,5,6 AĞIZLI - 65 HRC	<b>FIRTINA</b>		83
HM SOLID REAMER - HELICAL FLUTE / KSM SOLID RAYBA - HELİSEL	<b>MTE</b>		85
HM SOLID REAMER - STRAIGHT FLUTE / KSM SOLID RAYBA - DÜZ KANALLI	<b>MTE</b>		85
HM SOLID COUNTER SINKER CONVEKS - 3 FLUTE / KSM SOLID HAVŞA FREZE - 3 AĞIZLI	<b>MTE</b>		86
HM SOLID 270° BALL CUT / KSM SOLID 270° KÜRE FREZE	<b>MTE</b>	86	
HM SOLID CHAMFERING END MILL - 4 FLUTE / KSM SOLID HAVŞA FREZE - 4 AĞIZLI	<b>MTE</b>	87	
HM SOLID ROUNDING CUTTER CONCAVE END MILL - 4 FLUTE / KSM SOLID RADYÜS İÇ BÜKEY FREZE - 4 AĞIZLI	<b>MTE</b>	88	
HM SOLID T-SLOTTING END MILL / KSM SOLID T FREZE	<b>MTE</b>	88	
HM SOLID PANTOGRAPH / KSM SOLID YAZI KALEMİ	<b>MTE</b>	89	

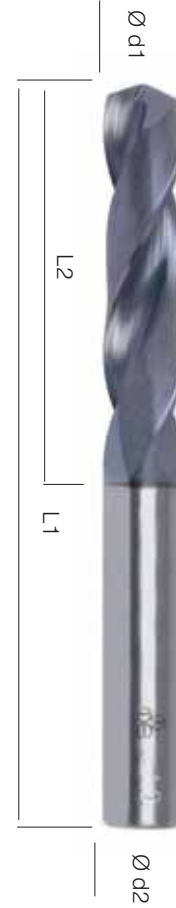
# HM DRILLS

STANDARD



**HM SOLID SHORT DRILLS****HM SOLID KISA MATKAP**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm
<b>B12551103000</b>	3	3	16	46
<b>B12551103500</b>	3,5	3,5	20	52
<b>B12551104000</b>	4	4	22	55
<b>B12551104500</b>	4,5	4,5	24	58
<b>B12551105000</b>	5	5	26	62
<b>B12551105500</b>	5,5	5,5	28	66
<b>B12551106000</b>	6	6	28	66
<b>B12551106500</b>	6,5	6,5	31	70
<b>B12551106800</b>	6,8	6,8	34	74
<b>B12551108000</b>	8	8	37	79
<b>B12551108500</b>	8,5	8,5	37	79
<b>B12551109000</b>	9	9	40	84
<b>B12551109500</b>	9,5	9,5	40	84
<b>B12551110000</b>	10	10	43	89
<b>B12551111000</b>	11	11	47	95
<b>B12551112000</b>	12	12	51	102
<b>B12551114000</b>	14	14	54	107
<b>B12551116000</b>	16	16	58	115
<b>B12551118000</b>	18	18	62	123
<b>B12551120000</b>	20	20	66	131



ISO	RECOMMENDED
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## HM SOLID DRILLS 3XD

### HM SOLID 3XD MATKAP



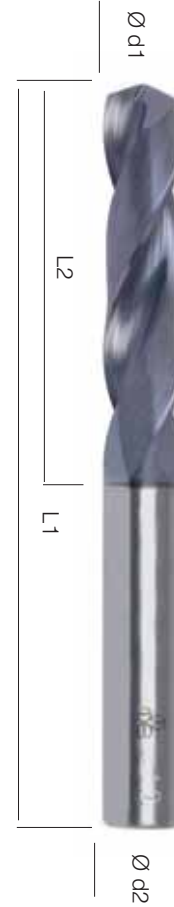
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560310300	3	6	62	20	14
B12560310310	3,1	6	62	20	14
B12560310320	3,2	6	62	20	14
B12560310330	3,3	6	62	20	14
B12560310340	3,4	6	62	20	14
B12560310350	3,5	6	62	20	14
B12560310360	3,6	6	62	20	14
B12560310365	3,65	6	62	20	14
B12560310370	3,7	6	62	20	14
B12560310380	3,8	6	66	24	17
B12560310390	3,9	6	66	24	17
B12560310400	4	6	66	24	17
B12560310410	4,1	6	66	24	17
B12560310420	4,2	6	66	24	17
B12560310430	4,3	6	66	24	17
B12560310440	4,4	6	66	24	17
B12560310450	4,5	6	66	24	17
B12560310460	4,6	6	66	24	17
B12560310470	4,7	6	66	24	17
B12560310480	4,8	6	66	28	20
B12560310490	4,9	6	66	28	20
B12560310500	5	6	66	28	20
B12560310510	5,1	6	66	28	20
B12560310520	5,2	6	66	28	20
B12560310530	5,3	6	66	28	20
B12560310540	5,4	6	66	28	20
B12560310550	5,5	6	66	28	20
B12560310555	5,55	6	66	28	20
B12560310560	5,6	6	66	28	20
B12560310565	5,65	6	66	28	20
B12560310570	5,7	6	66	28	20
B12560310580	5,8	6	66	28	20
B12560310590	5,9	6	66	28	20
B12560310600	6	6	66	28	20
B12560310610	6,1	8	79	34	24
B12560310620	6,2	8	79	34	24
B12560310630	6,3	8	79	34	24
B12560310640	6,4	8	79	34	24
B12560310650	6,5	8	79	34	24
B12560310660	6,6	8	79	34	24
B12560310670	6,7	8	79	34	24
B12560310680	6,8	8	79	34	24
B12560310690	6,9	8	79	34	24
B12560310700	7	8	79	34	24
B12560310710	7,1	8	79	41	29
B12560310720	7,2	8	79	41	29
B12560310730	7,3	8	79	41	29
B12560310740	7,4	8	79	41	29
B12560310750	7,5	8	79	41	29
B12560310755	7,55	8	79	41	29
B12560310760	7,6	8	79	41	29



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**HM SOLID DRILLS 3XD****HM SOLID 3XD MATKAP**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560300770	7,7	8	79	41	29
B12560300780	7,8	8	79	41	29
B12560300790	7,9	8	79	41	29
B12560300800	8	8	79	41	29
B12560300810	8,1	10	89	47	35
B12560300820	8,2	10	89	47	35
B12560300830	8,3	10	89	47	35
B12560300840	8,4	10	89	47	35
B12560300850	8,5	10	89	47	35
B12560300860	8,6	10	89	47	35
B12560300870	8,7	10	89	47	35
B12560300880	8,8	10	89	47	35
B12560300890	8,9	10	89	47	35
B12560300900	9	10	89	47	35
B12560300910	9,1	10	89	47	35
B12560300920	9,2	10	89	47	35
B12560300930	9,3	10	89	47	35
B12560300940	9,4	10	89	47	35
B12560300950	9,5	10	89	47	35
B12560300955	9,55	10	89	47	35
B12560300960	9,6	10	89	47	35
B12560300970	9,7	10	89	47	35
B12560300980	9,8	10	89	47	35
B12560300990	9,9	10	89	47	35
B12560301000	10	10	89	47	35
B12560301010	10,1	12	102	55	40
B12560301020	10,2	12	102	55	40
B12560301030	10,3	12	102	55	40
B12560301040	10,4	12	102	55	40
B12560301050	10,5	12	102	55	40
B12560301060	10,6	12	102	55	40
B12560301070	10,7	12	102	55	40
B12560301080	10,8	12	102	55	40
B12560301090	10,9	12	102	55	40
B12560301100	11	12	102	55	40
B12560301110	11,1	12	102	55	40
B12560301120	11,2	12	102	55	40
B12560301130	11,3	12	102	55	40
B12560301140	11,4	12	102	55	40
B12560301150	11,5	12	102	55	40
B12560301155	11,5	12	102	55	40
B12560301160	11,6	12	102	55	40
B12560301170	11,7	12	102	55	40
B12560301180	11,8	12	102	55	40
B12560301190	11,9	12	102	55	40
B12560301200	12	12	102	55	40
B12560301210	12,1	12	107	60	43
B12560301220	12,1	12	107	60	43
B12560301230	12,3	14	107	60	43
B12560301240	12,4	14	107	60	43
B12560301250	12,5	14	107	60	43



ISO	RECOMMENDED
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## HM SOLID DRILLS 3XD

### HM SOLID 3XD MATKAP



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560301280	12,8	14	107	60	43
B12560301290	12,9	14	107	60	43
B12560301300	13	14	107	60	43
B12560301310	13,1	14	107	60	43
B12560301320	13,2	14	107	60	43
B12560301340	13,4	14	107	60	43
B12560301350	13,5	14	107	60	43
B12560301360	13,6	14	107	60	43
B12560301370	13,7	14	107	60	43
B12560301380	13,8	14	107	60	43
B12560301390	13,9	14	107	60	43
B12560301400	14	14	107	60	43
B12560301410	14,1	16	115	65	45
B12560301420	14,2	16	115	65	45
B12560301430	14,3	16	115	65	45
B12560301440	14,4	16	115	65	45
B12560301450	14,5	16	115	65	45
B12560301460	14,6	16	115	65	45
B12560301470	14,7	16	115	65	45
B12560301480	14,8	16	115	65	45
B12560301490	14,9	16	115	65	45
B12560301500	15	16	115	65	45
B12560301510	15,1	16	115	65	45
B12560301520	15,2	16	115	65	45
B12560301530	15,3	16	115	65	45
B12560301540	15,4	16	115	65	45
B12560301550	15,5	16	115	65	45
B12560301560	15,6	16	115	65	45
B12560301570	15,7	16	115	65	45
B12560301580	15,8	16	115	65	45
B12560301590	15,9	16	115	65	45
B12560301600	16	16	115	65	45
B12560301650	16,5	18	123	73	51
B12560301680	16,8	18	123	73	51
B12560301700	17	18	123	73	51
B12560301750	17,5	18	123	73	51
B12560301780	17,8	18	123	73	51
B12560301800	18	18	123	73	51
B12560301850	18,5	20	131	79	55
B12560301880	18,8	20	131	79	55
B12560301900	19	20	131	79	55
B12560301950	19,5	20	131	79	55
B12560301980	19,8	20	131	79	55
B12560302000	20	20	131	79	55



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**HM SOLID DRILLS 3XD - INTERNAL COOLANT****HM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560310300	3	6	62	20	14
B12560310310	3.1	6	62	20	14
B12560310320	3.2	6	62	20	14
B12560310330	3.3	6	62	20	14
B12560310340	3.4	6	62	20	14
B12560310350	3.5	6	62	20	14
B12560310360	3.6	6	62	20	14
B12560310365	3.65	6	62	20	14
B12560310370	3.7	6	62	20	14
B12560310380	3.8	6	66	24	17
B12560310390	3.9	6	66	24	17
B12560310400	4	6	66	24	17
B12560310410	4.1	6	66	24	17
B12560310420	4.2	6	66	24	17
B12560310430	4.3	6	66	24	17
B12560310440	4.4	6	66	24	17
B12560310450	4.5	6	66	24	17
B12560310460	4.6	6	66	24	17
B12560310470	4.7	6	66	24	17
B12560310480	4.8	6	66	28	20
B12560310490	4.9	6	66	28	20
B12560310500	5	6	66	28	20
B12560310510	5.1	6	66	28	20
B12560310520	5.2	6	66	28	20
B12560310530	5.3	6	66	28	20
B12560310540	5.4	6	66	28	20
B12560310550	5.5	6	66	28	20
B12560310555	5.55	6	66	28	20
B12560310560	5.6	6	66	28	20
B12560310565	5.65	6	66	28	20
B12560310570	5.7	6	66	28	20
B12560310580	5.8	6	66	28	20
B12560310590	5.9	6	66	28	20
B12560310600	6	6	66	28	20
B12560310610	6.1	8	79	34	24
B12560310620	6.2	8	79	34	24
B12560310630	6.3	8	79	34	24
B12560310640	6.4	8	79	34	24
B12560310650	6.5	8	79	34	24
B12560310660	6.6	8	79	34	24
B12560310670	6.7	8	79	34	24
B12560310680	6.8	8	79	34	24
B12560310690	6.9	8	79	34	24
B12560310700	7	8	79	34	24
B12560310710	7.1	8	79	41	29
B12560310720	7.2	8	79	41	29
B12560310730	7.3	8	79	41	29
B12560310740	7.4	8	79	41	29
B12560310750	7.5	8	79	41	29
B12560310755	7.55	8	79	41	29
B12560310760	7.6	8	79	41	29



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**HM SOLID DRILLS 3XD - INTERNAL COOLANT****HM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560310770	7,7	8	79	41	29
B12560310780	7,8	8	79	41	29
B12560310790	7,9	8	79	41	29
B12560310800	8	8	79	41	29
B12560310810	8,1	10	89	47	35
B12560310820	8,2	10	89	47	35
B12560310830	8,3	10	89	47	35
B12560310840	8,4	10	89	47	35
B12560310850	8,5	10	89	47	35
B12560310860	8,6	10	89	47	35
B12560310870	8,7	10	89	47	35
B12560310880	8,8	10	89	47	35
B12560310890	8,9	10	89	47	35
B12560310900	9	10	89	47	35
B12560310910	9,1	10	89	47	35
B12560310920	9,2	10	89	47	35
B12560310930	9,3	10	89	47	35
B12560310940	9,4	10	89	47	35
B12560310950	9,5	10	89	47	35
B12560310955	9,55	10	89	47	35
B12560310960	9,6	10	89	47	35
B12560310970	9,7	10	89	47	35
B12560310980	9,8	10	89	47	35
B12560310990	9,9	10	89	47	35
B12560311000	10	10	89	47	35
B12560311010	10,1	12	102	55	40
B12560311020	10,2	12	102	55	40
B12560311030	10,3	12	102	55	40
B12560311040	10,4	12	102	55	40
B12560311050	10,5	12	102	55	40
B12560311060	10,6	12	102	55	40
B12560311070	10,7	12	102	55	40
B12560311080	10,8	12	102	55	40
B12560311090	10,9	12	102	55	40
B12560311100	11	12	102	55	40
B12560311110	11,1	12	102	55	40
B12560311120	11,2	12	102	55	40
B12560311130	11,3	12	102	55	40
B12560311140	11,4	12	102	55	40
B12560311150	11,5	12	102	55	40
B12560311155	11,5	12	102	55	40
B12560311160	11,6	12	102	55	40
B12560311170	11,7	12	102	55	40
B12560311180	11,8	12	102	55	40
B12560311190	11,9	12	102	55	40
B12560311200	12	12	102	55	40
B12560311210	12,1	12	107	60	43
B12560311220	12,1	12	107	60	43
B12560311230	12,3	14	107	60	43
B12560311240	12,4	14	107	60	43
B12560311250	12,5	14	107	60	43



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**HM SOLID DRILLS 3XD - INTERNAL COOLANT****HM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560311280	12,8	14	107	60	43
B12560311290	12,9	14	107	60	43
B12560311300	13	14	107	60	43
B12560311310	13,1	14	107	60	43
B12560311320	13,2	14	107	60	43
B12560311340	13,4	14	107	60	43
B12560311350	13,5	14	107	60	43
B12560311360	13,6	14	107	60	43
B12560311370	13,7	14	107	60	43
B12560311380	13,8	14	107	60	43
B12560311390	13,9	14	107	60	43
B12560311400	14	14	107	60	43
B12560311410	14,1	16	115	65	45
B12560311420	14,2	16	115	65	45
B12560311430	14,3	16	115	65	45
B12560311440	14,4	16	115	65	45
B12560311450	14,5	16	115	65	45
B12560311460	14,6	16	115	65	45
B12560311470	14,7	16	115	65	45
B12560311480	14,8	16	115	65	45
B12560311490	14,9	16	115	65	45
B12560311500	15	16	115	65	45
B12560311510	15,1	16	115	65	45
B12560311520	15,2	16	115	65	45
B12560311530	15,3	16	115	65	45
B12560311540	15,4	16	115	65	45
B12560311550	15,5	16	115	65	45
B12560311560	15,6	16	115	65	45
B12560311570	15,7	16	115	65	45
B12560311580	15,8	16	115	65	45
B12560311590	15,9	16	115	65	45
B12560311600	16	16	115	65	45
B12560311650	16,5	18	123	73	51
B12560311680	16,8	18	123	73	51
B12560311700	17	18	123	73	51
B12560311750	17,5	18	123	73	51
B12560311780	17,8	18	123	73	51
B12560311800	18	18	123	73	51
B12560311850	18,5	20	131	79	55
B12560311880	18,8	20	131	79	55
B12560311900	19	20	131	79	55
B12560311950	19,5	20	131	79	55
B12560311980	19,8	20	131	79	55
B12560312000	20	20	131	79	55



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**HM SOLID DRILLS 5XD****HM SOLID 5XD MATKAP**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560500300	3	6	66	28	23
B12560500310	3,1	6	66	28	23
B12560500320	3,2	6	66	28	23
B12560500330	3,3	6	66	28	23
B12560500340	3,4	6	66	28	23
B12560500350	3,5	6	66	28	23
B12560500360	3,6	6	66	28	23
B12560500365	3,65	6	66	28	23
B12560500370	3,7	6	66	28	23
B12560500380	3,8	6	74	36	29
B12560500390	3,9	6	74	36	29
B12560500400	4	6	74	36	29
B12560500410	4,1	6	74	36	29
B12560500420	4,2	6	74	36	29
B12560500430	4,3	6	74	36	29
B12560500440	4,4	6	74	36	29
B12560500450	4,5	6	74	36	29
B12560500460	4,6	6	74	36	29
B12560500470	4,7	6	74	36	29
B12560500480	4,8	6	82	44	35
B12560500490	4,9	6	82	44	35
B12560500500	5	6	82	44	35
B12560500510	5,1	6	82	44	35
B12560500520	5,2	6	82	44	35
B12560500530	5,3	6	82	44	35
B12560500540	5,4	6	82	44	35
B12560500550	5,5	6	82	44	35
B12560500555	5,55	6	82	44	35
B12560500560	5,6	6	82	44	35
B12560500565	5,65	6	82	44	35
B12560500570	5,7	6	82	44	35
B12560500580	5,8	6	82	44	35
B12560500590	5,9	6	82	44	35
B12560500600	6	6	82	44	35
B12560500610	6,1	8	91	53	43
B12560500620	6,2	8	91	53	43
B12560500630	6,3	8	91	53	43
B12560500640	6,4	8	91	53	43
B12560500650	6,5	8	91	53	43
B12560500660	6,6	8	91	53	43
B12560500670	6,7	8	91	53	43
B12560500680	6,8	8	91	53	43
B12560500690	6,9	8	91	53	43
B12560500700	7	8	91	53	43
B12560500710	7,1	8	91	53	43
B12560500720	7,2	8	91	53	43
B12560500730	7,3	8	91	53	43
B12560500740	7,4	8	91	53	43
B12560500750	7,5	8	91	53	43
B12560500755	7,55	8	91	53	43
B12560500760	7,6	8	91	53	43
B12560500770	7,7	8	91	53	43
B12560500780	7,8	8	91	53	43
B12560500790	7,9	8	91	53	43



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## HM SOLID DRILLS 5XD

### HM SOLID 5XD MATKAP



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560500800	8	8	91	53	43
B12560500810	8,1	10	103	61	49
B12560500820	8,2	10	103	61	49
B12560500830	8,3	10	103	61	49
B12560500840	8,4	10	103	61	49
B12560500850	8,5	10	103	61	49
B12560500860	8,6	10	103	61	49
B12560500870	8,7	10	103	61	49
B12560500880	8,8	10	103	61	49
B12560500890	8,9	10	103	61	49
B12560500900	9	10	103	61	49
B12560500910	9,1	10	103	61	49
B12560500920	9,2	10	103	61	49
B12560500930	9,3	10	103	61	49
B12560500940	9,4	10	103	61	49
B12560500950	9,5	10	103	61	49
B12560500955	9,55	10	103	61	49
B12560500960	9,6	10	103	61	49
B12560500970	9,7	10	103	61	49
B12560500980	9,8	10	103	61	49
B12560500990	9,9	10	103	61	49
B12560501000	10	10	103	61	49
B12560501010	10,1	12	118	71	56
B12560501020	10,2	12	118	71	56
B12560501030	10,3	12	118	71	56
B12560501040	10,4	12	118	71	56
B12560501050	10,5	12	118	71	56
B12560501060	10,6	12	118	71	56
B12560501070	10,7	12	118	71	56
B12560501080	10,8	12	118	71	56
B12560501090	10,9	12	118	71	56
B12560501100	11	12	118	71	56
B12560501110	11,1	12	118	71	56
B12560501120	11,2	12	118	71	56
B12560501130	11,3	12	118	71	56
B12560501140	11,4	12	118	71	56
B12560501150	11,5	12	118	71	56
B12560501155	11,55	12	118	71	56
B12560501160	11,6	12	118	71	56
B12560501170	11,7	12	118	71	56
B12560501180	11,8	12	118	71	56
B12560501190	11,9	12	118	71	56
B12560501200	12	12	118	71	56
B12560501210	12,1	14	124	77	60
B12560501220	12,2	14	124	77	60
B12560501230	12,3	14	124	77	60
B12560501240	12,4	14	124	77	60
B12560501250	12,5	14	124	77	60
B12560501260	12,6	14	124	77	60
B12560501270	12,7	14	124	77	60
B12560501280	12,8	14	124	77	60
B12560501290	12,9	14	124	77	60
B12560501300	13	14	124	77	60
B12560501310	13,1	14	124	77	60



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## HM SOLID DRILLS 5XD

### HM SOLID 5XD MATKAP



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560501320	13,2	14	124	77	60
B12560501330	13,3	14	124	77	60
B12560501340	13,4	14	124	77	60
B12560501350	13,5	14	124	77	60
B12560501360	13,6	14	124	77	60
B12560501370	13,7	14	124	77	60
B12560501380	13,8	14	124	77	60
B12560501390	13,9	14	124	77	60
B12560501400	14	14	124	77	60
B12560501410	14,1	16	133	83	63
B12560501420	14,2	16	133	83	63
B12560501430	14,3	16	133	83	63
B12560501440	14,4	16	133	83	63
B12560501450	14,5	16	133	83	63
B12560501460	14,6	16	133	83	63
B12560501470	14,7	16	133	83	63
B12560501480	14,8	16	133	83	63
B12560501490	14,9	16	133	83	63
B12560501500	15	16	133	83	63
B12560501510	15,1	16	133	83	63
B12560501520	15,2	16	133	83	63
B12560501530	15,3	16	133	83	63
B12560501540	15,4	16	133	83	63
B12560501550	15,5	16	133	83	63
B12560501560	15,6	16	133	83	63
B12560501570	15,7	16	133	83	63
B12560501580	15,8	16	133	83	63
B12560501590	15,9	16	133	83	63
B12560501600	16	16	133	83	63
B12560501650	16,5	18	143	93	71
B12560501680	16,8	18	143	93	71
B12560501700	17	18	143	93	71
B12560501750	17,5	18	143	93	71
B12560501780	17,8	18	143	93	71
B12560501800	18	18	143	93	71
B12560501850	18,5	20	153	101	77
B12560501880	18,8	20	153	101	77
B12560501900	19	20	153	101	77
B12560501950	19,5	20	153	101	77
B12560501980	19,8	20	153	101	77
B12560502000	20	20	153	101	77



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**HM SOLID DRILLS 5XD - INTERNAL COOLANT****HM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560510300	3	6	66	28	23
B12560510310	3,1	6	66	28	23
B12560510320	3,2	6	66	28	23
B12560510330	3,3	6	66	28	23
B12560510340	3,4	6	66	28	23
B12560510350	3,5	6	66	28	23
B12560510360	3,6	6	66	28	23
B12560510365	3,65	6	66	28	23
B12560510370	3,7	6	66	28	23
B12560510380	3,8	6	74	36	29
B12560510390	3,9	6	74	36	29
B12560510400	4	6	74	36	29
B12560510410	4,1	6	74	36	29
B12560510420	4,2	6	74	36	29
B12560510430	4,3	6	74	36	29
B12560510440	4,4	6	74	36	29
B12560510450	4,5	6	74	36	29
B12560510460	4,6	6	74	36	29
B12560510470	4,7	6	74	36	29
B12560510480	4,8	6	82	44	35
B12560510490	4,9	6	82	44	35
B12560510500	5	6	82	44	35
B12560510510	5,1	6	82	44	35
B12560510520	5,2	6	82	44	35
B12560510530	5,3	6	82	44	35
B12560510540	5,4	6	82	44	35
B12560510550	5,5	6	82	44	35
B12560510555	5,55	6	82	44	35
B12560510560	5,6	6	82	44	35
B12560510565	5,65	6	82	44	35
B12560510570	5,7	6	82	44	35
B12560510580	5,8	6	82	44	35
B12560510590	5,9	6	82	44	35
B12560510600	6	6	82	44	35
B12560510610	6,1	8	91	53	43
B12560510620	6,2	8	91	53	43
B12560510630	6,3	8	91	53	43
B12560510640	6,4	8	91	53	43
B12560510650	6,5	8	91	53	43
B12560510660	6,6	8	91	53	43
B12560510670	6,7	8	91	53	43
B12560510680	6,8	8	91	53	43
B12560510690	6,9	8	91	53	43
B12560510700	7	8	91	53	43
B12560510710	7,1	8	91	53	43
B12560510720	7,2	8	91	53	43
B12560510730	7,3	8	91	53	43
B12560510740	7,4	8	91	53	43
B12560510750	7,5	8	91	53	43
B12560510755	7,55	8	91	53	43
B12560510760	7,6	8	91	53	43



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**HM SOLID DRILLS 5XD - INTERNAL COOLANT****HM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560510770	7,7	8	91	53	43
B12560510780	7,8	8	91	53	43
B12560510790	7,9	8	91	53	43
B12560510800	8	8	91	53	43
B12560510810	8,1	10	103	61	49
B12560510820	8,2	10	103	61	49
B12560510830	8,3	10	103	61	49
B12560510840	8,4	10	103	61	49
B12560510850	8,5	10	103	61	49
B12560510860	8,6	10	103	61	49
B12560510870	8,7	10	103	61	49
B12560510880	8,8	10	103	61	49
B12560510890	8,9	10	103	61	49
B12560510900	9	10	103	61	49
B12560510910	9,1	10	103	61	49
B12560510920	9,2	10	103	61	49
B12560510930	9,3	10	103	61	49
B12560510940	9,4	10	103	61	49
B12560510950	9,5	10	103	61	49
B12560510955	9,55	10	103	61	49
B12560510960	9,6	10	103	61	49
B12560510970	9,7	10	103	61	49
B12560510980	9,8	10	103	61	49
B12560510990	9,9	10	103	61	49
B12560511000	10	10	103	61	49
B12560511010	10,1	12	118	71	56
B12560511020	10,2	12	118	71	56
B12560511030	10,3	12	118	71	56
B12560511040	10,4	12	118	71	56
B12560511050	10,5	12	118	71	56
B12560511060	10,6	12	118	71	56
B12560511070	10,7	12	118	71	56
B12560511080	10,8	12	118	71	56
B12560511090	10,9	12	118	71	56
B12560511100	11	12	118	71	56
B12560511110	11,1	12	118	71	56
B12560511120	11,2	12	118	71	56
B12560511130	11,3	12	118	71	56
B12560511140	11,4	12	118	71	56
B12560511150	11,5	12	118	71	56
B12560511155	11,55	12	118	71	56
B12560511160	11,6	12	118	71	56
B12560511170	11,7	12	118	71	56
B12560511180	11,8	12	118	71	56
B12560511190	11,9	12	118	71	56
B12560511200	12	12	118	71	56
B12560511210	12,1	14	124	77	60
B12560511220	12,2	14	124	77	60
B12560511230	12,3	14	124	77	60
B12560511240	12,4	14	124	77	60
B12560511250	12,5	14	124	77	60



ISO	RECOMMENDED
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**HM SOLID DRILLS 5XD - INTERNAL COOLANT****HM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

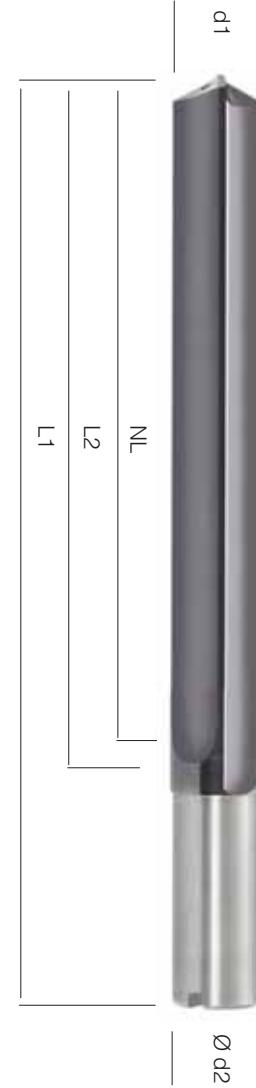
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B12560511260	12.6	14	124	77	60
B12560511270	12.7	14	124	77	60
B12560511280	12.8	14	124	77	60
B12560511290	12.9	14	124	77	60
B12560511300	13	14	124	77	60
B12560511310	13.1	14	124	77	60
B12560511320	13.2	14	124	77	60
B12560511330	13.3	14	124	77	60
B12560511340	13.4	14	124	77	60
B12560511350	13.5	14	124	77	60
B12560511360	13.6	14	124	77	60
B12560511370	13.7	14	124	77	60
B12560511380	13.8	14	124	77	60
B12560511390	13.9	14	124	77	60
B12560511400	14	14	124	77	60
B12560511410	14.1	16	133	83	63
B12560511420	14.2	16	133	83	63
B12560511430	14.3	16	133	83	63
B12560511440	14.4	16	133	83	63
B12560511450	14.5	16	133	83	63
B12560511460	14.6	16	133	83	63
B12560511470	14.7	16	133	83	63
B12560511480	14.8	16	133	83	63
B12560511490	14.9	16	133	83	63
B12560511500	15	16	133	83	63
B12560511510	15.1	16	133	83	63
B12560511520	15.2	16	133	83	63
B12560511530	15.3	16	133	83	63
B12560511540	15.4	16	133	83	63
B12560511550	15.5	16	133	83	63
B12560511560	15.6	16	133	83	63
B12560511570	15.7	16	133	83	63
B12560511580	15.8	16	133	83	63
B12560511590	15.9	16	133	83	63
B12560511600	16	16	133	83	63
B12560511650	16.5	18	143	93	71
B12560511680	16.8	18	143	93	71
B12560511700	17	18	143	93	71
B12560511750	17.5	18	143	93	71
B12560511780	17.8	18	143	93	71
B12560511800	18	18	143	93	71
B12560511850	18.5	20	153	101	77
B12560511880	18.8	20	153	101	77
B12560511900	19	20	153	101	77
B12560511950	19.5	20	153	101	77
B12560511980	19.8	20	153	101	77
B12560512000	20	20	153	101	77



ISO	RECOMMENDED
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**HM SOLID STRAIGHT FLUTE DRILLS 5XD - INTERNAL COOLANT****HM SOLID DÜZ KANALLI 5XD MATKAP - İÇTEN SU VERMELİ**

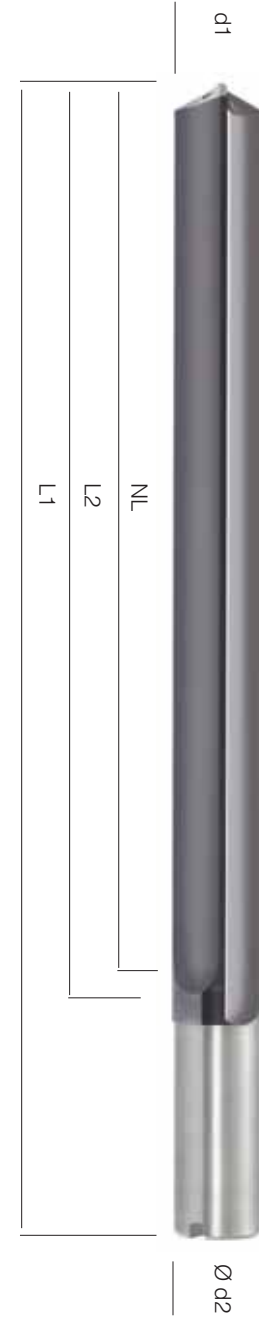
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B12560530600</b>	6	6	82	35	44
<b>B12560530680</b>	6,8	8	91	43	53
<b>B12560530700</b>	7	8	91	43	53
<b>B12560530750</b>	7,5	8	91	43	53
<b>B12560530780</b>	7,8	8	91	43	53
<b>B12560530800</b>	8	8	91	43	53
<b>B12560530840</b>	8,4	10	103	49	61
<b>B12560530880</b>	8,8	10	103	49	61
<b>B12560530900</b>	9	10	103	49	61
<b>B12560530950</b>	9,5	10	103	49	61
<b>B12560531000</b>	10	10	103	49	61
<b>B12560531020</b>	10,2	12	118	56	71
<b>B12560531050</b>	10,5	12	118	56	71
<b>B12560531100</b>	11	12	118	56	71
<b>B12560531200</b>	12	12	118	56	71
<b>B12560531250</b>	12,5	14	124	60	77
<b>B12560531280</b>	12,8	14	124	60	77
<b>B12560531300</b>	13	14	124	60	77
<b>B12560531400</b>	14	14	124	60	77
<b>B12560531450</b>	14,5	16	133	63	83
<b>B12560531500</b>	15	16	133	63	83
<b>B12560531550</b>	15,5	16	133	63	83
<b>B12560531600</b>	16	16	133	63	83
<b>B12560531700</b>	17	18	143	71	93
<b>B12560531750</b>	17,5	18	143	71	93
<b>B12560531800</b>	18	18	143	71	93
<b>B12560531850</b>	18,5	20	153	77	101
<b>B12560531900</b>	19	20	153	77	101
<b>B12560531950</b>	19,5	20	153	77	101
<b>B12560532000</b>	20	20	153	77	101



ISO	RECOMMENDED
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**HM SOLID STRAIGHT FLUTE DRILLS 8XD - INTERNAL COOLANT****HM SOLID DÜZ KANALLI 8XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B12560830600</b>	6	6	95	48	57
<b>B12560830680</b>	6.8	8	114	64	76
<b>B12560830700</b>	7	8	114	64	76
<b>B12560830750</b>	7.5	8	114	64	76
<b>B12560830780</b>	7.8	8	114	64	76
<b>B12560830800</b>	8	8	114	64	76
<b>B12560830840</b>	8.4	10	142	80	95
<b>B12560830880</b>	8.8	10	142	80	95
<b>B12560830900</b>	9	10	142	80	95
<b>B12560830950</b>	9.5	10	142	80	95
<b>B12560831000</b>	10	10	142	80	95
<b>B12560831020</b>	10.2	12	162	96	114
<b>B12560831050</b>	10.5	12	162	96	114
<b>B12560831100</b>	11	12	162	96	114
<b>B12560831200</b>	12	12	162	96	114
<b>B12560831250</b>	12.5	14	178	110	131
<b>B12560831280</b>	12.8	14	178	110	131
<b>B12560831300</b>	13	14	178	110	131
<b>B12560831400</b>	14	14	178	110	131
<b>B12560831450</b>	14.5	16	203	128	152
<b>B12560831500</b>	15	16	203	128	152
<b>B12560831550</b>	15.5	16	203	128	152
<b>B12560831600</b>	16	16	203	128	152
<b>B12560831700</b>	17	18	222	144	171
<b>B12560831750</b>	17.5	18	222	144	171
<b>B12560831800</b>	18	18	222	144	171
<b>B12560831850</b>	18.5	20	243	160	190
<b>B12560831900</b>	19	20	243	160	190
<b>B12560831950</b>	19.5	20	243	160	190
<b>B12560832000</b>	20	20	243	160	190

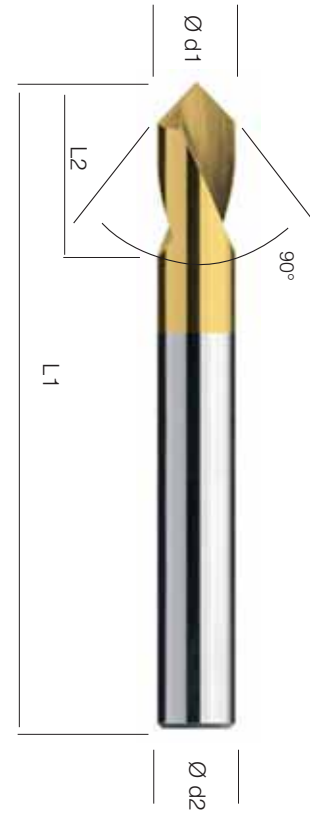


ISO	RECOMMENDED
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**HM SOLID NC CENTERING DRILLS - 90°****HM SOLID NC MERZLEME MATKABI 90°**

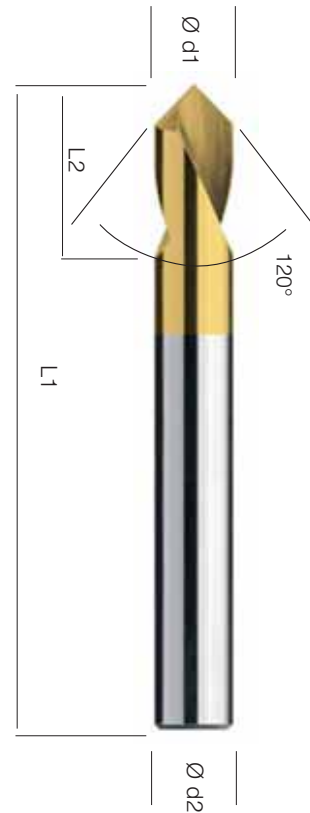
Product Code	d1 mm	L1 mm	L2 mm
<b>B10562100300</b>	3	45	13
<b>B10562100400</b>	4	50	16
<b>B10562100500</b>	5	50	16
<b>B10562100600</b>	6	57	19
<b>B10562100800</b>	8	63	23
<b>B10562101000</b>	10	72	26
<b>B10562101200</b>	12	82	31
<b>B10562101400</b>	14	82	34
<b>B10562101600</b>	16	92	34
<b>B10562102000</b>	20	104	38

ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>OO</b>
<b>K</b>	<b>O</b>
<b>N</b>	<b>O</b>
<b>S</b>	<b>O</b>
<b>H</b>	

**HM SOLID NC CENTERING DRILLS - 120°****HM SOLID NC MERZLEME MATKABI 120°**

Product Code	d1 mm	L1 mm	L2 mm
<b>B10562200300</b>	3	45	13
<b>B10562200400</b>	4	50	16
<b>B10562200500</b>	5	50	16
<b>B10562200600</b>	6	57	19
<b>B10562200800</b>	8	63	23
<b>B10562201000</b>	10	72	26
<b>B10562201200</b>	12	82	31
<b>B10562201400</b>	14	82	34
<b>B10562201600</b>	16	92	34
<b>B10562202000</b>	20	104	38

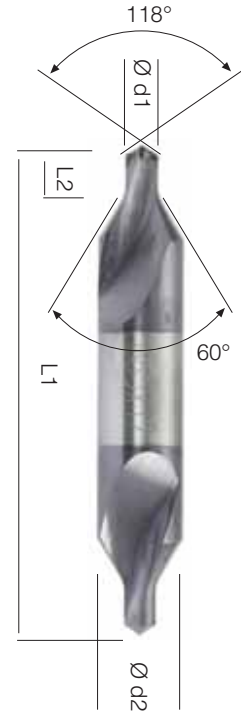
ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>OO</b>
<b>K</b>	<b>O</b>
<b>N</b>	<b>O</b>
<b>S</b>	<b>O</b>
<b>H</b>	



**HM SOLID CENTER DRILLS****HM SOLID PUNTA MATKABI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm
<b>B12562000100</b>	1,00	4	50	1,3
<b>B12562000125</b>	1,25	4	50	1,6
<b>B12562000160</b>	1,60	4	50	2
<b>B12562000315</b>	3,15	8	63	3,9
<b>B12562000400</b>	4	10	72	5
<b>B12562000500</b>	5	12	83	6,3
<b>B12562000630</b>	6,3	16	92	8
<b>B12562000800</b>	8	20	104	10,1

ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>O</b>
<b>K</b>	<b>OO</b>
<b>N</b>	
<b>S</b>	
<b>H</b>	<b>O</b>



# SARP

## DRILLS



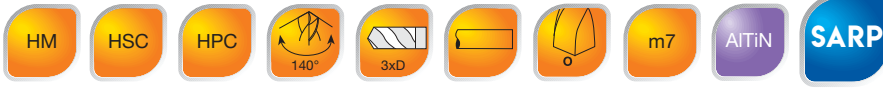
**HM SOLID DRILL 3XD - NON-INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560340300200	3	6	62	20	14
B16560340310200	3,1	6	62	20	14
B16560340320200	3,2	6	62	20	14
B16560340330200	3,3	6	62	20	14
B16560340340200	3,4	6	62	20	14
B16560340350200	3,5	6	62	20	14
B16560340360200	3,6	6	62	20	14
B16560340370200	3,7	6	62	20	14
B16560340380200	3,8	6	66	24	17
B16560340390200	3,9	6	66	24	17
B16560340400200	4	6	66	24	17
B16560340410200	4,1	6	66	24	17
B16560340420200	4,2	6	66	24	17
B16560340430200	4,3	6	66	24	17
B16560340440200	4,4	6	66	24	17
B16560340450200	4,5	6	66	24	17
B16560340460200	4,6	6	66	24	17
B16560340470200	4,7	6	66	24	17
B16560340480200	4,8	6	66	28	20
B16560340490200	4,9	6	66	28	20
B16560340500200	5	6	66	28	20
B16560340510200	5,1	6	66	28	20
B16560340520200	5,2	6	66	28	20
B16560340530200	5,3	6	66	28	20
B16560340540200	5,4	6	66	28	20
B16560340550200	5,5	6	66	28	20
B16560340560200	5,6	6	66	28	20
B16560340570200	5,7	6	66	28	20
B16560340580200	5,8	6	66	28	20
B16560340590200	5,9	6	66	28	20
B16560340600200	6	6	66	28	20
B16560340610200	6,1	8	79	34	24
B16560340620200	6,2	8	79	34	24
B16560340630200	6,3	8	79	34	24
B16560340640200	6,4	8	79	34	24
B16560340650200	6,5	8	79	34	24
B16560340660200	6,6	8	79	34	24
B16560340670200	6,7	8	79	34	24
B16560340680200	6,8	8	79	34	24
B16560340690200	6,9	8	79	34	24
B16560340700200	7	8	79	34	24
B16560340710200	7,1	8	79	41	29
B16560340720200	7,2	8	79	41	29
B16560340730200	7,3	8	79	41	29
B16560340740200	7,4	8	79	41	29
B16560340750200	7,5	8	79	41	29
B16560340760200	7,6	8	79	41	29
B16560340770200	7,7	8	79	41	29
B16560340780200	7,8	8	79	41	29
B16560340790200	7,9	8	79	41	29
B16560340800200	8	8	79	41	29



ISO	RECOMMENDED
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**HM SOLID DRILL 3XD - NON-INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560340810200	8,1	10	89	47	35
B16560340820200	8,2	10	89	47	35
B16560340830200	8,3	10	89	47	35
B16560340840200	8,4	10	89	47	35
B16560340850200	8,5	10	89	47	35
B16560340860200	8,6	10	89	47	35
B16560340870200	8,7	10	89	47	35
B16560340880200	8,8	10	89	47	35
B16560340890200	8,9	10	89	47	35
B16560340900200	9	10	89	47	35
B16560340910200	9,1	10	89	47	35
B16560340920200	9,2	10	89	47	35
B16560340930200	9,3	10	89	47	35
B16560340940200	9,4	10	89	47	35
B16560340950200	9,5	10	89	47	35
B16560340960200	9,6	10	89	47	35
B16560340970200	9,7	10	89	47	35
B16560340980200	9,8	10	89	47	35
B16560340990200	9,9	10	89	47	35
B16560341000200	10	10	89	47	35
B16560341010200	10,1	12	102	55	40
B16560341020200	10,2	12	102	55	40
B16560341030200	10,3	12	102	55	40
B16560341040200	10,4	12	102	55	40
B16560341050200	10,5	12	102	55	40
B16560341060200	10,6	12	102	55	40
B16560341070200	10,7	12	102	55	40
B16560341080200	10,8	12	102	55	40
B16560341090200	10,9	12	102	55	40
B16560341100200	11	12	102	55	40
B16560341110200	11,1	12	102	55	40
B16560341120200	11,2	12	102	55	40
B16560341130200	11,3	12	102	55	40
B16560341140200	11,4	12	102	55	40
B16560341150200	11,5	12	102	55	40
B16560341160200	11,6	12	102	55	40
B16560341170200	11,7	12	102	55	40
B16560341180200	11,8	12	102	55	40
B16560341190200	11,9	12	102	55	40
B16560341200200	12	12	102	55	40
B16560341220200	12,2	14	107	60	43
B16560341230200	12,3	14	107	60	43
B16560341250200	12,5	14	107	60	43
B16560341280200	12,8	14	107	60	43
B16560341300200	13	14	107	60	43
B16560341350200	13,5	14	107	60	43
B16560341380200	13,8	14	107	60	43
B16560341400200	14	14	107	60	43
B16560341450200	14,5	16	115	65	45
B16560341480200	14,8	16	115	65	45
B16560341500200	15	16	115	65	45



ISO	RECOMMENDED
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**HM SOLID DRILL 3XD - NON-INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16560341550200</b>	15,5	16	115	65	45
<b>B16560341580200</b>	15,8	16	115	65	45
<b>B16560341600200</b>	16	16	115	65	45
<b>B16560341650200</b>	16,5	18	123	73	51
<b>B16560341680200</b>	16,8	18	123	73	51
<b>B16560341700200</b>	17	18	123	73	51
<b>B16560341750200</b>	17,5	18	123	73	51
<b>B16560341780200</b>	17,8	18	123	73	51
<b>B16560341800200</b>	18	18	123	73	51
<b>B16560341850200</b>	18,5	20	131	79	55
<b>B16560341880200</b>	18,8	20	131	79	55
<b>B16560341900200</b>	19	20	131	79	55
<b>B16560341950200</b>	19,5	20	131	79	55
<b>B16560341980200</b>	19,8	20	131	79	55
<b>B16560342000200</b>	20	20	131	79	55



ISO	RECOMMENDED
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**HM SOLID DRILL 3XD - INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560320300200	3	6	62	20	14
B16560320310200	3,1	6	62	20	14
B16560320320200	3,2	6	62	20	14
B16560320330200	3,3	6	62	20	14
B16560320340200	3,4	6	62	20	14
B16560320350200	3,5	6	62	20	14
B16560320360200	3,6	6	62	20	14
B16560320370200	3,7	6	62	20	14
B16560320380200	3,8	6	66	24	17
B16560320390200	3,9	6	66	24	17
B16560320400200	4	6	66	24	17
B16560320410200	4,1	6	66	24	17
B16560320420200	4,2	6	66	24	17
B16560320430200	4,3	6	66	24	17
B16560320440200	4,4	6	66	24	17
B16560320450200	4,5	6	66	24	17
B16560320460200	4,6	6	66	24	17
B16560320470200	4,7	6	66	24	17
B16560320480200	4,8	6	66	28	20
B16560320490200	4,9	6	66	28	20
B16560320500200	5	6	66	28	20
B16560320510200	5,1	6	66	28	20
B16560320520200	5,2	6	66	28	20
B16560320530200	5,3	6	66	28	20
B16560320540200	5,4	6	66	28	20
B16560320550200	5,5	6	66	28	20
B16560320560200	5,6	6	66	28	20
B16560320570200	5,7	6	66	28	20
B16560320580200	5,8	6	66	28	20
B16560320590200	5,9	6	66	28	20
B16560320600200	6	6	66	28	20
B16560320610200	6,1	8	79	34	24
B16560320620200	6,2	8	79	34	24
B16560320630200	6,3	8	79	34	24
B16560320640200	6,4	8	79	34	24
B16560320650200	6,5	8	79	34	24
B16560320660200	6,6	8	79	34	24
B16560320670200	6,7	8	79	34	24
B16560320680200	6,8	8	79	34	24
B16560320690200	6,9	8	79	34	24
B16560320700200	7	8	79	34	24
B16560320710200	7,1	8	79	41	29
B16560320720200	7,2	8	79	41	29
B16560320730200	7,3	8	79	41	29
B16560320740200	7,4	8	79	41	29
B16560320750200	7,5	8	79	41	29
B16560320760200	7,6	8	79	41	29
B16560320770200	7,7	8	79	41	29
B16560320780200	7,8	8	79	41	29
B16560320790200	7,9	8	79	41	29
B16560320800200	8	8	79	41	29



ISO	RECOMMENDED
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**HM SOLID DRILL 3XD - INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560320810200	8,1	10	89	47	35
B16560320820200	8,2	10	89	47	35
B16560320830200	8,3	10	89	47	35
B16560320840200	8,4	10	89	47	35
B16560320850200	8,5	10	89	47	35
B16560320860200	8,6	10	89	47	35
B16560320870200	8,7	10	89	47	35
B16560320880200	8,8	10	89	47	35
B16560320890200	8,9	10	89	47	35
B16560320900200	9	10	89	47	35
B16560320910200	9,1	10	89	47	35
B16560320920200	9,2	10	89	47	35
B16560320930200	9,3	10	89	47	35
B16560320940200	9,4	10	89	47	35
B16560320950200	9,5	10	89	47	35
B16560320960200	9,6	10	89	47	35
B16560320970200	9,7	10	89	47	35
B16560320980200	9,8	10	89	47	35
B16560320990200	9,9	10	89	47	35
B16560321000200	10	10	89	47	35
B16560321010200	10,1	12	102	55	40
B16560321020200	10,2	12	102	55	40
B16560321030200	10,3	12	102	55	40
B16560321040200	10,4	12	102	55	40
B16560321050200	10,5	12	102	55	40
B16560321060200	10,6	12	102	55	40
B16560321070200	10,7	12	102	55	40
B16560321080200	10,8	12	102	55	40
B16560321090200	10,9	12	102	55	40
B16560321100200	11	12	102	55	40
B16560321110200	11,1	12	102	55	40
B16560321120200	11,2	12	102	55	40
B16560321130200	11,3	12	102	55	40
B16560321140200	11,4	12	102	55	40
B16560321150200	11,5	12	102	55	40
B16560321160200	11,6	12	102	55	40
B16560321170200	11,7	12	102	55	40
B16560321180200	11,8	12	102	55	40
B16560321190200	11,9	12	102	55	40
B16560321200200	12	12	102	55	40
B16560321220200	12,2	14	107	60	43
B16560321230200	12,3	14	107	60	43
B16560321250200	12,5	14	107	60	43
B16560321280200	12,8	14	107	60	43
B16560321300200	13	14	107	60	43
B16560321350200	13,5	14	107	60	43
B16560321380200	13,8	14	107	60	43
B16560321400200	14	14	107	60	43
B16560321450200	14,5	16	115	65	45
B16560321480200	14,8	16	115	65	45
B16560321500200	15	16	115	65	45



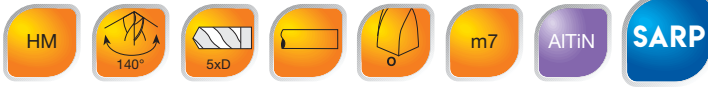
ISO	RECOMMENDED
P	OO
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**HM SOLID DRILL 3XD - INTERNAL COOLANT****KSM SOLID 3XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16560321550200</b>	15,5	16	115	65	45
<b>B16560321580200</b>	15,8	16	115	65	45
<b>B16560321600200</b>	16	16	115	65	45
<b>B16560321650200</b>	16,5	18	123	73	51
<b>B16560321680200</b>	16,8	18	123	73	51
<b>B16560321700200</b>	17	18	123	73	51
<b>B16560321750200</b>	17,5	18	123	73	51
<b>B16560321780200</b>	17,8	18	123	73	51
<b>B16560321800200</b>	18	18	123	73	51
<b>B16560321850200</b>	18,5	20	131	79	55
<b>B16560321880200</b>	18,8	20	131	79	55
<b>B16560321900200</b>	19	20	131	79	55
<b>B16560321950200</b>	19,5	20	131	79	55
<b>B16560321980200</b>	19,8	20	131	79	55
<b>B16560322000200</b>	20	20	131	79	55



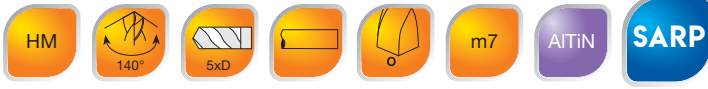
ISO	RECOMMENDED
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**HM SOLID DRILL 5XD - NON-INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560540300200	3	6	66	28	23
B16560540310200	3,1	6	66	28	23
B16560540320200	3,2	6	66	28	23
B16560540330200	3,3	6	66	28	23
B16560540340200	3,4	6	66	28	23
B16560540350200	3,5	6	66	28	23
B16560540360200	3,6	6	66	28	23
B16560540370200	3,7	6	66	28	23
B16560540380200	3,8	6	74	36	29
B16560540390200	3,9	6	74	36	29
B16560540400200	4	6	74	36	29
B16560540410200	4,1	6	74	36	29
B16560540420200	4,2	6	74	36	29
B16560540430200	4,3	6	74	36	29
B16560540440200	4,4	6	74	36	29
B16560540450200	4,5	6	74	36	29
B16560540460200	4,6	6	74	36	29
B16560540470200	4,7	6	74	36	29
B16560540480200	4,8	6	82	44	35
B16560540490200	4,9	6	82	44	35
B16560540500200	5	6	82	44	35
B16560540510200	5,1	6	82	44	35
B16560540520200	5,2	6	82	44	35
B16560540530200	5,3	6	82	44	35
B16560540540200	5,4	6	82	44	35
B16560540550200	5,5	6	82	44	35
B16560540560200	5,6	6	82	44	35
B16560540570200	5,7	6	82	44	35
B16560540580200	5,8	6	82	44	35
B16560540590200	5,9	6	82	44	35
B16560540600200	6	6	82	44	35
B16560540610200	6,1	8	91	53	43
B16560540620200	6,2	8	91	53	43
B16560540630200	6,3	8	91	53	43
B16560540640200	6,4	8	91	53	43
B16560540650200	6,5	8	91	53	43
B16560540660200	6,6	8	91	53	43
B16560540670200	6,7	8	91	53	43
B16560540680200	6,8	8	91	53	43
B16560540690200	6,9	8	91	53	43
B16560540700200	7	8	91	53	43
B16560540710200	7,1	8	91	53	43
B16560540720200	7,2	8	91	53	43
B16560540730200	7,3	8	91	53	43
B16560540740200	7,4	8	91	53	43
B16560540750200	7,5	8	91	53	43
B16560540760200	7,6	8	91	53	43
B16560540770200	7,7	8	91	53	43
B16560540780200	7,8	8	91	53	43
B16560540790200	7,9	8	91	53	43
B16560540800200	8	8	91	53	43



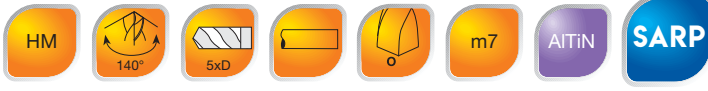
ISO	RECOMMENDED
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**HM SOLID DRILL 5XD - NON-INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560540810200	8,1	10	103	61	49
B16560540820200	8,2	10	103	61	49
B16560540830200	8,3	10	103	61	49
B16560540840200	8,4	10	103	61	49
B16560540850200	8,5	10	103	61	49
B16560540860200	8,6	10	103	61	49
B16560540870200	8,7	10	103	61	49
B16560540880200	8,8	10	103	61	49
B16560540890200	8,9	10	103	61	49
B16560540900200	9	10	103	61	49
B16560540910200	9,1	10	103	61	49
B16560540920200	9,2	10	103	61	49
B16560540930200	9,3	10	103	61	49
B16560540940200	9,4	10	103	61	49
B16560540950200	9,5	10	103	61	49
B16560540960200	9,6	10	103	61	49
B16560540970200	9,7	10	103	61	49
B16560540980200	9,8	10	103	61	49
B16560540990200	9,9	10	103	61	49
B16560541000200	10	10	103	61	49
B16560541010200	10,1	12	118	71	56
B16560541020200	10,2	12	118	71	56
B16560541030200	10,3	12	118	71	56
B16560541040200	10,4	12	118	71	56
B16560541050200	10,5	12	118	71	56
B16560541060200	10,6	12	118	71	56
B16560541070200	10,7	12	118	71	56
B16560541080200	10,8	12	118	71	56
B16560541090200	10,9	12	118	71	56
B16560541100200	11	12	118	71	56
B16560541110200	11,1	12	118	71	56
B16560541120200	11,2	12	118	71	56
B16560541130200	11,3	12	118	71	56
B16560541140200	11,4	12	118	71	56
B16560541150200	11,5	12	118	71	56
B16560541160200	11,6	12	118	71	56
B16560541170200	11,7	12	118	71	56
B16560541180200	11,8	12	118	71	56
B16560541190200	11,9	12	118	71	56
B16560541200200	12	12	118	71	56
B16560541220200	12,2	14	124	77	60
B16560541230200	12,3	14	124	77	60
B16560541250200	12,5	14	124	77	60
B16560541280200	12,8	14	124	77	60
B16560541300200	13	14	124	77	60
B16560541350200	13,5	14	124	77	60
B16560541380200	13,8	14	124	77	60
B16560541400200	14	14	124	77	60
B16560541450200	14,5	16	133	83	63
B16560541480200	14,8	16	133	83	63
B16560541500200	15	16	133	83	63



ISO	RECOMMENDED
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**HM SOLID DRILL 5XD - NON-INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMESİZ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16560541550200</b>	15,5	16	133	83	63
<b>B16560541580200</b>	15,8	16	133	83	63
<b>B16560541600200</b>	16	16	133	83	63
<b>B16560541650200</b>	16,5	18	143	93	71
<b>B16560541680200</b>	16,8	18	143	93	71
<b>B16560541700200</b>	17	18	143	93	71
<b>B16560541750200</b>	17,5	18	143	93	71
<b>B16560541780200</b>	17,8	18	143	93	71
<b>B16560541800200</b>	18	18	143	93	71
<b>B16560541850200</b>	18,5	20	153	101	71
<b>B16560541900200</b>	19	20	153	101	71
<b>B16560541950200</b>	19,5	20	153	101	71
<b>B16560541980200</b>	19,8	20	153	101	71
<b>B16560542000200</b>	20	20	153	101	71



ISO	RECOMMENDED
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**HM SOLID DRILL 5XD - INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560520300200	3	6	66	28	23
B16560520310200	3,1	6	66	28	23
B16560520320200	3,2	6	66	28	23
B16560520330200	3,3	6	66	28	23
B16560520340200	3,4	6	66	28	23
B16560520350200	3,5	6	66	28	23
B16560520360200	3,6	6	66	28	23
B16560520370200	3,7	6	66	28	23
B16560520380200	3,8	6	74	36	29
B16560520390200	3,9	6	74	36	29
B16560520400200	4	6	74	36	29
B16560520410200	4,1	6	74	36	29
B16560520420200	4,2	6	74	36	29
B16560520430200	4,3	6	74	36	29
B16560520440200	4,4	6	74	36	29
B16560520450200	4,5	6	74	36	29
B16560520460200	4,6	6	74	36	29
B16560520470200	4,7	6	74	36	29
B16560520480200	4,8	6	82	44	35
B16560520490200	4,9	6	82	44	35
B16560520500200	5	6	82	44	35
B16560520510200	5,1	6	82	44	35
B16560520520200	5,2	6	82	44	35
B16560520530200	5,3	6	82	44	35
B16560520540200	5,4	6	82	44	35
B16560520550200	5,5	6	82	44	35
B16560520560200	5,6	6	82	44	35
B16560520570200	5,7	6	82	44	35
B16560520580200	5,8	6	82	44	35
B16560520590200	5,9	6	82	44	35
B16560520600200	6	6	82	44	35
B16560520610200	6,1	8	91	53	43
B16560520620200	6,2	8	91	53	43
B16560520630200	6,3	8	91	53	43
B16560520640200	6,4	8	91	53	43
B16560520650200	6,5	8	91	53	43
B16560520660200	6,6	8	91	53	43
B16560520670200	6,7	8	91	53	43
B16560520680200	6,8	8	91	53	43
B16560520690200	6,9	8	91	53	43
B16560520700200	7	8	91	53	43
B16560520710200	7,1	8	91	53	43
B16560520720200	7,2	8	91	53	43
B16560520730200	7,3	8	91	53	43
B16560520740200	7,4	8	91	53	43
B16560520750200	7,5	8	91	53	43
B16560520760200	7,6	8	91	53	43
B16560520770200	7,7	8	91	53	43
B16560520780200	7,8	8	91	53	43
B16560520790200	7,9	8	91	53	43
B16560520800200	8	8	91	53	43



ISO	RECOMMENDED
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**HM SOLID DRILL 5XD - INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560520810200	8,1	10	103	61	49
B16560520820200	8,2	10	103	61	49
B16560520830200	8,3	10	103	61	49
B16560520840200	8,4	10	103	61	49
B16560520850200	8,5	10	103	61	49
B16560520860200	8,6	10	103	61	49
B16560520870200	8,7	10	103	61	49
B16560520880200	8,8	10	103	61	49
B16560520890200	8,9	10	103	61	49
B16560520900200	9	10	103	61	49
B16560520910200	9,1	10	103	61	49
B16560520920200	9,2	10	103	61	49
B16560520930200	9,3	10	103	61	49
B16560520940200	9,4	10	103	61	49
B16560520950200	9,5	10	103	61	49
B16560520960200	9,6	10	103	61	49
B16560520970200	9,7	10	103	61	49
B16560520980200	9,8	10	103	61	49
B16560520990200	9,9	10	103	61	49
B16560521000200	10	10	103	61	49
B16560521010200	10,1	12	118	71	56
B16560521020200	10,2	12	118	71	56
B16560521030200	10,3	12	118	71	56
B16560521040200	10,4	12	118	71	56
B16560521050200	10,5	12	118	71	56
B16560521060200	10,6	12	118	71	56
B16560521070200	10,7	12	118	71	56
B16560521080200	10,8	12	118	71	56
B16560521090200	10,9	12	118	71	56
B16560521100200	11	12	118	71	56
B16560521110200	11,1	12	118	71	56
B16560521120200	11,2	12	118	71	56
B16560521130200	11,3	12	118	71	56
B16560521140200	11,4	12	118	71	56
B16560521150200	11,5	12	118	71	56
B16560521160200	11,6	12	118	71	56
B16560521170200	11,7	12	118	71	56
B16560521180200	11,8	12	118	71	56
B16560521190200	11,9	12	118	71	56
B16560521200200	12	12	118	71	56
B16560521220200	12,2	14	124	77	60
B16560521230200	12,3	14	124	77	60
B16560521250200	12,5	14	124	77	60
B16560521280200	12,8	14	124	77	60
B16560521300200	13	14	124	77	60
B16560521350200	13,5	14	124	77	60
B16560521380200	13,8	14	124	77	60
B16560521400200	14	14	124	77	60
B16560521450200	14,5	16	133	83	63
B16560521480200	14,8	16	133	83	63
B16560521500200	15	16	133	83	63



ISO	RECOMMENDED
P	OO
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**HM SOLID DRILL 5XD - INTERNAL COOLANT****KSM SOLID 5XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16560521550200</b>	15,5	16	133	83	63
<b>B16560521580200</b>	15,8	16	133	83	63
<b>B16560521600200</b>	16	16	133	83	63
<b>B16560521650200</b>	16,5	18	143	93	71
<b>B16560521680200</b>	16,8	18	143	93	71
<b>B16560521700200</b>	17	18	143	93	71
<b>B16560521750200</b>	17,5	18	143	93	71
<b>B16560521780200</b>	17,8	18	143	93	71
<b>B16560521800200</b>	18	18	143	93	71
<b>B16560521850200</b>	18,5	20	153	101	71
<b>B16560521900200</b>	19	20	153	101	71
<b>B16560521950200</b>	19,5	20	153	101	71
<b>B16560521980200</b>	19,8	20	153	101	71
<b>B16560522000200</b>	20	20	153	101	71



ISO	RECOMMENDED
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**HM SOLID DRILL 8XD - INTERNAL COOLANT****KSM SOLID 8XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560820400200	4	6	81	43	35
B16560820410200	4,1	6	81	43	35
B16560820420200	4,2	6	81	43	35
B16560820430200	4,3	6	81	43	35
B16560820440200	4,4	6	81	43	35
B16560820450200	4,5	6	81	43	35
B16560820460200	4,6	6	81	43	35
B16560820470200	4,7	6	95	57	35
B16560820480200	4,8	6	95	57	45
B16560820490200	4,9	6	95	57	45
B16560820500200	5	6	95	57	45
B16560820510200	5,1	6	95	57	45
B16560820520200	5,2	6	95	57	45
B16560820530200	5,3	6	95	57	45
B16560820540200	5,4	6	95	57	45
B16560820550200	5,5	6	95	57	45
B16560820560200	5,6	6	95	57	45
B16560820570200	5,7	6	95	57	45
B16560820580200	5,8	6	95	57	45
B16560820590200	5,9	6	95	57	45
B16560820600200	6	6	95	57	45
B16560820610200	6,1	8	114	76	52
B16560820620200	6,2	8	114	76	52
B16560820630200	6,3	8	114	76	52
B16560820640200	6,4	8	114	76	52
B16560820650200	6,5	8	114	76	52
B16560820660200	6,6	8	114	76	52
B16560820670200	6,7	8	114	76	52
B16560820680200	6,8	8	114	76	52
B16560820690200	6,9	8	114	76	52
B16560820700200	7	8	114	76	60
B16560820710200	7,1	8	114	76	60
B16560820720200	7,2	8	114	76	60
B16560820730200	7,3	8	114	76	60
B16560820740200	7,4	8	114	76	60
B16560820750200	7,5	8	114	76	60
B16560820760200	7,6	8	114	76	60
B16560820770200	7,7	8	114	76	60
B16560820780200	7,8	8	114	76	60
B16560820790200	7,9	8	114	76	60
B16560820800200	8	8	114	76	60
B16560820810200	8,1	10	142	95	68
B16560820820200	8,2	10	142	95	68
B16560820830200	8,3	10	142	95	68
B16560820840200	8,4	10	142	95	68
B16560820850200	8,5	10	142	95	68
B16560820860200	8,6	10	142	95	68
B16560820870200	8,7	10	142	95	68
B16560820880200	8,8	10	142	95	68
B16560820890200	8,9	10	142	95	68
B16560820900200	9	10	142	95	68



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**HM SOLID DRILL 8XD - INTERNAL COOLANT****KSM SOLID 8XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16560820910200	9,1	10	142	95	76
B16560820920200	9,2	10	142	95	76
B16560820930200	9,3	10	142	95	76
B16560820940200	9,4	10	142	95	76
B16560820950200	9,5	10	142	95	76
B16560820960200	9,6	10	142	95	76
B16560820970200	9,7	10	142	95	76
B16560820980200	9,8	10	142	95	76
B16560820990200	9,9	10	142	95	76
B16560821000200	10	10	142	95	76
B16560821010200	10,1	12	162	114	90
B16560821020200	10,2	12	162	114	90
B16560821030200	10,3	12	162	114	90
B16560821040200	10,4	12	162	114	90
B16560821050200	10,5	12	162	114	90
B16560821060200	10,6	12	162	114	90
B16560821070200	10,7	12	162	114	90
B16560821080200	10,8	12	162	114	90
B16560821090200	10,9	12	162	114	90
B16560821100200	11	12	162	114	90
B16560821110200	11,1	12	162	114	90
B16560821120200	11,2	12	162	114	90
B16560821130200	11,3	12	162	114	90
B16560821140200	11,4	12	162	114	90
B16560821150200	11,5	12	162	114	90
B16560821160200	11,6	12	162	114	90
B16560821170200	11,7	12	162	114	90
B16560821180200	11,8	12	162	114	90
B16560821190200	11,9	12	162	114	90
B16560821200200	12	12	162	114	90
B16560821210200	12,1	14	182	133	106
B16560821230200	12,3	14	182	133	106
B16560821250200	12,5	14	182	133	106
B16560821270200	12,7	14	182	133	106
B16560821290200	12,9	14	182	133	106
B16560821300200	13	14	182	133	106
B16560821310200	13,1	14	182	133	106
B16560821330200	13,3	14	182	133	106
B16560821350200	13,5	14	182	133	106
B16560821370200	13,7	14	182	133	106
B16560821390200	13,9	14	182	133	106
B16560821400200	14	14	182	133	106
B16560821410200	14,1	16	203	152	122
B16560821430200	14,3	16	203	152	122
B16560821450200	14,5	16	203	152	122
B16560821470200	14,7	16	203	152	122
B16560821490200	14,9	16	203	152	122
B16560821500200	15	16	203	152	122
B16560821510200	15,1	16	203	152	122
B16560821530200	15,3	16	203	152	122
B16560821550200	15,5	16	203	152	122



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**HM SOLID DRILL 8XD - INTERNAL COOLANT****KSM SOLID 8XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16560821570200</b>	15,7	16	203	152	122
<b>B16560821590200</b>	15,9	16	203	152	122
<b>B16560821600200</b>	16	16	203	152	122
<b>B16560821650200</b>	16,5	18	223	171	144
<b>B16560821700200</b>	17	18	223	171	144
<b>B16560821750200</b>	17,5	18	223	171	144
<b>B16560821800200</b>	18	18	223	171	144
<b>B16560821850200</b>	18,5	20	244	190	160
<b>B16560821900200</b>	19	20	244	190	160
<b>B16560821950200</b>	19,5	20	244	190	160
<b>B16560822000200</b>	20	20	244	190	160



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**HM SOLID DRILL 12XD - INTERNAL COOLANT****KSM SOLID 12XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16561220400200	4	6	102	64	56
B16561220450200	4,5	6	102	64	56
B16561220480200	4,8	6	116	78	70
B16561220500200	5	6	116	78	70
B16561220550200	5,5	6	116	78	70
B16561220580200	5,8	6	116	78	70
B16561220600200	6	6	116	78	70
B16561220650200	6,5	8	146	108	94
B16561220680200	6,8	8	146	108	94
B16561220700200	7	8	146	108	94
B16561220750200	7,5	8	146	108	94
B16561220780200	7,8	8	146	108	94
B16561220800200	8	8	146	108	94
B16561220850200	8,5	10	162	120	110
B16561220880200	8,8	10	162	120	110
B16561220900200	9	10	162	120	110
B16561220950200	9,5	10	162	120	110
B16561220980200	9,8	10	162	120	110
B16561221000200	10	10	162	120	110
B16561221020200	10,2	12	204	156	142
B16561221050200	10,5	12	204	156	142
B16561221080200	10,8	12	204	156	142
B16561221100200	11	12	204	156	142
B16561221150200	11,5	12	204	156	142
B16561221180200	11,8	12	204	156	142
B16561221200200	12	12	204	156	142
B16561221250200	12,5	14	230	182	166
B16561221280200	12,8	14	230	182	166
B16561221300200	13	14	230	182	166
B16561221350200	13,5	14	230	182	166
B16561221400200	14	14	230	182	166
B16561221450200	14,5	16	260	208	192
B16561221500200	15	16	260	208	192
B16561221550200	15,5	16	260	208	192
B16561221600200	16	16	260	208	192
B16561221650200	16,5	18	285	234	218
B16561221700200	17	18	285	234	218
B16561221750200	17,5	18	285	234	218
B16561221800200	18	18	285	234	218
B16561221850200	18,5	20	310	258	242
B16561221900200	19	20	310	258	242
B16561221950200	19,5	20	310	258	242
B16561222000200	20	20	310	258	242



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**HM SOLID DRILL 15XD - INTERNAL COOLANT****KSM SOLID 15XD MATKAP - İÇTEN SU VERMELİ**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
B16561520400200	4	6	116	71	60
B16561520450200	4,5	6	133	87	68
B16561520480200	4,8	6	133	87	72
B16561520500200	5	6	133	93	75
B16561520510200	5,1	6	150	110	77
B16561520520200	5,2	6	150	110	78
B16561520530200	5,3	6	150	110	80
B16561520540200	5,4	6	150	110	81
B16561520550200	5,5	6	150	110	83
B16561520560200	5,6	6	150	110	84
B16561520570200	5,7	6	150	110	86
B16561520580200	5,8	6	150	110	87
B16561520590200	5,9	6	150	110	90
B16561520600200	6	6	150	110	90
B16561520610200	6,1	8	165	124	92
B16561520620200	6,2	8	165	124	93
B16561520630200	6,3	8	165	124	96
B16561520640200	6,4	8	165	124	96
B16561520650200	6,5	8	165	124	97
B16561520660200	6,6	8	165	124	99
B16561520670200	6,7	8	165	124	101
B16561520680200	6,8	8	165	124	102
B16561520690200	6,9	8	165	124	104
B16561520700200	7	8	165	124	105
B16561520750200	7,5	8	183	143	115
B16561520780200	7,8	8	183	143	117
B16561520800200	8	8	183	143	120
B16561520850200	8,5	10	204	160	128
B16561520880200	8,8	10	204	160	132
B16561520900200	9	10	204	160	135
B16561520950200	9,5	10	221	177	143
B16561520980200	9,8	10	221	177	147
B16561521000200	10	10	221	177	150
B16561521020200	10,2	12	247	198	153
B16561521050200	10,5	12	247	198	158
B16561521080200	10,8	12	247	198	162
B16561521100200	11	12	247	198	165
B16561521120200	11,2	12	263	214	168
B16561521150200	11,5	12	263	214	173
B16561521180200	11,8	12	263	214	177
B16561521200200	12	12	263	214	180
B16561521250200	12,5	14	297	248	188
B16561521280200	12,8	14	297	248	191
B16561521300200	13	14	297	248	195
B16561521350200	13,5	14	297	248	201
B16561521380200	13,8	14	297	248	207
B16561521400200	14	14	297	248	210
B16561521450200	14,5	16	330	270	216
B16561521480200	14,8	16	330	270	222
B16561521500200	15	16	330	270	225
B16561521550200	15,5	16	330	270	231
B16561521580200	15,8	16	330	270	237
B16561521600200	16	16	330	270	240



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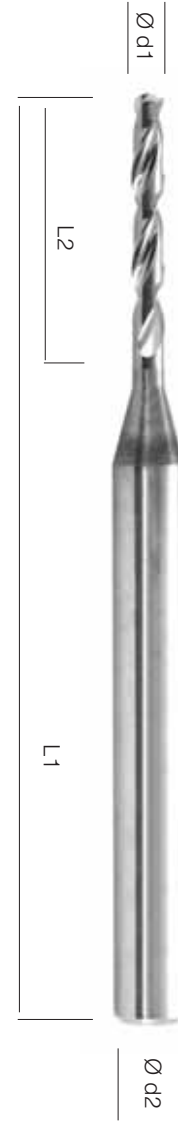
# UFUK

DRILLS & MILLS



**HM SOLID MICRO DRILL****KSM SOLID MİKRO MATKAP**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	NL min
<b>B16563100100</b>	1	4	50	5	4
<b>B16563100110</b>	1,1	4	50	5	4
<b>B16563100120</b>	1,2	4	50	6	5
<b>B16563100130</b>	1,3	4	50	6	5
<b>B16563100140</b>	1,4	4	50	7	6
<b>B16563100150</b>	1,5	4	50	8	7
<b>B16563100160</b>	1,6	4	50	12	10
<b>B16563100170</b>	1,7	4	50	12	10
<b>B16563100180</b>	1,8	4	50	12	10
<b>B16563100190</b>	1,9	4	50	14	12
<b>B16563100200</b>	2	4	50	15	12
<b>B16563100210</b>	2,1	4	50	16	12
<b>B16563100220</b>	2,2	4	50	16	14
<b>B16563100230</b>	2,3	4	50	16	14
<b>B16563100240</b>	2,4	4	50	16	14
<b>B16563100250</b>	2,5	4	50	18	16
<b>B16563100260</b>	2,6	4	50	18	16
<b>B16563100270</b>	2,7	4	50	18	16
<b>B16563100280</b>	2,8	4	50	19	17
<b>B16563100290</b>	2,9	4	50	20	18



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**HM SOLID MICRO MILL - RIB PROCESSING****KSM SOLID MİKRO FREZE - DALMA BOYUNLU**

Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 min	L3 min	FLUTE
B17557905004229	0,5	4	0,45	0,7	4	50	2
B17557905006229	0,5	4	0,45	0,6	6	50	2
B17557905008229	0,5	4	0,45	0,7	8	50	2
B17557908004229	0,8	4	0,75	1,2	4	50	2
B17557908006229	0,8	4	0,75	1,2	6	50	2
B17557908008229	0,8	4	0,75	1,2	8	50	2
B17557908010229	0,8	4	0,75	1,2	10	50	2
B17557910004229	1	4	0,95	1,5	4	50	2
B17557910006229	1	4	0,95	1,5	6	50	2
B17557910008229	1	4	0,95	1,5	8	50	2
B17557910010229	1	4	0,95	1,5	10	50	2
B17557910012229	1	4	0,95	1,5	12	50	2
B17557910014229	1	4	0,95	1,5	14	50	2
B17557910016229	1	4	0,95	1,5	16	50	2
B17557910020229	1	4	0,95	1,5	20	50	2
B17557912006229	1,2	4	1,15	1,8	6	50	2
B17557912008229	1,2	4	1,15	1,8	8	50	2
B17557912010229	1,2	4	1,15	1,8	10	50	2
B17557912012229	1,2	4	1,15	1,8	12	50	2
B17557912016229	1,2	4	1,15	1,8	16	50	2
B17557915006229	1,5	4	1,45	2,3	6	50	2
B17557915008229	1,5	4	1,45	2,3	8	50	2
B17557915010229	1,5	4	1,45	2,3	10	50	2
B17557915012229	1,5	4	1,45	2,3	12	50	2
B17557915014229	1,5	4	1,45	2,3	14	50	2
B17557915016229	1,5	4	1,45	2,3	16	50	2
B17557915018229	1,5	4	1,45	2,3	18	50	2
B17557915020229	1,5	4	1,45	2,3	20	50	2
B17557920006229	2	4	1,95	3	6	50	2
B17557920008229	2	4	1,95	3	8	50	2
B17557920010229	2	4	1,95	3	10	50	2
B17557920012229	2	4	1,95	3	12	50	2
B17557920014229	2	4	1,95	3	14	50	2
B17557920016229	2	4	1,95	3	16	50	2
B17557920018229	2	4	1,95	3	18	50	2
B17557920020229	2	4	1,95	3	20	50	2
B17557925008229	2,5	4	2,4	3,7	8	50	2
B17557925010229	2,5	4	2,4	3,7	10	50	2
B17557925012229	2,5	4	2,4	3,7	12	50	2
B17557925014229	2,5	4	2,4	3,7	14	50	2
B17557925016229	2,5	4	2,4	3,7	16	50	2
B17557925018229	2,5	4	2,4	3,7	18	50	2
B17557925020229	2,5	4	2,4	3,7	20	50	2
B17557930006229	3	6	2,85	4,5	6	57	2
B17557930008229	3	6	2,85	4,5	8	57	2
B17557930010229	3	6	2,85	4,5	10	57	2
B17557930012229	3	6	2,85	4,5	12	57	2



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**HM SOLID MICRO MILL - RIB PROCESSING****KSM SOLID MİKRO FREZE - DALMA BOYUNLU**

Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 mm	L3 mm	FLUTE
<b>B17557930014229</b>	3	6	2,85	4,5	14	57	2
<b>B17557930016229</b>	3	6	2,85	4,5	16	57	2
<b>B17557930018229</b>	3	6	2,85	4,5	18	57	2
<b>B17557930020229</b>	3	6	2,85	4,5	20	57	2
<b>B17557930025229</b>	3	6	2,85	4,5	25	57	2
<b>B17557940012229</b>	4	6	3,85	6	12	57	2
<b>B17557940014229</b>	4	6	3,85	6	14	57	2
<b>B17557940016229</b>	4	6	3,85	6	16	57	2
<b>B17557940020229</b>	4	6	3,85	6	20	57	2
<b>B17557940025229</b>	4	6	3,85	6	25	57	2
<b>B17557950012229</b>	5	6	4,85	7,5	12	57	2
<b>B17557950014229</b>	5	6	4,85	7,5	14	57	2
<b>B17557950016229</b>	5	6	4,85	7,5	16	57	2
<b>B17557950020229</b>	5	6	4,85	7,5	20	57	2
<b>B17557950025229</b>	5	6	4,85	7,5	25	57	2



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**HM SOLID MICRO MILL - RIB PROCESSING (55-65 HRC)****KSM SOLID MİKRO FREZE - DALMA BOYUNLU (55-65 HRC)**

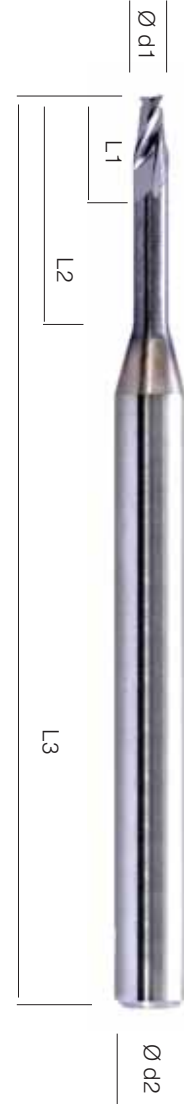
Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 min	L3 min	FLUTE
B19557905004229	0,5	4	0,45	0,7	4	50	2
B19557905006229	0,5	4	0,45	0,6	6	50	2
B19557905008229	0,5	4	0,45	0,7	8	50	2
B19557908004229	0,8	4	0,75	1,2	4	50	2
B19557908006229	0,8	4	0,75	1,2	6	50	2
B19557908008229	0,8	4	0,75	1,2	8	50	2
B19557908010229	0,8	4	0,75	1,2	10	50	2
B19557910004229	1	4	0,95	1,5	4	50	2
B19557910006229	1	4	0,95	1,5	6	50	2
B19557910008229	1	4	0,95	1,5	8	50	2
B19557910010229	1	4	0,95	1,5	10	50	2
B19557910012229	1	4	0,95	1,5	12	50	2
B19557910014229	1	4	0,95	1,5	14	50	2
B19557910016229	1	4	0,95	1,5	16	50	2
B19557910020229	1	4	0,95	1,5	20	50	2
B19557912006229	1,2	4	1,15	1,8	6	50	2
B19557912008229	1,2	4	1,15	1,8	8	50	2
B19557912010229	1,2	4	1,15	1,8	10	50	2
B19557912012229	1,2	4	1,15	1,8	12	50	2
B19557912016229	1,2	4	1,15	1,8	16	50	2
B19557915006229	1,5	4	1,45	2,3	6	50	2
B19557915008229	1,5	4	1,45	2,3	8	50	2
B19557915010229	1,5	4	1,45	2,3	10	50	2
B19557915012229	1,5	4	1,45	2,3	12	50	2
B19557915014229	1,5	4	1,45	2,3	14	50	2
B19557915016229	1,5	4	1,45	2,3	16	50	2
B19557915018229	1,5	4	1,45	2,3	18	50	2
B19557915020229	1,5	4	1,45	2,3	20	50	2
B19557920006229	2	4	1,95	3	6	50	2
B19557920008229	2	4	1,95	3	8	50	2
B19557920010229	2	4	1,95	3	10	50	2
B19557920012229	2	4	1,95	3	12	50	2
B19557920014229	2	4	1,95	3	14	50	2
B19557920016229	2	4	1,95	3	16	50	2
B19557920018229	2	4	1,95	3	18	50	2
B19557920020229	2	4	1,95	3	20	50	2
B19557925008229	2,5	4	2,4	3,7	8	50	2
B19557925010229	2,5	4	2,4	3,7	10	50	2
B19557925012229	2,5	4	2,4	3,7	12	50	2
B19557925014229	2,5	4	2,4	3,7	14	50	2
B19557925016229	2,5	4	2,4	3,7	16	50	2
B19557925018229	2,5	4	2,4	3,7	18	50	2
B19557925020229	2,5	4	2,4	3,7	20	50	2
B19557930006229	3	6	2,85	4,5	6	57	2
B19557930008229	3	6	2,85	4,5	8	57	2
B19557930010229	3	6	2,85	4,5	10	57	2
B19557930012229	3	6	2,85	4,5	12	57	2



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**HM SOLID MICRO MILL - RIB PROCESSING (55-65 HRc)****KSM SOLID MİKRO FREZE - DALMA BOYUNLU (55-65 HRc)**

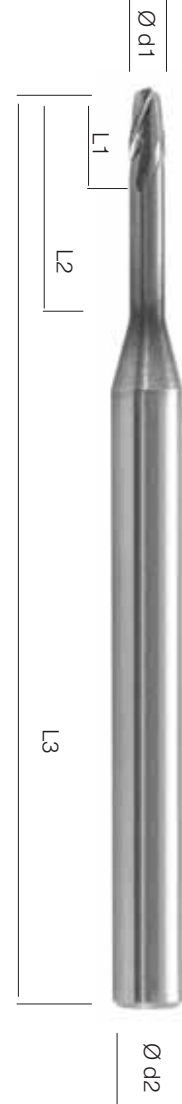
Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 mm	L3 mm	FLUTE
B19557930014229	3	6	2,85	4,5	14	57	2
B19557930016229	3	6	2,85	4,5	16	57	2
B19557930018229	3	6	2,85	4,5	18	57	2
B19557930020229	3	6	2,85	4,5	20	57	2
B19557930025229	3	6	2,85	4,5	25	57	2
B19557940012229	4	6	3,85	6	12	57	2
B19557940014229	4	6	3,85	6	14	57	2
B19557940016229	4	6	3,85	6	16	57	2
B19557940020229	4	6	3,85	6	20	57	2
B19557940025229	4	6	3,85	6	25	57	2
B19557950012229	5	6	4,85	7,5	12	57	2
B19557950014229	5	6	4,85	7,5	14	57	2
B19557950016229	5	6	4,85	7,5	16	57	2
B19557950020229	5	6	4,85	7,5	20	57	2
B19557950025229	5	6	4,85	7,5	25	57	2



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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

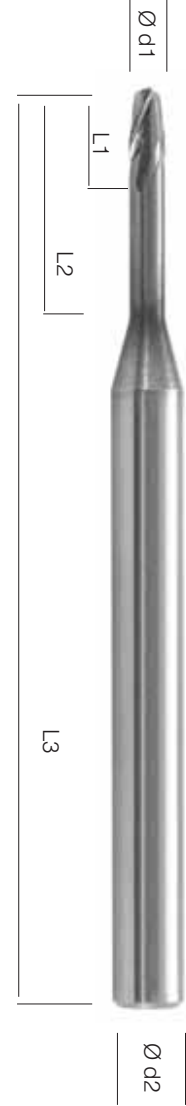
Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B17557905004301	0,1	0,5	4	0,45	0,6	4	50	2
B17557905006301	0,1	0,5	4	0,45	0,7	6	50	2
B17557905008301	0,1	0,5	4	0,45	0,7	8	50	2
B17557908004301	0,1	0,8	4	0,75	1,2	4	50	2
B17557908006301	0,1	0,8	4	0,75	1,2	6	50	2
B17557908008301	0,1	0,8	4	0,75	1,2	8	50	2
B17557908010301	0,1	0,8	4	0,75	1,2	10	50	2
B17557908004302	0,2	0,8	4	0,75	1,2	4	50	2
B17557908006302	0,2	0,8	4	0,75	1,2	6	50	2
B17557908008302	0,2	0,8	4	0,75	1,2	8	50	2
B17557908010302	0,2	0,8	4	0,75	1,2	10	50	2
B17557910004301	0,1	1	4	0,95	1,5	4	50	2
B17557910006301	0,1	1	4	0,95	1,5	6	50	2
B17557910008301	0,1	1	4	0,95	1,5	8	50	2
B17557910010301	0,1	1	4	0,95	1,5	10	50	2
B17557910012301	0,1	1	4	0,95	1,5	12	50	2
B17557910014301	0,1	1	4	0,95	1,5	14	50	2
B17557910016301	0,1	1	4	0,95	1,5	16	50	2
B17557910020301	0,1	1	4	0,95	1,5	20	50	2
B17557910004302	0,2	1	4	0,95	1,5	4	50	2
B17557910006302	0,2	1	4	0,95	1,5	6	50	2
B17557910008302	0,2	1	4	0,95	1,5	8	50	2
B17557910010302	0,2	1	4	0,95	1,5	10	50	2
B17557910012302	0,2	1	4	0,95	1,5	12	50	2
B17557910014302	0,2	1	4	0,95	1,5	14	50	2
B17557910016302	0,2	1	4	0,95	1,5	16	50	2
B17557910020302	0,2	1	4	0,95	1,5	20	50	2
B17557912006301	0,1	1,2	4	1,15	1,8	6	50	2
B17557912008301	0,1	1,2	4	1,15	1,8	8	50	2
B17557912010301	0,1	1,2	4	1,15	1,8	10	50	2
B17557912012301	0,1	1,2	4	1,15	1,8	12	50	2
B17557912016301	0,1	1,2	4	1,15	1,8	16	50	2
B17557912006302	0,2	1,2	4	1,15	1,8	6	50	2
B17557912008302	0,2	1,2	4	1,15	1,8	8	50	2
B17557912010302	0,2	1,2	4	1,15	1,8	10	50	2
B17557912012302	0,2	1,2	4	1,15	1,8	12	50	2
B17557912016302	0,2	1,2	4	1,15	1,8	16	50	2
B17557915006302	0,2	1,5	4	1,45	2,3	6	50	2
B17557915008302	0,2	1,5	4	1,45	2,3	8	50	2
B17557915010302	0,2	1,5	4	1,45	2,3	10	50	2
B17557915012302	0,2	1,5	4	1,45	2,3	12	50	2
B17557915014302	0,2	1,5	4	1,45	2,3	14	50	2
B17557915016302	0,2	1,5	4	1,45	2,3	16	50	2
B17557915018302	0,2	1,5	4	1,45	2,3	18	50	2
B17557915020302	0,2	1,5	4	1,45	2,3	20	50	2
B17557915006303	0,3	1,5	4	1,45	2,3	6	50	2
B17557915008303	0,3	1,5	4	1,45	2,3	8	50	2
B17557915010303	0,3	1,5	4	1,45	2,3	10	50	2



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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B17557915012303	0,3	1,5	4	1,45	2,3	12	50	2
B17557915014303	0,3	1,5	4	1,45	2,3	14	50	2
B17557915016303	0,3	1,5	4	1,45	2,3	16	50	2
B17557915018303	0,3	1,5	4	1,45	2,3	18	50	2
B17557915020303	0,3	1,5	4	1,45	2,3	20	50	2
B17557920006302	0,2	2	4	1,95	3	6	50	2
B17557920008302	0,2	2	4	1,95	3	8	50	2
B17557920010302	0,2	2	4	1,95	3	10	50	2
B17557920012302	0,2	2	4	1,95	3	12	50	2
B17557920014302	0,2	2	4	1,95	3	14	50	2
B17557920016302	0,2	2	4	1,95	3	16	50	2
B17557920018302	0,2	2	4	1,96	3	18	50	2
B17557920020302	0,2	2	4	1,97	3	20	50	2
B17557920006305	0,5	2	4	1,95	3	6	50	2
B17557920008305	0,5	2	4	1,95	3	8	50	2
B17557920010305	0,5	2	4	1,95	3	10	50	2
B17557920012305	0,5	2	4	1,95	3	12	50	2
B17557920014305	0,5	2	4	1,95	3	14	50	2
B17557920016305	0,5	2	4	1,95	3	16	50	2
B17557920018305	0,5	2	4	1,96	3	18	50	2
B17557920020305	0,5	2	4	1,97	3	20	50	2
B17557925008302	0,2	2,50	4	2,40	4	8	50	2
B17557925010302	0,2	2,50	4	2,40	4	10	50	2
B17557925012302	0,2	2,50	4	2,40	4	12	50	2
B17557925014302	0,2	2,50	4	2,40	4	14	50	2
B17557925016302	0,2	2,50	4	2,40	4	16	60	2
B17557925018302	0,2	2,50	4	2,40	4	18	60	2
B17557925020302	0,2	2,50	4	2,40	4	20	60	2
B17557925008305	0,5	2,50	4	2,40	4	8	50	2
B17557925010305	0,5	2,50	4	2,40	4	10	50	2
B17557925012305	0,5	2,50	4	2,40	4	12	50	2
B17557925014305	0,5	2,50	4	2,40	4	14	50	2
B17557925016305	0,5	2,50	4	2,40	4	16	50	2
B17557925018305	0,5	2,50	4	2,40	4	18	50	2
B17557925020305	0,5	2,50	4	2,40	4	20	50	2
B17557930006302	0,2	3	6	2,85	5	6	57	2
B17557930008302	0,2	3	6	2,85	5	8	57	2
B17557930010302	0,2	3	6	2,85	5	10	57	2
B17557930012302	0,2	3	6	2,85	5	12	57	2
B17557930014302	0,2	3	6	2,85	5	14	57	2
B17557930016302	0,2	3	6	2,85	5	16	57	2
B17557930018302	0,2	3	6	2,85	5	18	57	2
B17557930020302	0,2	3	6	2,85	5	20	57	2
B17557930006305	0,5	3	6	2,85	5	6	57	2
B17557930008305	0,5	3	6	2,85	5	8	57	2
B17557930010305	0,5	3	6	2,85	5	10	57	2
B17557930012305	0,5	3	6	2,85	5	12	57	2
B17557930014305	0,5	3	6	2,85	5	14	57	2



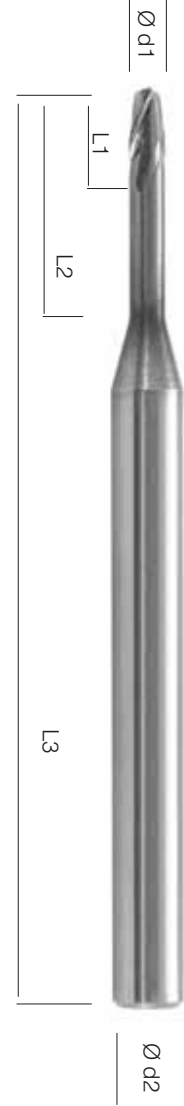
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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

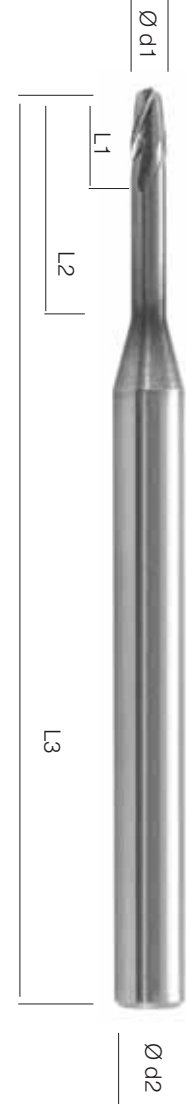
Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
<b>B17557930016305</b>	0,5	3	6	2,85	5	16	57	2
<b>B17557930018305</b>	0,5	3	6	2,85	5	18	57	2
<b>B17557930020305</b>	0,5	3	6	2,85	5	20	57	2
<b>B17557940012302</b>	0,2	4	6	3,85	6	12	57	2
<b>B17557940014302</b>	0,2	4	6	3,85	6	14	57	2
<b>B17557940016302</b>	0,2	4	6	3,85	6	16	57	2
<b>B17557940020302</b>	0,2	4	6	3,85	6	20	57	2
<b>B17557940025302</b>	0,2	4	6	3,85	6	25	57	2
<b>B17557940012305</b>	0,5	4	6	3,85	6	12	57	2
<b>B17557940014305</b>	0,5	4	6	3,85	6	14	57	2
<b>B17557940016305</b>	0,5	4	6	3,85	6	16	57	2
<b>B17557940020305</b>	0,5	4	6	3,85	6	20	57	2
<b>B17557940025305</b>	0,5	4	6	3,85	6	25	57	2
<b>B17557950012305</b>	0,5	5	6	4,85	8	12	57	2
<b>B17557950014305</b>	0,5	5	6	4,85	8	14	57	2
<b>B17557950016305</b>	0,5	5	6	4,85	8	16	57	2
<b>B17557950020305</b>	0,5	5	6	4,85	8	20	57	2
<b>B17557950025305</b>	0,5	5	6	4,85	8	25	57	2
<b>B17557950012310</b>	1,0	5	6	4,85	8	12	57	2
<b>B17557950014310</b>	1,0	5	6	4,85	8	14	57	2
<b>B17557950016310</b>	1,0	5	6	4,85	8	16	57	2
<b>B17557950020310</b>	1,0	5	6	4,85	8	20	57	2
<b>B17557950025310</b>	1,0	5	6	4,85	8	25	57	2



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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING (55-65 Hrc)****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B19557905004301	0,1	0,5	4	0,45	0,6	4	50	2
B19557905006301	0,1	0,5	4	0,45	0,7	6	50	2
B19557905008301	0,1	0,5	4	0,45	0,7	8	50	2
B19557908004301	0,1	0,8	4	0,75	1,2	4	50	2
B19557908006301	0,1	0,8	4	0,75	1,2	6	50	2
B19557908008301	0,1	0,8	4	0,75	1,2	8	50	2
B19557908010301	0,1	0,8	4	0,75	1,2	10	50	2
B19557908004302	0,2	0,8	4	0,75	1,2	4	50	2
B19557908006302	0,2	0,8	4	0,75	1,2	6	50	2
B19557908008302	0,2	0,8	4	0,75	1,2	8	50	2
B19557908010302	0,2	0,8	4	0,75	1,2	10	50	2
B19557910004301	0,1	1	4	0,95	1,5	4	50	2
B19557910006301	0,1	1	4	0,95	1,5	6	50	2
B19557910008301	0,1	1	4	0,95	1,5	8	50	2
B19557910010301	0,1	1	4	0,95	1,5	10	50	2
B19557910012301	0,1	1	4	0,95	1,5	12	50	2
B19557910014301	0,1	1	4	0,95	1,5	14	50	2
B19557910016301	0,1	1	4	0,95	1,5	16	50	2
B19557910020301	0,1	1	4	0,95	1,5	20	50	2
B19557910004302	0,2	1	4	0,95	1,5	4	50	2
B19557910006302	0,2	1	4	0,95	1,5	6	50	2
B19557910008302	0,2	1	4	0,95	1,5	8	50	2
B19557910010302	0,2	1	4	0,95	1,5	10	50	2
B19557910012302	0,2	1	4	0,95	1,5	12	50	2
B19557910014302	0,2	1	4	0,95	1,5	14	50	2
B19557910016302	0,2	1	4	0,95	1,5	16	50	2
B19557910020302	0,2	1	4	0,95	1,5	20	50	2
B19557912006301	0,1	1,2	4	1,15	1,8	6	50	2
B19557912008301	0,1	1,2	4	1,15	1,8	8	50	2
B19557912010301	0,1	1,2	4	1,15	1,8	10	50	2
B19557912012301	0,1	1,2	4	1,15	1,8	12	50	2
B19557912016301	0,1	1,2	4	1,15	1,8	16	50	2
B19557912006302	0,2	1,2	4	1,15	1,8	6	50	2
B19557912008302	0,2	1,2	4	1,15	1,8	8	50	2
B19557912010302	0,2	1,2	4	1,15	1,8	10	50	2
B19557912012302	0,2	1,2	4	1,15	1,8	12	50	2
B19557912016302	0,2	1,2	4	1,15	1,8	16	50	2
B19557915006302	0,2	1,5	4	1,45	2,3	6	50	2
B19557915008302	0,2	1,5	4	1,45	2,3	8	50	2
B19557915010302	0,2	1,5	4	1,45	2,3	10	50	2
B19557915012302	0,2	1,5	4	1,45	2,3	12	50	2
B19557915014302	0,2	1,5	4	1,45	2,3	14	50	2
B19557915016302	0,2	1,5	4	1,45	2,3	16	50	2
B19557915018302	0,2	1,5	4	1,45	2,3	18	50	2
B19557915020302	0,2	1,5	4	1,45	2,3	20	50	2
B19557915006303	0,3	1,5	4	1,45	2,3	6	50	2
B19557915008303	0,3	1,5	4	1,45	2,3	8	50	2
B19557915010303	0,3	1,5	4	1,45	2,3	10	50	2

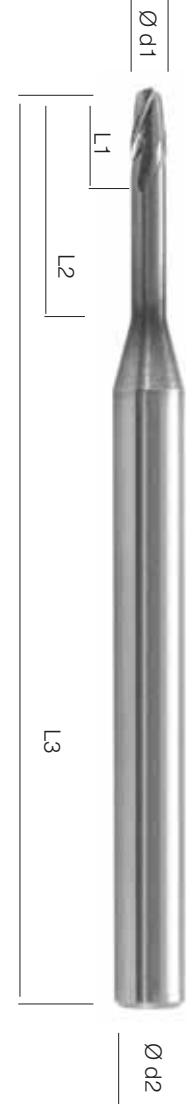


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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING (55-65 HRC)****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

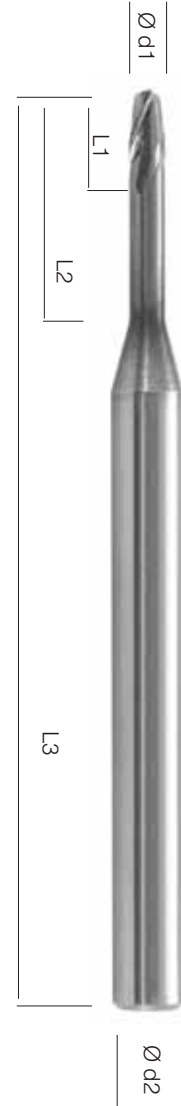
Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B19557915012303	0,3	1,5	4	1,45	2,3	12	50	2
B19557915014303	0,3	1,5	4	1,45	2,3	14	50	2
B19557915016303	0,3	1,5	4	1,45	2,3	16	50	2
B19557915018303	0,3	1,5	4	1,45	2,3	18	50	2
B19557915020303	0,3	1,5	4	1,45	2,3	20	50	2
B19557920006302	0,2	2	4	1,95	3	6	50	2
B19557920008302	0,2	2	4	1,95	3	8	50	2
B19557920010302	0,2	2	4	1,95	3	10	50	2
B19557920012302	0,2	2	4	1,95	3	12	50	2
B19557920014302	0,2	2	4	1,95	3	14	50	2
B19557920016302	0,2	2	4	1,95	3	16	50	2
B19557920018302	0,2	2	4	1,96	3	18	50	2
B19557920020302	0,2	2	4	1,97	3	20	50	2
B19557920006305	0,5	2	4	1,95	3	6	50	2
B19557920008305	0,5	2	4	1,95	3	8	50	2
B19557920010305	0,5	2	4	1,95	3	10	50	2
B19557920012305	0,5	2	4	1,95	3	12	50	2
B19557920014305	0,5	2	4	1,95	3	14	50	2
B19557920016305	0,5	2	4	1,95	3	16	50	2
B19557920018305	0,5	2	4	1,96	3	18	50	2
B19557920020305	0,5	2	4	1,97	3	20	50	2
B19557925008302	0,2	2,50	4	2,40	4	8	50	2
B19557925010302	0,2	2,50	4	2,40	4	10	50	2
B19557925012302	0,2	2,50	4	2,40	4	12	50	2
B19557925014302	0,2	2,50	4	2,40	4	14	50	2
B19557925016302	0,2	2,50	4	2,40	4	16	60	2
B19557925018302	0,2	2,50	4	2,40	4	18	60	2
B19557925020302	0,2	2,50	4	2,40	4	20	60	2
B19557925008305	0,5	2,50	4	2,40	4	8	50	2
B19557925010305	0,5	2,50	4	2,40	4	10	50	2
B19557925012305	0,5	2,50	4	2,40	4	12	50	2
B19557925014305	0,5	2,50	4	2,40	4	14	50	2
B19557925016305	0,5	2,50	4	2,40	4	16	50	2
B19557925018305	0,5	2,50	4	2,40	4	18	50	2
B19557925020305	0,5	2,50	4	2,40	4	20	50	2
B19557930006302	0,2	3	6	2,85	5	6	57	2
B19557930008302	0,2	3	6	2,85	5	8	57	2
B19557930010302	0,2	3	6	2,85	5	10	57	2
B19557930012302	0,2	3	6	2,85	5	12	57	2
B19557930014302	0,2	3	6	2,85	5	14	57	2
B19557930016302	0,2	3	6	2,85	5	16	57	2
B19557930018302	0,2	3	6	2,85	5	18	57	2
B19557930020302	0,2	3	6	2,85	5	20	57	2
B19557930006305	0,5	3	6	2,85	5	6	57	2
B19557930008305	0,5	3	6	2,85	5	8	57	2
B19557930010305	0,5	3	6	2,85	5	10	57	2
B19557930012305	0,5	3	6	2,85	5	12	57	2
B19557930014305	0,5	3	6	2,85	5	14	57	2



ISO	RECOMMENDED
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**HM SOLID MICRO MILL WITH CORNER RADIUS- RIB PROCESSING (55-65 HRC)****KSM SOLID KÖŞE RADYÜSLÜ MİKRO FREZE - DALMA BOYUNLU**

Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B19557930016305	0,5	3	6	2,85	5	16	57	2
B19557930018305	0,5	3	6	2,85	5	18	57	2
B19557930020305	0,5	3	6	2,85	5	20	57	2
B19557940012302	0,2	4	6	3,85	6	12	57	2
B19557940014302	0,2	4	6	3,85	6	14	57	2
B19557940016302	0,2	4	6	3,85	6	16	57	2
B19557940020302	0,2	4	6	3,85	6	20	57	2
B19557940025302	0,2	4	6	3,85	6	25	57	2
B19557940012305	0,5	4	6	3,85	6	12	57	2
B19557940014305	0,5	4	6	3,85	6	14	57	2
B19557940016305	0,5	4	6	3,85	6	16	57	2
B19557940020305	0,5	4	6	3,85	6	20	57	2
B19557940025305	0,5	4	6	3,85	6	25	57	2
B19557950012305	0,5	5	6	4,85	8	12	57	2
B19557950014305	0,5	5	6	4,85	8	14	57	2
B19557950016305	0,5	5	6	4,85	8	16	57	2
B19557950020305	0,5	5	6	4,85	8	20	57	2
B19557950025305	0,5	5	6	4,85	8	25	57	2
B19557950012310	1,0	5	6	4,85	8	12	57	2
B19557950014310	1,0	5	6	4,85	8	14	57	2
B19557950016310	1,0	5	6	4,85	8	16	57	2
B19557950020310	1,0	5	6	4,85	8	20	57	2
B19557950025310	1,0	5	6	4,85	8	25	57	2



ISO	RECOMMENDED
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**HM SOLID BALL NOSE MICRO MILL- RIB PROCESSING****KSM SOLID KÜRE MİKRO FREZE - DALMA BOYUNLU**

Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B17557805004229	0,25	0,5	4	0,45	0,7	4	50	2
B17557805006229	0,25	0,5	4	0,45	0,7	6	50	2
B17557806004229	0,3	0,6	4	0,55	0,9	4	50	2
B17557806006229	0,3	0,6	4	0,55	0,9	6	50	2
B17557806008229	0,3	0,6	4	0,55	0,9	8	50	2
B17557808004229	0,4	0,8	4	0,75	1,2	4	50	2
B17557808006229	0,4	0,8	4	0,75	1,2	6	50	2
B17557808008229	0,4	0,8	4	0,75	1,2	8	50	2
B17557808010229	0,4	0,8	4	0,75	1,2	10	50	2
B17557810004229	0,5	1	4	0,95	1,5	4	50	2
B17557810006229	0,5	1	4	0,95	1,5	6	50	2
B17557810008229	0,5	1	4	0,95	1,5	8	50	2
B17557810010229	0,5	1	4	0,95	1,5	10	50	2
B17557810012229	0,5	1	4	0,95	1,5	12	50	2
B17557810015229	0,5	1	4	0,95	1,5	15	50	2
B17557812006229	0,6	1,2	4	1,15	1,8	6	50	2
B17557812008229	0,6	1,2	4	1,15	1,8	8	50	2
B17557812012229	0,6	1,2	4	1,15	1,8	12	50	2
B17557812016229	0,6	1,2	4	1,15	1,8	16	50	2
B17557815006229	0,75	1,5	4	1,45	2,3	6	50	2
B17557815008229	0,75	1,5	4	1,45	2,3	8	50	2
B17557815012229	0,75	1,5	4	1,45	2,3	12	50	2
B17557815016229	0,75	1,5	4	1,45	2,3	16	50	2
B17557820006229	1	2	4	1,95	3	6	50	2
B17557820008229	1	2	4	1,95	3	8	50	2
B17557820010229	1	2	4	1,95	3	10	50	2
B17557820012229	1	2	4	1,95	3	12	50	2
B17557820020229	1	2	4	1,95	3	20	50	2
B17557825008229	1,25	2,5	4	2,4	3,7	8	50	2
B17557825010229	1,25	2,5	4	2,4	3,7	10	50	2
B17557825012229	1,25	2,5	4	2,4	3,7	12	50	2
B17557825016229	1,25	2,5	4	2,4	3,7	16	50	2
B17557825020229	1,25	2,5	4	2,4	3,7	20	50	2
B17557830008229	1,5	3	6	2,85	4,5	8	57	2
B17557830010229	1,5	3	6	2,85	4,5	10	57	2
B17557830012229	1,5	3	6	2,85	4,5	12	57	2
B17557830016229	1,5	3	6	2,85	4,5	16	57	2
B17557830020229	1,5	3	6	2,85	4,5	20	57	2
B17557840010229	2,0	4	6	3,85	6,0	10	57	2
B17557840016229	2,0	4	6	3,85	6,0	16	57	2
B17557840020229	2,0	4	6	3,85	6,0	20	57	2
B17557840025229	2,0	4	6	3,85	6,0	25	57	2
B17557850016229	2,5	5,0	6	4,85	7,5	16	57	2
B17557850025229	2,5	5,0	6	4,85	7,5	25	57	2



ISO	RECOMMENDED
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**HM SOLID BALL NOSE MICRO MILL- RIB PROCESSING (55-65 HRc)****KSM SOLID KÜRE MİKRO FREZE - DALMA BOYUNLU (55-65 HRc)**

Product Code	R	d1 mm	d2 mm	d3 mm	L1 min	L2 min	L3 min	FLUTE
B19557805004229	0,25	0,5	4	0,45	0,7	4	50	2
B19557805006229	0,25	0,5	4	0,45	0,7	6	50	2
B19557806004229	0,3	0,6	4	0,55	0,9	4	50	2
B19557806006229	0,3	0,6	4	0,55	0,9	6	50	2
B19557806008229	0,3	0,6	4	0,55	0,9	8	50	2
B19557808004229	0,4	0,8	4	0,75	1,2	4	50	2
B19557808006229	0,4	0,8	4	0,75	1,2	6	50	2
B19557808008229	0,4	0,8	4	0,75	1,2	8	50	2
B19557808010229	0,4	0,8	4	0,75	1,2	10	50	2
B19557810004229	0,5	1	4	0,95	1,5	4	50	2
B19557810006229	0,5	1	4	0,95	1,5	6	50	2
B19557810008229	0,5	1	4	0,95	1,5	8	50	2
B19557810010229	0,5	1	4	0,95	1,5	10	50	2
B19557810012229	0,5	1	4	0,95	1,5	12	50	2
B19557810015229	0,5	1	4	0,95	1,5	15	50	2
B19557812006229	0,6	1,2	4	1,15	1,8	6	50	2
B19557812008229	0,6	1,2	4	1,15	1,8	8	50	2
B19557812012229	0,6	1,2	4	1,15	1,8	12	50	2
B19557812016229	0,6	1,2	4	1,15	1,8	16	50	2
B19557815006229	0,75	1,5	4	1,45	2,3	6	50	2
B19557815008229	0,75	1,5	4	1,45	2,3	8	50	2
B19557815012229	0,75	1,5	4	1,45	2,3	12	50	2
B19557815016229	0,75	1,5	4	1,45	2,3	16	50	2
B19557820006229	1	2	4	1,95	3	6	50	2
B19557820008229	1	2	4	1,95	3	8	50	2
B19557820010229	1	2	4	1,95	3	10	50	2
B19557820012229	1	2	4	1,95	3	12	50	2
B19557820020229	1	2	4	1,95	3	20	50	2
B19557825008229	1,25	2,5	4	2,4	3,7	8	50	2
B19557825010229	1,25	2,5	4	2,4	3,7	10	50	2
B19557825012229	1,25	2,5	4	2,4	3,7	12	50	2
B19557825016229	1,25	2,5	4	2,4	3,7	16	50	2
B19557825020229	1,25	2,5	4	2,4	3,7	20	50	2
B19557830008229	1,5	3	6	2,85	4,5	8	57	2
B19557830010229	1,5	3	6	2,85	4,5	10	57	2
B19557830012229	1,5	3	6	2,85	4,5	12	57	2
B19557830016229	1,5	3	6	2,85	4,5	16	57	2
B19557830020229	1,5	3	6	2,85	4,5	20	57	2
B19557840010229	2,0	4	6	3,85	6,0	10	57	2
B19557840016229	2,0	4	6	3,85	6,0	16	57	2
B19557840020229	2,0	4	6	3,85	6,0	20	57	2
B19557840025229	2,0	4	6	3,85	6,0	25	57	2
B19557850016229	2,5	5,0	6	4,85	7,5	16	57	2
B19557850025229	2,5	5,0	6	4,85	7,5	25	57	2



ISO	RECOMMENDED
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# DORUK

## THREAD MILLS



**HM SOLID THREAD MILL****KSM SOLID DIŞ FREZESİ**

Product Code	Ød1	L1 mm	L2 mm	Ød2	L3 min	Ød3	FLUTE
<b>B19553901074</b>	1,5	0,31	6	1	50	4	4
<b>B19553901075</b>	1,9	0,34	7	1,35	50	4	4
<b>B19553901076</b>	2,3	0,43	9	1,6	66	6	4
<b>B19553901077</b>	3,1	0,56	12	2,2	66	6	4
<b>B19553901078</b>	4	0,62	15	3	66	6	4
<b>B19553901079</b>	4,8	0,79	18	3,55	74	6	4
<b>B19553901080</b>	6,5	0,94	23	5	79	8	4
<b>B19553901081</b>	7,9	1,13	26	6,1	79	8	4



ISO	RECOMMENDED
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# HM MILLS

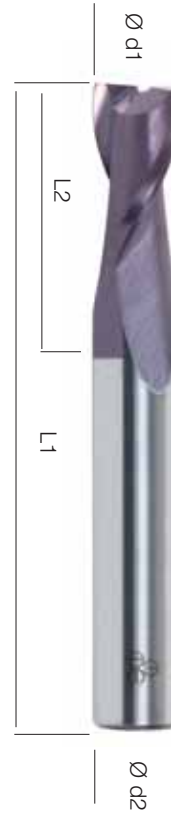
STANDARD



**HM SOLID END MILL- 2 FLUTES****KSM SOLID FREZE 2 AĞIZLI**

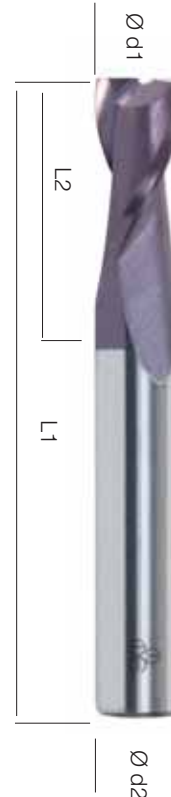
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553203000</b>	3	3	57	8	2
<b>B12553204000</b>	4	4	57	10	2
<b>B12553205000</b>	5	5	57	13	2
<b>B12553206000</b>	6	6	57	14	2
<b>B12553208000</b>	8	8	63	19	2
<b>B12553210000</b>	10	10	72	22	2
<b>B12553212000</b>	12	12	83	26	2
<b>B12553214000</b>	14	14	83	26	2
<b>B12553216000</b>	16	16	92	32	2
<b>B12553218000</b>	18	18	92	32	2
<b>B12553220000</b>	20	20	104	38	2

ISO	RECOMMENDED
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**HM SOLID END MILL-2 FLUTE - WELDON SHANK****KSM SOLID FREZE 2 AĞIZLI - WELDONLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553206000025</b>	6	6	57	14	2
<b>B12553208000025</b>	8	8	63	19	2
<b>B12553210000025</b>	10	10	72	22	2
<b>B12553212000025</b>	12	12	83	26	2
<b>B12553214000025</b>	14	14	83	26	2
<b>B12553216000025</b>	16	16	92	32	2
<b>B12553218000025</b>	18	18	92	32	2
<b>B12553220000025</b>	20	20	104	38	2

ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL-2 FLUTES****KSM SOLID EKSTRA UZUN FREZE- 2 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553203000022</b>	3	3	83	20	2
<b>B12553204000022</b>	4	4	83	22	2
<b>B12553205000022</b>	5	5	92	25	2
<b>B12553206000022</b>	6	6	92	25	2
<b>B12553208000022</b>	8	8	102	38	2
<b>B12553210000022</b>	10	10	102	44	2
<b>B12553212000022</b>	12	12	102	52	2
<b>B12553214000022</b>	14	14	107	52	2
<b>B12553216000022</b>	16	16	150	64	2
<b>B12553218000022</b>	18	18	150	64	2
<b>B12553220000022</b>	20	20	150	75	2

ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL- 2 FLUTE - WELDON SHANK****KSM SOLID EKSTRA UZUN FREZE- 2 AĞIZLI - WELDONLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553206000024</b>	6	6	92	25	2
<b>B12553208000024</b>	8	8	102	38	2
<b>B12553210000024</b>	10	10	102	44	2
<b>B12553212000024</b>	12	12	102	52	2
<b>B12553214000024</b>	14	14	107	52	2
<b>B12553216000024</b>	16	16	150	64	2
<b>B12553218000024</b>	18	18	150	64	2
<b>B12553220000024</b>	20	20	150	75	2

ISO	RECOMMENDED
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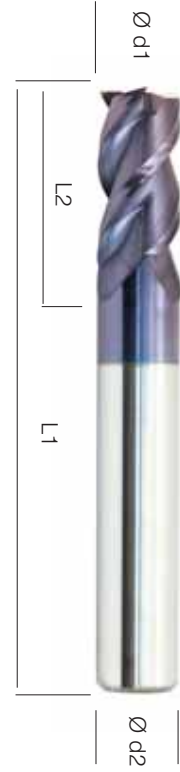
## HM SOLID END MILL- 3 FLUTE

### KSM SOLID FREZE- 3 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553103000</b>	3	3	57	7	3
<b>B12553104000</b>	4	4	57	8	3
<b>B12553105000</b>	5	5	57	10	3
<b>B12553106000</b>	6	6	57	10	3
<b>B12553108000</b>	8	8	63	16	3
<b>B12553110000</b>	10	10	72	19	3
<b>B12553112000</b>	12	12	83	22	3
<b>B12553114000</b>	14	14	83	22	3
<b>B12553116000</b>	16	16	92	26	3
<b>B12553118000</b>	18	18	92	26	3
<b>B12553120000</b>	20	20	104	32	3

ISO	RECOMMENDED
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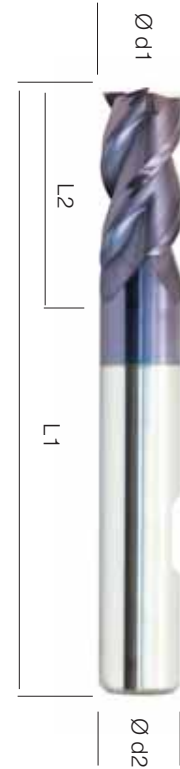
## HM SOLID END MILL- 3 FLUTE - WELDON SHANK

### KSM SOLID FREZE- 3 AĞIZLI - WELDONLU



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553106000025</b>	6	6	57	10	3
<b>B12553108000025</b>	8	8	63	16	3
<b>B12553110000025</b>	10	10	72	19	3
<b>B12553112000025</b>	12	12	83	22	3
<b>B12553114000025</b>	14	14	83	22	3
<b>B12553116000025</b>	16	16	92	26	3
<b>B12553118000025</b>	18	18	92	26	3
<b>B12553120000025</b>	20	20	104	32	3

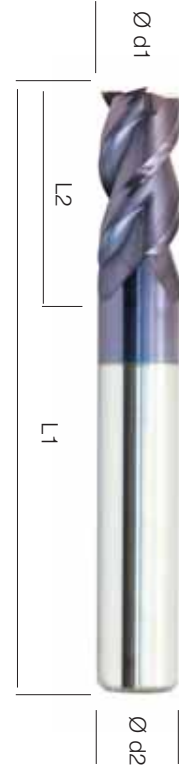
ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL- 3 FLUTE****KSM SOLID EKSTRA UZUN FREZE- 3 AĞIZLI**

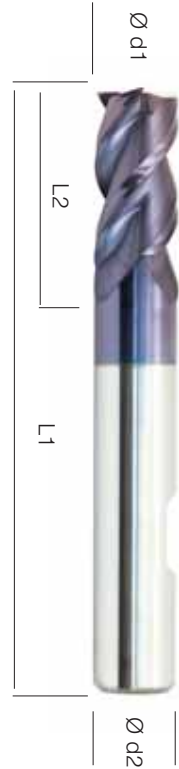
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553103000022</b>	3	3	83	20	3
<b>B12553104000022</b>	4	4	83	22	3
<b>B12553105000022</b>	5	5	92	25	3
<b>B12553106000022</b>	6	6	92	25	3
<b>B12553108000022</b>	8	8	102	38	3
<b>B12553110000022</b>	10	10	102	44	3
<b>B12553112000022</b>	12	12	102	52	3
<b>B12553114000022</b>	14	14	107	52	3
<b>B12553116000022</b>	16	16	150	64	3
<b>B12553118000022</b>	18	18	150	64	3
<b>B12553120000022</b>	20	20	150	75	3

ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL- 3 FLUTE - WELDON SHANK****KSM SOLID EKSTRA UZUN FREZE- 3 AĞIZLI - WELDONLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553106000024</b>	6	6	92	25	3
<b>B12553108000024</b>	8	8	102	38	3
<b>B12553110000024</b>	10	10	102	44	3
<b>B12553112000024</b>	12	12	102	52	3
<b>B12553114000024</b>	14	14	107	52	3
<b>B12553116000024</b>	16	16	150	64	3
<b>B12553118000024</b>	18	18	150	64	3
<b>B12553120000024</b>	20	20	150	75	3

ISO	RECOMMENDED
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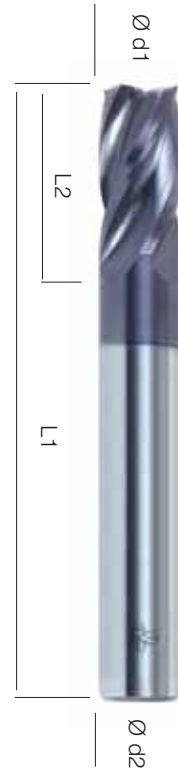
## HM SOLID END MILL- 4 FLUTE

### KSM SOLID FREZE- 4 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
B12553003000	3	3	57	8	4
B12553004000	4	4	57	11	4
B12553005000	5	5	57	13	4
B12553006000	6	6	57	14	4
B12553008000	8	8	63	19	4
B12553010000	10	10	72	22	4
B12553012000	12	12	83	26	4
B12553014000	14	14	83	26	4
B12553016000	16	16	92	32	4
B12553018000	18	18	92	32	4
B12553020000	20	20	104	38	4

ISO	RECOMMENDED
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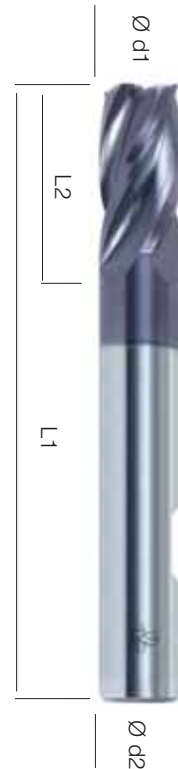
## HM SOLID END MILL- 4 FLUTE - WELDON SHANK

### KSM SOLID FREZE- 4 AĞIZLI - WELDONLU



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
B12553006000025	6	6	57	14	4
B12553008000025	8	8	63	19	4
B12553010000025	10	10	72	22	4
B12553012000025	12	12	83	26	4
B12553014000025	14	14	83	26	4
B12553016000025	16	16	92	32	4
B12553018000025	18	18	92	32	4
B12553020000025	20	20	104	38	4

ISO	RECOMMENDED
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**HM SOLID LONG END MILLS 4 FLUTES****KSM SOLID UZUN FREZE 4 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553003000021</b>	3	3	57	15	4
<b>B12553004000021</b>	4	4	57	17	4
<b>B12553005000021</b>	5	5	57	20	4
<b>B12553006000021</b>	6	6	57	20	4
<b>B12553008000021</b>	8	8	63	30	4
<b>B12553010000021</b>	10	10	72	32	4
<b>B12553012000021</b>	12	12	83	40	4
<b>B12553014000021</b>	14	14	83	40	4
<b>B12553016000021</b>	16	16	92	50	4
<b>B12553018000021</b>	18	18	92	50	4
<b>B12553020000021</b>	20	20	104	60	4

ISO	RECOMMENDED
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**HM SOLID LONG END MILLS 4 FLUTES - WELDON SHANK****KSM SOLID UZUN FREZE 4 AĞIZLI - WELDONLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553006000023</b>	6	6	57	20	4
<b>B12553008000023</b>	8	8	63	30	4
<b>B12553010000023</b>	10	10	72	32	4
<b>B12553012000023</b>	12	12	83	40	4
<b>B12553014000023</b>	14	14	83	40	4
<b>B12553016000023</b>	16	16	92	50	4
<b>B12553018000023</b>	18	18	92	50	4
<b>B12553020000023</b>	20	20	104	60	4

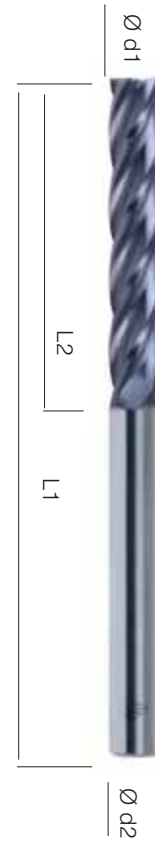
ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL- 4 FLUTES****KSM SOLID EKSTRA UZUN FREZE- 4 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553003000022</b>	3	3	83	20	4
<b>B12553004000022</b>	4	4	83	22	4
<b>B12553005000022</b>	5	5	92	25	4
<b>B12553006000022</b>	6	6	92	25	4
<b>B12553008000022</b>	8	8	102	38	4
<b>B12553010000022</b>	10	10	102	44	4
<b>B12553012000022</b>	12	12	102	52	4
<b>B12553014000022</b>	14	14	107	52	4
<b>B12553016000022</b>	16	16	150	64	4
<b>B12553018000022</b>	18	18	150	64	4
<b>B12553020000022</b>	20	20	150	75	4

ISO	RECOMMENDED
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**HM SOLID EXTRA LONG END MILL 4 FLUTE - WELDON SHANK****KSM SOLID EKSTRA UZUN FREZE- 4 AĞIZLI - WELDONLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12553006000024</b>	6	6	92	25	4
<b>B12553008000024</b>	8	8	102	38	4
<b>B12553010000024</b>	10	10	102	44	4
<b>B12553012000024</b>	12	12	102	52	4
<b>B12553014000024</b>	14	14	107	52	4
<b>B12553016000024</b>	16	16	150	64	4
<b>B12553018000024</b>	18	18	150	64	4
<b>B12553020000024</b>	20	20	150	75	4

ISO	RECOMMENDED
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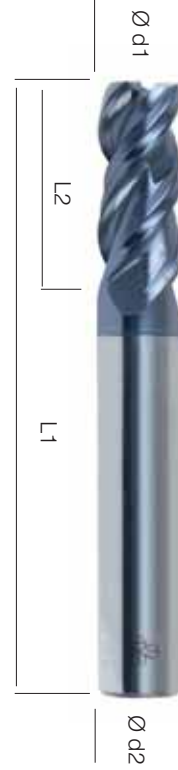




**HM SOLID END MILL- 3 FLUTE - INOX - CHAMFER****KSM SOLID FREZE- 3 AĞIZLI - INOX - PAHLI**

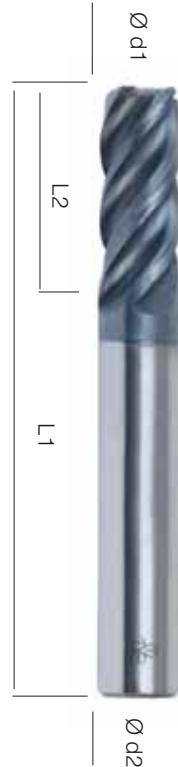
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Chamfer	Z
<b>B16553703000</b>	3	6	57	7	0,1	3
<b>B16553704000</b>	4	6	57	8	0,1	3
<b>B16553705000</b>	5	6	57	10	0,1	3
<b>B16553706000</b>	6	6	57	10	0,1	3
<b>B16553708000</b>	8	8	63	16	0,15	3
<b>B16553710000</b>	10	10	72	19	0,2	3
<b>B16553712000</b>	12	12	83	22	0,2	3
<b>B16553714000</b>	14	14	83	22	0,2	3
<b>B16553716000</b>	16	16	92	26	0,2	3
<b>B16553720000</b>	20	20	104	32	0,2	3

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**HM SOLID END MILL- 4 FLUTE - INOX - CHAMFER****KSM SOLID FREZE- 4 AĞIZLI - INOX - PAHLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Chamfer	Z
<b>B16553804000</b>	4	6	57	11	0,1	4
<b>B16553805000</b>	5	6	57	13	0,1	4
<b>B16553806000</b>	6	6	57	13	0,1	4
<b>B16553808000</b>	8	8	63	19	0,15	4
<b>B16553810000</b>	10	10	72	22	0,2	4
<b>B16553812000</b>	12	12	83	30	0,2	4
<b>B16553814000</b>	14	14	83	26	0,2	4
<b>B16553816000</b>	16	16	92	45	0,2	4
<b>B16553818000</b>	18	18	92	32	0,2	4
<b>B16553820000</b>	20	20	104	38	0,2	4

ISO	RECOMMENDED
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**HM SOLID END MILL 35/38 WITH CHAMFER - 4 FLUTE - INOX****KSM SOLID 35/38 KÖŞE PAHLI FREZE - 4 AĞIZLI - INOX**

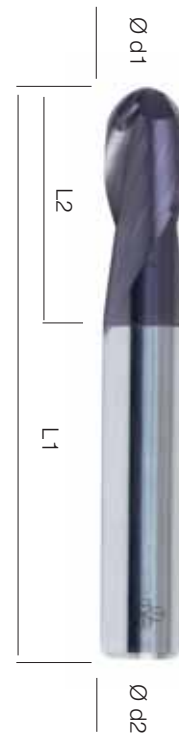
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	L3 mm	Chamfer	Z
<b>B16557103000</b>	3	6	57	8	18	0.1	4
<b>B16557104000</b>	4	6	57	11	21	0.1	4
<b>B16557105000</b>	5	6	57	13	21	0.1	4
<b>B16557106000</b>	6	6	57	13	21	0.1	4
<b>B16557108000</b>	8	8	69	19	27	0.15	4
<b>B16557110000</b>	10	10	72	22	32	0.2	4
<b>B16557112000</b>	12	12	83	26	38	0.2	4
<b>B16557114000</b>	14	14	83	26	42	0.2	4
<b>B16557116000</b>	16	16	92	32	44	0.2	4
<b>B16557118000</b>	18	18	92	32	50	0.2	4
<b>B16557120000</b>	20	20	104	38	54	0.2	4

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**HM SOLID BALL NOSE SHORT END MILL- 2 FLUTE****KSM SOLID KÜRE KISA FREZE - 2 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554003000020</b>	3	3	57	7	1.5	2
<b>B12554004000020</b>	4	4	57	8	2	2
<b>B12554005000020</b>	5	5	57	10	2.5	2
<b>B12554006000020</b>	6	6	57	10	3	2
<b>B12554008000020</b>	8	8	63	16	4	2
<b>B12554010000020</b>	10	10	72	19	5	2
<b>B12554012000020</b>	12	12	83	22	6	2
<b>B12554014000020</b>	14	14	83	22	7	2
<b>B12554016000020</b>	16	16	92	26	8	2
<b>B12554018000020</b>	18	18	92	26	9	2
<b>B12554020000020</b>	20	20	104	32	10	2

ISO	RECOMMENDED
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**HM SOLID BALL NOSE LONG END MILL- 2 FLUTE****KSM SOLID KÜRE UZUN FREZE- 2 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554003000021</b>	3	3	65	12	1.5	2
<b>B12554004000021</b>	4	4	65	14	2	2
<b>B12554005000021</b>	5	5	75	16	2.5	2
<b>B12554006000021</b>	6	6	75	20	3	2
<b>B12554008000021</b>	8	8	83	32	4	2
<b>B12554010000021</b>	10	10	102	40	5	2
<b>B12554012000021</b>	12	12	102	40	6	2
<b>B12554014000021</b>	14	14	107	40	7	2
<b>B12554016000021</b>	16	16	107	45	8	2
<b>B12554018000021</b>	18	18	107	45	9	2
<b>B12554020000021</b>	20	20	107	50	10	2

ISO	RECOMMENDED
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**HM SOLID BALL NOSE EXTRA LONG END MILL- 2 FLUTE****KSM SOLID KÜRE EKSTRA UZUN FREZE -2 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554003000022</b>	3	3	83	20	1.5	2
<b>B12554004000022</b>	4	4	83	25	2	2
<b>B12554005000022</b>	5	5	92	25	2.5	2
<b>B12554006000022</b>	6	6	100	40	3	2
<b>B12554008000022</b>	8	8	102	40	4	2
<b>B12554010000022</b>	10	10	150	50	5	2
<b>B12554012000022</b>	12	12	150	60	6	2
<b>B12554014000022</b>	14	14	150	70	7	2
<b>B12554016000022</b>	16	16	150	70	8	2
<b>B12554018000022</b>	18	18	150	70	9	2
<b>B12554020000022</b>	20	20	150	70	10	2

ISO	RECOMMENDED
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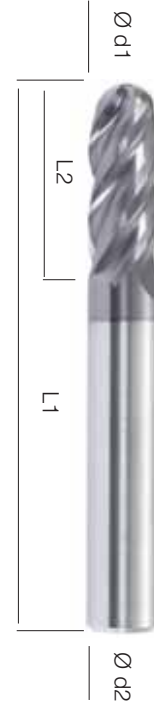
## HM SOLID BALL NOSE SHORT END MILL- 4 FLUTE

### KSM SOLID KÜRE KISA FREZE- 4 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554103000020</b>	3	3	57	7	1.5	4
<b>B12554104000020</b>	4	4	57	8	2	4
<b>B12554105000020</b>	5	5	57	10	2.5	4
<b>B12554106000020</b>	6	6	57	10	3	4
<b>B12554108000020</b>	8	8	63	16	4	4
<b>B12554110000020</b>	10	10	72	19	5	4
<b>B12554112000020</b>	12	12	83	22	6	4
<b>B12554114000020</b>	14	14	83	22	7	4
<b>B12554116000020</b>	16	16	92	26	8	4
<b>B12554118000020</b>	18	18	92	26	9	4
<b>B12554120000020</b>	20	20	104	32	10	4

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## HM SOLID BALL NOSE LONG END MILL- 4 FLUTE

### KSM SOLID KÜRE UZUN FREZE- 4 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554103000021</b>	3	3	65	12	1.5	4
<b>B12554104000021</b>	4	4	65	14	2	4
<b>B12554105000021</b>	5	5	75	16	2.5	4
<b>B12554106000021</b>	6	6	75	20	3	4
<b>B12554108000021</b>	8	8	83	32	4	4
<b>B12554110000021</b>	10	10	102	40	5	4
<b>B12554112000021</b>	12	12	102	40	6	4
<b>B12554114000021</b>	14	14	107	40	7	4
<b>B12554116000021</b>	16	16	107	45	8	4
<b>B12554118000021</b>	18	18	107	45	9	4
<b>B12554120000021</b>	20	20	107	50	10	4

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# HM SOLID BALL NOSE EXTRA LONG END MILL- 4 FLUTE

## KSM SOLID KÜRE EKSTRA UZUN FREZE- 4 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	r	Z
<b>B12554103000022</b>	3	3	83	20	1.5	4
<b>B12554104000022</b>	4	4	83	25	2	4
<b>B12554105000022</b>	5	5	92	25	2.5	4
<b>B12554106000022</b>	6	6	100	40	3	4
<b>B12554108000022</b>	8	8	102	40	4	4
<b>B12554110000022</b>	10	10	150	50	5	4
<b>B12554112000022</b>	12	12	150	60	6	4
<b>B12554114000022</b>	14	14	150	70	7	4
<b>B12554116000022</b>	16	16	150	70	8	4
<b>B12554118000022</b>	18	18	150	70	9	4
<b>B12554120000022</b>	20	20	150	70	10	4

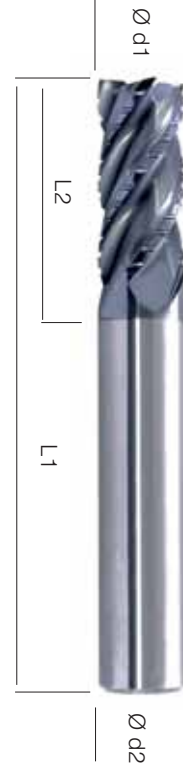
ISO	RECOMMENDED
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**HM SOLID CHIP BREAKER END MILL - 4 FLUTE****KSM SOLID TALAŞ KIRICILI FREZE - 4 FLUTE**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B12557203000</b>	3	6	57	8	4
<b>B12557204000</b>	4	6	57	11	4
<b>B12557205000</b>	5	6	57	13	4
<b>B12557206000</b>	6	6	57	13	4
<b>B12557208000</b>	8	8	69	19	4
<b>B12557210000</b>	10	10	72	22	4
<b>B12557212000</b>	12	12	83	26	4
<b>B12557214000</b>	14	14	83	26	4
<b>B12557216000</b>	16	16	92	32	4
<b>B12557218000</b>	18	18	92	32	4
<b>B12557220000</b>	20	20	104	38	4
<b>B12557225000</b>	25	25	104	38	4

ISO	RECOMMENDED
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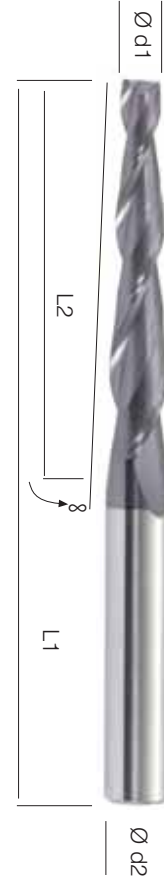


# HM SOLID TAPERED END MILL- CORNER SHARP

## HM SOLID KONİK FREZE - KESKİN KÖŞE



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	∞	Z
<b>B12556002000</b>	2	3	65	20	30'	2
<b>B12556003000</b>	3	4	65	25	30'	2
<b>B12556004000</b>	4	5	65	30	30'	2
<b>B12556005000</b>	5	6	68	30	30'	2
<b>B12556006000</b>	6	8	88	40	30'	2
<b>B12556008000</b>	8	10	100	45	30'	2
<b>B12556010000</b>	10	12	100	45	30'	2
<b>B12556012000</b>	12	14	100	45	30'	2
<b>B12556102000</b>	2	3	65	20	1°	2
<b>B12556103000</b>	3	4	65	28	1°	2
<b>B12556104000</b>	4	5	65	28	1°	2
<b>B12556105000</b>	5	6	68	28	1°	2
<b>B12556106000</b>	6	8	88	40	1°	2
<b>B12556108000</b>	8	10	100	45	1°	2
<b>B12556110000</b>	10	12	100	45	1°	2
<b>B12556112000</b>	12	14	100	45	1°	2
<b>B12556202000</b>	2	3	65	19	1°.30'	2
<b>B12556203000</b>	3	4	65	19	1°.30'	2
<b>B12556204000</b>	4	5	68	19	1°.30'	2
<b>B12556205000</b>	5	6	68	19	1°.30'	2
<b>B12556206000</b>	6	8	88	38	1°.30'	2
<b>B12556208000</b>	8	10	100	38	1°.30'	2
<b>B12556210000</b>	10	12	100	38	1°.30'	2
<b>B12556212000</b>	12	14	100	38	1°.30'	2



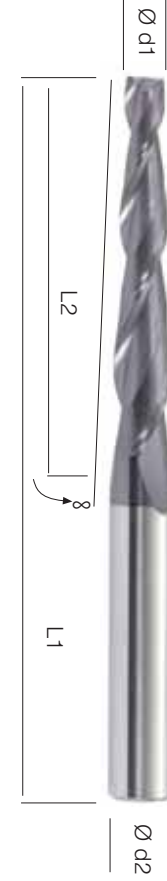
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# HM SOLID TAPERED END MILL- CORNER SHARP

## KSM SOLID KONİK FREZE - KESKİN KÖŞE



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	∞	Z
<b>B12556302000</b>	2	4	65	20	2°	2
<b>B12556303000</b>	3	5	65	28	2°	2
<b>B12556304000</b>	4	6	68	28	2°	3
<b>B12556305000</b>	5	8	88	42	2°	3
<b>B12556306000</b>	6	10	100	45	2°	3
<b>B12556308000</b>	8	12	100	45	2°	3
<b>B12556310000</b>	10	14	100	45	2°	4
<b>B12556312000</b>	12	16	100	45	2°	4
<b>B12556402000</b>	2	4	65	19	3°	2
<b>B12556403000</b>	3	6	68	28	3°	2
<b>B12556404000</b>	4	8	88	38	3°	3
<b>B12556405000</b>	5	10	100	48	3°	3
<b>B12556406000</b>	6	12	100	48	3°	3
<b>B12556408000</b>	8	14	100	48	3°	3
<b>B12556410000</b>	10	16	100	48	3°	4
<b>B12556412000</b>	12	18	100	48	3°	4
<b>B12556502000</b>	2	6	68	20	5°	2
<b>B12556503000</b>	3	8	88	28	5°	2
<b>B12556504000</b>	4	10	100	34	5°	3
<b>B12556505000</b>	5	12	100	40	5°	3
<b>B12556506000</b>	6	14	100	45	5°	3
<b>B12556508000</b>	8	16	100	45	5°	3
<b>B12556510000</b>	10	18	100	45	5°	4
<b>B12556512000</b>	12	20	100	45	5°	4

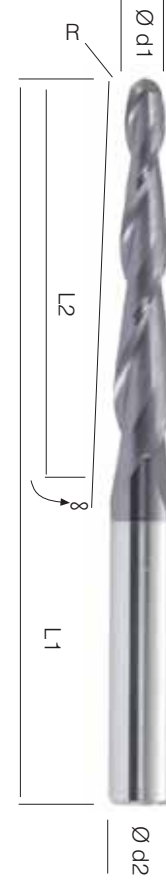


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**HM SOLID TAPERED END MILL- BALL NOSE****KSM SOLID KONİK FREZE - KÜRE**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	∞	R	Z
<b>B12556002000028</b>	2	3	65	20	30'	1	2
<b>B12556003000028</b>	3	4	65	25	30'	1.5	2
<b>B12556004000028</b>	4	5	65	30	30'	2	2
<b>B12556005000028</b>	5	6	68	30	30'	2.5	2
<b>B12556006000028</b>	6	8	88	40	30'	3	2
<b>B12556008000028</b>	8	10	100	45	30'	4	2
<b>B12556010000028</b>	10	12	100	45	30'	5	2
<b>B12556012000028</b>	12	14	100	45	30'	6	2
<b>B12556102000028</b>	2	3	65	19	1°	1	2
<b>B12556103000028</b>	3	4	65	28	1°	1.5	2
<b>B12556104000028</b>	4	5	65	28	1°	2	2
<b>B12556105000028</b>	5	6	68	28	1°	2.5	2
<b>B12556106000028</b>	6	8	88	40	1°	3	2
<b>B12556108000028</b>	8	10	100	45	1°	4	2
<b>B12556110000028</b>	10	12	100	45	1°	5	2
<b>B12556112000028</b>	12	14	100	45	1°	6	2
<b>B12556202000028</b>	2	3	65	19	1°.30'	1	2
<b>B12556203000028</b>	3	4	65	19	1°.30'	1.5	2
<b>B12556204000028</b>	4	5	65	19	1°.30'	2	2
<b>B12556205000028</b>	5	6	68	19	1°.30'	2.5	2
<b>B12556206000028</b>	6	8	88	38	1°.30'	3	2
<b>B12556208000028</b>	8	10	100	38	1°.30'	4	2
<b>B12556210000028</b>	10	12	100	38	1°.30'	5	2
<b>B12556212000028</b>	12	14	100	38	1°.30'	6	2



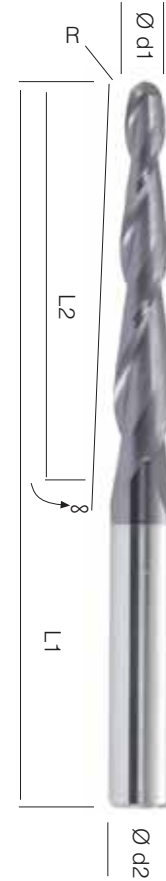
ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>O</b>
<b>K</b>	<b>O</b>
<b>N</b>	<b>O</b>
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<b>H</b>	

# HM SOLID TAPERED END MILL- BALL NOSE

## KSM SOLID KONİK FREZE - KÜRE



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	∞	R	Z
<b>B12556302000028</b>	2	4	65	20	2°	1	2
<b>B12556303000028</b>	3	5	65	28	2°	1.5	2
<b>B12556304000028</b>	4	6	68	28	2°	2	2
<b>B12556305000028</b>	5	8	88	42	2°	2.5	2
<b>B12556306000028</b>	6	10	100	45	2°	3	2
<b>B12556308000028</b>	8	12	100	45	2°	4	2
<b>B12556310000028</b>	10	14	100	45	2°	5	2
<b>B12556312000028</b>	12	16	100	45	2°	6	2
<b>B12556402000028</b>	2	4	65	19	3°	1	2
<b>B12556403000028</b>	3	6	68	28	3°	1.5	2
<b>B12556404000028</b>	4	8	88	38	3°	2	2
<b>B12556405000028</b>	5	10	100	48	3°	2.5	2
<b>B12556406000028</b>	6	12	100	48	3°	3	2
<b>B12556408000028</b>	8	14	100	48	3°	4	2
<b>B12556410000028</b>	10	16	100	48	3°	5	2
<b>B12556412000028</b>	12	18	100	48	3°	6	2
<b>B12556502000028</b>	2	6	65	20	5°	1	2
<b>B12556503000028</b>	3	8	88	28	5°	1.5	2
<b>B12556504000028</b>	4	10	100	34	5°	2	2
<b>B12556505000028</b>	5	12	100	40	5°	2.5	2
<b>B12556506000028</b>	6	14	100	45	5°	3	2
<b>B12556508000028</b>	8	16	100	45	5°	4	2
<b>B12556510000028</b>	10	18	100	45	5°	5	2
<b>B12556512000028</b>	12	20	100	45	5°	6	2



ISO	RECOMMENDED
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# ALTAY

ALU MILLS

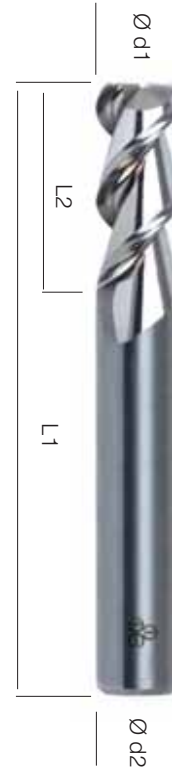


**HM SOLID ALUMINIUM END MILL - 2 FLUTE****KSM SOLID ALÜMİNYUM FREZE - 2 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B**557403000</b>	3	6	57	8	2
<b>B**557404000</b>	4	6	57	10	2
<b>B**557405000</b>	5	6	57	13	2
<b>B**557406000</b>	6	6	57	14	2
<b>B**557408000</b>	8	8	63	19	2
<b>B**557410000</b>	10	10	72	22	2
<b>B**557412000</b>	12	12	83	26	2
<b>B**557414000</b>	14	14	83	26	2
<b>B**557416000</b>	16	16	92	32	2
<b>B**557418000</b>	18	18	92	32	2
<b>B**557420000</b>	20	20	104	38	2

B00: Non-coating  
 B14: CrCN coating  
 B23: ZrN coating  
 B29: Mayura coating

ISO	RECOMMENDED
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**HM SOLID ALUMINIUM END MILL - 3 FLUTE****KSM SOLID ALÜMİNYUM FREZE - 3 AĞIZLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z	r
<b>B**557503000028</b>	3	6	57	8	3	0.1
<b>B**557504000028</b>	4	6	57	10	3	0.2
<b>B**557505000028</b>	5	6	57	13	3	0.2
<b>B**557506000028</b>	6	6	57	14	3	0.2
<b>B**557508000028</b>	8	8	63	19	3	0.2
<b>B**557510000028</b>	10	10	72	22	3	0.2
<b>B**557512000028</b>	12	12	83	26	3	0.2
<b>B**557514000028</b>	14	14	83	26	3	0.2
<b>B**557516000028</b>	16	16	92	32	3	0.2
<b>B**557520000028</b>	20	20	104	32	3	0.2

B00: Non-coating  
 B14: CrCN coating  
 B23: ZrN coating  
 B29: Mayura coating

ISO	RECOMMENDED
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**HM SOLID ALUMINIUM END MILL - 3 FLUTE - WITH NECK****KSM SOLID ALÜMİNYUM FREZE - 3 AĞIZLI - BOYUNLU**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	L3 mm	d3 mm	Z	r
<b>B**557506000036</b>	6	6	83	14	35	5.8	3	0.2
<b>B**557508000036</b>	8	8	102	19	50	7.8	3	0.2
<b>B**557510000036</b>	10	10	102	22	58	9.7	3	0.2
<b>B**557512000036</b>	12	12	118	26	73	11.7	3	0.2
<b>B**557514000036</b>	14	14	124	26	73	13.7	3	0.2
<b>B**557516000036</b>	16	16	150	32	100	15.7	3	0.2
<b>B**557518000036</b>	18	18	150	32	100	17.6	3	0.2
<b>B**557520000036</b>	20	20	150	38	100	19.5	3	0.2

B00: Non-coating  
 B14: CrCN coating  
 B23: ZrN coating  
 B29: Mayura coating

ISO	RECOMMENDED
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**HM SOLID ALUMINIUM END MILL - 1 FLUTE - (25°)****KSM SOLID ALÜMİNYUM FREZE - 1 AĞIZLI - (25°)**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z	Helis
<b>B**553900654</b>	3	3	50	14	1	25°
<b>B**553900655</b>	4	4	50	15	1	25°
<b>B**553900656</b>	5	5	57	16	1	25°
<b>B**553900657</b>	6	6	57	18	1	25°
<b>B**553900658</b>	8	8	63	20	1	25°
<b>B**553900659</b>	10	10	72	22	1	25°
<b>B**553900660</b>	12	12	83	26	1	25°
<b>B**553900661</b>	3	3	57	16	1	25°
<b>B**553900662</b>	4	4	57	18	1	25°
<b>B**553900663</b>	5	5	62	20	1	25°
<b>B**553900664</b>	6	6	66	24	1	25°
<b>B**553900665</b>	8	8	91	38	1	25°
<b>B**553900666</b>	10	10	102	45	1	25°
<b>B**553900667</b>	12	12	102	53	1	25°

B00: Non-coating  
 B14: CrCN coating  
 B23: ZrN coating  
 B29: Mayura coating

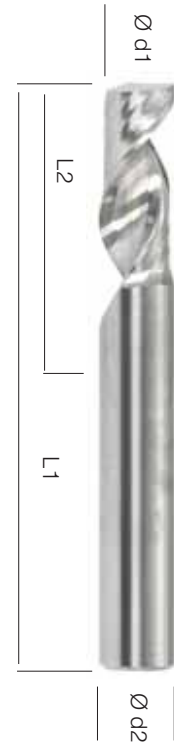
ISO	RECOMMENDED
P	
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**HM SOLID ALUMINIUM END MILL - 1 FLUTE - (40°)****KSM SOLID ALÜMİNYUM FREZE - 1 AĞIZLI - (40°)**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z	Helis
<b>B**553900668</b>	3	3	50	14	1	40°
<b>B**553900669</b>	4	4	50	15	1	40°
<b>B**553900670</b>	5	5	57	16	1	40°
<b>B**553900671</b>	6	6	57	18	1	40°
<b>B**553900672</b>	8	8	63	20	1	40°
<b>B**553900673</b>	10	10	72	22	1	40°
<b>B**553900674</b>	12	12	83	26	1	40°
<b>B**553900675</b>	3	3	57	16	1	40°
<b>B**553900676</b>	4	4	57	18	1	40°
<b>B**553900677</b>	5	5	62	20	1	40°
<b>B**553900678</b>	6	6	66	24	1	40°
<b>B**553900679</b>	8	8	91	38	1	40°
<b>B**553900680</b>	10	10	102	45	1	40°
<b>B**553900681</b>	12	12	102	53	1	40°

B00: Non-coating  
 B14: CrCN coating  
 B23: ZrN coating  
 B29: Mayura coating

ISO	RECOMMENDED
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# ATAK

STEEL MILLS



**HM SOLID END MILL - 4 FLUTE - WITH CORNER CHAMFER****KSM SOLID FREZE - 4 AĞIZLI - KÖŞE PAHLI**

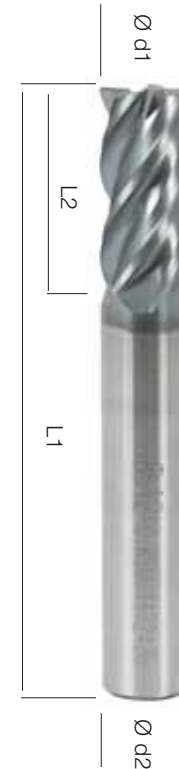
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Chamfer	Z
<b>B17557003000227</b>	3	6	57	8	0.1	4
<b>B17557004000227</b>	4	6	57	11	0.1	4
<b>B17557005000227</b>	5	6	57	13	0.1	4
<b>B17557006000227</b>	6	6	57	13	0.1	4
<b>B17557008000227</b>	8	8	63	19	0.15	4
<b>B17557010000227</b>	10	10	72	22	0.2	4
<b>B17557012000227</b>	12	12	83	30	0.2	4
<b>B17557014000227</b>	14	14	83	26	0.2	4
<b>B17557016000227</b>	16	16	92	45	0.2	4
<b>B17557018000227</b>	18	18	92	32	0.2	4
<b>B17557020000227</b>	20	20	104	38	0.2	4

ISO	RECOMMENDED
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**HM SOLID END MILL - 4 FLUTE - SHARP CORNER****KSM SOLID FREZE - 4 AĞIZLI - KESKİN KÖŞE**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B17557003000200</b>	3	6	57	8	4
<b>B17557004000200</b>	4	6	57	11	4
<b>B17557005000200</b>	5	6	57	13	4
<b>B17557006000200</b>	6	6	57	13	4
<b>B17557008000200</b>	8	8	63	19	4
<b>B17557010000200</b>	10	10	72	22	4
<b>B17557012000200</b>	12	12	83	30	4
<b>B17557014000200</b>	14	14	83	26	4
<b>B17557016000200</b>	16	16	92	45	4
<b>B17557018000200</b>	18	18	92	32	4
<b>B17557020000200</b>	20	20	104	38	4

ISO	RECOMMENDED
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**HM SOLID END MILL WITH WELDON SHANK - 4 FLUTE - CORNER CHAMFER****KSM SOLID WELDONLU FREZE - 4 AĞIZLI - KÖŞE PAHLI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Chamfer	Z
<b>B17557003000232</b>	3	6	57	8	0.1	4
<b>B17557004000232</b>	4	6	57	11	0.1	4
<b>B17557005000232</b>	5	6	57	13	0.1	4
<b>B17557006000232</b>	6	6	57	13	0.1	4
<b>B17557008000232</b>	8	8	63	19	0.15	4
<b>B17557010000232</b>	10	10	72	22	0.2	4
<b>B17557012000232</b>	12	12	83	30	0.2	4
<b>B17557014000232</b>	14	14	83	26	0.2	4
<b>B17557016000232</b>	16	16	92	45	0.2	4
<b>B17557018000232</b>	18	18	92	32	0.2	4
<b>B17557020000232</b>	20	20	104	38	0.2	4

ISO	RECOMMENDED
P	OO
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**HM SOLID END MILL WITH WELDON SHANK - 4 FLUTE - SHARP CORNER****KSM SOLID WELDONLU FREZE - 4 AĞIZLI - KESKİN KÖŞE**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z
<b>B17557003000225</b>	3	6	57	8	4
<b>B17557004000225</b>	4	6	57	11	4
<b>B17557005000225</b>	5	6	57	13	4
<b>B17557006000225</b>	6	6	57	13	4
<b>B17557008000225</b>	8	8	63	19	4
<b>B17557010000225</b>	10	10	72	22	4
<b>B17557012000225</b>	12	12	83	30	4
<b>B17557014000225</b>	14	14	83	26	4
<b>B17557016000225</b>	16	16	92	45	4
<b>B17557018000225</b>	18	18	92	32	4
<b>B17557020000225</b>	20	20	104	38	4

ISO	RECOMMENDED
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## HM SOLID END MILL WITH CORNER RADIUS - 4 FLUTE

### KSM SOLID KÖŞE RADYÜSLÜ FREZE - 4 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z	r
B17553900746	6	6	57	13	4	0.5
B17553900747	6	6	57	13	4	1
B17553900748	8	8	63	19	4	0.5
B17553900749	8	8	63	19	4	1
B17553900750	10	10	72	22	4	0.5
B17553900751	10	10	72	22	4	1
B17553900752	10	10	72	22	4	2
B17553900753	12	12	83	26	4	0.5
B17553900754	12	12	83	26	4	1
B17553900755	12	12	83	26	4	2
B17553900756	14	14	83	26	4	0.5
B17553900757	14	14	83	26	4	1
B17553900758	14	14	83	26	4	2
B17553900759	16	16	92	32	4	1
B17553900760	16	16	92	32	4	2
B17553900761	16	16	92	32	4	3
B17553900762	18	18	92	32	4	1
B17553900763	18	18	92	32	4	2
B17553900764	18	18	92	32	4	3
B17553900765	20	20	104	38	4	1
B17553900766	20	20	104	38	4	2
B17553900767	20	20	104	38	4	3

ISO	RECOMMENDED
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## HM SOLID END MILL WITH CHAMFER - 6 FLUTE

### KSM SOLID KÖŞE PAHLI FREZE - 6 AĞIZLI



Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Z	Chamfer
B17553900738	6	6	13	57	6	0.15
B17553900739	8	8	19	63	6	0.15
B17553900740	10	10	22	72	6	0.2
B17553900741	12	12	26	83	6	0.2
B17553900742	14	14	26	83	6	0.2
B17553900743	16	16	32	92	6	0.2
B17553900744	20	20	38	104	6	0.2
B17553900745	25	25	45	121	6	0.2

ISO	RECOMMENDED
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# FIRTINA

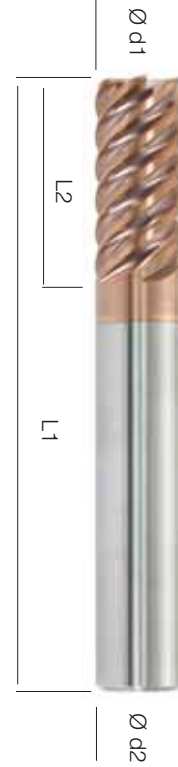
HARDENED STEEL MILLS



**HM SOLID END MILL WITH CHAMFER - 4,5,6 FLUTE - 65 HRC****KSM SOLID KÖŞE PAHLI FREZE - 4,5,6 AĞIZLI - 65 HRC**

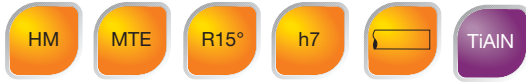
Product Code	d1 mm	d2 mm	L1 mm	L2 mm	Chamfer	Z
<b>B19554503000027</b>	3	6	57	8	0.10	4
<b>B19554504000027</b>	4	6	57	11	0.10	4
<b>B19554505000027</b>	5	6	57	13	0.15	5
<b>B19554506000027</b>	6	6	57	13	0.15	6
<b>B19554508000027</b>	8	8	63	19	0.15	6
<b>B19554510000027</b>	10	10	72	22	0.20	6
<b>B19554512000027</b>	12	12	83	26	0.20	6
<b>B19554514000027</b>	14	14	83	26	0.20	6
<b>B19554516000027</b>	16	16	92	32	0.20	6
<b>B19554518000027</b>	18	18	92	32	0.20	6
<b>B19554520000027</b>	20	20	104	38	0.20	6

ISO	RECOMMENDED
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# OTHER TOOLS



**HM SOLID REAMER - HELICAL FLUTE****KSM SOLID RAYBA - HELİSEL**

Product Code	d1 mm	d2 mm	L mm	L1 mm	L2 mm	Z
<b>B12565100300</b>	3	3	61	15	30	6
<b>B12565100400</b>	4	4	75	19	32	6
<b>B12565100500</b>	5	5	86	23	34	6
<b>B12565100600</b>	6	6	93	26	36	6
<b>B12565100800</b>	8	8	117	33	42	6
<b>B12565101000</b>	10	10	133	38	46	6
<b>B12565101200</b>	12	12	150	44	46	6
<b>B12565101400</b>	14	14	160	47	50	6
<b>B12565101600</b>	16	16	165	52	50	6
<b>B12565101800</b>	18	18	165	55	52	6
<b>B12565102000</b>	20	20	165	60	58	6

ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>O</b>
<b>K</b>	<b>OO</b>
<b>N</b>	
<b>S</b>	
<b>H</b>	<b>O</b>

**HM SOLID REAMER - STRAIGHT FLUTE****KSM SOLID RAYBA - DÜZ KANALLI**

Product Code	d1 mm	d2 mm	L mm	L1 mm	L2 mm	Z
<b>B12565000300</b>	3	3	61	15	30	6
<b>B12565000400</b>	4	4	75	19	32	6
<b>B12565000500</b>	5	5	86	23	34	6
<b>B12565000600</b>	6	6	93	26	36	6
<b>B12565000800</b>	8	8	117	33	42	6
<b>B12565001000</b>	10	10	133	38	46	6
<b>B12565001200</b>	12	12	150	44	46	6
<b>B12565001400</b>	14	14	160	47	50	6
<b>B12565001600</b>	16	16	165	52	50	6
<b>B12565001800</b>	18	18	165	55	52	6
<b>B12565002000</b>	20	20	165	60	58	6

ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>O</b>
<b>K</b>	<b>OO</b>
<b>N</b>	
<b>S</b>	
<b>H</b>	<b>O</b>



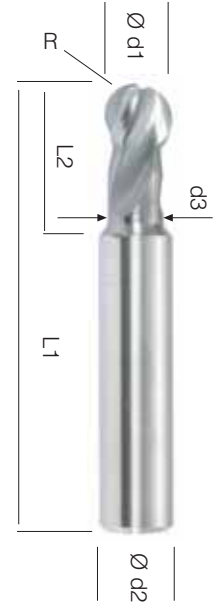
## HM SOLID 270° BALL CUT

### KSM SOLID 270° KÜRE FREZE



Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 mm	Z	R
<b>B17553900722</b>	3	6	2.5	57	2.56	2	1.5
<b>B17553900723</b>	4	6	3.3	57	3.41	2	2
<b>B17553900724</b>	5	6	4.1	57	4.27	2	2.5
<b>B17553900725</b>	6	6	4.7	57	5.12	2	3
<b>B17553900726</b>	8	8	6.5	63	6.83	2	4
<b>B17553900727</b>	10	10	8.2	72	8.54	2	5
<b>B17553900728</b>	12	12	9.8	83	10.24	2	6
<b>B17553900729</b>	16	16	13.4	92	13.66	2	8
<b>B17553900730</b>	3	6	2.3	100	2.56	2	1.5
<b>B17553900731</b>	4	6	3.3	100	3.41	2	2
<b>B17553900732</b>	5	6	4.1	100	4.27	2	2.5
<b>B17553900733</b>	6	6	4.7	100	5.12	2	3
<b>B17553900734</b>	8	8	6.5	100	6.83	2	4
<b>B17553900735</b>	10	10	8.2	100	8.54	2	5
<b>B17553900736</b>	12	12	9.8	130	10.24	2	6
<b>B17553900737</b>	16	16	13.4	130	13.66	2	8

ISO	RECOMMENDED
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## HM SOLID COUNTER SINKER CONVEKS - 3 FLUTE

### KSM SOLID HAVŞA FREZE - 3 AĞIZLI



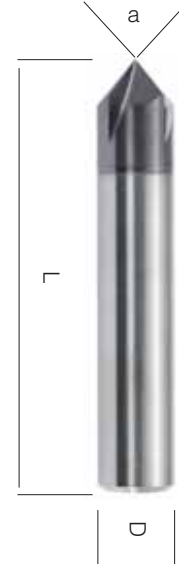
Product Code	d1 mm	d2 mm	d3 mm	L1 mm	Z	∞
<b>B12553900713</b>	6.3	5	2	45	3	90°
<b>B12553900714</b>	8.3	6	2	50	3	90°
<b>B12553900715</b>	10.4	6	2.5	50	3	90°
<b>B12553900716</b>	12.4	8	2.8	56	3	90°
<b>B12553900717</b>	15.0	10	3.2	60	3	90°
<b>B12553900718</b>	16.5	10	3.2	60	3	90°
<b>B12553900719</b>	20.5	10	3.5	63	3	90°
<b>B12553900720</b>	25.0	10	3.8	67	3	90°
<b>B12553900721</b>	31.0	12	4.2	71	3	90°

ISO	RECOMMENDED
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**HM SOLID CHAMFERING END MILL- 4 FLUTE****KSM SOLID HAVŞA FREZE- 4 AĞIZLI**

Product Code	a	D mm	L mm	Z
B12562300300	60°	3	45	4
B12562300400	60°	4	50	4
B12562300500	60°	5	50	4
B12562300600	60°	6	57	4
B12562300800	60°	8	63	4
B12562301000	60°	10	72	4
B12562301200	60°	12	82	4
B12562301400	60°	14	82	4
B12562301600	60°	16	92	4
B12562301800	60°	18	104	4
B12562302000	60°	20	104	4
B12562400300	90°	3	45	4
B12562400400	90°	4	50	4
B12562400500	90°	5	50	4
B12562400600	90°	6	57	4
B12562400800	90°	8	63	4
B12562401000	90°	10	72	4
B12562401200	90°	12	82	4
B12562401400	90°	14	82	4
B12562401600	90°	16	92	4
B12562401800	90°	18	104	4
B12562402000	90°	20	104	4
B12562500300	100°	3	45	4
B12562500400	100°	4	50	4
B12562500500	100°	5	50	4
B12562500600	100°	6	57	4
B12562500800	100°	8	63	4
B12562501000	100°	10	72	4
B12562501200	100°	12	82	4
B12562501400	100°	14	82	4
B12562501600	100°	16	92	4
B12562501800	100°	18	104	4
B12562502000	100°	20	104	4
B12562600300	120°	3	45	4
B12562600400	120°	4	50	4
B12562600500	120°	5	50	4
B12562600600	120°	6	57	4
B12562600800	120°	8	63	4
B12562601000	120°	10	72	4
B12562601200	120°	12	82	4
B12562601400	120°	14	82	4
B12562601600	120°	16	92	4
B12562601800	120°	18	104	4
B12562602000	120°	20	104	4



ISO	RECOMMENDED
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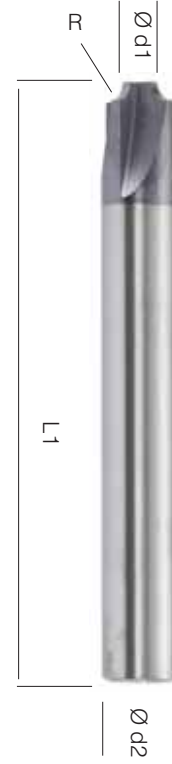
## HM SOLID ROUNDING CUTTER CONCAVE END MILL - 4 FLUTE

### KSM SOLID RADYÜS İÇ BÜKEY FREZE - 4 AĞIZLI



Product Code	d1 mm	L1 mm	Z	R
B12553900682	8	63	4	0.5
B12553900683	8	63	4	1
B12553900684	10	72	4	1.5
B12553900685	10	72	4	2
B12553900686	12	83	4	2.5
B12553900687	12	83	4	3
B12553900688	16	92	4	3.5
B12553900689	16	92	4	4
B12553900690	16	92	4	4.5
B12553900691	20	104	4	5
B12553900692	20	104	4	6

ISO	RECOMMENDED
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## HM SOLID T-SLOTTING END MILL

### KSM SOLID T KANAL FREZE



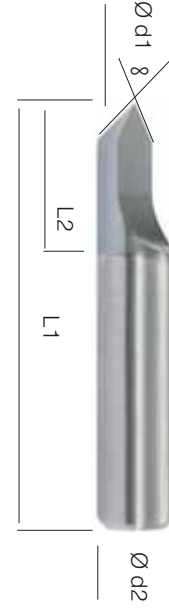
Product Code	d1 mm	d2 mm	d3 mm	L1 mm	L2 mm	L3 mm	Z
B12553900693	Ø7,5	Ø8	Ø4,5	63	1,5	10	6
B12553900694	Ø7,5	Ø8	Ø4,5	63	2	10	6
B12553900695	Ø10,5	Ø12	Ø5,5	83	2	15	6
B12553900696	Ø10,5	Ø12	Ø5,5	83	2,5	15	6
B12553900697	Ø10,5	Ø12	Ø5,5	83	3	15	6
B12553900698	Ø13,5	Ø14	Ø6	83	3	20	8
B12553900699	Ø13,5	Ø14	Ø6	83	4	20	8
B12553900700	Ø16,5	Ø18	Ø9	92	3	25	8
B12553900701	Ø16,5	Ø18	Ø9	92	4	25	8
B12553900702	Ø16,5	Ø18	Ø9	92	5	25	8
B12553900703	Ø19,5	Ø20	Ø10	104	3	25	10
B12553900704	Ø19,5	Ø20	Ø10	104	4	25	10
B12553900705	Ø19,5	Ø20	Ø10	104	5	25	10
B12553900706	Ø22,5	Ø25	Ø15	104	4	30	10
B12553900707	Ø22,5	Ø25	Ø15	104	5	30	10
B12553900708	Ø22,5	Ø25	Ø15	104	6	30	10
B12553900709	Ø25,5	Ø25	Ø15	104	5	30	10
B12553900710	Ø25,5	Ø25	Ø15	104	6	30	10
B12553900711	Ø25,5	Ø25	Ø15	104	7	30	10
B12553900712	Ø25,5	Ø25	Ø15	104	8	30	10



ISO	RECOMMENDED
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**HM SOLID PANTOGRAPH****HM SOLID YAZI KALEMI**

Product Code	d1 mm	d2 mm	L1 mm	L2 mm	∞	Z
<b>B12551900418</b>	3	3	40	4	60°	1
<b>B12551900419</b>	3	3	100	4	60°	1
<b>B12551900420</b>	4	4	50	5	60°	1
<b>B12551900421</b>	4	4	100	5	60°	1
<b>B12551900422</b>	6	6	57	7	60°	1
<b>B12551900423</b>	6	6	100	7	60°	1
<b>B12551900424</b>	3	3	40	4	90°	1
<b>B12551900425</b>	3	3	100	4	90°	1
<b>B12551900426</b>	4	4	50	5	90°	1
<b>B12551900427</b>	4	4	100	5	90°	1
<b>B12551900428</b>	6	6	57	7	90°	1
<b>B12551900429</b>	6	6	100	7	90°	1



ISO	RECOMMENDED
<b>P</b>	<b>OO</b>
<b>M</b>	<b>O</b>
<b>K</b>	<b>O</b>
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<b>S</b>	
<b>H</b>	

# SPECIAL



# TOOLS

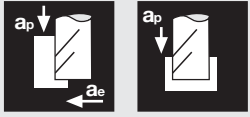


## MTE - NEW GENERATION MILLING

	Standard MILLING DIN 6528	INOX	ATAK	DORUK	UFUK	ALTAY	FIRTINA UFUK 50-65 HRC
Çelik < 850 N/mm <sup>2</sup>	●		●	●	●		
Çelik 850 - 1100 N/mm <sup>2</sup>	●	◐	●	●	●		
Çelik 1100 - 1300 N/mm <sup>2</sup>		◐	●	●	●		
Çelik 1300 - 1500 N/mm <sup>2</sup>			◐	◐	◐		
Soğuk Hız Çelik 12%Cr / Yüksek Alışım Çelik			●	●	●		
Paslanmaz Çelik - Cr-Ni		●	●	●	●		
Paslanmaz Çelik - Cr-Ni-Mo...		●		◐	◐		
Paslanmaz Çelik / Dupleks Çelik		◐		◐	◐		
Takım Çeliği (sertleştirilmiş) 48 - 52 HRC			◐				●
Takım Çeliği (sertleştirilmiş) 52 - 56 HRC							●
Takım Çeliği (sertleştirilmiş) 56 - 60 HRC							●
Takım Çeliği (sertleştirilmiş) > 60 HRC							●
HSS				◐	◐		◐
Titanyum		◐	◐	●	●		
Nikel Alışım >1000 N/mm <sup>2</sup>		◐					
Döküm			◐	◐	◐		◐
Alüminyum >99%				●	●	◐	
Alüminyum Alaşımı (Si <6%)				●	●	●	
Alüminyum Döküm (Si 6% - 15%)				●	●	◐	
Bakır (saf)						●	
Plastik (Termoplast)						●	

# MTE - STANDARD MILLING DIN 6528

## MTE - STANDART FREZE DIN 6528

		d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap (mm)	ae (mm)
<b>Steel &lt;850 N/mm<sup>2</sup></b>		3	4	120-160	0,020	4,5	1,2
		4	4	120-160	0,025	6,0	1,6
		5	4	120-160	0,035	7,5	2,0
		6	4	120-160	0,040	9,0	2,4
		8	4	120-160	0,055	12,0	3,2
		10	4	120-160	0,070	15,0	4,0
		12	4	120-160	0,075	18,0	4,8
		16	4	120-160	0,100	24,0	6,4
<b>Steel 850-1100 N/mm<sup>2</sup></b>		20	4	120-160	0,130	30,0	8,0
		3	4	100-140	0,020	4,5	1,2
		4	4	100-140	0,025	6,0	1,6
		5	4	100-140	0,035	7,5	2,0
		6	4	100-140	0,040	9,0	2,4
		8	4	100-140	0,055	12,0	3,2
		10	4	100-140	0,070	15,0	4,0
		12	4	100-140	0,075	18,0	4,8
<b>Cold Speed Steel 12%Cr / High Alloy Steel</b>		16	4	100-140	0,100	24,0	6,4
		20	4	100-140	0,130	30,0	8,0
		3	4	70-100	0,020	4,5	1,2
		4	4	70-100	0,025	6,0	1,6
		5	4	70-100	0,030	7,5	2,0
		6	4	70-100	0,040	9,0	2,4
		8	4	70-100	0,050	12,0	3,2
		10	4	70-100	0,065	15,0	4,0
<b>Stainless Steel - Cr-Ni</b>		12	4	70-100	0,075	18,0	4,8
		16	4	70-100	0,095	24,0	6,4
		20	4	70-100	0,120	30,0	8,0
		3	4	80-100	0,015	4,5	1,2
		4	4	80-100	0,020	6,0	1,6
		5	4	80-100	0,020	7,5	2,0
		6	4	80-100	0,030	9,0	2,4
		8	4	80-100	0,035	12,0	3,2
	10	4	80-100	0,045	15,0	4,0	
	12	4	80-100	0,055	18,0	4,8	
	16	4	80-100	0,065	24,0	6,4	
	20	4	80-100	0,085	30,0	8,0	

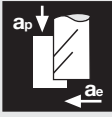
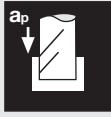
\* Standard tools doesn't recommended for unsuitable materials.

Vc:m/dk all conditions are the maximum value to be given at the desired level.

Vc:m/dk tüm şartlar istenilen seviyede verilecek maksimum değer

# MTE - ATAK SERIE

## MTE - ATAK SERİSİ

			d1 (mm)	z	Vc (m/dk)	fz (mm)	ap MAX (mm)	ae MAX (mm)
<b>Steel &lt;850 N/mm<sup>2</sup></b>			3	4	120-160	0,020	4,5	1,2
			4	4	120-160	0,025	6,0	1,6
			5	4	120-160	0,035	7,5	2,0
			6	4	120-160	0,040	9,0	2,4
			8	4	120-160	0,055	12,0	3,2
			10	4	120-160	0,070	15,0	4,0
			12	4	120-160	0,075	18,0	4,8
			16	4	120-160	0,100	24,0	6,4
<b>Steel 850-1100 N/mm<sup>2</sup></b>			20	4	120-160	0,130	30,0	8,0
			3	4	100-140	0,020	4,5	1,2
			4	4	100-140	0,025	6,0	1,6
			5	4	100-140	0,035	7,5	2,0
			6	4	100-140	0,040	9,0	2,4
			8	4	100-140	0,055	12,0	3,2
			10	4	100-140	0,070	15,0	4,0
			12	4	100-140	0,075	18,0	4,8
<b>Cold Speed Steel 12%Cr / High Alloy Steel</b>			16	4	100-140	0,100	24,0	6,4
			20	4	100-140	0,130	30,0	8,0
			3	4	70-100	0,020	4,5	1,2
			4	4	70-100	0,025	6,0	1,6
			5	4	70-100	0,030	7,5	2,0
			6	4	70-100	0,040	9,0	2,4
			8	4	70-100	0,050	12,0	3,2
			10	4	70-100	0,065	15,0	4,0
<b>Stainless Steel - Cr-Ni</b>			12	4	70-100	0,075	18,0	4,8
			16	4	70-100	0,095	24,0	6,4
			20	4	70-100	0,120	30,0	8,0
			3	4	80-100	0,015	4,5	1,2
			4	4	80-100	0,020	6,0	1,6
			5	4	80-100	0,020	7,5	2,0
			6	4	80-100	0,030	9,0	2,4
			8	4	80-100	0,035	12,0	3,2
<b>Cast Iron GG (G)</b>			10	4	80-100	0,045	15,0	4,0
			12	4	80-100	0,055	18,0	4,8
			16	4	80-100	0,065	24,0	6,4
			20	4	80-100	0,085	30,0	8,0
			3	4	80-120	0,008	4,5	1,2
			4	4	80-120	0,010	6,0	1,6
			5	5	80-120	0,014	7,5	2,0
			6	6	80-120	0,016	9,0	2,4
		8	6	80-120	0,022	12,0	3,2	
		10	6	80-120	0,028	15,0	4,0	
		12	6	80-120	0,032	18,0	4,8	
		16	6	80-120	0,044	24,0	6,4	
		20	8	80-120	0,054	30,0	8,0	

\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

## MTE - UFUK SERIE

### MTE - UFUK SERİSİ

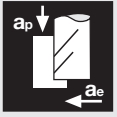


	d1 (mm)	z	Vc (m/dk)	fz (mm)	ap MAX (mm)	ae MAX (mm)
<b>Steel Cr-Ni &lt;850 N/mm<sup>2</sup></b>	0,5	2	30-50	0,004	0,015	0,20
	0,8	2	40-70	0,007	0,025	0,32
	1	2	40-70	0,010	0,070	0,40
	1,2	2	40-70	0,014	0,080	0,48
	1,5	2	40-70	0,018	0,095	0,60
	2	2	45-75	0,020	0,135	0,80
	2,5	2	45-75	0,025	0,175	1,00
<b>Steel Cr-Ni 850 - 1100 N/mm<sup>2</sup></b>	0,5	2	30-50	0,004	0,015	0,20
	0,8	2	40-70	0,007	0,025	0,32
	1	2	40-70	0,010	0,070	0,40
	1,2	2	40-70	0,014	0,080	0,48
	1,5	2	40-70	0,018	0,095	0,60
	2	2	45-75	0,020	0,135	0,80
	2,5	2	45-75	0,025	0,175	1,00
<b>Cold Speed Steel 12%Cr High Alloy Steel</b>	0,5	2	30-50	0,004	0,015	0,20
	0,8	2	40-70	0,007	0,025	0,32
	1	2	40-70	0,010	0,070	0,40
	1,2	2	40-70	0,014	0,080	0,48
	1,5	2	40-70	0,018	0,095	0,60
	2	2	45-75	0,020	0,135	0,80
	2,5	2	45-75	0,025	0,175	1,00
	3	2	45-75	0,030	0,270	1,20



# MTE - UFUK 55-65 HRc

## MTE - UFUK 55-65 HRc




	d1 (mm)	z	Vc (m/dk)	fz (mm)	ap (mm)	ae (mm)
<b>Tool Steel (Hardened) 48 - 52 HRC</b>	0,5	2	20-35	0,004	0,013	0,100
	0,8	2	20-50	0,009	0,020	0,160
	1	2	30-55	0,012	0,025	0,200
	1,2	2	45-70	0,015	0,035	0,240
	1,5	2	50-75	0,015	0,060	0,300
	2	2	60-80	0,018	0,080	0,400
	2,5	2	65-85	0,023	0,100	0,500
<b>Tool Steel (Hardened) 52 - 56 HRC</b>	0,5	2	20-35	0,004	0,013	0,100
	0,8	2	20-50	0,009	0,020	0,160
	1	2	30-55	0,012	0,025	0,200
	1,2	2	45-70	0,015	0,035	0,240
	1,5	2	50-75	0,015	0,060	0,300
	2	2	60-80	0,018	0,080	0,400
	2,5	2	65-85	0,023	0,100	0,500
<b>Tool Steel (Hardened) 56 - 60 HRC</b>	0,5	2	20-35	0,004	0,013	0,100
	0,8	2	20-50	0,009	0,020	0,160
	1	2	30-55	0,012	0,025	0,200
	1,2	2	45-70	0,015	0,035	0,240
	1,5	2	50-75	0,015	0,060	0,300
	2	2	60-80	0,018	0,080	0,400
	2,5	2	65-85	0,023	0,100	0,500
<b>Tool Steel (Hardened) &gt;60 HRC</b>	0,5	2	20-35	0,004	0,013	0,100
	0,8	2	20-50	0,009	0,020	0,160
	1	2	30-55	0,012	0,025	0,200
	1,2	2	45-70	0,015	0,035	0,240
	1,5	2	50-75	0,015	0,060	0,300
	2	2	60-80	0,018	0,080	0,400
	2,5	2	65-85	0,023	0,100	0,500
<b>HSS</b>	0,5	2	20-35	0,004	0,013	0,100
	0,8	2	20-50	0,009	0,020	0,160
	1	2	30-55	0,012	0,025	0,200
	1,2	2	45-70	0,015	0,035	0,240
	1,5	2	50-75	0,015	0,060	0,300
	2	2	60-80	0,018	0,080	0,400
	2,5	2	65-85	0,023	0,100	0,500
<b>Cast Iron GG (G)</b>	0,5	2	25-40	0,008	0,013	0,100
	0,8	2	35-55	0,012	0,020	0,160
	1	2	40-65	0,015	0,025	0,200
	1,2	2	50-80	0,018	0,030	0,240
	1,5	2	60-85	0,021	0,038	0,300
	2	2	70-90	0,025	0,050	0,400
	2,5	2	80-95	0,034	0,063	0,500
3	2	85-100	0,038	0,190	0,600	


## MTE - DORUK SERIE

### MTE - DORUK SERİSİ

	d1 (mm)	z	Vc (m/dk)	fz (mm)
<b>Steel Cr-Ni &lt;850 N/mm<sup>2</sup></b>	d1<4	4	60-180	0,005-0,04
	d1>4	4	60-180	0,04-0,07
<b>Steel Cr-Ni 850 - 1100 N/mm<sup>2</sup></b>	d1<4	4	50-130	0,005-0,04
	d1>4	4	50-130	0,04-0,07
<b>Cold Speed Steel 12%Cr High Alloy Steel</b>	d1<4	4	30-110	0,003-0,02
	d1>4	4	30-110	0,02-0,05
<b>Stainless Steel Cr-Ni</b>	d1<4	4	30-100	0,003-0,03
	d1>4	4	30-100	0,03-0,05
<b>Cast Iron GG (G)</b>	d1<4	4	60-180	-
	d1>4	4	60-180	0,04-0,07
<b>Aluminium Alloys (Si &lt;6%)</b>	d1<4	4	90-250	0,01-0,05
	d1>4	4	90-250	0,05-0,08
<b>Copper (Pure)</b>	d1<4	4	70-250	0,005-0,05
	d1>4	4	70-250	0,04-0,08

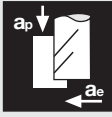
		d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap (mm)	ae (mm)	K20	AlCrN
								n (min-1)	vf (mm/min)
<b>Stainless Steel - Cr-Ni</b>		3	4	80	0,015	4,5	1,2	8488	509
		4	4	80	0,020	6,0	1,6	6366	509
		5	4	80	0,025	7,5	2,0	5093	509
		6	4	80	0,025	9,0	2,4	4244	424
		8	4	80	0,035	12,0	3,2	3183	446
		10	4	80	0,045	15,0	4,0	2546	458
		12	4	80	0,050	18,0	4,8	2122	424
		16	4	80	0,075	24,0	3,2	1592	477
<b>Stainless Steel Cr-Ni-Mo</b>		20	4	80	0,080	30,0	4,0	1273	407
		3	4	70	0,015	4,5	1,2	7427	446
		4	4	70	0,020	6,0	1,6	5570	446
		5	4	70	0,025	7,5	2,0	4456	446
		6	4	70	0,025	9,0	2,4	3714	371
		8	4	70	0,035	12,0	3,2	2785	390
		10	4	70	0,045	15,0	4,0	2228	401
		12	4	70	0,050	18,0	4,8	1857	371
<b>Stainless Steel / Duplex</b>		16	4	70	0,075	24,0	3,2	1393	418
		20	4	70	0,080	30,0	4,0	1114	357
		3	4	25	0,010	4,5	1,2	2653	106
		4	4	25	0,015	6,0	1,6	1989	119
		5	4	25	0,020	7,5	2,0	1592	127
		6	4	25	0,020	9,0	2,4	1326	106
		8	4	25	0,030	12,0	3,2	995	119
		10	4	25	0,035	15,0	4,0	796	111
<b>Stainless Steel &gt;1000 N/mm<sup>2</sup></b>		12	4	25	0,040	18,0	4,8	663	106
		16	4	25	0,060	24,0	3,2	497	119
		20	4	25	0,065	30,0	4,0	398	103
		3	4	15	0,010	4,5	1,2	1592	64
		4	4	15	0,015	6,0	1,6	1194	72
		5	4	15	0,020	7,5	2,0	955	76
		6	4	15	0,020	9,0	2,4	796	64
		8	4	15	0,030	12,0	3,2	597	72
	10	4	15	0,035	15,0	4,0	477	67	
	12	4	15	0,040	18,0	4,8	398	64	
	16	4	15	0,060	24,0	3,2	298	72	
	20	4	15	0,070	30,0	4,0	239	67	

\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

	d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap (mm)	ae (mm)	K20	AlCrN
							n (min-1)	vf (mm/min)
<b>Stainless Steel - Cr-Ni</b>	3	4	60	0.015	1.5	3.0	6366	382
	4	4	60	0.020	2.0	4.0	4775	382
	5	4	60	0.025	2.5	5.0	3820	382
	6	4	60	0.030	3.0	6.0	3183	382
	8	4	60	0.040	4.0	8.0	2387	382
	10	4	60	0.055	5.0	10.0	1910	420
	12	4	60	0.055	6.0	12.0	1592	350
	16	4	60	0.085	8.0	16.0	1194	406
<b>Stainless Steel Cr-Ni-Mo</b>	20	4	60	0,090	10,0	20,0	955	344
	3	4	55	0.015	1.5	3.0	5836	350
	4	4	55	0.020	2.0	4.0	4377	350
	5	4	55	0.025	2.5	5.0	3501	350
	6	4	55	0.030	3.0	6.0	2918	350
	8	4	55	0.040	4.0	8.0	2188	350
	10	4	55	0.055	5.0	10.0	1751	385
	12	4	55	0.055	6.0	12.0	1459	321
<b>Stainless Steel / Duplex</b>	16	4	55	0.085	4.0	16.0	1094	372
	20	4	55	0,090	10,0	20,0	875	344
	3	4	20	0.015	1.5	3.0	2122	127
	4	4	20	0.020	2.0	4.0	1592	127
	5	4	20	0.025	2.5	5.0	1273	127
	6	4	20	0.025	3.0	6.0	1061	106
	8	4	20	0.035	4.0	8.0	796	111
	10	4	20	0.045	5.0	10.0	637	115
<b>Stainless Steel &gt;1000 N/mm<sup>2</sup></b>	12	4	20	0.055	6.0	12.0	531	117
	16	4	20	0.075	4.0	16.0	398	119
	20	4	20	0,080	10,0	20,0	318	102
	3	4	10	0.015	1.5	3.0	1061	64
	4	4	10	0.020	2.0	4.0	796	64
	5	4	10	0.025	2.5	5.0	637	64
	6	4	10	0.025	3.0	6.0	531	53
	8	4	10	0.035	4.0	8.0	398	56
10	4	10	0.045	5.0	10.0	318	57	
12	4	10	0.050	6.0	12.0	265	58	
16	4	10	0.075	4.0	16.0	199	60	
20	4	10	0,080	10,0	20,0	159	51	


\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

## MTE - ALTAY SERIES Z2

		d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap MAX (mm)	ae MAX (mm)
Aluminium Alloys (Si <6%)		3	2	280-350	0,050	4,5	1,2
		4	2	280-350	0,065	6,0	1,6
		5	2	280-350	0,085	7,5	2,0
		6	2	280-350	0,110	9,0	2,4
		8	2	280-350	0,135	12,0	3,2
		10	2	280-350	0,165	15,0	4,0
		12	2	280-350	0,200	18,0	4,8
		16	2	280-350	0,215	24,0	6,4
Copper (Pure)		20	2	280-350	0,250	30,0	8,0
		3	2	240-300	0,04	4,5	1,2
		4	2	240-300	0,05	6,0	1,6
		5	2	240-300	0,07	7,5	2,0
		6	2	240-300	0,09	9,0	2,4
		8	2	240-300	0,11	12,0	3,2
		10	2	240-300	0,13	15,0	4,0
		12	2	240-300	0,16	18,0	4,8
	16	2	240-300	0,17	24,0	6,4	
	20	2	240-300	0,2	30,0	8,0	

\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

## MTE - ALTAY SERIES Z3

		d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap MAX (mm)	ae MAX (mm)
Aluminium Alloys (Si <6%)		3	3	280-350	0,050	4,5	1,2
		4	3	280-350	0,065	6,0	1,6
		5	3	280-350	0,085	7,5	2,0
		6	3	280-350	0,110	9,0	2,4
		8	3	280-350	0,135	12,0	3,2
		10	3	280-350	0,165	15,0	4,0
		12	3	280-350	0,200	18,0	4,8
		16	3	280-350	0,215	24,0	6,4
Copper (Pure)		20	3	280-350	0,250	30,0	8,0
		3	3	240-300	0,04	4,5	1,2
		4	3	240-300	0,05	6,0	1,6
		5	3	240-300	0,07	7,5	2,0
		6	3	240-300	0,09	9,0	2,4
		8	3	240-300	0,11	12,0	3,2
		10	3	240-300	0,13	15,0	4,0
		12	3	240-300	0,16	18,0	4,8
	16	3	240-300	0,17	24,0	6,4	
	20	3	240-300	0,2	30,0	8,0	

\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

# MTE - FIRTINA MILLING - 65 HRC

	d1 (mm)	z	max. value Vc (m/dk)	fz (mm)	ap (mm)	ae (mm)
	<b>Tool Steel (Hardened) 48 - 52 HRC</b>	0,5	4	50-80	0,002	0,8
1		4	50-80	0,004	1,5	0,4
2		4	50-80	0,006	3,0	0,8
3		4	50-80	0,008	4,5	1,2
4		4	50-80	0,010	6,0	1,6
5		5	50-80	0,014	7,5	2,0
6		6	50-80	0,016	9,0	2,4
8		6	50-80	0,022	12,0	3,2
10		6	50-80	0,028	15,0	4,0
12		6	50-80	0,032	18,0	4,8
16		6	50-80	0,044	24,0	6,4
20		8	50-80	0,054	30,0	8,0
<b>Tool Steel (Hardened) 52 - 56 HRC</b>	0,5	4	40-60	0,002	0,8	0,2
	1	4	40-60	0,004	1,5	0,4
	2	4	40-60	0,006	3,0	0,8
	3	4	40-60	0,008	4,5	1,2
	4	4	40-60	0,010	6,0	1,6
	5	5	40-60	0,014	7,5	2,0
	6	6	40-60	0,016	9,0	2,4
	8	6	40-60	0,022	12,0	3,2
	10	6	40-60	0,028	15,0	4,0
	12	6	40-60	0,032	18,0	4,8
	16	6	40-60	0,044	24,0	6,4
	20	8	40-60	0,054	30,0	8,0
<b>Tool Steel (Hardened) 56 - 60 HRC</b>	0,5	4	40-50	0,002	0,8	0,2
	1	4	40-50	0,004	1,5	0,4
	2	4	40-50	0,006	3,0	0,8
	3	4	40-50	0,008	4,5	1,2
	4	4	40-50	0,010	6,0	1,6
	5	5	40-50	0,014	7,5	2,0
	6	6	40-50	0,016	9,0	2,4
	8	6	40-50	0,022	12,0	3,2
	10	6	40-50	0,028	15,0	4,0
	12	6	40-50	0,032	18,0	4,8
	16	6	40-50	0,044	24,0	6,4
	20	8	40-50	0,054	30,0	8,0
<b>Tool Steel (Hardened) &gt;60 HRC</b>	0,5	4	40-50	0,002	0,8	0,2
	1	4	40-50	0,004	1,5	0,4
	2	4	40-50	0,006	3,0	0,8
	3	4	40-50	0,008	4,5	1,2
	4	4	40-50	0,010	6,0	1,6
	5	5	40-50	0,012	7,5	2,0
	6	6	40-50	0,016	9,0	2,4
	8	6	40-50	0,020	12,0	3,2
	10	6	40-50	0,026	15,0	4,0
	12	6	40-50	0,030	18,0	4,8
	16	6	40-50	0,040	24,0	6,4
	20	8	40-50	0,050	30,0	8,0
<b>HSS</b>	0,5	4	50	0,005	0,8	0,2
	1	4	50	0,015	1,5	0,4
	2	4	50	0,025	3,0	0,8
	3	4	50	0,035	4,5	1,2
	4	4	50	0,045	6,0	1,6
	5	5	50	0,060	7,5	2,0
	6	6	50	0,075	9,0	2,4
	8	6	50	0,095	12,0	3,2
	10	6	50	0,115	15,0	4,0
	12	6	50	0,140	18,0	4,8
	16	6	50	0,150	24,0	6,4
	20	8	50	0,175	30,0	8,0
<b>Cast Iron GG (G)</b>	0,5	4	80-110	0,002	0,8	0,2
	1	4	80-110	0,004	1,5	0,4
	2	4	80-110	0,006	3,0	0,8
	3	4	80-110	0,008	4,5	1,2
	4	4	80-110	0,010	6,0	1,6
	5	5	80-110	0,014	7,5	2,0
	6	6	80-110	0,016	9,0	2,4
	8	6	80-110	0,022	12,0	3,2
	10	6	80-110	0,028	15,0	4,0
	12	6	80-110	0,032	18,0	4,8
	16	6	80-110	0,044	24,0	6,4
	20	8	80-110	0,054	30,0	8,0

\* Standard tools doesn't recommended for unsuitable materials.  
Vc:m/dk all conditions are the maximum value to be given at the desired level.

## DRILLS RECOMMENDED CUTTING CONDITIONS

		VHM Drill Bit Diameter, (mm)				
		DRILL BITS	3-6	6-10	10-14	14-20
		Cutting Speed (Vc), m/min.	Feed Rate mm/rev			
Materials	DIN					
<b>Steel</b>						
Construction soft steel	St37-3	100-130	0,10 - 0,25	0,15 - 0,30	0,20 - 0,40	0,22 - 0,40
Free-cutting steels Construction steel Carburizing steel	9 S 20, 9 SMn 28 ST33-1, St37-3, C10	90-120	0,10 - 0,25	0,15 - 0,30	0,20 - 0,40	0,22 - 0,40
Carbon steel	35S20, St52-3					
Low-alloy steel	9SMnPb28, C45					
Cast steel	St-50-2, GS40Mn5 C55, C60	70-100	0,10 - 0,25	0,15 - 0,30	0,20 - 0,40	0,22 - 0,40
Alloy steel	41CrAlMo7, 41Cr4					
Cold-Work tool steel	100Cr6 3oCrNiMo8 34CrMo4,	60-80	0,08-0,14	0,10-0,22	0,12-0,30	0,14-0,38
Tempered steel	40NiCrMo2 36CrNiMo4,					
Up to 38 HRC	42CrMo4	40-70	0,10-0,25	0,15-0,30	0,20-0,35	0,25-0,40
High-alloyed steels hardened	55NiCrMoV6					
Up to 44 HRC	S6-5-2, 50CrV4	30-50	0,06-0,12	0,08-0,20	0,12-0,28	0,14-0,36
<b>Stainless Steel</b>						
	X 46 Cr 13					
M	Ferritic, Martensic, Austenic, Austenitic-Ferritic duplex	X 5CrNi18 10 X2CrNiMoN22-5-3	40-70*	0,08-0,14	0,08-0,20	0,10-0,26 0,12-0,32
<b>Cast Iron</b>						
	GG15, GG20, GG25, GG30	100-120	0,12-0,25	0,25-0,40	0,30-0,48	0,40-0,60
	GTS-35-10, GTS-45-06, GTS- 55-04, GTW-35-04	70-90	0,12-0,26	0,25-0,40	0,30-0,48	0,40-0,60
K	Spheodial cast iron	GGG40, GGG50, GGG60, GGG70	90-120	0,12-0,27	0,25-0,42	0,30-0,50 0,40-0,62
<b>Non-Ferrous Materials Aluminium Alloys</b>						
	Al99.99 AlCuSiMn					
	Unalloyed aluminium, Aluminium alloys	GAISi10Mg	180-220	0,12-0,20	0,15-0,35	0,18-0,45 0,21-0,55
<b>Copper Alloys</b>						
	Pure copper, Low alloyed copper, Copper zinc alloys (Brass, long chipping), Copper zinc alloys (Brass, short chipping)	Cu-Of Cu Zn 37, Cu Zn 15, Cu Zn 39 Pb 3 Cu Zn 39 Pb 2	110-160 150-170 180-240			
N			0,12-0,20	0,15-0,35	0,18-0,45	0,21-0,55
<b>Special Materials - Titanium Alloys</b>						
	Titanium alloys	Ti Al 6 V 4	20-40*	0,06-0,12	0,08-0,15	0,10-0,18 0,12-0,21
<b>Heat Resistent Super Alloys</b>						
S	Nickel alloys	Ni Cu 30 Fe	10-25*	0,06-0,10	0,08-0,12	0,10-0,15 0,12-0,20
<b>Hard Materials</b>						
	High strenght steels	Weldox1100 Hardox 500				
H	Hardened steels	Armox600T				
	Hard casting	HSSE	20-40*			

\* Standard tools doesn't recommended for unsuitable materials.

SARP HM Solid Drills Diameter(mm)											
SARP DRILLS	2	3	4	5	6	8	10	12	14	16	20
Cutting Speed (Vc), m/min.	Feed Rate mm/rev										
70-140	0,05-0,12	0,07-0,14	0,08-0,16	0,09-0,19	0,11-0,22	0,13-0,26	0,15-0,31	0,18-0,35	0,19-0,38	0,22-0,42	0,28-0,54
90-140	0,05-0,12	0,07-0,14	0,08-0,16	0,09-0,19	0,11-0,22	0,13-0,26	0,15-0,31	0,18-0,35	0,19-0,38	0,22-0,42	0,31-0,53
80-100	0,06-0,13	0,08-0,15	0,09-0,17	0,10-0,20	0,12-0,23	0,15-0,28	0,19-0,33	0,22-0,38	0,24-0,43	0,26-0,46	0,34-0,58
60-100	0,06-0,13	0,08-0,15	0,09-0,17	0,10-0,20	0,12-0,23	0,15-0,28	0,19-0,33	0,22-0,38	0,24-0,43	0,26-0,46	0,28-0,58
50-100	0,05-0,12	0,07-0,14	0,08-0,16	0,09-0,19	0,11-0,22	0,13-0,26	0,15-0,31	0,18-0,35	0,19-0,38	0,22-0,42	0,28-0,54
40-70	0,04-0,06	0,05-0,08	0,06-0,10	0,07-0,12	0,08-0,14	0,10-0,18	0,13-0,22	0,14-0,24	0,16-0,23	0,18-0,32	0,23-0,41
40-70*	0,03-0,07	0,04-0,08	0,06-0,10	0,08-0,11	0,08-0,12	0,08-0,14	0,10-0,16	0,12-0,18	0,13-0,19	0,14-0,20	0,16-0,20
80-170	0,09-0,17	0,11-0,22	0,12-0,24	0,14-0,27	0,16-0,31	0,20-0,38	0,23-0,44	0,25-0,49	0,28-0,54	0,31-0,60	0,38-0,74
80-140	0,11-0,15	0,12-0,16	0,13-0,19	0,15-0,22	0,16-0,25	0,20-0,31	0,23-0,44	0,23-0,34	0,24-0,38	0,25-0,40	0,38-0,60
80-130	0,07-0,15	0,08-0,17	0,09-0,19	0,11-0,22	0,12-0,25	0,14-0,30	0,17-0,35	0,19-0,40	0,22-0,44	0,24-0,48	0,30-0,60
90-135*	0,06-0,13	0,08-0,14	0,09-0,15	0,10-0,16	0,10-0,17	0,12-0,20	0,16-0,24	0,20-0,28	0,22-0,30	0,24-0,32	0,32-0,48
90-270	0,06-0,12	0,08-0,17	0,09-0,19	0,11-0,22	0,12-0,25	0,16-0,28	0,20-0,32	0,24-0,36	0,26-0,38	0,28-0,40	0,32-0,48
20-30*	0,02-0,05	0,03-0,06	0,04-0,08	0,05-0,09	0,06-0,10	0,08-0,12	0,09-0,13	0,10-0,14	0,11-0,15	0,12-0,16	0,14-0,18
10-40*	0,02-0,03	0,02-0,04	0,03-0,06	0,04-0,07	0,05-0,08	0,07-0,10	0,08-0,11	0,09-0,11	0,09-0,12	0,10-0,14	0,11-0,16





A series of horizontal dashed lines spanning the width of the page, providing a template for writing or drawing.



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