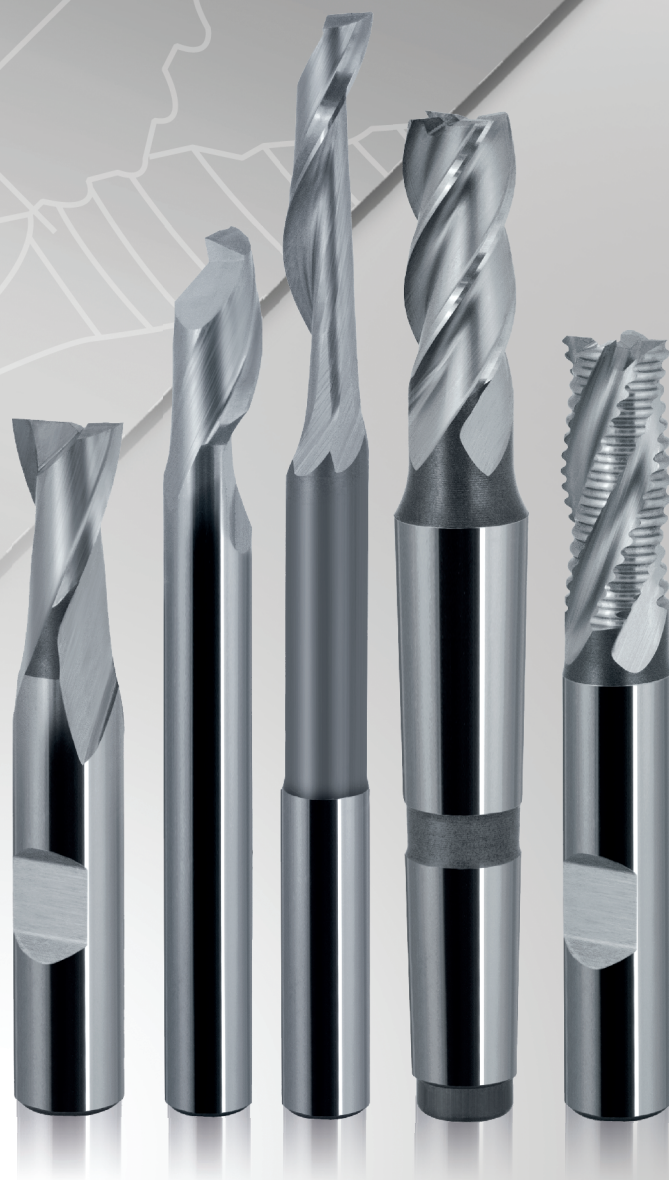


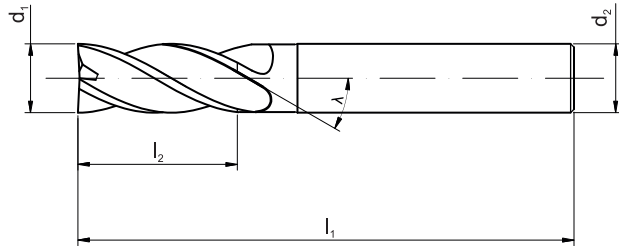
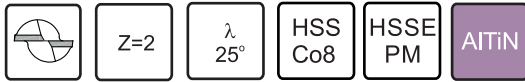
OPTI

HSSE



Uniwersalne zastosowanie do szerokiej gamy typowych materiałów

Universal application for many groups of typical materials



OPTI

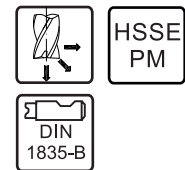
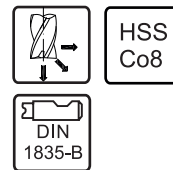


Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

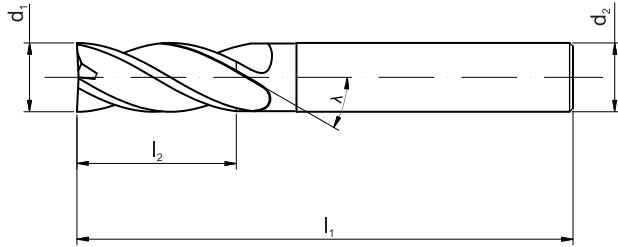
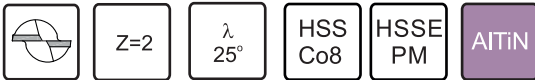
P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design



Rodzaj powłoki / Coating

d ₁ e8	d ₂ h6	l ₁	l ₂	Z	INDEX	
					-	AlTiN
2	6	48	4	2	M2-220418-0020	
2,5	6	49	5	2	M2-220418-0025	
3	6	49	5	2	M2-220418-0030	M4-220417-0030N
3,5	6	50	6	2	M2-220418-0035	
4	6	51	7	2	M2-220418-0040	M4-220417-0040N
4,5	6	51	7	2	M2-220418-0045	
5	6	52	8	2	M2-220418-0050	M4-220417-0050N
5,5	6	52	8	2	M2-220418-0055	
6	6	52	8	2	M2-220418-0060	M4-220417-0060N
6,5	10	60	10	2	M2-220418-0065	
7	10	60	10	2	M2-220418-0070	M4-220417-0070N
7,5	10	60	10	2	M2-220418-0075	
8	10	61	11	2	M2-220418-0080	M4-220417-0080N
8,5	10	61	11	2	M2-220418-0085	
9	10	61	11	2	M2-220418-0090	M4-220417-0090N
9,5	10	61	11	2	M2-220418-0095	M4-220417-0095N
10	10	63	13	2	M2-220418-0100	M4-220417-0100N
10,5	12	70	13	2	M2-220418-0105	
11	12	70	13	2	M2-220418-0110	
11,5	12	70	13	2	M2-220418-0115	
12	12	73	16	2	M2-220418-0120	M4-220417-0120N
13	12	73	16	2	M2-220418-0130	
14	12	73	16	2	M2-220418-0140	M4-220417-0140N
15	12	73	16	2	M2-220418-0150	
16	16	79	19	2	M2-220418-0160	



OPTI



Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design



HSS
Co8



HSSE
PM

Rodzaj powłoki / Coating

-

AITiN

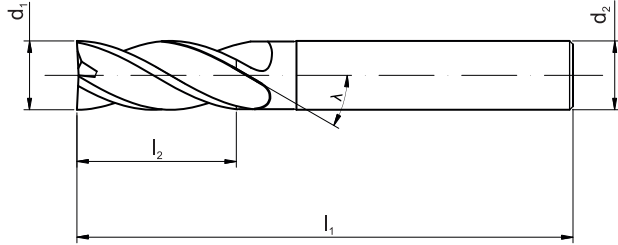
d ₁ e8	d ₂ h6	l ₁	l ₂	Z	INDEX	
17	16	79	19	2	M2-220418-0170	
18	16	79	19	2	M2-220418-0180	M4-220417-0180N
19	16	79	19	2	M2-220418-0190	
20	20	88	22	2	M2-220418-0200	M4-220417-0200N
22	20	88	22	2	M2-220418-0220	
24	25	102	26	2	M2-220418-0240	
25	25	102	26	2	M2-220418-0250	M4-220417-0250N
25	20*	96	26	2	M2-220418-2520	
26	25	102	26	2	M2-220418-0260	
28	25	102	26	2	M2-220418-0280	M4-220417-0280N
28	20*	96	26	2	M2-220418-2820	
30	25	102	26	2	M2-220418-0300	
32	32	112	32	2	M2-220418-0320	
36	32	112	32	2	M2-220418-0360	
40	32*	118	38	2	M2-220418-0400	

Parametry skrawania str. 102-103
Cutting data page 102-103



Z=2

 λ
25°

 HSS
Co8

OPTI

DIN-327


Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design

Rodzaj powłoki / Coating

-

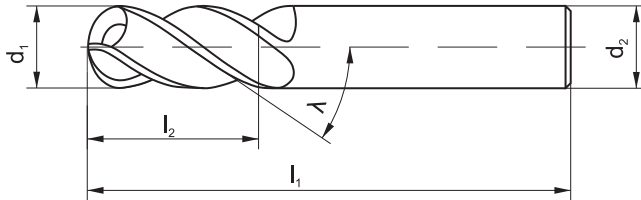
d ₁ e8	d ₂ h6	l ₁	l ₂	Z	INDEX
4	6	63	11	2	M2-221418-0040
5	6	68	13	2	M2-221418-0050
6	6	68	13	2	M2-221418-0060
7	10	80	16	2	M2-221418-0070
8	10	88	19	2	M2-221418-0080
9	10	88	19	2	M2-221418-0090
10	10	95	22	2	M2-221418-0100
11	12	102	22	2	M2-221418-0110
12	12	110	26	2	M2-221418-0120
13	12	110	26	2	M2-221418-0130
14	12	110	26	2	M2-221418-0140
15	12	110	26	2	M2-221418-0150
16	16	123	32	2	M2-221418-0160
18	16	123	32	2	M2-221418-0180
20	20	141	38	2	M2-221418-0200
22	20	141	38	2	M2-221418-0220
24	25	166	45	2	M2-221418-0240
25	25	166	45	2	M2-221418-0250
26	25	166	45	2	M2-221418-0260
28	25	166	45	2	M2-221418-0280
30	25	166	45	2	M2-221418-0300
32	32	166	53	2	M2-221418-0320

 Parametry skrawania str. 102-103
 Cutting data page 102-103



Z=2

 $\lambda=25^\circ$

 HSS
Co8

OPTI

DIN-1889


Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design

Rodzaj powłoki / Coating

-

d ₁ k10	d ₂ h6	l ₁	l ₂	INDEX
4	6	51	7	M2-510418-0040
5	6	52	8	M2-510418-0050
6	6	52	8	M2-510418-0060
7	10	60	10	M2-510418-0070
8	10	61	11	M2-510418-0080
9	10	61	11	M2-510418-0090
10	10	63	13	M2-510418-0100
11	12	70	13	M2-510418-0110
12	12	73	16	M2-510418-0120
13	12	73	16	M2-510418-0130
14	12	73	16	M2-510418-0140
15	12	73	16	M2-510418-0150
16	16	79	19	M2-510418-0160
18	16	79	19	M2-510418-0180
20	20	88	22	M2-510418-0200
22	20	88	22	M2-510418-0220
24	25	102	26	M2-510418-0240
25	25	102	26	M2-510418-0260
28	25	102	26	M2-510418-0280
30	25	102	26	M2-510418-0300
32	32	112	32	M2-510418-0320

Parametry skrawania str. 102-105
Cutting data page 102-105

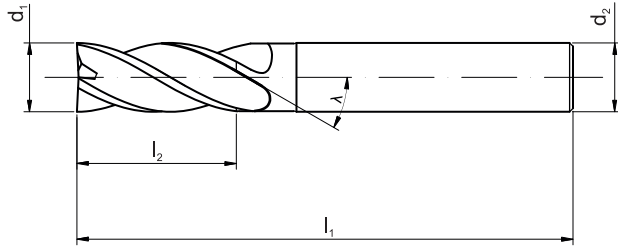


λ
25°

HSS
Co8

HSSE
PM

AlTiN



OPTI

DIN-844

DIN-844



Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design



HSS
Co8



HSSE
PM

Rodzaj powłoki / Coating

-

AlTiN

d ₁ e8	d ₂ h6	l ₁	l ₂	Z	INDEX	
3	6	52	8	4	M2-120518-0030	
4	6	55	11	4	M2-120518-0040	M4-120517-0040N
5	6	57	13	4	M2-120518-0050	M4-120517-0050N
6	6	57	13	4	M2-120518-0060	M4-120517-0060N
7	10	66	16	4	M2-120518-0070	
8	10	69	19	4	M2-120518-0080	M4-120517-0080N
9	10	69	19	4	M2-120518-0090	
10	10	72	22	4	M2-120518-0100	M4-120517-0100N
11	12	79	22	4	M2-120518-0110	
12	12	83	26	4	M2-120518-0120	M4-120517-0120N
13	12	83	26	4	M2-120518-0130	
14	12	83	26	4	M2-120518-0140	M4-120517-0140N
15	12	83	26	4	M2-120518-0150	
16	16	92	32	4	M2-120518-0160	M4-120517-0160N
18	16	92	32	4	M2-120518-0180	M4-120517-0180N
20	20	104	38	4	M2-120518-0200	M4-120517-0200N
22	20	104	38	5	M2-120518-0220	
24	25	121	45	5	M2-120518-0240	
25	25	121	45	5	M2-120518-0250	
26	25	121	45	5	M2-120518-0260	
28	25	121	45	5	M2-120518-0280	
30	25	121	45	5	M2-120518-0300	
32	32	133	53	6	M2-120518-0320	

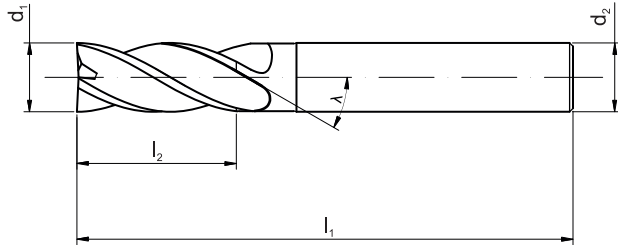
Parametry skrawania str. 102-103
Cutting data page 102-103



λ
30°

HSS
Co8

Typ
NR



OPTI

DIN-844



Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design



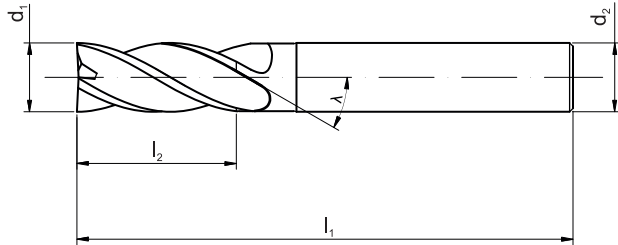
Rodzaj powłoki / Coating

-

d ₁ k12	d ₂ h6	l ₁	l ₂	Z	INDEX
6	6	57	13	4	M2-124518-0060
7	10	66	16	4	M2-124518-0070
8	10	69	19	4	M2-124518-0080
9	10	69	19	4	M2-124518-0090
10	10	72	22	4	M2-124518-0100
11	12	79	22	4	M2-124518-0110
12	12	83	26	4	M2-124518-0120
13	12	83	26	4	M2-124518-0130
14	12	83	26	4	M2-124518-0140
15	12	83	26	4	M2-124518-0150
16	16	92	32	4	M2-124518-0160
17	16	92	32	4	M2-124518-0170
18	16	92	32	4	M2-124518-0180
20	20	104	38	4	M2-124518-0200
22	20	104	38	5	M2-124518-0220
24	25	121	45	5	M2-124518-0240
25	25	121	45	5	M2-124518-0250
26	25	121	45	5	M2-124518-0260
28	25	121	45	5	M2-124518-0280
30	25	121	45	5	M2-124518-0300
32	32	133	53	6	M2-124518-0320

Parametry skrawania str. 102-103
Cutting data page 102-103


 $\lambda=30^\circ$

 HSS
Co8

OPTI

DIN-844


Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design

Rodzaj powłoki / Coating

-

d_1 e8	d_2 h6	l_1	l_2	Z	INDEX
6	6	68	24	4	M2-121518-0060
7	10	80	30	4	M2-121518-0070
8	10	88	38	4	M2-121518-0080
9	10	88	38	4	M2-121518-0090
10	10	95	45	4	M2-121518-0100
12	12	110	53	4	M2-121518-0120
14	12	110	53	4	M2-121518-0140
16	16	123	63	4	M2-121518-0160
18	16	123	63	4	M2-121518-0180
20	20	141	75	4	M2-121518-0200
22	20	141	75	5	M2-121518-0220
24	25	166	90	5	M2-121518-0240
25	25	166	90	5	M2-121518-0250
26	25	166	90	5	M2-121518-0260
28	25	166	90	5	M2-121518-0280
30	25	166	90	5	M2-121518-0300
32	32	186	106	6	M2-121518-0320

Parametry skrawania str. 102-103

Cutting data page 102-103

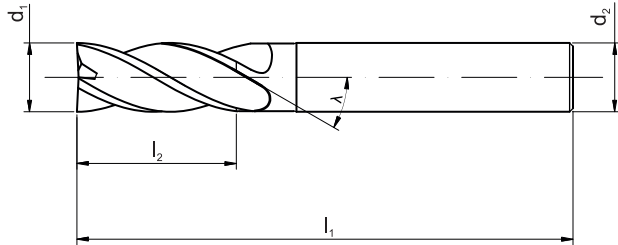


$\lambda=30^\circ$

HSSE
PM

Typ
HR

AlTiN



OPTI

DIN-844



Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design



Rodzaj powłoki / Coating

AlTiN

INDEX

d, k12	d ₂ h6	l ₁	l ₂	Z	AlTiN INDEX
6	6	57	13	4	M4-128517-0060
7	10	66	16	4	M4-128517-0070
8	10	69	19	4	M4-128517-0080
9	10	69	19	4	M4-128517-0090
10	10	72	22	4	M4-128517-0100
11	12	79	22	4	M4-128517-0110
12	12	83	26	4	M4-128517-0120
13	12	83	26	4	M4-128517-0130
14	12	83	26	4	M4-128517-0140
15	12	83	26	4	M4-128517-0150
16	16	92	32	4	M4-128517-0160
17	16	92	32	4	M4-128517-0170
18	16	92	32	4	M4-128517-0180
20	20	104	38	4	M4-128517-0200
22	20	104	38	5	M4-128517-0220
24	25	121	45	5	M4-128517-0240
25	25	121	45	5	M4-128517-0250
26	25	121	45	5	M4-128517-0260
28	25	121	45	5	M4-128517-0280
30	25	121	45	5	M4-128517-0300
32	32	133	53	6	M4-128517-0320

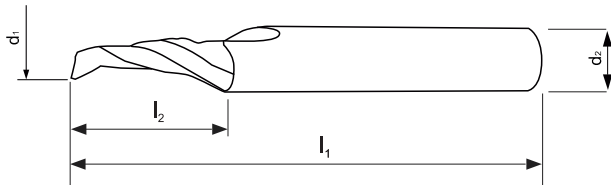
Parametry skrawania str. 102-105

Cutting data page 102-105

Przykład zamawiania / Example of order

M4-128517-0080
Frez DIN-884 8x10x19x69 OPTI HSSCo8,

$\lambda=30^\circ$ HSS Co5



OPTI

DIN-844



Zastosowanie / Application

N 1+4 6+9 5

Wykonanie / Design

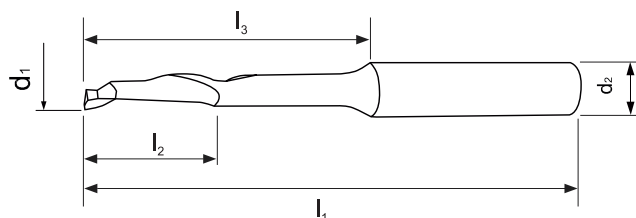


d, js16	d ₂ h6	l ₁	l ₂	Z	INDEX
3	8	60	12	1	M2-100405-0030
4	8	60	12	1	M2-100405-0040
5	8	60	13	1	M2-100405-0050
6	8	60	16	1	M2-100405-0060
7	8	60	16	1	M2-100405-0070
8	8	80	16	1	M2-100405-0080
10	10	80	15	1	M2-100405-0100

Parametry skrawania str. 102-103
Cutting data page 102-103

$\lambda=30^\circ$

HSS
Co5



OPTI

DIN-844



Zastosowanie / Application

N 1+4 6+9 5

Wykonanie / Design

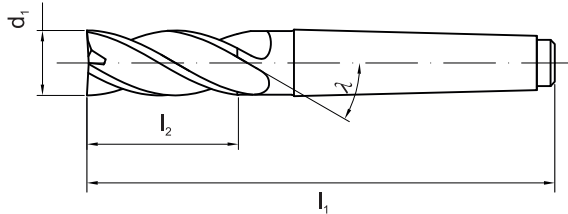


d ₁ js16	d ₂ h6	l ₁	l ₂	Z	INDEX
4	8	80	16	1	M2-101405-0040
5	8	80	16	1	M2-101405-0050
6	8	90	16	1	M2-101405-0060
8	8	100	30	1	M2-101405-0080

Parametry skrawania str. 102-103

Cutting data page 102-103

$\lambda=45^\circ$ HSS Co5



OPTI

DIN-845



z chwytem Morse'a / Morse taper shank

Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

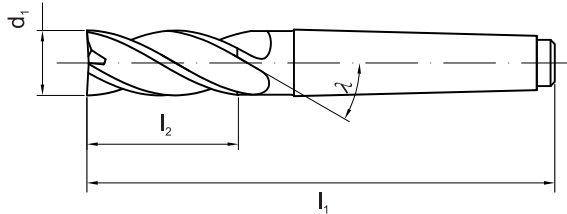
Wykonanie / Design



d, k10	l_1	l_2	MK	Z	INDEX
10	92	22	1	4	M2-420245-0100
12	111	26	2	4	M2-420245-0120
14	111	26	2	4	M2-420245-0140
16	117	32	2	4	M2-420245-0160
18	117	32	2	4	M2-420245-0180
20	123	38	2	4	M2-420245-0200
22	123	38	2	5	M2-420245-0220
25	147	45	3	5	M2-420245-0250
28	147	45	3	5	M2-420245-0280
30	147	45	3	6	M2-420245-0300
32	178	53	4	6	M2-420245-0320
36	178	53	4	6	M2-420245-0360
40	188	63	4	6	M2-420245-0400
45	188	63	4	6	M2-420245-0450
50	233	75	5	6	M2-420245-0500
56	233	75	5	8	M2-420245-0560
63	248	90	5	8	M2-420245-0630

Parametry skrawania str. 102-103
Cutting data page 102-103

$\lambda=45^\circ$ HSS Co5


OPTI

DIN-845



z chwytem Morse'a / Morse taper shank

Zastosowanie / Application

P	1+6	7+14
M	1+3	
K	1+3	5+6 4
N	6+9	
S	6+8	
H	1, 2, 4	

Wykonanie / Design


d, k10	l_1	l_2	MK	Z	INDEX
10	115	45	1	4	M2-421245-0100
12	138	53	2	4	M2-421245-0120
14	138	53	2	4	M2-421245-0140
16	148	63	2	4	M2-421245-0160
18	148	63	2	4	M2-421245-0180
20	160	75	2	4	M2-421245-0200
22	160	75	2	5	M2-421245-0220
24	192	90	3	5	M2-421245-0240
25	184	80	3	5	M2-421245-0250
25	192	90	3	5	M2-421245-0250A
26	192	90	3	5	M2-421245-0260
28	192	90	3	5	M2-421245-0280
30	192	90	3	5	M2-421245-0300
32	229	100	4	6	M2-421245-0320
32	231	106	4	6	M2-421245-0320A
36	231	106	4	6	M2-421245-0360
40	250	125	4	6	M2-421245-0400
45	250	125	4	6	M2-421245-0450
50	268	110	5	6	M2-421245-0500
50	308	150	5	6	M2-421245-0500A
56	308	150	5	8	M2-421245-0560
63	338	180	5	8	M2-421245-0630

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