



### Werkzeugregale 3-stufig, Typ WR3K2 Tool racks 3-staged, type WR3K2



- inkl. Einsätze
- passend für alle Einsätze
- incl. inserts
- suitable for all types of inserts

Kegelgröße / Shank size	Plätze / Tool seats	Art.-Nr. / Order no.
SK 30 / BT 30	24	● WZ-WR3K2-SK30
SK 40 / BT 40	21	● WZ-WR3K2-SK40
SK 50 / BT 50	15	● WZ-WR3K2-SK50
HSK 63	18	● WZ-WR3K2-HSK63

### Werkzeugregale 1-stufig, Typ WRS2 Tool racks 1-staged, type WRS2



- inkl. Einsätze
- modulares System
- passend für alle Einsätze
- incl. inserts
- modular system
- suitable for all types of inserts

Kegelgröße / Shank size	Plätze / Tool seats	Art.-Nr. / Order no.
SK 30 / BT 30	8	● WZ-WRS2-SK30
SK 40 / BT 40	7	● WZ-WRS2-SK40
SK 50 / BT 50	6	● WZ-WRS2-SK50
HSK 63	6	● WZ-WRS2-HSK63

### Werkzeugregaleinsätze Tool rack inserts



Kegelgröße / Shank size	Art.-Nr. / Order no.
SK 30 / BT 30	● WZ-RE2-SK30
SK 40 / BT 40	● WZ-RE2-SK40
SK 50 / BT 50	● WZ-RE2-SK50
HSK 63	● WZ-RE2-HSK63

### Werkzeugwagen Tooling trolleys



### Werkzeugwagen Tooling trolley

- Maße: 1.002 x 650 x 810 mm
- Lieferung erfolgt unmontiert
- inkl. Einsätze
- dimensions: 1.002 x 650 x 81
- delivery unmounted
- incl. inserts

Kegelgröße / Shank size	Plätze / Tool seats	kg	Art.-Nr. / Order no.
SK 30 / BT 30	32	51	● WZ-WW-SK30
SK 40 / BT 40	28	51	● WZ-WW-SK40
SK 50 / BT 50	20	51	● WZ-WW-SK50
HSK 63	24	51	● WZ-WW-HSK63

## Reducing sleeves

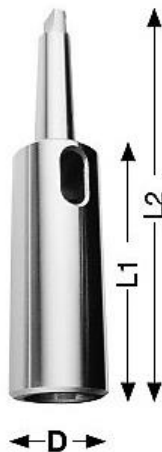
**DIN 2185, completely hardened and ground**



Außenkegel / External taper	Innenkegel / Internal taper	L mm	ca. g	Art.-Nr. / Order no.
1	0	80	30	01-52-1/0
2	1	92	95	01-52-2/1
3	1	99	190	01-52-3/1
3	2	112	250	01-52-3/2
4	1	124	550	01-52-4/1
4	2	124	480	01-52-4/2
4	3	140	360	01-52-4/3
5	1	156	1700	01-52-5/1
5	2	156	1520	01-52-5/2
5	3	156	1360	01-52-5/3
5	4	171	950	01-52-5/4
6	1	218	4400	01-52-6/1
6	2	218	4300	01-52-6/2
6	3	218	4100	01-52-6/3
6	4	218	3600	01-52-6/4
6	5	218	2550	01-52-6/5

## Extension sleeves

**DIN 2187, completely hardened and ground**



Außenkegel / External taper	Innenkegel / Internal taper	D mm	L2 mm	L1 mm	ca. g	Art.-Nr. / Order no.
1	1	20	145	83	190	01-65-1/1
1	2	30	160	98	340	01-65-1/2
2	1	20	160	85	250	01-65-2/1
2	2	30	175	100	400	01-65-2/2
2	3	36	196	121	840	01-65-2/3
2	4	48	220	94	1300	01-65-2/4
3	1	20	175	81	400	01-65-3/1
3	2	30	194	100	550	01-65-3/2
3	3	36	215	112	1000	01-65-3/3
3	4	48	240	146	1500	01-65-3/4
4	1	20	200	82,5	800	01-65-4/1
4	2	30	215	97,5	850	01-65-4/2
4	3	36	240	122,5	1300	01-65-4/3
4	4	48	265	147,5	1900	01-65-4/4
4	5	63	300	182,5	3310	01-65-4/5
5	1	20	232	82,5	1800	01-65-5/1
5	2	30	247	97,5	1900	01-65-5/2
5	3	36	268	118,5	2150	01-65-5/3
5	4	48	300	150,5	2750	01-65-5/4
5	5	63	335	182,5	4200	01-65-5/5
5	6	82	396	247	640	01-65-5/6
6	3	36	330	120	4580	01-65-6/3
6	4	48	355	180	5420	01-65-6/4
6	5	63	390	180	6750	01-65-6/5
6	6	82	451	241	11890	01-65-6/6

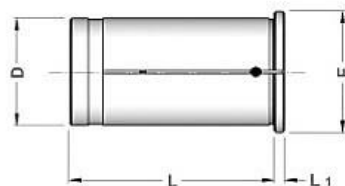
## Drill and reamer extensions

### Completely ground, taper hardened



Außenkegel / External taper	Innenkegel / Internal taper	D mm	L1 mm	L2 mm	ca. g	Art.-Nr. / Order no.
1	1	20	138	200	250	01-75-1/1-200
1	1	20	188	250	375	01-75-1/1-250
1	1	20	238	300	500	01-75-1/1-300
1	1	20	288	350	625	01-75-1/1-350
1	1	20	338	400	750	01-75-1/1-400
1	1	20	388	450	900	01-75-1/1-450
1	1	20	438	500	1000	01-75-1/1-500
2	2	25	125	200	430	01-75-2/2-200
2	2	25	175	250	625	01-75-2/2-250
2	2	25	225	300	820	01-75-2/2-300
2	2	25	275	350	1015	01-75-2/2-350
2	2	25	325	400	1200	01-75-2/2-400
2	2	25	375	450	1400	01-75-2/2-450
2	2	25	425	500	1600	01-75-2/2-500
2	2	25	525	600	1800	01-75-2/2-600
3	3	32	156	250	1000	01-75-3/3-250
3	3	32	206	300	1300	01-75-3/3-300
3	3	32	256	350	1550	01-75-3/3-350
3	3	32	306	400	1850	01-75-3/3-400
3	3	32	356	450	2100	01-75-3/3-450
3	3	32	405	500	2400	01-75-3/3-500
3	3	32	506	600	2700	01-75-3/3-600
4	4	40	182,5	300	1650	01-75-4/4-300
4	4	40	232,5	350	2150	01-75-4/4-350
4	4	40	282,5	400	2650	01-75-4/4-400
4	4	40	332,5	450	3100	01-75-4/4-450
4	4	40	382,5	500	3600	01-75-4/4-500
4	4	40	482,5	600	4200	01-75-4/4-600

## Reducing sleeves for hydraulic expansion mandrels



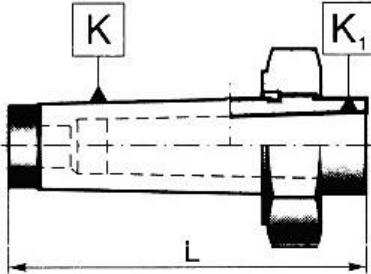
For diameter reduction of hydraulic expansion mandrels.

## Mechanically sealed up to 60 bar

D mm	Bohrungen / Bores Ø mm	E mm	L mm	L1 mm	Art.-Nr. / Order no.
20	3, 4, 5, 6, 8, 10, 12, 14, 16	24	50,5	2	94-52-20/Ø
32	10, 12, 16, 18, 20, 25	36	60,5	3	94-52-32/Ø

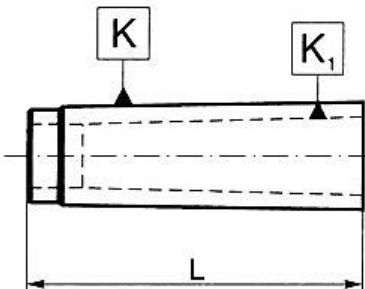
## Spindle sleeves for tools with morse taper

### With draw-off thread and nut



External taper-MT	Internal taper-MT	L mm	Art.-Nr. / Order no.
2*	1	84	01-84-2/1
3*	* with drift slot 1	102	01-84-3/1
4*	1	122	01-84-4/1
3	2	102	01-84-3/2
4	2	122	01-84-4/2
4	3	122	01-84-4/3
5	2	153	01-84-5/2
5	3	153	01-84-5/3
5	4	153	01-84-5/4
6	3	212	01-84-6/3
6	4	212	01-84-6/4
6	5	212	01-84-6/5

## Spindle sleeves for tools with morse taper



External taper-MT	Internal taper-MT	L mm	Art.-Nr. / Order no.
2	1	60	01-83-2/1
3	1	70	01-83-3/1
3	2	70	01-83-3/2
4	2	70	01-83-4/2
4	3	70	01-83-4/3
5	2	77	01-83-5/2
5	3	77	01-83-5/3
5	4	77	01-83-5/4
6	3	110	01-83-6/3
6	4	110	01-83-6/4
6	5	110	01-83-6/5
metrisch / metric 80	5	110	01-83-80/5
metrisch / metric 80	6	110	01-83-80/6
metrisch / metric 100	6	132	01-83-100/6

### Clamping sleeves

According to DIN 6328 for taps



MK / MT	Außen-Ø / External-Ø mm	L mm	Bohrung / Bore mm	Art.-Nr. / Order no.
1	12,2	65,5	2,5/2,8/ 3,5/4,0/4,5/5,0/ 5,5/6,0/7,0/8,0	06-501E-Ø
2	18,0	78,5	4,5/5,5/6,0/7,0/ 8,0/9,0/10,0/ 11,0/12,0/12,5	06-504E-Ø
3	24,0	98,0	8,0/9,0/10,0/ 11,0/12,0/ 12,5/14,0/16,0	06-535E-Ø
4	31,5	123,0	12,0/14,0/ 16,0/18,0/20,0/ 22,0/25,0	06-538E-Ø
5	44,7	156,0	22,0/25,0/28,0/ 30,0/32,0/36,0	06-589E-Ø

According to DIN 6329 for spiral drills

MK / MT	Außen-Ø / External-Ø mm	L mm	Abmessungen / Dimensions	Bohrung / Bore mm	Art.-Nr. / Order no.
1	12,2	65,5	3,0 - 8,0	0,5	06-511E-Ø
2	18,0	78,5	5,0 - 13,0	0,5	06-514E-Ø
3	24,0	98,0	8,0 - 18,0	0,5	06-545E-Ø
4	31,5	123,0	12,0 - 20,0	1,0	06-548E-Ø
5	44,7	156,0	20,0 - 36,0	1,0	06-599E-Ø

For machines with rigid tapping

Tap holders



WELDON

- suitable for standard Weldon chucks according to DIN 1835 B
- no slip between tap holder and drill
- 100% blade cooling if internal coolant supply is selected

Außen-Ø / External-Ø mm	Innen-Ø / Internal-Ø mm	Vierkant / Square mm	L mm	Art.-Nr. / Order no.
8	2,5	2,1	27	81-GEW-8X2,5
8	2,8	2,1	27	81-GEW-8X2,8
10	3,5	2,7	35	81-GEW-10X3,5
10	4,0	3,0	35	81-GEW-10X4,0
10	4,5	3,4	35	81-GEW-10X4,5
12	6,0	4,9	45	81-GEW-12X6,0
14	7,0	5,5	45	81-GEW-14X7,0
14	8,0	6,2	45	81-GEW-14X8,0
16	9,0	7,0	48	81-GEW-16X9,0
16	10,0	8,0	48	81-GEW-16X10,0
18	11,0	9,0	48	81-GEW-18X11,0
20	12,0	9,0	50	81-GEW-20X12,0
25	14,0	11,0	56	81-GEW-25X14,0
25	16,0	12,0	56	81-GEW-25X16,0
32	18,0	14,5	60	81-GEW-32X18,0
32	20,0	16,0	60	81-GEW-32X20,0
32	22,0	18,0	60	81-GEW-32X22,0
40	25,0	20,0	70	81-GEW-40X25,0
40	28,0	22,0	70	81-GEW-40X28,0
50	32,0	24,0	80	81-GEW-50X32,0
50	36,0	29,0	80	81-GEW-50X36,0
50	40,0	32,0	80	81-GEW-50X40,0

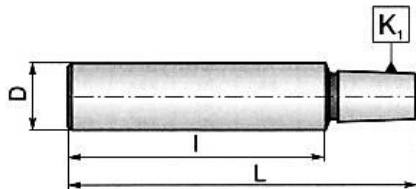
## DIN 238, taper arbors with morse taper shanks



MK / MT	Kegel / Taper	L mm	ca. g	Art.-Nr. / Order no.
1	B 10	86	55	41-1/B10
1	B 12	90	60	41-1/B12
1	B 16	97	90	41-1/B16
1	B 18	105	110	41-1/B18
1	B 18 VK	97	95	41-1/B18VK
2	B 10	101	130	41-2/B10
2	B 12	105	135	41-2/B12
2	B 16	112	160	41-2/B16
2	B 18	120	180	41-2/B18
2	B 18 VK	108,5	165	41-2/B18VK
2	B 22	128	245	41-2/B22
3	B 12	124	280	41-3/B12
3	B 16	131	310	41-3/B16
3	B 18	139	320	41-3/B18
3	B 18 VK	132	320	41-3/B18VK
3	B 22	147	390	41-3/B22
3	B 24	157	440	41-3/B24
4	B 16	156	625	41-4/B16
4	B 18	164	660	41-4/B18
4	B 18 VK	159	640	41-4/B18VK
4	B 22	172	715	41-4/B22
4	B 24	182	770	41-4/B24
5	B 16	188	1600	41-5/B16
5	B 18	196	1600	41-5/B18
5	B 22	204	1650	41-5/B22
5	B 24	214	1700	41-5/B24

Completely hardened and ground

VK = shortened drill chuck taper



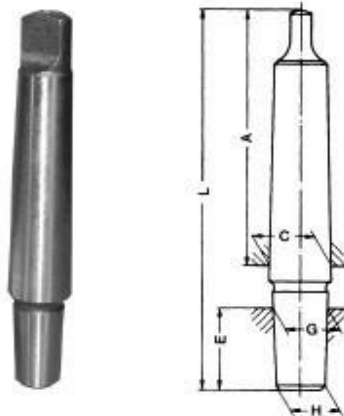
Completely hardened and ground

## Taper arbors with cylinder shanks

D mm	l mm	Kegel / Taper	L mm	Art.-Nr. / Order no.
8	35	B 10	55	13-5348-8-35-B10
10	50	B 10	70	13-5348-10-50-B10
10	50	B 12	75	13-5348-10-50-B12
10	50	B 16	82	13-5348-10-50-B16
12	50	B 16	82	13-5348-12-50-B16
12	60	B 16	92	13-5348-12-60-B16
16	50	B 16	81	13-5348-16-50-B16
16	70	B 16	101	13-5348-16-70-B16
16	70	B 18	110	13-5348-16-70-B18
20	60	B 12	87	13-5348-20-60-B12
20	60	B16	93	13-5348-20-60-B16
20	60	B 18	100	13-5348-20-60-B18
25	75	B 16	107	13-5348-25-75-B16
30	70	B 16	106	13-5348-30-70-B16
30	70	B 18	112	13-5348-30-70-B18

## Taper arbors with Jacobs taper

### Typ 236 Type 236

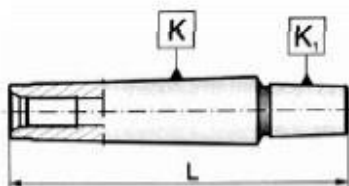


Ganz gehärtet und geschliffen  
Completely hardened and ground

MK/ MT	Kegel/ Taper	L mm	A mm	C mm	E mm	G mm	H mm		Art.-Nr. / Order no.
1	J1	86,5	62	12,065	16,7	9,754	8,5	○	41-1/J1
1	J2	92	62	12,065	22,2	14,199	12,4	○	41-1/J2
1	J3	101	62	12,065	31	20,599	19	○	41-1/J3
1	J6	95	62	12,065	25,4	17,170	15,9	○	41-1/J6
2	J1	101	75	17,788	16,7	9,754	8,5	○	41-2/J1
2	J2	106,5	75	17,788	22,2	14,199	12,4	○	41-2/J2
2	J3	115,5	75	17,788	31	20,599	19	○	41-2/J3
2	J6	109,5	75	17,788	25,4	17,170	15,9	○	41-2/J6
3	J2	126	94	23,825	22,2	14,199	12,4	○	41-3/J2
3	J3	135	94	23,825	31	20,599	19	○	41-3/J3
3	J33	129	94	23,825	25,4	17,170	15,9	○	41-3/J33
3	J4	144	94	23,825	-	-	28,55	○	41-3/J4
3	J6	129	94	23,825	25,4	15,850	14,2	○	41-3/J6
4	J3	161	117,5	31,267	31	20,599	19	○	41-4/J3
4	J6	155	117,5	31,267	25,4	17,170	15,9	○	41-4/J6

## Kegeldome mit Morsekegel und Anzugsgewinde Taper arbors with morse taper and internal thread

### DIN 228 A DIN 228 A



MK/ MT	L mm	Gewinde / Thread	Kegel / Taper		Art.-Nr. / Order no.
2	95	M 10	B 12	●	41-2/B12-M10
2	101	M 10	B 16	●	41-2/B16-M10
3	121	M 12	B 16	●	41-3/B16-M12
4	143	M 16	B 16	●	41-4/B16-M16

## Kegeldorne mit Gewinde Taper arbors with thread



MK/ MT	Gewinde / Thread	Länge / Length mm	Gewicht / Weight kg		Art.-Nr. / Order no.
2	3/8-24	101	0,2	●	41-3/8-24
2	1/2-20	104	0,2	●	41-1/2-20
2	5/8-16	106	0,2	●	41-5/8-16
3	M20	122	0,4	●	41-3/M20

## Ejectors



Größe / Size	L mm	Art.-Nr. / Order no.
MK 0	90	<input checked="" type="checkbox"/> 01-2000
MK 1+2	140	<input checked="" type="checkbox"/> 01-2002
MK 3	190	<input checked="" type="checkbox"/> 01-2003
MK 4	225	<input checked="" type="checkbox"/> 01-2004
MK 5+6	265	<input checked="" type="checkbox"/> 01-2005

## Half automatic ejectors



- *single-hand operation*
- *no risk of damage to the spindle when removing the tools*

Größe / Size	Länge / Length mm	Art.-Nr. / Order no.
MK 1+2+3	317	<input checked="" type="checkbox"/> 01-8003
MK 4+5+6	380	<input checked="" type="checkbox"/> 01-8006