

**D SONDER-Grindtec**  
**유압척**



**TOOL GRINDING**   **공구 연삭기용**

with automatic pressure build-up for tool grinders with direct feed



### Precision Tool grinding

Hydr. expansion chuck for tool grinding Machine

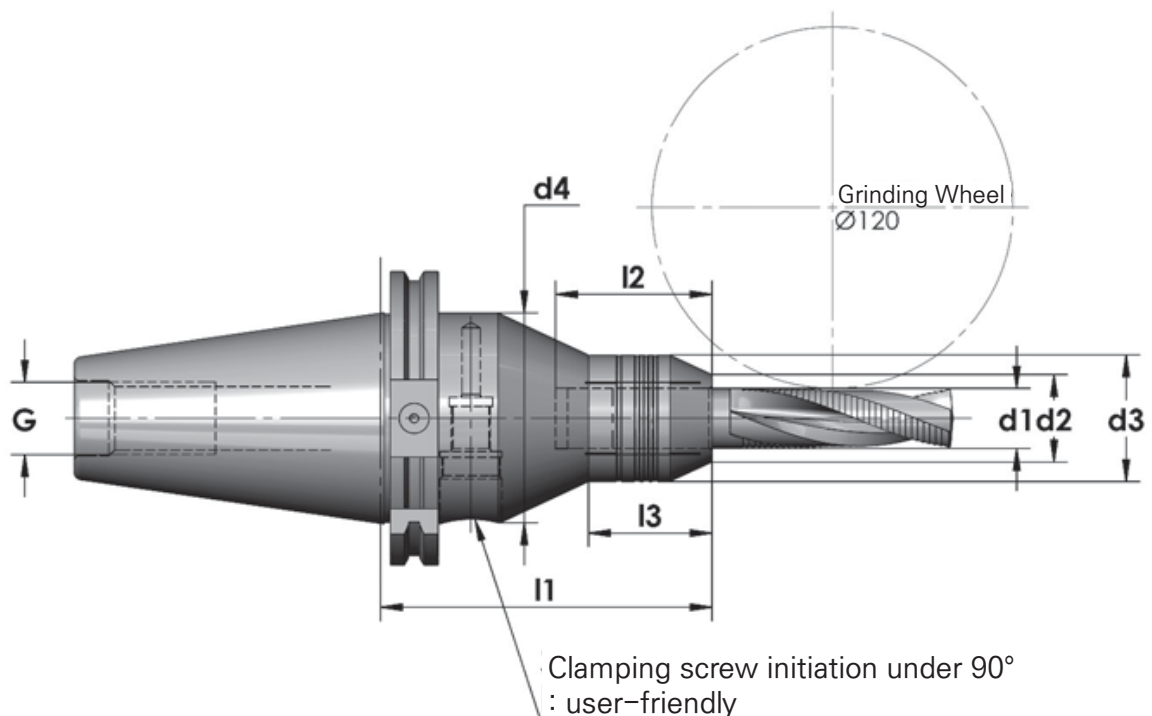
- ISO 50, MT & Flange Mounting

Grinding wheel Arbors

Automatic pressure build-up for tool grinders with direct feed

Working pressure	P = 70 bar
Torque	Mt = 150 Nm
Clamping diameter	∅ = 20 mm

### 적용 방법 Application examples



**공구 연삭기 - 런아웃 제로 유압척**  
 Radially Adjustable Zero Hydraulic Chucks

ISO 40 / 50

Manual Clamp



4

**일반 공구 연삭기 - 유압척**  
 Hydraulic Chucks - Tool grinding M/C

ISO 40 / 50

Manual Clamp



4~5

MT 3 / 4 / 5

Manual Clamp



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**공구 연삭기 메이커 - 유압척**  
 MTB-Hydraulic Chucks/ Tools

ANCA



Automatic Clamping

EWAG



Manual Clamping

7

HAWEMA



Automatic Clamping

ISOG



Automatic Clamping

8

SAACKE



Automatic Clamping

SCHÜTTE



Automatic Clamping

9~10

SCHNEEBERGER



Manual Clamping

ULMER  
 + REINECKER



Automatic Clamping

10~11

WALTER



Automatic Clamping

WHEEL & Tool Setting

12

**유압척 슬리브** HYD Chucks Reducer

13

**밀링 커터 유압 아버** Hydraulic Mandrel Arbors

Hydraulic Mandrel Arbors - HSK 63A HSK63C

14~15

Hydraulic Mandrel Arbors - ISO 50 / Cylindrical

16~17

**공구 연삭기 그라인딩 휠 아버** Grinding wheel Arbors

ANCA



18

HAWEMA



ISOG



19

Rollomatic



SCHNEEBERGER



20

ULMER + REINECKER



21

WALTER



22

HSK -E

23~24

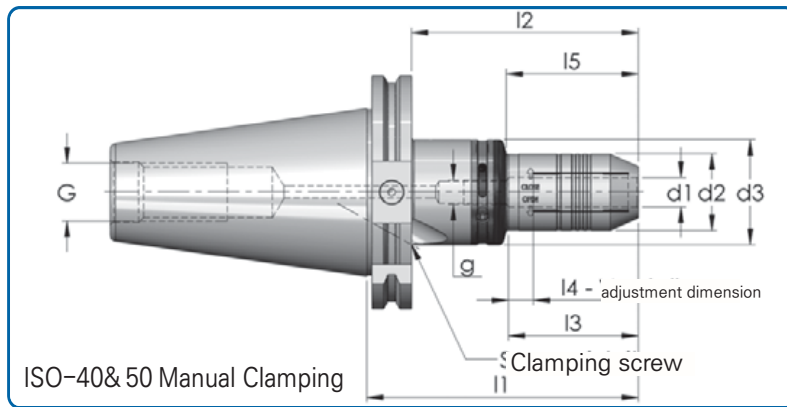
**공구 연삭기 어댑터 HSK Tools**

Intermediate Sleeve MT - HSK

25

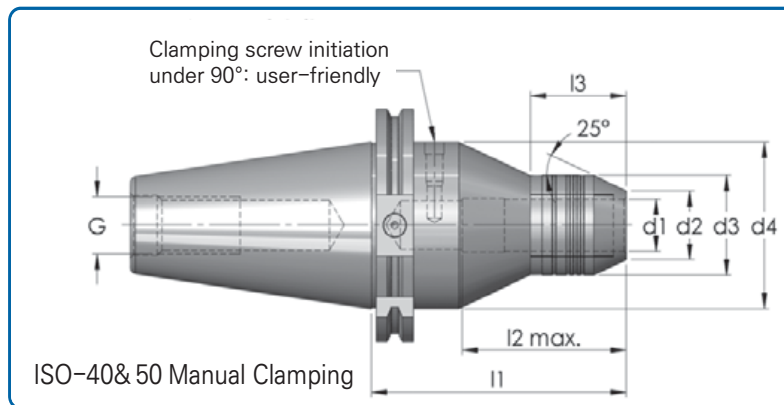
Intermediate Sleeve ISO 40&50 - HSK

26

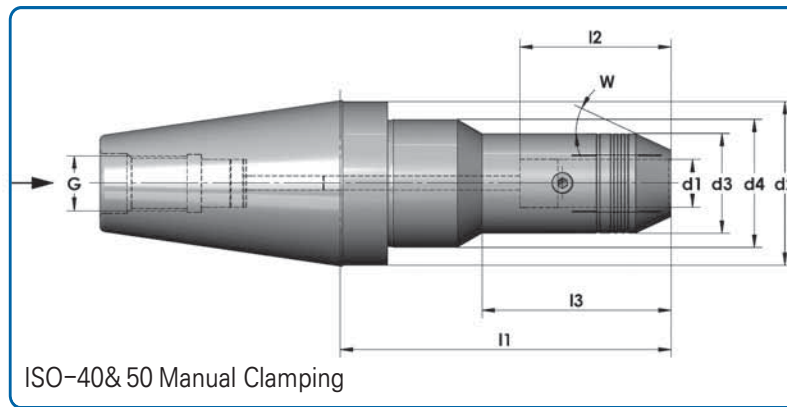


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SK40-ZHC20-115	20	42	86.2	115	95.9	52	10	47	M12x1	M16
SK40-ZHC25-120	25	42	68.2	120	100.9	58	10	35	M12x1	
SK40-ZHC32-135	32	54	85.2	135	115.9	64	10	42	M16x1	
SK50-ZHC12-110	12	32	43.7	110	90.9	47	10	59	M10x1	M24
SK50-ZHC20-110	20	42	68.2	110	90.9	52	10	47	M12x1	
SK50-ZHC25-110	25	42	68.2	110	90.9	58	10	46	M12x1	
SK50-ZHC32-110	32	54	85.2	110	90.9	64	10	42	M16x1	

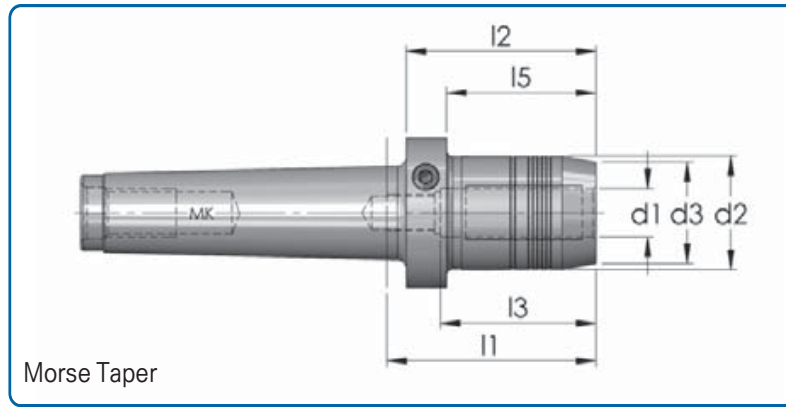
## Tool Grinding M/C – Hydraulic Chucks–90



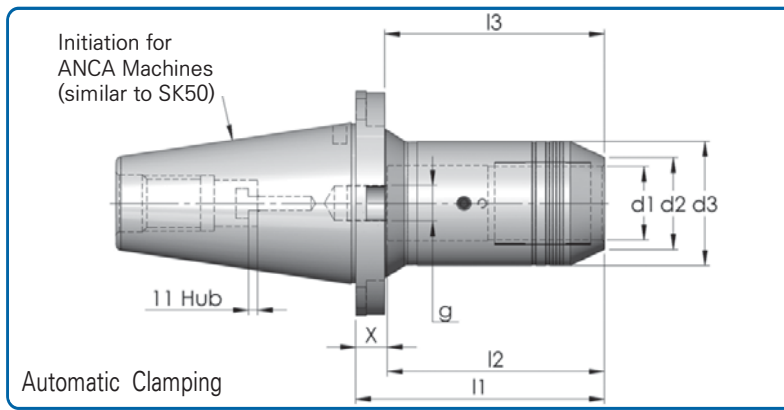
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SK50-SHC20-110	20	29	42	110	165	41	M24
SK50-SHC22-110	22	31	44	110	165	42	M24
SK50-SHC25-110	25	34	46	110	160	42	M24
SK50-SHC32-110	32	42	54	110	160	46	M24



Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	l <sub>1</sub>	l <sub>2</sub> max.	l <sub>2</sub> min.	l <sub>3</sub>	W	g	G	
SK40-GHC20-110*	20	28	42	50	110	100	30	41	30°	M10x1	M16	
SK40-GHC25-110	25	35	50	60	110	80	30	40		M10x1		
SK40-GHC32-110	32	41	54	60	100	80	40	56		M16x1		
SK50-GHC06-095	6	15	36	60	110	43	29	55	30°	M5	M24	
SK50-GHC08-095	8	17	38	60	110	43	29	55		M6		
SK50-GHC10-095	10	19	40	60	110	43	29	55		M8x1		
SK50-GHC12-095	12	21.5	36.5	60	110	50	34	55		M10x1		
SK50-GHC14-095	14	23.5	44	60	110	50	31	60		M10x1		
SK50-GHC16-095	16	25.5	46.5	60	110	53	33	60		M12x1		
SK50-GHC18-095	18	27.5	48.5	60	110	53	33	60		M12x1		
SK50-GHC20-095	20	29	42	70	110	95	30	41		M16x1		
SK50-GHC22-095	22	30	44	70	110	95	32	43		M16x1		
SK50-GHC32-095	32	41	54	70	110	85	45	56		M16x1		
SK50-GHC06-140	6	15	36	60	110	43	29	55	30°	M5	M24	
SK50-GHC08-140	8	17	38	60	110	43	29	55		M6		
SK50-GHC10-140	10	19	40	60	110	43	29	55		M8x1		
SK50-GHC12-140	12	21.5	36.5	60	110	50	34	55		M10x1		
SK50-GHC14-140	14	23.5	44	60	110	50	31	60		M10x1		
SK50-GHC16-140	16	25.5	46.5	60	110	53	33	60		M12x1		
SK50-GHC18-140	18	27.5	48.5	60	110	53	33	60		M12x1		
SK50-GHC20-140	20	29	42	70	110	95	30	41		M16x1		
SK50-GHC22-140	22	30	44	70	110	95	32	43		M16x1		
SK50-GHC32-140	32	41	54	70	110	85	45	56		M16x1		
SK50-GHC40-140	40	52	70	70	130	115	73	110.9		M16x1		
SK50-GHC50-140	50	62	78	78	130	82	82	110.9		M16x1		

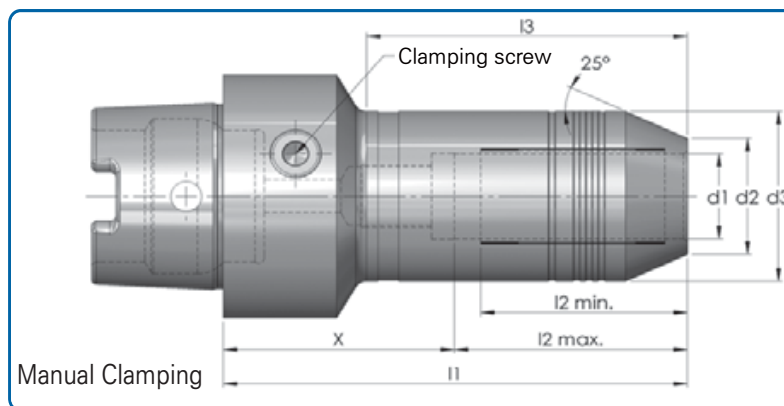


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MT3-GHC10-063	10	30	27	50	63	44	24	24	24	10°
MT4-GHC20-065	20	42	29	55	65	50	52	95	35	25°
MT4-GHC32-099	32	60	56	60	99	85.5	64.5	64.5	-	10°
MT4-GHC42-113	42	-	76	80	112.5	106	72	85	-	10°
MT5-GHC10-100	20	42	38	75	100	80.5	52	150	58	10°
MT5-GHC22-060	22	31	-	65	60	30.5	52	135	-	45°
MT5-GHC22-120	32	44	32	78	120	100.5	52	165	80	20°
MT5-GHC25-100	25	50	46	75	100	80.5	58	150	51	10°
MT5-GHC32-088	32	60	56	75	87.5	81	64.5	64.5	60	10°
MT5-GHC40-100	40	70	66	75	100	80.5	72	72	65	10°
MT5-GHC50-120	50	78	74	78	120	100.5	82	82	100.5	10°

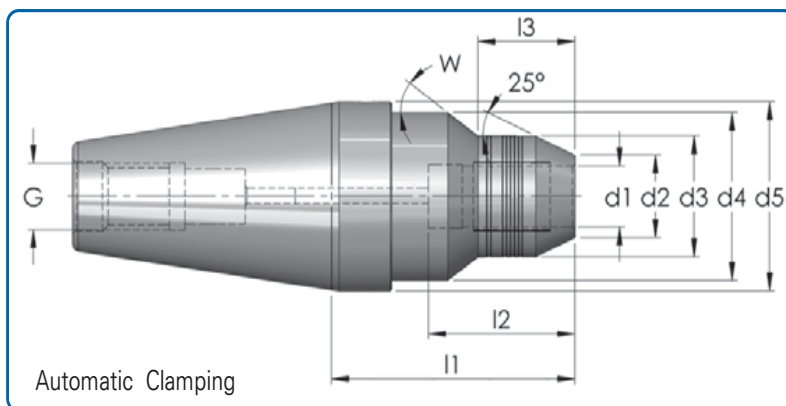


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	X	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	l <sub>5</sub>	g
SK50-AHC12-112	12	21.5	36.5	42	65	62	112	50	96.2	77	37,5	M 8 x 1
SK50-AHC20-082	20	28	42	60.5	101.6	16	82	66	60.8	41	-	M16 x 1
SK50-AHC20-112	20	28	42	-	65	17	112	95	96.2	77	-	M16 x 1
SK50-AHC22-112	22	30	44	-	65	17	112	95	96.2	78	-	M16 x 1
SK50-AHC32-112	32	40	54	-	65	17	112	95	96.2	87	-	M16 x 1

## EWAG Tool Grinding M/C – Hydraulic Chucks

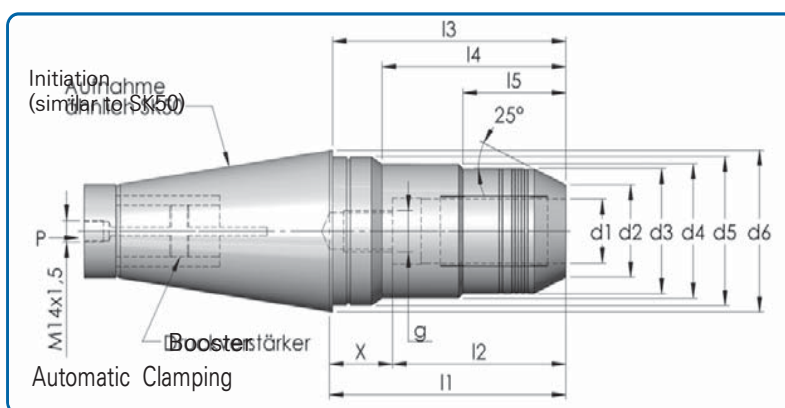


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	X	l <sub>1</sub>	l <sub>2</sub> max.	l <sub>2</sub> min.	l <sub>3</sub>
HSK63C-GHC06-113	6	15	30.5	69.5	112.5	43	25	78
HSK63C-GHC08-113	8	17	32.5	69.5	112.5	43	25	79
HSK63C-GHC10-113	10	19	34.5	62.5	112.5	50	28.5	79
HSK63C-GHC12-113	12	21.5	36.5	62.5	112.5	50	28.5	79
HSK63C-GHC14-113	14	23.5	38.5	60.5	112.5	52	28.5	80
HSK63C-GHC16-113	16	25.5	40.5	58.5	112.5	54	30	81
HSK63C-GHC18-113	18	27.5	42	58.5	112.5	54	30	82
HSK63C-GHC20-113	20	28	42	56.5	112.5	56	30	82
HSK63C-GHC22-113	22	30	44	56.5	112.5	56	32	83
HSK63C-GHC32-113	32	40	54	51	112.5	61.5	45	85



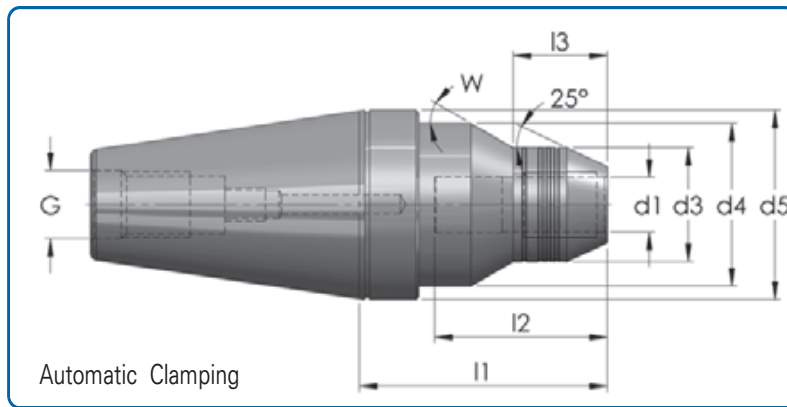
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SK50-HHC06-069	6	23	26	54	69	140	37	72	30°	M24
SK50-HHC08-069	8	25	28	54	69	140	37	72	30°	M24
SK50-HHC10-069	10	27	30	54	69	140	42	72	30°	M24
SK50-HHC12-069	12	29	32	54	69	140	47	72	30°	M24
SK50-HHC12-090	12	21.5	32	32	90	50	28.5	22	30°	M24
SK50-HHC14-069	14	23.5	34	54	69	140	47	72	30°	M24
SK50-HHC20-069	20	28	42	54	69	140	52	80	30°	M24
SK50-HHC20-090	20	28	42	42	90	64	30	30	30°	M24
SK50-HHC22-069	22	32	42	54	69	140	59.5	80	30°	M24
SK50-HHC22-090	22	32	42	--	69	110	59.5	90	--	M24
SK50-HHC32-069	22	30	44	44	90	64	32	30	30°	M24
SK50-HHC32-069	32	40	54	54	69	140	62	120	--	M24
SK50-HHC32-090	32	40	54	54	90	64	45	70	30°	M24

## ISOG M/C – Hydraulic chucks



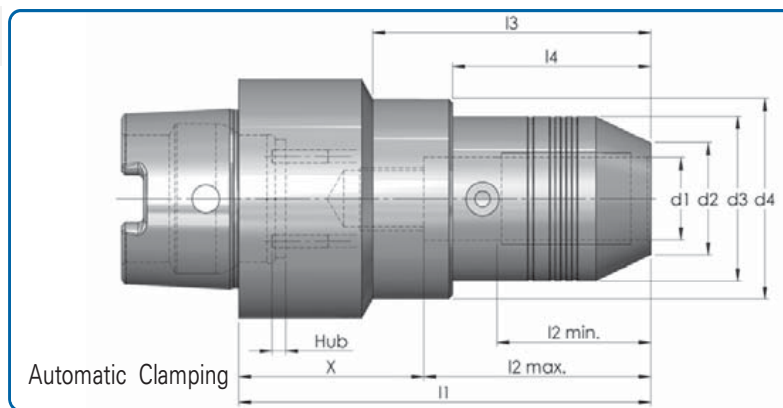
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SK50-IHC12-080	12	21.5	36.5	42	65	70	26	80	54	78	53	37.5	M 8 x 1
SK50-IHC20-080	20	28	42	-	65	70	26	80	54	78	55.5	-	M16 x 1
SK50-IHC22-080	22	30	44	-	65	70	26	80	54	78	56.5	-	M16 x 1
SK50-IHC32-090	32	40	54	-	65	70	26	90	64	78	61.5	-	M16 x 1
SK50-IHC32-140	32	50	54	-	65	70	77.5	140	62	138	120	-	-



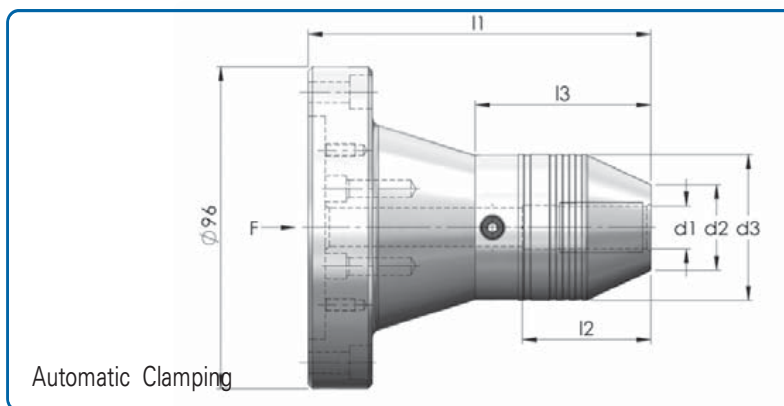


Code No.	d <sub>1</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	W	G
SK50-SAHC06-140	6	26	54	69	140	37	72	30°	M24
SK50-SAHC08-140	8	28	54	69	140	37	72	30°	M24
SK50-SAHC10-140	10	30	54	69	140	42	72	30°	M24
SK50-SAHC12-140	12	32	54	69	140	47	72	30°	M24
SK50-SAHC14-140	14	34	54	69	140	47	72	30°	M24
SK50-SAHC20-140	20	42	54	69	140	52	80	30°	M24
SK50-SAHC22-090	22	42	--	69	110	59.5	90	--	M24
SK50-SAHC22-140	22	42	54	69	140	59.5	80	30°	M24
SK50-SAHC32-140	32	54	54	69	140	62	120	--	M24

## SAACKE M/C – Hydraulic chucks

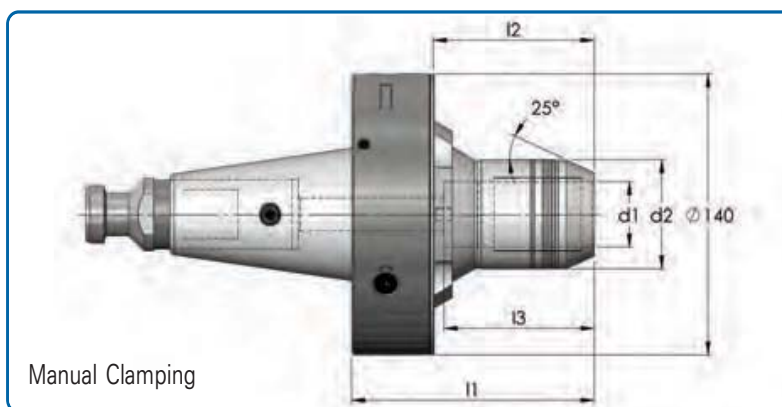


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	X	l <sub>1</sub>	l <sub>2</sub> max.	l <sub>2</sub> min.	l <sub>3</sub>	l <sub>4</sub>
HSK63C-SAHC06-113	6	15	30.5	38	69.5	112.5	43	25	45.5	35.5
HSK63C-SAHC08-113	8	17	32.5	38	69.5	112.5	43	25	45.5	35.5
HSK63C-SAHC10-113	10	19	34.5	42	62.5	112.5	50	28.5	37.5	37.5
HSK63C-SAHC12-113	12	21.5	36.5	42	62.5	112.5	50	28.5	37.5	37.5
HSK63C-SAHC14-113	14	23.5	38.5	-	60.5	112.5	52	28.5	40	-
HSK63C-SAHC16-113	16	25.5	40.5	-	58.5	112.5	54	30	45	-
HSK63C-SAHC18-113	18	27.5	42	-	58.5	112.5	54	30	50	-
HSK63C-SAHC20-113	20	28	42	-	56.5	112.5	56	30	57	-
HSK63C-SAHC22-113	22	30	44	-	56.5	112.5	56	32	57	-
HSK63C-SAHC32-113	32	40	54	-	51	112.5	61,5	45	57.5	-

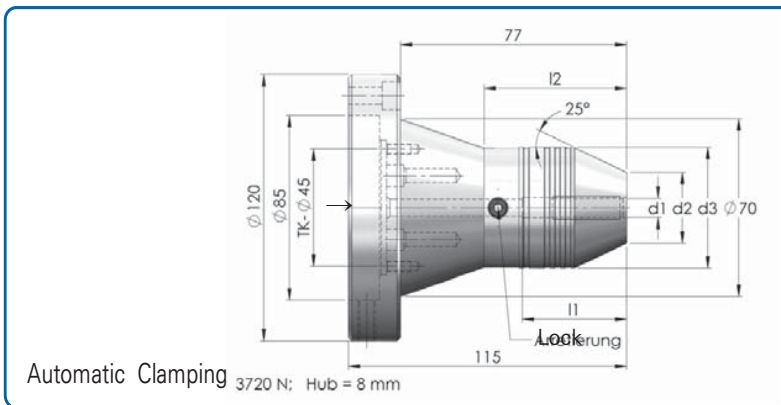


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>1</sub>	l <sub>1</sub>
FLSC96-GHC12-090	∅ 12	21.5	36.5	90	70	45
FLSC96-GHC20-090	∅ 20	28	42	90	70	45
FLSC96-GHC22-090	∅ 22	30	44	90	70	45
FLSC96-GHC25-090	∅ 25	30	44	90	70	45
FLSC96-GHC32-090	∅ 32	40	54	90	70	58

## SCHNEEBERGER M/C – Hydraulic chucks



Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
SK50-GNHC20-110	20	42	110	80	60
SK50-GNHC20-110	32	54	110	80	75

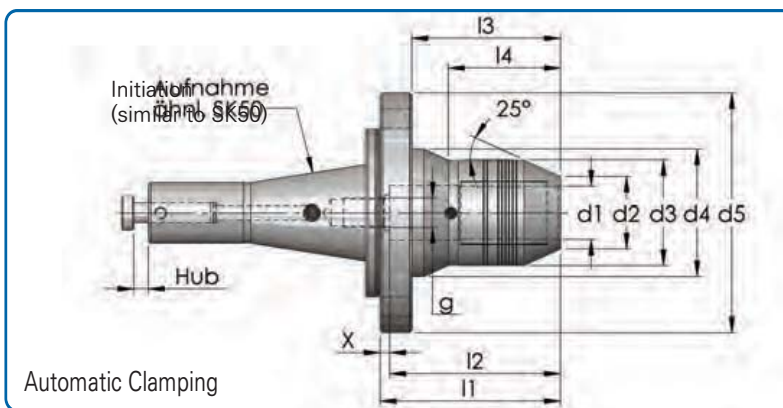


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>
URFL120-GHC06-049	6	16.5	43.5	37	49
URFL120-GHC08-049	8	18.5	43.5	37	49
URFL120-GHC10-049	10	20.5	43.5	42	49
URFL120-GHC12-042	12	23	43.5	42	
URFL120-GHC14-047	14	25	43.5	47	
URFL120-GHC16-052	16	27.5	43.5	52	
URFL120-GHC16-051	16	40	54.0	51	
URFL120-GHC20-052	20	32	43.5	52	
URFL120-GHC25-058	25	37	43.5	58	
URFL120-GHC32-062	32	62	55.5	62	

## ULMER + REINECKER M/C – Hydraulic Chucks / flange + lock

with additional radial locking for reducers

Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	l <sub>2</sub>
URFL120-GHC12-42S	12	29	42	40	52.8
URFL120-GHC12-37S	20	22.5	36.5	40	48
URFL120-GHC12-54S	32	41	54	51	59.5

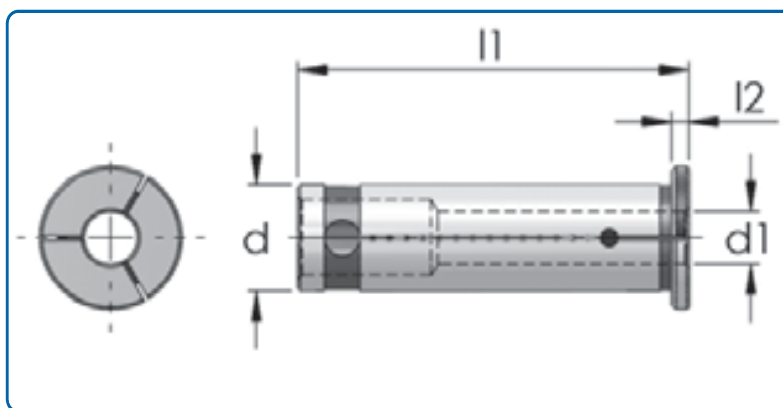


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	X	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	l <sub>4</sub>	g	
SK50-GWHC12-059	12	21.5	36.5	45	100	9	59	50	46	33	M 8 x 1	
SK50-GWHC20-067	20	28	42	50	100	7	67	60	54	41	M12 x 1	
SK50-GWHC22-074	22	30	44	53	100	7	74	67	61	43	M12 x 1	
SK50-GWHC32-079	32	40	54	57	100	7	79	72	66	56	M12 x 1	
SK50-GWHC06-110	6	15	36.5	45	100	67	110	43	97	84	M 5	
SK50-GWHC08-110	8	17	36.5	45	100	67	110	43	97	84	M 6	
SK50-GWHC10-110	10	19	36.5	45	100	67	110	43	97	84	M 8 x 1	
SK50-GWHC12-110	12	21.5	36.5	45	100	60	110	50	97	84	M 8 x 1	
SK50-GWHC20-110	20	28	42	50	100	50	110	60	97	84	M12 x 1	

## Tool Grinding M/C – Wheel & Tool Setting

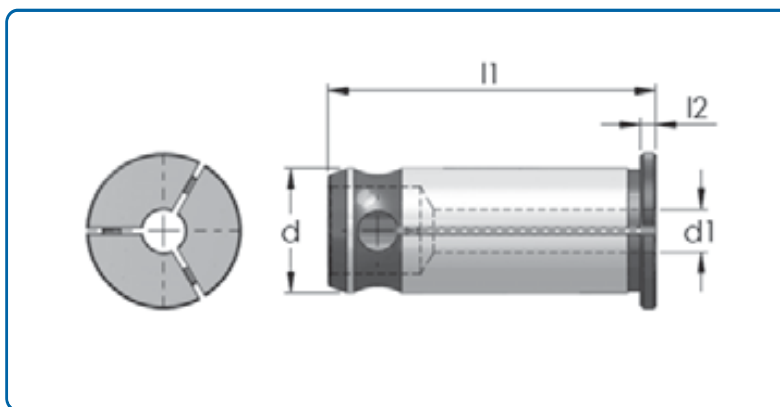
### alfa-set 23/44



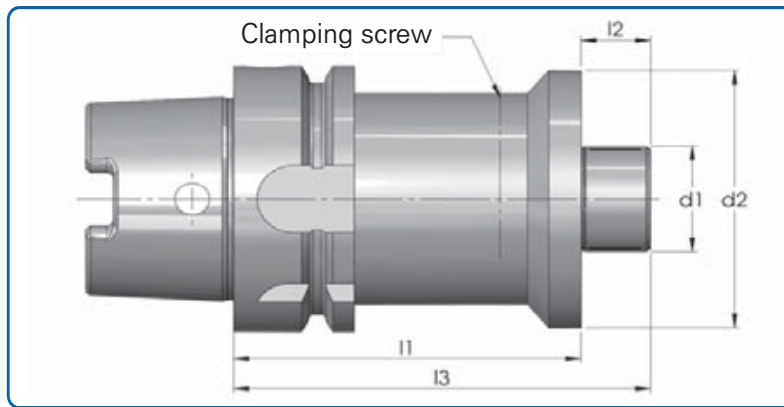


Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
GRC12-03M	12	3	44	2	GRC20-03M	20	3	50	2,5	GRC25-05M	25	5	57	2,5	GRC32-06M	32	6	63	2,5
GRC12-04M		4			GRC20-04M		4			GRC25-06M		6			GRC32-08M		8		
GRC12-05M		5			GRC20-05M		5			GRC25-08M		8			GRC32-10M		10		
GRC12-06M		6			GRC20-06M		6			GRC25-10M		10			GRC32-12M		12		
GRC12-08M		8			GRC20-08M		8			GRC25-12M		12			GRC32-14M		14		
					GRC20-10M		10			GRC25-14M		14			GRC32-16M		16		
					GRC20-12M		12			GRC25-16M		16			GRC32-18M		18		
					GRC20-14M		14			GRC25-18M		18			GRC32-20M		20		
					GRC20-16M		16			GRC25-20M		20			GRC32-25M		25		

## Hyd Chucks Reducer



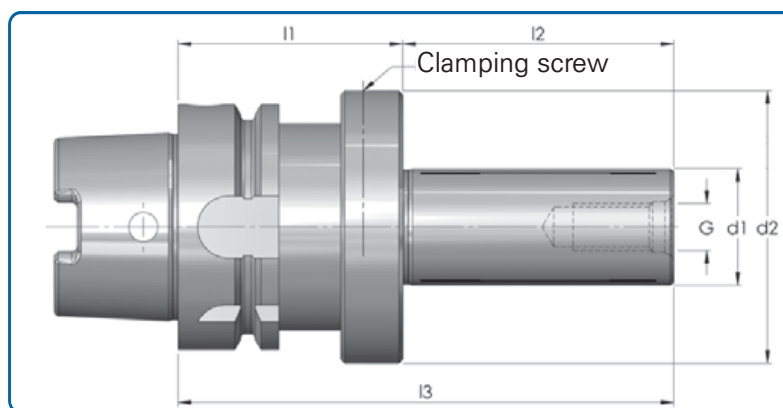
Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	Code No.	d	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
GRK12-02M	12	2	40	2	GRK20-15M	20	15	53	2,5	GRK32-09M	32	9	64,5	3
GRK12-03M		3			GRK20-16M		16			GRK32-10M		10		
GRK12-04M		4			GRK20-17M		17			GRK32-11M		11		
GRK12-05M		5			GRK20-18M		18			GRK32-12M		12		
GRK12-06M		6			GRK22-03M	22	3	53	2,5	GRK32-13M		13		
GRK12-07M		7			GRK22-04M		4			GRK32-14M		14		
GRK12-08M		8			GRK22-05M		5			GRK32-15M		15		
GRK12-09M		9			GRK22-06M		6			GRK32-16M		16		
GRK20-02M	20	2	53	2,5	GRK22-08M		8			GRK32-17M		17		
GRK20-03M		3			GRK22-10M		10			GRK32-18M		18		
GRK20-04M		4			GRK22-12M		12			GRK32-19M		19		
GRK20-05M		5			GRK22-14M		14			GRK32-20M		20		
GRK20-06M		6			GRK22-16M		16			GRK32-22M		22		
GRK20-07M		7			GRK22-18M		18			GRK32-25M		25		
GRK20-08M		8			GRK32-03M	32	3	64,5	3					
GRK20-09M		9			GRK32-04M		4							
GRK20-10M		10			GRK32-05M		5							
GRK20-11M		11			GRK32-06M		6							
GRK20-12M		12			GRK32-07M		7							
GRK20-13M		13			GRK32-08M		8							
GRK20-14M		14												



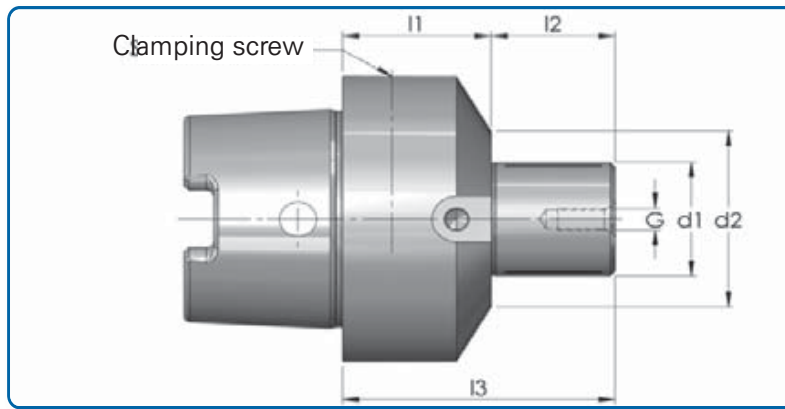
to the centric  $\mu$ -exact voltage

Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	
HSK63A-GFHC22-050	22	48	50	19	4003 08300
HSK63A-GFHC22-110	22	48	110	19	4003 09700
HSK63A-GFHC27-075	27	53	75	20	4003 00900
HSK63A-GFHC32-100	32	60	100	20	4003 03700

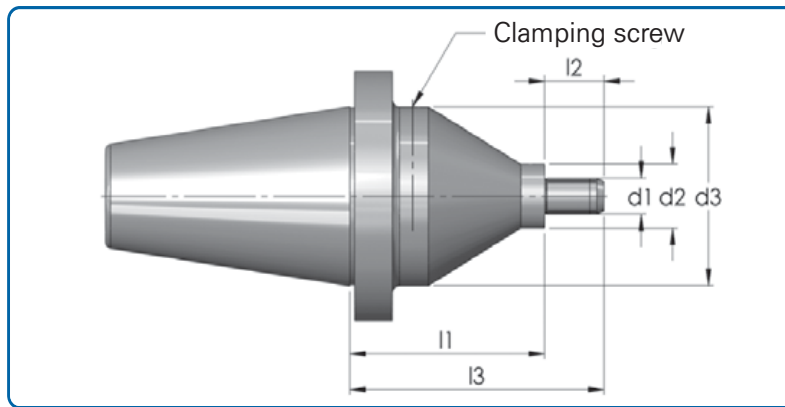
## Hydraulic Mandrel Arbors – HSK – Side Cutter



Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	G <sub>1</sub>	
HSK63A-GFHC30-138	30	80	58	80	138	M12	4003 16500
HSK63A-GFHC35-138	35	80	58	80	138	M12	4003 16600
HSK63A-GFHC40-148	40	80	58	90	148	M12	4003 16700
HSK63A-GFHC40-198	40	80	58	140	198	M12	4003 17000
HSK63A-GFHC60-118	60	100	58	60	118	M12	4003 16800
HSK63A-GFHC80-118	80	150	58	60	118	M12	4003 16900

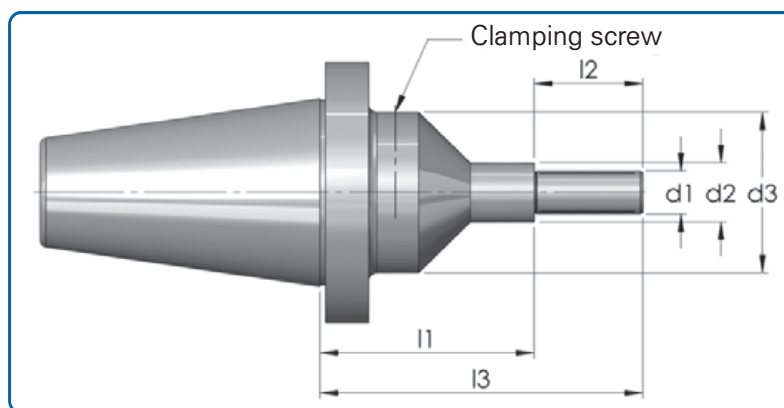


Code No.	d <sub>1</sub>	d <sub>2</sub>	G	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	
HSK-63C-FHC22-62	22	44	-	30	32	62	4003 00100
HSK-63C-FHC22-63	22	46	M8-LH	31	31,5	62,5	4003 08900



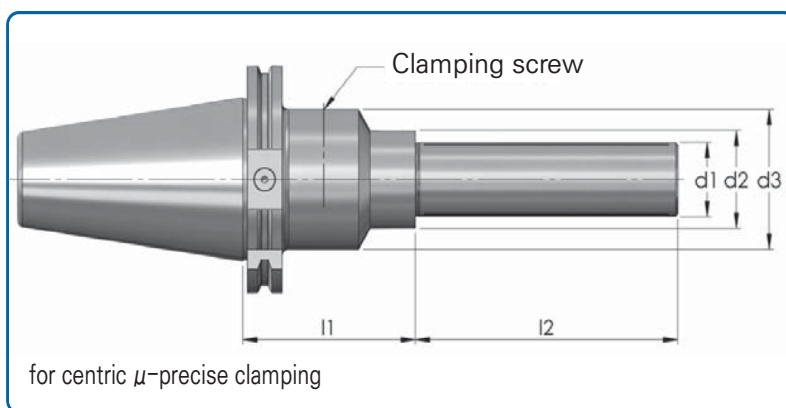
Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
SK50-GFHC12-083	12	23	70	83.25	25	108.25
SK50-GFHC14-083	14	25	70	83.25	25	108.25
SK50-GFHC19-083	19	30	70	83.25	25	108.25
SK50-GFHC3175-083	31.75	43	70	83.25	25	108.25
SK50-GFHC4445-083	44.45	55	70	83.25	25	108.25

## Hydraulic Mandrel Arbors-SK50 Long Type



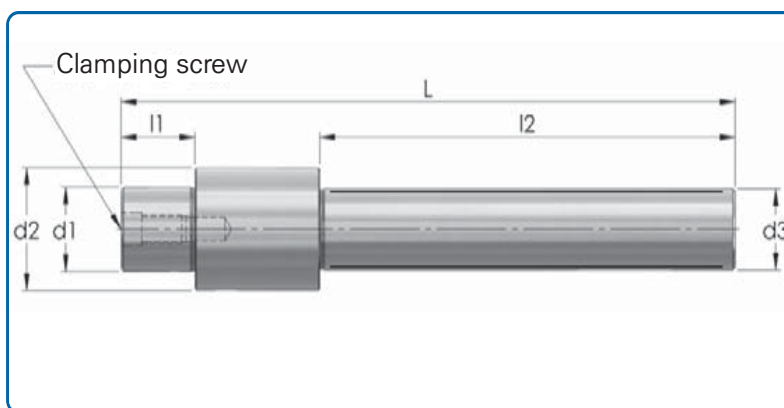
Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>
SK50-GFHC13-120	8	16	60	80	32	112
SK50-GFHC13-120	13	19	60	80	40	120
SK50-GFHC16-140	16	26	60	80	60	140
SK50-GFHC22-170	22	32	60	80	90	170
SK50-GFHC27-190	27	37	60	80	110	190
SK50-GFHC32-210	32	42	60	80	130	210
SK50-GFHC40-210	40	50	60	80	130	210



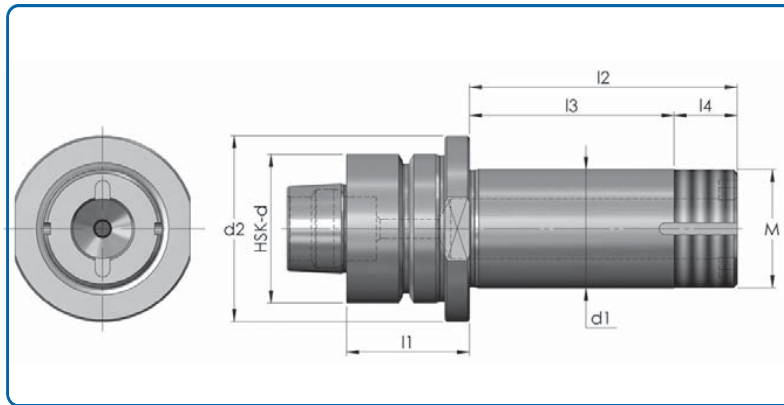


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>
SK50-GFHC22-150	22	32	60	80	150
SK50-GFHC27-200	27	37	60	80	200
SK50-GFHC32-200	32	42	60	80	200
SK50-GFHC40-220	40	50	60	80	220
SK50-GFHC50-250	50	60	60	80	250

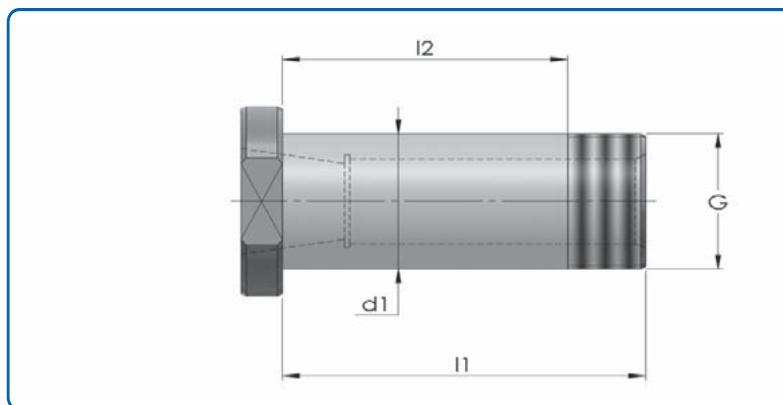
## Hydraulic Mandrel Arbors – Cylindrical



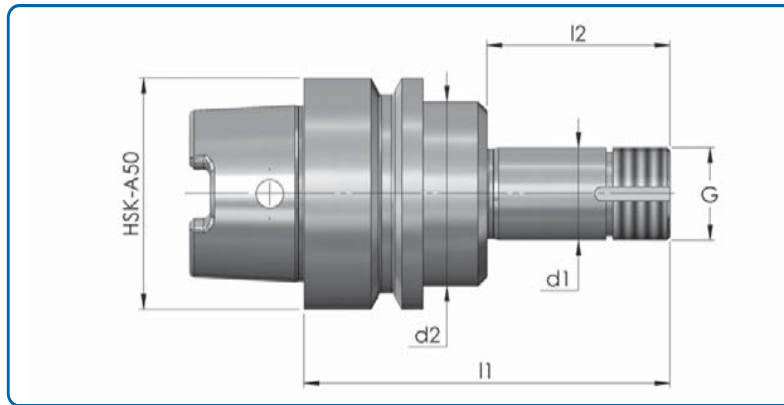
Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub>	l <sub>2</sub>	L
CYL20-FHC1992-200	20	28	19.92	30	200	280
CYL20-FHC1999-200	20	28	19.99	30	200	280
CYL30-FHC3175-205	30	55	31.75	40	205	260
CYL30-FHC32-205	30	55	32	40	205	260
CYL30-FHC32-250	30	55	32	40	250	305
CYL30-FHC40-210	30	60	40	40	210	265
CYL30-FHC40-250	30	60	40	40	250	305
CYL30-FHC4445-210	30	65	44.45	40	210	265



Code No.	$d_1$	$d_2$	$l_1$	$l_2$	$l_3$	$l_4$	M	Ring set b=20	consisting of b=10	b=4
HSK40F-GWA32-055	32	50	33	55	38	17	M32x1.5	0x	3x	2x
HSK40F-GWA32-072	32	50	33	72	55			1x	2x	4x
HSK40F-GWA32-095	32	50	33	95	78			2x	2x	5x
HSK50F-GWA3175-055	31.75	55	35	55	38	17	M32x1.5	0x	3x	2x
HSK50F-GWA3175-068	31.75	55	35	68	51			1x	2x	3x
HSK50F-GWA3175-078	31.75	55	35	78	61			1x	2x	5x
HSK50F-GWA3175-085	31.75	55	35	85	68			1x	3x	5x
HSK50F-GWA3175-095	31.75	55	35	95	78			2x	2x	5x
HSK40F-GWA3175-038	31.75	50	11	38	21	17	M32x1.5	0x	1x	3x
HSK40F-GWA3175-068	31.75	50	11	68	51			1x	2x	3x
HSK40F-GWA3175-078	31.75	50	11	78	61			1x	2x	5x
HSK40F-GWA3175-085	31.75	50	11	85	68			1x	3x	5x
HSK40F-GWA3175-095	31.75	50	11	95	78			2x	2x	5x

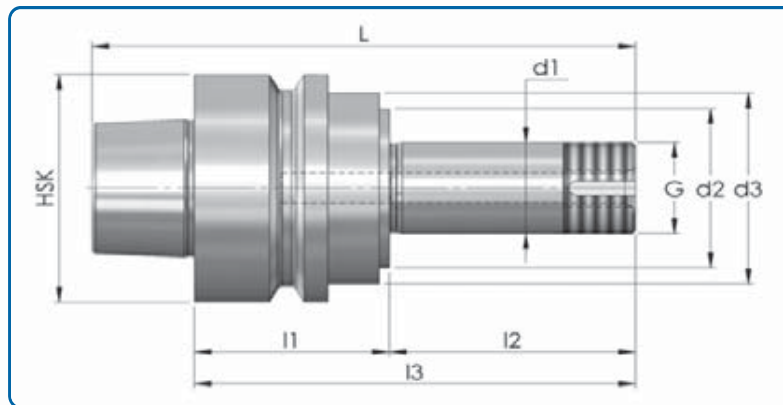


Code No.	ANCA	$d_1$	$l_2$	$l_1$	G
AN30-GWA3175-038	30	31.75	38	53	M32 x 1.5
AN30-GWA3175-038	30	31.75	55	70	M32 x 1.5
AN30-GWA3175-070	30	31.75	70	85	M32 x 1.5
AN30-GWA3175-085	30	31.75	85	100	M32 x 1.5

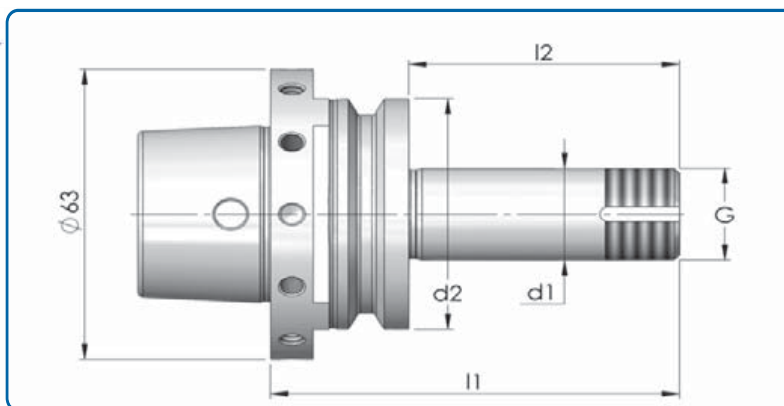


Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	l <sub>1</sub>	G
HSK50A-HGWA20-080	20	40	40	80	M20 x 1
HSK50A-HGWA20-100	20	40	60	100	M20 x 1
HSK50A-HGWA20-115	20	40	75	115	M20 x 1
HSK50A-HGWA20-125	20	40	85	125	M20 x 1
HSK50A-HGWA20-140	20	40	100	140	M20 x 1

## ISOG M/C – Grinding wheel Arbors

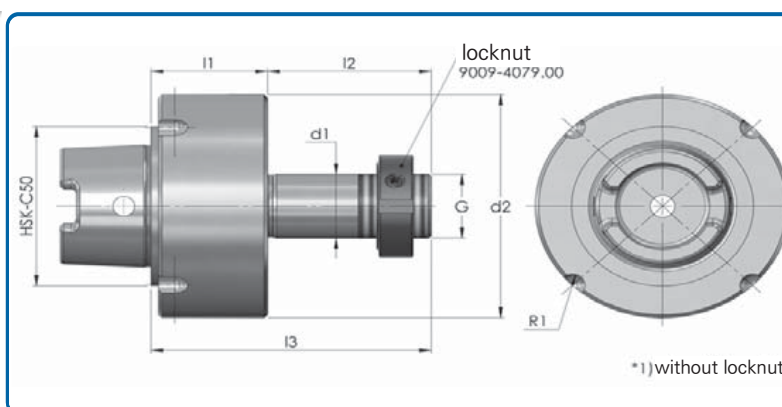


Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	G	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	L
HSK50F-IGWA20-38/48	20	35	42	M20x1	38	48	86	106
HSK50F-IGWA20-36/50	20	--	33	M20x1	36	50	86	106
HSK50F-IGWA20-38/75	20	--	33	M20x1	38	75	113	133
HSK50F-IGWA20-38/100	20	--	33	M20x1	38	100	138	158
HSK50F-IGWA20-38/124	20	35	42	M20x1	38	124	162	182
HSK50F-IGWA20-58/28	20	35	42	M20x1	58	28	86	106
HSK50F-IGWA20-58/60	20	35	42	M20x1	58	60	118	138
HSK50F-IGWA20-58/90	20	35	42	M20x1	58	90	148	168
HSK50F-IGWA20-150/48	20	35	42	M20x1	150	48	198	218

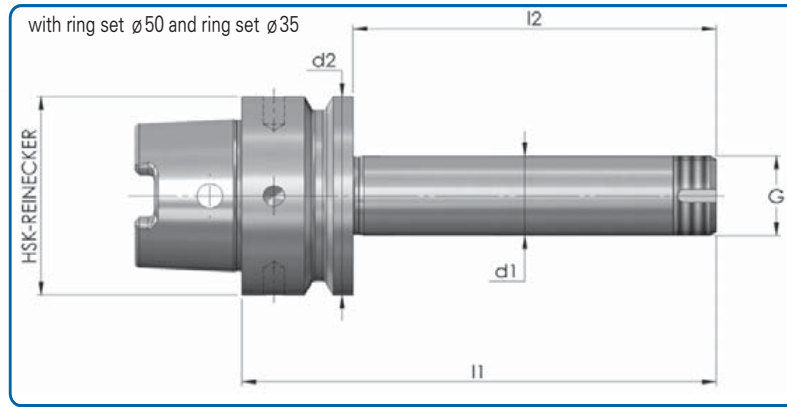


Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	l <sub>1</sub>	G
HSK50RO-GWA20-106	20	50	80	106	M20 x 1
HSK50RO-GWA20-077	20	50	51	77	M20 x 1

## SCHNEEBERGER M/C – Grinding wheel Arbors

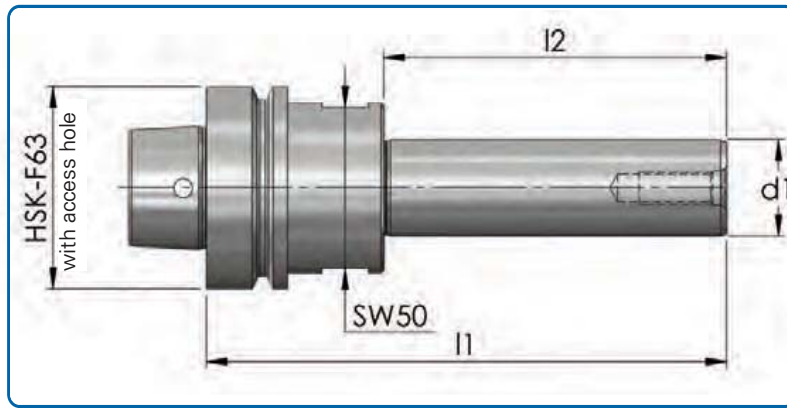


Code No.	d <sub>1</sub>	d <sub>2</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	R <sub>1</sub>	G <sub>1</sub>
HSK50SC-GWA20-077	20	70	32	45	77	3,5	M20x1
HSK50SC-GWA20-097	20	70	32	65	97	3,5	M20x1
HSK50SC-GWA20-102	20	70	32	70	102	3,5	M20x1
HSK50SC-GWA20-117	20	70	32	85	117	3,5	M20x1
HSK50SC-GWA20-127	20	70	32	95	127	3,5	M20x1
HSK50SC-GWA20-137	20	70	32	105	137	3,5	M20x1
HSK50SC-GWA20-162	20	70	32	130	162	3,5	M20x1
HSK50SC-GWA20-177	20	70	32	145	177	3,5	M20x1



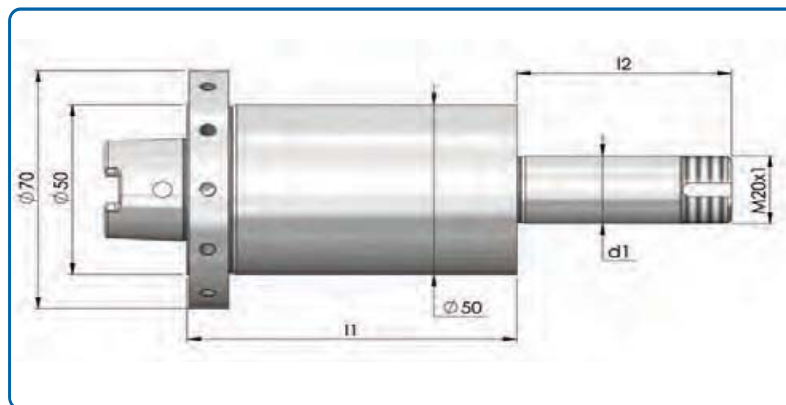
Code No.	$d_1$	$d_2$	$l_2$	$l_1$	G	
HSK50RE-GWA20-040	20	50	40	66	M20 x 1	
HSK50RE-GWA20-060	20	50	60	86	M20 x 1	
HSK50RE-GWA20-085	20	50	85	111	M20 x 1	
HSK50RE-GWA20-110	20	50	110	136	M20 x 1	



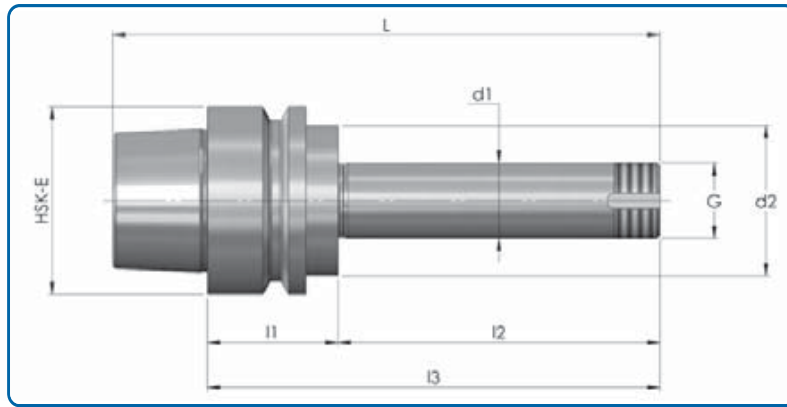


Code No.	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
HSK63F-GWA16-167	16	167	110
HSK63F-GWA30-167	30	167	110
HSK63F-GWA35-167	35	167	110
HSK63F-GWA40-167	40	167	110
HSK63F-GWA50-167	50	167	110

WALTER M/C – Grinding wheel Arbors

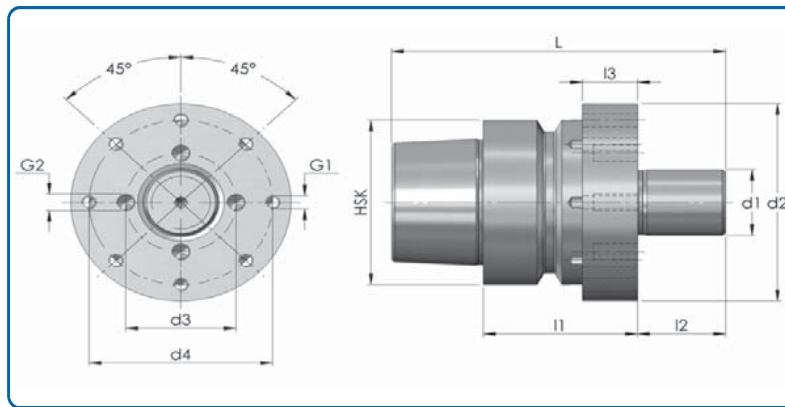


Code No.	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>
HSK40C/50-GWA20-080	20	80	52



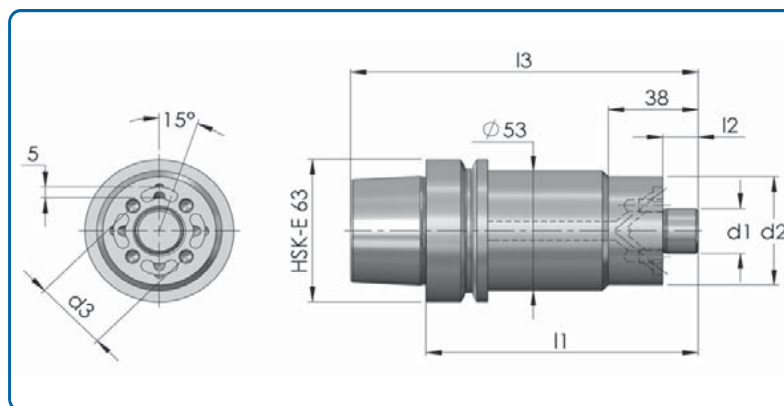
Code No.	d <sub>1</sub>	d <sub>2</sub>	G	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	L
HSK50E-GWA20-080	20	35	M 20x1	28	27	55	80
HSK50E-GWA20-110	20	35	M 20x1	28	57	85	110
HSK50E-GWA20-111	20	35	M 20x1	38	48	86	111
HSK50E-GWA20-107	20	35	M 20x1	27	55	82	107
HSK50E-GWA20-137	20	35	M 20x1	27	85	112	137
HSK50E-GWA20-145	20	40	M 20x1	34.5	85	119.5	144.5
HSK50E-GWA20-127	20	50	M 20x1	42	60	102	127
HSK50E-GWA20-126	20	50	M 20x1.5	26	75	101	126
HSK50E-GWA20-114	20	45	M 20x1	44	75	109	114
HSK50E-GWA20-151	20	50	M 20x1.5	26	100	126	151
HSK50E-GWA20-135	20	50	M 20x1	50	60	110	135
HSK50E-GWA20-175	20	50	M 20x1	50	100	150	175
HSK50C-GWA20-098	20	40	M 20x1	34	38	72.5	97.5
HSK50C-GWA20-125	20	40	M 20x1	34.5	65	99.5	124.5
HSK50C-GWA20-145	20	40	M 20x1	34.5	85	119.5	144.5
HSK63E-GWA20-136	20	34	M 16x1	49	55	104	136
HSK63E-GWA20-151	20	34	M 16x1	49	70	119	151
HSK63E-GWA20-161	20	34	M 16x1	49	80	129	161
HSK63E-GWA20-153	22	60	M 20x1.5	46	75	106	153





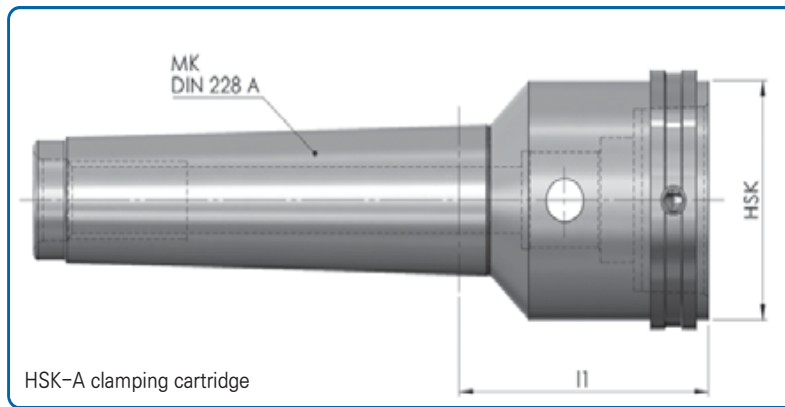
Code No.	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	L	G <sub>1</sub>	G <sub>2</sub>
HSK50E-GWA20-091	20	60	30	50	42	24	15	91	M4	M5
HSK50E-GWA20-111	20	60	30	50	62	24	15	111	M4	M5
HSK50E-GWA45-078	45	108	55	98	50	28	15	78	M4	M5
HSK50E-GWA51-078	51	108	61	98	50	28	15	78	M4	M5
HSK63E-GWA20-147	20	53	32	--	100	15	74	147	M6	M6
HSK63E-GWA20-148	20	53	36	--	100	16	74	148	M6	M6
HSK63E-GWA20-164	20	53	36	--	100	14	92	164	M6	M6

## Grinding wheel arbors – HSK63E Long



Code No.	d <sub>1</sub> (h6)	d <sub>2</sub>	d <sub>3</sub>	l <sub>1</sub> (±0,1)	l <sub>2</sub>	l <sub>3</sub>
HSK63E-GWA20-15-147	20	48	32	100	15	147
HSK63E-GWA20-16-148	20	48	36	100	16	148
HSK63E-GWA20-14-164	20	48	36	118	14	164



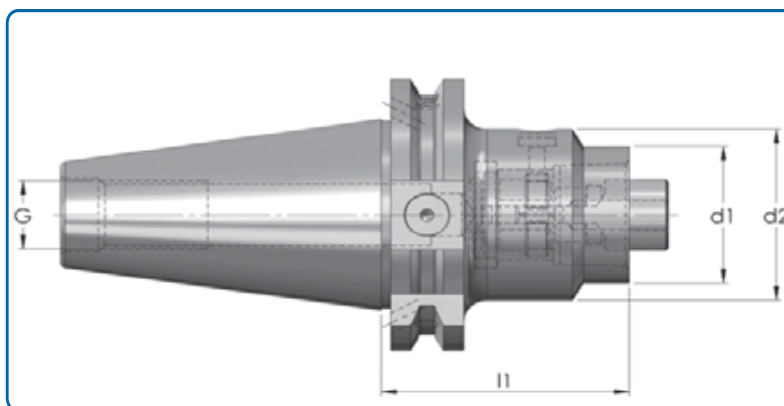


Code No.	Taper	HSK	$l_1$	
MT4-HSK 32A-040	MT 4	HSK-A 32	40	
MT4-HSK 40A-045		HSK-A 40	45	
MT4-HSK 50A-060		HSK-A 50	60	
MT4-HSK 63A-070		HSK-A 63	70	
MT4-HSK 80A-080		HSK-A 80	80	
MT4-HSK100A-100		HSK-A100	100	
MT5-HSK 32A-040	MT 5	HSK-A 32	40	
MT5-HSK 40A-045		HSK-A 40	45	
MT5-HSK 50A-060		HSK-A 50	60	
MT5-HSK 63A-070		HSK-A 63	70	
MT5-HSK 80A-080		HSK-A 80	80	
MT5-HSK100A-100		HSK-A100	100	

Intermediate sleeve with HSK-A clamping cartridge with mounted Coolant tube

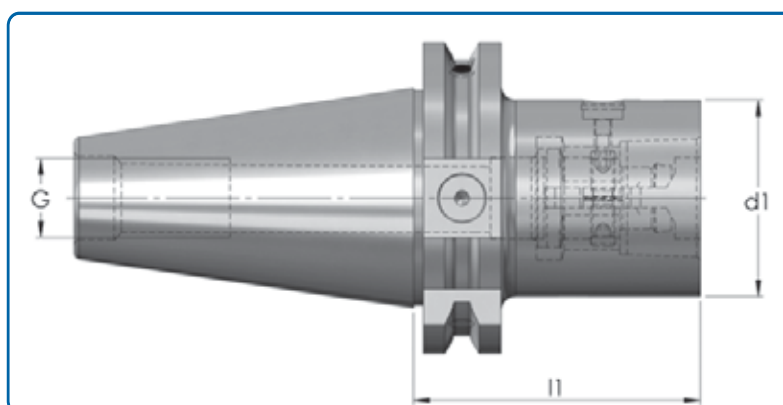
Code No.	Taper	HSK	$l_1$	
MT5-HSK 32AC-040	MT 5	HSK-A 32	40	
MT5-HSK 40AC-050		HSK-A 40	50	
MT5-HSK 50AC-060		HSK-A 50	60	
MT5-HSK 63AC-080		HSK-A 63	80	
MT5-HSK 80AC-090		HSK-A 80	90	
MT5-HSK100AC-110		HSK-A100	110	

Code No.	Taper	HSK	$l_1$	
MT5-HSK32E-050	MK 5	HSK-E 32	50	
MT5-HSK40E-060		HSK-E 40	60	
MT5-HSK50E-070		HSK-E 50	70	
MT5-HSK63E-080		HSK-E 63	80	



Execution: Admissible concentricity deviation of the external taper in relation to the internal taper 0,003 mm.

Code No.	Taper	HSK-A/C/E	HSK-F d <sub>2</sub>	l <sub>1</sub>	G	
SK40-HSK25-045	SK 40	25	32	45	16	
SK40-HSK32-055		32	40	55		
SK40-HSK40-075		40	50	75		
SK40-HSK50-095		50	63	95		
SK40-HSK63-110		63	80	110		
SK40-HSK80-150		80	100	150		
SK40-HSK100-150		100	120	150		
SK50-HSK32-075	SK 50	32	40	75	24	
SK50-HSK40-075		40	50	75		
SK50-HSK50-075		50	63	75		
SK50-HSK63-075		63	80	75		
SK50-HSK80-100		80	100	100		
SK50-HSK100-150		100	125	150		



Code No.		HSK-F d <sub>1</sub>	l <sub>1</sub>	M	
SK40-HSK40F-060	SK 40	40	60	16	
SK40-HSK50F-060		50	60		
SK40-HSK63F-075		63	75		
SK40-HSK80F-075		80	110		
SK50-HSK40F-060	SK 50	40	60	24	
SK50-HSK50F-060		50	60		
SK50-HSK63F-075		63	75		
SK50-HSK80F-075		80	75		

신제품 **Rainbow Line**



고속 스피들  
100,000RPM



앵글 헤드



대형 스페셜 앵글 헤드



**TRH 806**

터렛 헤드



멀티 헤드



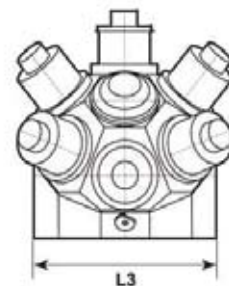
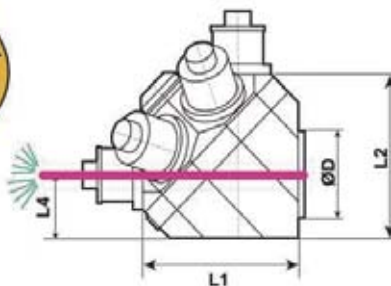
N.C(자동)앵글 헤드



TRH 500



HSK 100  
40 KW





## 멀티 스테이션 그라인딩 머신 MS-12

사용 가능 공구 직경 : 1.85 mm - 12.00 mm  
공구 길이 : 1,000 mm

12-2 (2 스펀들) 12-3 (3 스펀들) 선택 가능

## 그라인딩 머신 MS-01

- 소량 그라인딩용
- 안정적인 다목적 장비
- 작업 테이블에 쉽게 설치 가능
- 그라인딩 치구 ZS 또는 PS 문제 없이 설치 가능



## 그라인딩 치구 ZS

- 싱글 플루트 건드릴 소량 리그라인딩용
- 표준 그라인딩 머신에도 설치 가능
- 플루트 길이와 드릴 직경에 따라 제품 선택 (직경 2.0 - 50.0 mm)

## 그라인딩 치구 PS

- 0.5 - 6.0 mm 직경의 싱글 플루트 건드릴 연마용
- 표준 그라인딩 머신에도 설치 가능
- 스테이션을 바꿔 표준 노즈 그라인드 변경이 가능
- 각 톨 홀더는 건드릴 드라이버 직경 10, 12, 12.7 mm에 적용
- 건드릴 직경에 따라 다른 톨 홀더 부싱 필요



## alfa-툴 프리세터의 특징

- 독립성 (Independence)
- 최적화 (Optimization)
- 생산성 향상 (Increased productivity)
- 비용 절감 (Cost saving with alfa-set)



고급형  
alfa-set 23/44/64/66



공구 조립 장치  
alfa-clamp



보급형  
alfa-set 33/35swift

alfa-set TwinCam의  
공구 검사 기능



## 가공 품질, 공구 마모 및 파손 모니터링 솔루션 - WattPilote

와트파일럿은 공작기계의 가공 품질, 공구 마모, 파손 컨트롤 및 파손 방지 기능을 수행합니다. 와트파일럿은 스피들이나 축모터를 통해 사용되는 전류변화를 정밀 측정하여 전류변화값으로 가공 상태, 공구의 마모 및 파손 등을 분석하여 공구의 컨디션을 분석합니다.

### 주변 환경에 관계없이 설치

단 하나의 유닛으로 구성되어 전류 측정 센서, 시그널 프로세싱, 필드버스 인터페이스가 장비의 강전반 내에 설치됩니다. 시스템은 컴팩트하면서 설치가 쉬우며 외부환경(절삭유, 온도, 기계적인 진동, 전자파, 노이즈 등) 으로부터 영향을 적게 받습니다.

### 불량률 감소 및 공구 수명 증가

- 공구 마모
- 이중가공
- 인서트 칩핑
- 공구 파손
- 공구 분실



### 가장 중요한것 : 정확한 측정

와트파일럿은 50kHz의 샘플링 주파수와 결합되어 0.01%까지 전류 측정이 가능하며 모든 종류의 전기모터(AC, DC), 가변 주파수 모터에 적용이 가능합니다. 또한 250w부터 100kw 모터까지 적용이 가능합니다.

<b>실시간 감지 Instantaneous detection</b>	<b>전류 컨트롤</b>
	Contact tool/part
	Detect end of machining
	Missing tool
<b>실시간 감지 Instantaneous detection</b>	<b>미분 컨트롤</b>
	Contact tool/part
	Detect end of machining

### CNC 선반 & 자동선반

와트파일럿 터닝은 모든 선삭장비에서의 절삭 공구 마모 및 파손을 감지하고자 설계되었습니다.

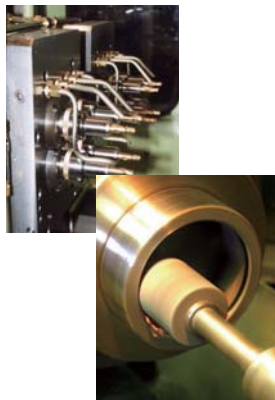


### 머시닝 센터 & 탭핑 센터

와트파일럿은 중요한 절삭공구들을 사용하는 스피들 공작기계 - 머시닝 센터, 공구교환이 필요한 전용기용으로 개발되었습니다.

### 멀티 스피들 헤드

멀티 스피들 헤드는 공구파손을 감지하기가 더 어려워 모니터링을 생산라인에 접목하기 쉽지 않습니다. 하지만 와트파일럿은 높은 생산성과 가공품질을 동시에 유지할 수 있습니다. 또한 와트파일럿은 강력한 컨트롤 알고리즘과 고정밀도 측정법으로 18개의 가공중인 드릴 가운데 단 한 개의 드릴 파손도 감지 할 수 있습니다.



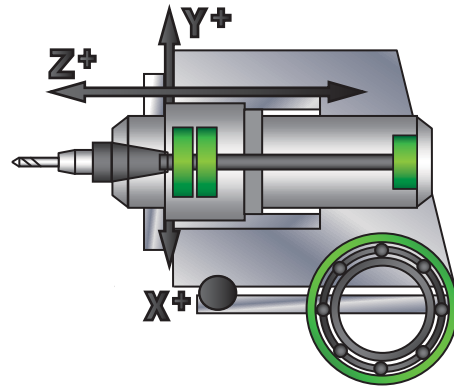
### 연삭기 및 조립기

와트파일럿은 전류측정을 통해 공구와 피삭재간의 접촉 여부를 감지하고자 설계되었습니다. 모든 기계에 아주 쉽게 설치 가능하며 그라인딩 공정중 스파크 생성여부, 브러싱 공정에서 일정한 압력이 가해지는지, 디버링 공정의 접촉 여부 감지 등 기존에 작업자가 해야할 업무를 자동화해줍니다.

## 공작 기계의 예지 보전 및 상태 모니터링 솔루션 - SafePilote

### 기계와 공구를 보호하세요

세이프파일럿은 3축 진동 센서와 프로세서로 이루어졌으며, 사고나 충돌로 인한 손상으로부터 장비를 보호할 수 있는 가장 효과적인 방법입니다. 세이프파일럿은 장비 스피indle에 장착되어 장비 상태 및 가공 품질과 관련된 진동데이터를 기록합니다.



### 충돌 피해 최소화

축 움직임에서 과전류 발생시 장비를 멈출 경우, 스피indle/공구/피삭재에 이미 많은 손상이 발생한 경우가 많습니다. 이때문에 장비 다운타임이 늘어나고 생산 비용이 증가합니다. 물론, 세이프파일럿이 충돌을 완전히 예방하지는 못합니다. 그러나 신속하게 반응해 빠르게 장비를 정지하여 충돌 후 수리비용을 급격히 낮출 수 있습니다.

### 스핀들 Spindle

- 밸런싱 분석
- 샤프트 구조 분석
- 부품 정렬 상태 분석

가공 중 발생하는 진동은 생산 품질을 저하시키는 주요 원인중 하나입니다. 이 시스템은 장비가 적절한 환경에서 가동되도록 도와줍니다. 세이프파일럿의 높은 민감도 덕분에 고속 가공 시 언밸런스 문제 또한 감지 가능합니다. 블랙박스처럼 가공 중 발생하는 모든 예상치 못한 사건들을 확인할 수 있으며, 모든 알람은 충격 및 진동 커브와 함께 시스템의 메모리에 저장됩니다.

### 축 Axis

- 슬라이드 및 볼 스크류 데이터 분석

- 소재 파손 및 툴홀더 파손
- 스피indle 손상
- 장비의 각종 기계적인 Set-up 장치 재제작
- 비가공시간 장기화
- 생산중단

### 베어링 Bearings

- 내부 링
- 외부 링
- 케이지
- 볼

...등을 세이프파일럿으로 방지 할 수 있습니다.



**(주) 케이텍**  
**www.ktechtools.com**

주 소 : 14322 경기도 광명시 하안로 60  
(소하동, 광명테크노파크) E동 1208호

전 화 : 02-803-0980~1

팩 스 : 02-803-0949

이메일 : ktech010@gmail.com