

INDEX

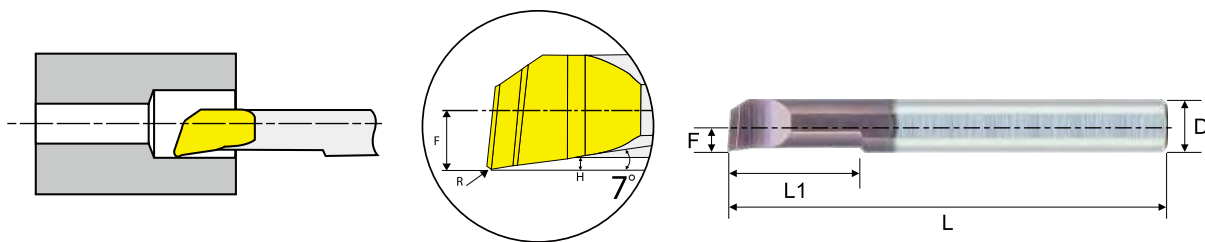
DL Series - Solid Carbide Mini Bars.....C081
DE Series - Solid Carbide Modular Mini Bars.....C091
ETU Series - Solid Carbide Endmills, Short Total Length.....C101
ETW Series - Solid Carbide Slitting Saws.....C103
SAKG Series - Indexable Mini Turning Tools.....C108



- *Suitable for small holes boring, internal grooving, face grooving and threading machining.*
- *Mini boring tools lineup for a wide application range.*
- *Customized available.*



DL Solid Carbide Mini Bars - Internal Boring (7°)



Order No.	F	L1	L	R	D	H	Min. Bore Dia.
DLBSR08051507U	0.8	5	50	0.15	3	0.1	2.4
DLBSR08101507U	0.8	10	50	0.15	3	0.1	2.4
DLBSR13100507U	1.3	10	50	0.05	3	0.2	3.1
DLBSR13150507U	1.3	15	50	0.05	3	0.2	3.1
DLBSR13151007U	1.3	15	50	0.10	3	0.2	3.1
DLBSR13102007U	1.3	10	50	0.20	3	0.2	3.1
DLBSR13152007U	1.3	15	50	0.20	3	0.2	3.1
DLBSR17101007U	1.7	10	50	0.10	4	0.2	4.1
DLBSR17151007U	1.7	15	50	0.10	4	0.2	4.1
DLBSR17221007U	1.7	22	50	0.10	4	0.2	4.1
DLBSR17102007U	1.7	10	50	0.20	4	0.2	4.1
DLBSR17152007U	1.7	15	50	0.20	4	0.2	4.1
DLBSR17222007U	1.7	22	50	0.20	4	0.2	4.1
DLBSR21151007U	2.1	15	50	0.10	5	0.3	5.1
DLBSR21221007U	2.1	22	50	0.10	5	0.3	5.1
DLBSR21301007U	2.1	30	75	0.10	5	0.3	5.1
DLBSR21152007U	2.1	15	50	0.20	5	0.3	5.1
DLBSR21222007U	2.1	22	50	0.20	5	0.3	5.1
DLBSR21302007U	2.1	30	75	0.20	5	0.3	5.1
DLBSR28150507U	2.8	15	50	0.05	6	0.3	6.1
DLBSR28151007U	2.8	15	50	0.10	6	0.3	6.1
DLBSR28152007U	2.8	15	50	0.20	6	0.3	6.1
DLBSR28222007U	2.8	22	50	0.20	6	0.3	6.1
DLBSR28302007U	2.8	30	60	0.20	6	0.3	6.1

* For left hand tools specify DLBSL instead of DLBSR.

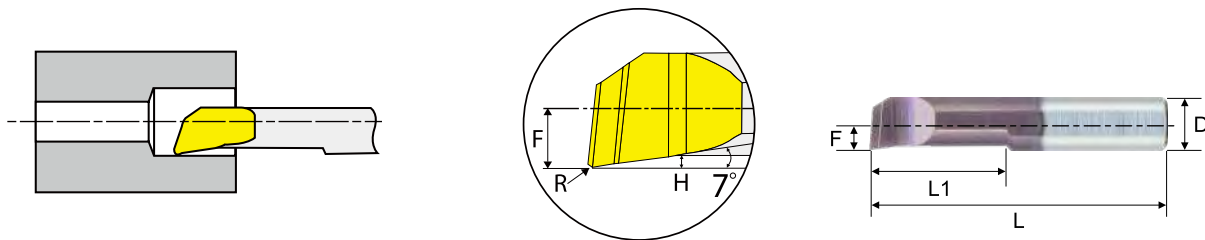
Turning
Mini Turning Tools for Auto Lathe

DE Series - Solid Carbide Modular Mini Bars

- **Easy tool changeover and position repeatability ($\pm 0.05\text{mm}$).**
- **Double ended design for two different shank sizes.**
- **Suitable for small holes boring, internal grooving, face grooving and threading machining.**
- **Mini boring tools lineup for a wide application range.**



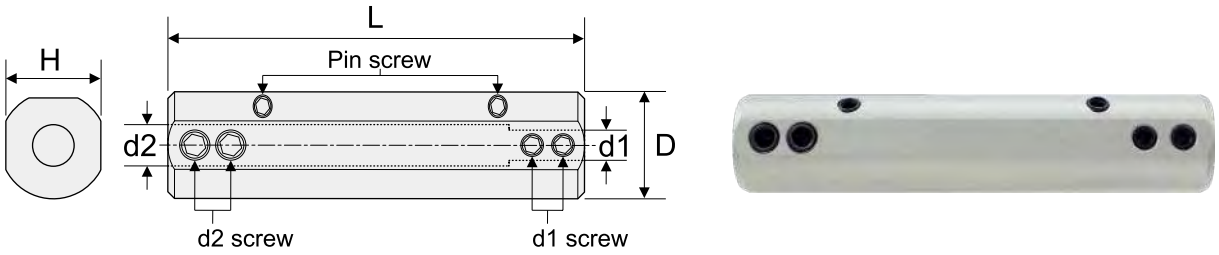
DE Solid Carbide Modular Mini Bars - Internal Boring (7°)



Order No.	F	L1	L (±0.05mm)	R	D	H	Min. Bore Dia.
DEBSR08051507U	0.8	5	21.5	0.15	3	0.1	2.4
DEBSR08101507U	0.8	10	26.5	0.15	3	0.1	2.4
DEBSR13100507U	1.3	10	26.5	0.05	3	0.2	3.1
DEBSR13150507U	1.3	15	31.5	0.05	3	0.2	3.1
DEBSR13151007U	1.3	15	31.5	0.10	3	0.2	3.1
DEBSR13102007U	1.3	10	26.5	0.20	3	0.2	3.1
DEBSR13152007U	1.3	15	31.5	0.20	3	0.2	3.1
DEBSR17101007U	1.7	10	26.5	0.10	4	0.2	4.1
DEBSR17151007U	1.7	15	31.5	0.10	4	0.2	4.1
DEBSR17221007U	1.7	22	38.5	0.10	4	0.2	4.1
DEBSR17102007U	1.7	10	26.5	0.20	4	0.2	4.1
DEBSR17152007U	1.7	15	31.5	0.20	4	0.2	4.1
DEBSR17222007U	1.7	22	38.5	0.20	4	0.2	4.1
DEBSR21151007U	2.1	15	31.5	0.10	5	0.3	5.1
DEBSR21221007U	2.1	22	38.5	0.10	5	0.3	5.1
DEBSR21301007U	2.1	30	46.5	0.10	5	0.3	5.1
DEBSR21152007U	2.1	15	31.5	0.20	5	0.3	5.1
DEBSR21222007U	2.1	22	38.5	0.20	5	0.3	5.1
DEBSR21302007U	2.1	30	46.5	0.20	5	0.3	5.1
DEBSR28150507U	2.8	15	31.5	0.05	6	0.3	6.1
DEBSR28151007U	2.8	15	31.5	0.10	6	0.3	6.1
DEBSR28152007U	2.8	15	31.5	0.20	6	0.3	6.1
DEBSR28222007U	2.8	22	38.5	0.20	6	0.3	6.1
DEBSR28302007U	2.8	30	46.5	0.20	6	0.3	6.1

* For left hand tools specify DEBSL instead of DEBSR.

DE Solid Carbide Modular Mini Bars - Double Sizes Sleeves



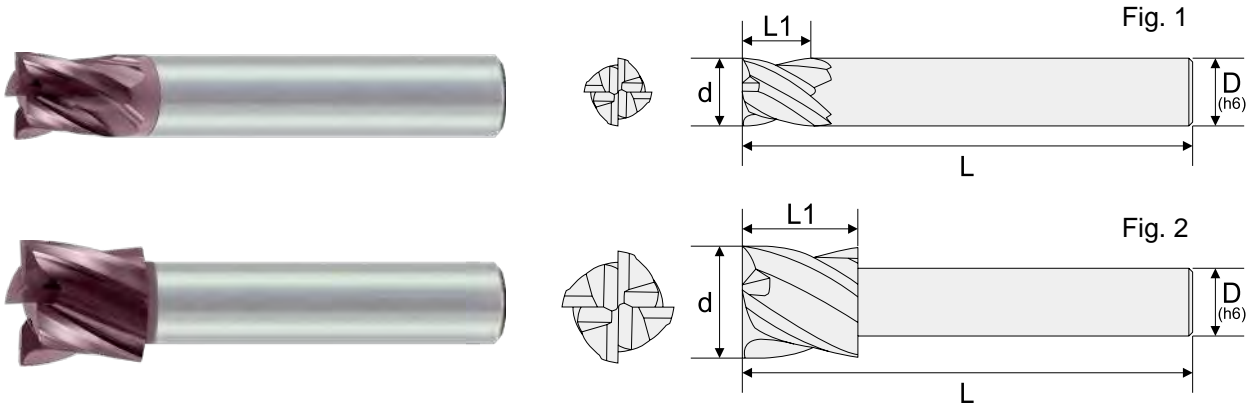
Order No.	D	d1	d2	L	H	Spare parts
DES1635075	16	3	5	75	15	①
DES1646075	16	4	6	75	15	②

Spare parts	d1		d2		Pin	
	Screw 	Wrench 	Screw 	Wrench 	Screw 	Wrench
①	ITHM405	IPL20	ITHM405	IPL20	ITTS412	IPL20
②	ITHM405	IPL20	ITHM505	IPL25	ITTS412	IPL20

- *Short total length design.*
- *Shank size is suitable for automatic lathe.*
- *Sharp cutting edge produces an excellent surface finish.*
- *1~12mm of diameters to cover a variety of applications.*
- *The short length of 40mm is suitable for automatic lathes.*



ETU Series - Solid Endmills for Automatic Lathe



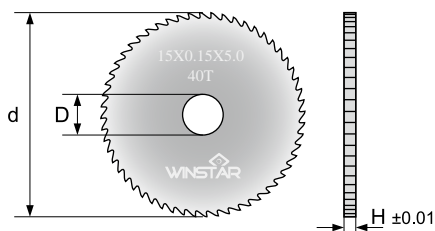
Order No.	Dia (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)	Coating	Fig
ETSSC401000U	1.0	1.0	40	6	4	UNICO	1
ETSSC401500U	1.5	1.5	40	6	4	UNICO	1
ETSSC402000U	2.0	2.0	40	6	4	UNICO	1
ETSSC402500U	2.5	2.5	40	6	4	UNICO	1
ETSSC403000U	3.0	3.0	40	6	4	UNICO	1
ETSSC404000U	4.0	4.0	40	6	4	UNICO	2
ETSSC405000U	5.0	5.0	40	6	4	UNICO	2
ETSSC406000U	6.0	6.0	40	6	4	UNICO	2
ETSSC408000U	8.0	8.0	40	6	4	UNICO	2
ETSSC410000U	10.0	10.0	40	6	4	UNICO	2
ETSSC412000U	12.0	10.0	40	6	4	UNICO	2

- *Suitable for small parts cutting off or slot machining.*
- *Saw arbor shank from $\text{Ø}6 \sim \text{Ø}10\text{mm}$.*
- *Carbide saw diameters from 15 ~ 30mm.*
- *The slitting saw thickness between 0.15 ~ 2.00mm, other size can be customized.*

Small Diameter Slitting Saws



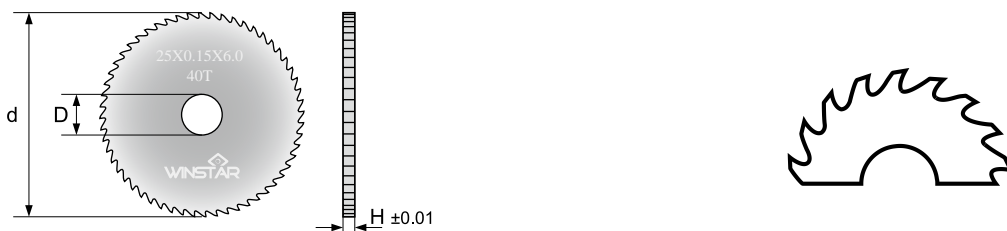
ETW Carbide Slitting Saws for Automatic Lathe - Ø15 & Ø20



Order No.	d	H	D	T
ETWSF04015015	15	0.15	5	40
ETWSF04015020	15	0.20	5	40
ETWSF04015025	15	0.25	5	40
ETWSF04015030	15	0.30	5	40
ETWSF04015040	15	0.40	5	40
ETWSF04015050	15	0.50	5	40
ETWSF04015060	15	0.60	5	40
ETWSF04015070	15	0.70	5	40
ETWSF04015080	15	0.80	5	40
ETWSF04015090	15	0.90	5	40
ETWSF04015100	15	1.00	5	40
ETWSF05020015	20	0.15	5	56
ETWSF05020020	20	0.20	5	56
ETWSF05020025	20	0.25	5	56
ETWSF05020030	20	0.30	5	56
ETWSF05020040	20	0.40	5	56
ETWSF05020050	20	0.50	5	56
ETWSF05020060	20	0.60	5	56
ETWSF05020070	20	0.70	5	56
ETWSF05020080	20	0.80	5	56
ETWSF05020090	20	0.90	5	56
ETWSF05020100	20	1.00	5	56
ETWSF05020120	20	1.20	5	56
ETWSF05020150	20	1.50	5	56

* Other diameters make to order.

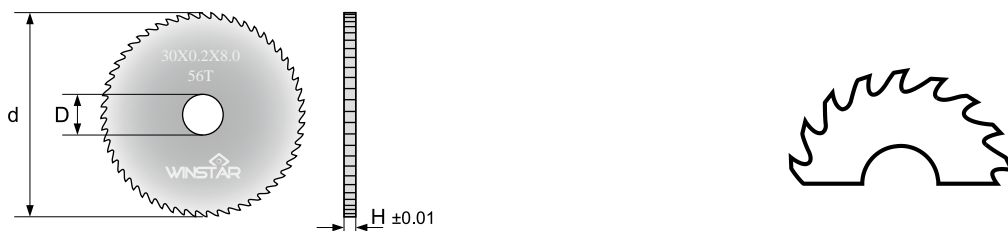
ETW Carbide Slitting Saws for Automatic Lathe - Ø25



Order No.	d	H	D	T
ETWSF04025015	25	0.15	6	40
ETWSF04025020	25	0.20	6	40
ETWSF04025025	25	0.25	6	40
ETWSF04025030	25	0.30	6	40
ETWSF04025040	25	0.40	6	40
ETWSF04025050	25	0.50	6	40
ETWSF04025060	25	0.60	6	40
ETWSF04025070	25	0.70	6	40
ETWSF04025080	25	0.80	6	40
ETWSF04025090	25	0.90	6	40
ETWSF04025100	25	1.00	6	40
ETWSF04025120	25	1.20	6	40
ETWSF04025150	25	1.50	6	40
ETWSF07025015	25	0.15	6	72
ETWSF07025020	25	0.20	6	72
ETWSF07025025	25	0.25	6	72
ETWSF07025030	25	0.30	6	72
ETWSF07025040	25	0.40	6	72
ETWSF07025050	25	0.50	6	72
ETWSF07025060	25	0.60	6	72
ETWSF07025070	25	0.70	6	72
ETWSF07025080	25	0.80	6	72
ETWSF07025090	25	0.90	6	72
ETWSF07025100	25	1.00	6	72
ETWSF07025120	25	1.20	6	72
ETWSF07025150	25	1.50	6	72

* Other diameters make to order.

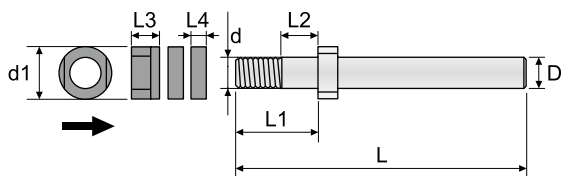
ETW Carbide Slitting Saws for Automatic Lathe - Ø30



Order No.	d	H	D	T
ETWLF05030020	30	0.20	8	56
ETWLF05030025	30	0.25	8	56
ETWLF05030030	30	0.30	8	56
ETWLF05030040	30	0.40	8	56
ETWLF05030050	30	0.50	8	56
ETWLF05030060	30	0.60	8	56
ETWLF05030070	30	0.70	8	56
ETWLF05030080	30	0.80	8	56
ETWLF05030090	30	0.90	8	56
ETWLF05030100	30	1.00	8	56
ETWLF05030110	30	1.10	8	56
ETWLF05030120	30	1.20	8	56
ETWLF05030150	30	1.50	8	56
ETWLF05030200	30	2.00	8	56

* Other diameters make to order.

ETW Carbide Slitting Saws for Automatic Lathe - Arbors

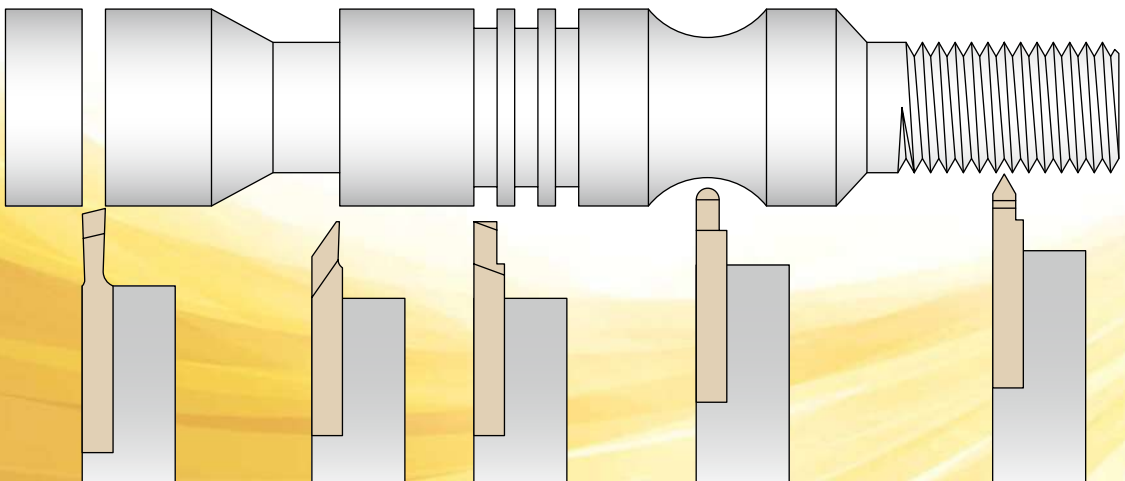


Order No.	d	D	d1	L1	L2	L	L3	L4
ETWSA050065	5	6	10	12	5.2	50	5	3.0
ETWSA050076	5	7	13	16	7.5	60	8.8	4.0
ETWSA060065	6	6	10	12	5.2	50	5.1	3.2
ETWSA060076	6	7	13	16	7.5	60	8.8	4.0
ETWSA060106	6	10	16	11	5.2	60	5.5	1.5 / 3.0
ETWSA060109	6	10	13	16	7.5	90	8.2	4.2
ETWSA080106	8	10	13	16	7.5	60	7.5	4.2

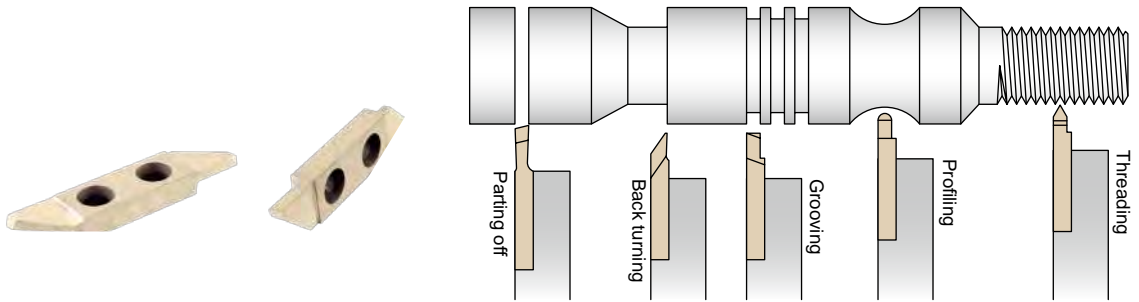
Recommended Cutting Conditions

Working Material	Carbon Steel (S35C,S45C,S50C)		Alloy Steel (SCM,SKT,SKD)		Stainless Steel (SUS304)		Cast Iron (FC,FCD)		Aluminum / Copper		Hardened Steel (SKT,SKD)	
	HRC	Vc	HRC	Vc	HRC	Vc	HRC	Vc	HRC	Vc	HRC	Vc
Hardness	HRC < 30		HRC 30 ~ 45		-		HRC < 30		-		HRC 45 ~ 55	
Vc	54 - 68 - 82 m/min		36 - 45 - 54 m/min		48 - 59 - 70 m/min		54 - 68 - 82 m/min		120 - 150 - 180 m/min		23 - 29 - 35 m/min	
Diameter (mm)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
15	1450	220	950	150	1250	180	1450	220	3180	560	620	90
20	1080	240	720	160	940	200	1080	240	2390	580	460	100
25	860	260	570	170	750	220	860	260	1900	600	370	110
30	740	280	470	180	630	240	740	280	1590	620	310	120

- **Back turning / Parting off / Grooving / Profiling / Threading for small to mid-sized parts.**
- **Insert is more stable on holder by two screw clamping.**
- **Insert has two cutting edges.**
- **Cutting range : maximum parting off diameter 18mm, maximum grooving depth 9mm.**

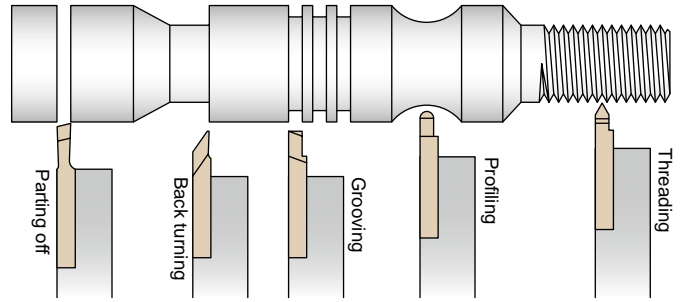


SAKG Indexable Turning Tools for Automatic Lathe - Inserts



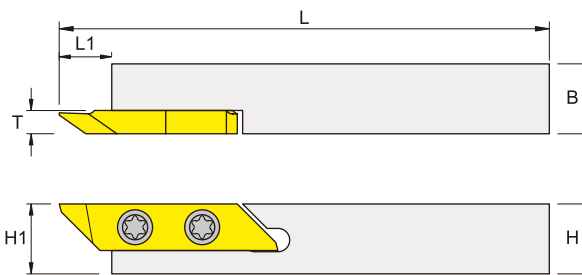
Inserts	Designation	Grade No.				Dimensions (mm)					Drawing
		CX1555	CX1560			w	r	l	k	t	
<p>Back turning</p>	SAKBR20005	✓				2.0	-	5.0	35	0.5	
	SAKBR20015	✓				2.0	0.1	5.0	35	0.5	
	SAKBR20025	✓				2.0	0.2	5.0	35	0.5	
	SAKBR30015	✓				3.0	0.1	5.0	35	0.5	
	SAKBR30025	✓				3.0	0.2	5.0	35	0.5	
<p>Parting off</p>	SAKCR15018	✓				1.5	0.1	8.5	15	-	
	SAKCR20019	✓				2.0	0.1	9.0	15	-	
	SAKCR25019	✓				2.5	0.1	9.0	15	-	
	SAKCR30019	✓				3.0	0.1	9.0	15	-	

SAKG Indexable Turning Tools for Automatic Lathe - Inserts



Inserts	Designation	Grade No.				Dimensions (mm)					Drawing
		CX1555	CX1560			w	r	l	k	pitch	
<p>Grooving</p>	SAKGR10013	✓				1.0	0.1	3.0	-	-	
	SAKGR15013	✓				1.5	0.1	3.0	-	-	
	SAKGR15025	✓				1.5	0.2	5.0	-	-	
	SAKGR15027	✓				1.5	0.2	7.0	-	-	
	SAKGR20015	✓				2.0	0.1	5.0	-	-	
	SAKGR20025	✓				2.0	0.2	5.0	-	-	
	SAKGR20027	✓				2.0	0.2	7.0	-	-	
	SAKGR20029	✓				2.0	0.2	9.0	-	-	
	SAKGR25015	✓				2.5	0.1	5.0	-	-	
	SAKGR25025	✓				2.5	0.2	5.0	-	-	
	SAKGR25029	✓				2.5	0.2	9.0	-	-	
	SAKGR30015	✓				3.0	0.1	5.0	-	-	
	SAKGR30019	✓				3.0	0.1	9.0	-	-	
	SAKGR30025	✓				3.0	0.2	5.0	-	-	
	SAKGR30027	✓				3.0	0.2	7.0	-	-	
SAKGR30029	✓				3.0	0.2	9.0	-	-		
<p>Profiling</p>	SAKPR10053	✓				1.0	0.5	3.0	-	-	
	SAKPR15075	✓				1.5	0.75	5.0	-	-	
	SAKPR20105	✓				2.0	1.0	5.0	-	-	
	SAKPR25125	✓				2.5	1.25	5.0	-	-	
	SAKPR30158	✓				3.0	1.5	8.0	-	-	
<p>Threading</p>	SAKTR20655	✓				2.0	0.05	6.0	55	0.5~2	
	SAKTR30655	✓				3.0	0.1	6.0	55	1~3	
	SAKTR20660	✓				2.0	0.05	6.0	60	0.5~2	
	SAKTR30660	✓				3.0	0.1	6.0	60	1~3	

SAKG Indexable Turning Tools for Automatic Lathe - Holders



Right-hand shown

Order No.	Item Specification	Dimensions (mm)					Insert	Screw	Wrench
		H(H1)	B	L	L1	T			
ISAKGR1010K	SAKGR-1010K-374	10	10	125	9	4	SAK...	IMS3509A	ITK15
ISAKGL1010K	SAKGL-1010K-374	10	10	125	9	4			
ISAKGR1212K	SAKGR-1212K-374	12	12	125	9	4			
ISAKGL1212K	SAKGL-1212K-374	12	12	125	9	4			
ISAKGR1212M	SAKGR-1212M-374	12	12	150	9	4			
ISAKGL1212M	SAKGL-1212M-374	12	12	150	9	4			
ISAKGR1616M	SAKGR-1616M-374	16	16	150	9	4			
ISAKGL1616M	SAKGL-1616M-374	16	16	150	9	4			
ISAKGR2020K	SAKGR-2020K-374	20	20	125	9	4			
ISAKGL2020K	SAKGL-2020K-374	20	20	125	9	4			
ISAKGR2525M	SAKGR-2525M-374	25	25	150	9	4			
ISAKGL2525M	SAKGL-2525M-374	25	25	150	9	4			

Recommended Cutting Conditions

For Back turning, Parting off and Grooving

Working Material	Vc (m/min)	fr (mm/rev)
Carbon Steel / Alloy Steel	50 ~ 200	0.02 ~ 0.10
Stainless Steel	50 ~ 200	0.02 ~ 0.10
Cast Iron	50 ~ 200	0.02 ~ 0.10
Aluminum Alloy	200 ~ 300	0.05 ~ 0.15
High Temperature Alloy	80 ~ 120	0.03 ~ 0.07
Hardened Steel	80 ~ 120	0.03 ~ 0.07