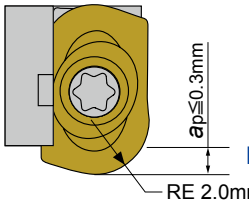
EDTX / JDTX

High Feed End Mill

Technology

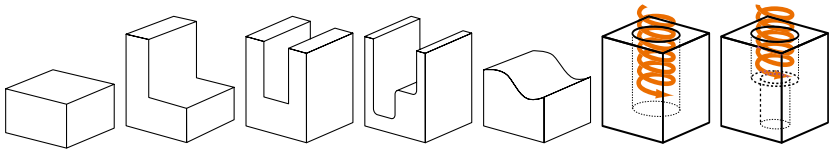
Cutting programs

・Regular R shape is used for corner R. There is no need for an approximate R definition.

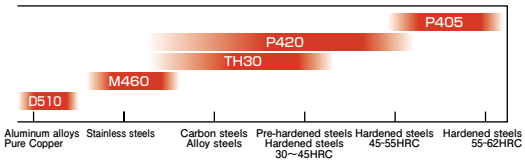


•Tool corner is R2.0mm
(Different from common high-feed tools in that it leaves no uncut areas.)
•Axial direction cutting depth ap should be set to 0.3 mm or less. (*ap* ≦ 0.3 mm)

D8mm~D32mm
- ***Shank & Modular Types***
- ***2 Insert Types:***
  EDTX: R2
  JDTX: R 0.2 / 0.4 / 0.8



EDTX ***JDTX***



Metric

Shank type *EDTX / JDTX*

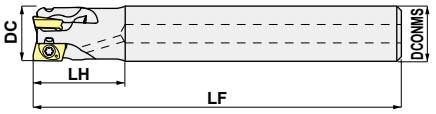


Fig-1 Standard type JDTX insert

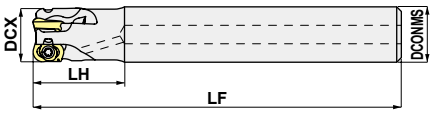


Fig-2 Standard type EDTX insert

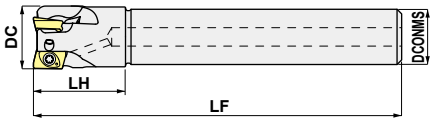


Fig-3 Undercut type JDTX insert

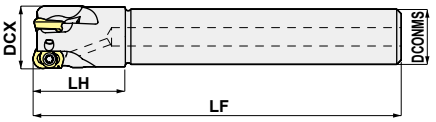
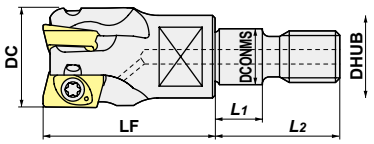


Fig-4 Undercut type EDTX insert

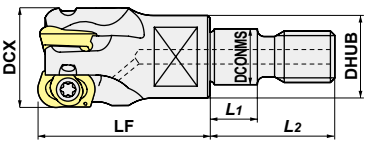
Maximum tightening torque **0.5Nm** Spare screw included

Item code		NO. of Flutes	Size (mm) DC DCX	LF	LH	DCONMS	Fig	Insert
EDTX0708S10R		1	**8**	75	16	10	**Standard type** (Fig-1,2)	*JDTX0702...* *EDTX070220*
EDTX0710S10R		2	**10**	80	20	10	**Standard type** (Fig-1,2)	
EDTX0710S08R		2	**10**	80	20	8	**Undercut type** (Fig-3,4)	
EDTX0711S10R		2	**11**	80	20	10	**Undercut type** (Fig-3,4)	
EDTX0712S12R		3	**12**	80	20	12	**Standard type** (Fig-1,2)	
EDTX0712S10R		3	**12**	80	20	10	**Undercut type** (Fig-3,4)	
EDTX0714S12R		3	**14**	80	20	12	**Undercut type** (Fig-3,4)	
EDTX0716S16R		4	**16**	90	25	16	**Standard type** (Fig-1,2)	
EDTX0716S16R		4	**16**	115	50	16	**Standard type** (Fig-1,2)	
EDTX0717S16R		4	**17**	115	20	16	**Undercut type** (Fig-3,4)	
EDTX0720S20R		5	**20**	105	25	20	**Standard type** (Fig-1,2)	
EDTX0720S20R		5	**20**	140	60	20	**Standard type** (Fig-1,2)	
EDTX0721S20R		5	**21**	140	20	20	**Undercut type** (Fig-3,4)	

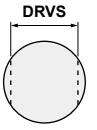
Modular type *EDTX / JDTX*



JDTX insert



EDTX insert



0.5Nm
Maximum tightening torque Spare screw included

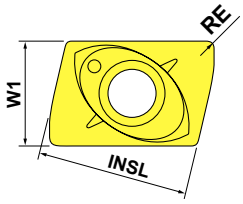
Item code		# of Flutes	Size (mm) DC DCX	LF	DCONMS	THSZMS	DHUB	L_1	L_2	DRVS	Insert
EDTX **0708R-1**		1	**8**	20	6.5	M6	9.8	5.5	14.5	7	*JDTX0702...* *EDTX070220*
EDTX **0710R-2**		2	**10**	20	6.5	M6	9.4	5.5	14.5	7	
EDTX **0711R-2**		2	**11**	20	6.5	M6	9.8	5.5	14.5	7	
EDTX **0712R-3**		3	**12**	20	6.5	M6	9.8	5.5	14.5	7	
EDTX **0716R-4**		4	**16**	25	8.5	M8	12.8	5.5	17	10	
EDTX **0720R-5**		5	**20**	30	10.5	M10	17.8	5.5	19	15	
EDTX **0725R-6**		6	**25**	30	12.5	M12	20.8	5.5	22	17	
EDTX **0732R-8**		8	**32**	30	17	M16	28.8	6	23	22	

Inserts

E3 *JDTX 07020 R*

Insert with 5mm cutting edge for shoulder cutting

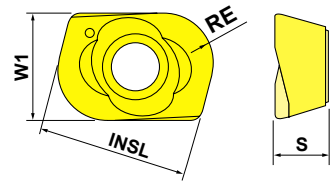
a_{pmax}=5.0mm



E4 *EDTX 07020 R*

Insert with 2.0mm corner RE for small-depth, high-feed-rate cutting

a_{pmax}=0.3mm



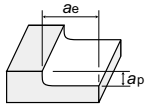
P	Carbon steel		■		■		■		■ : General cutting, First recommended ■ : General cutting, Second recommended
M	Stainless Steel		■	■	■	■	■		
K	Cast Iron・Ductile Cast Iron						■		
N	Aiuminum Alloy		■		■		■	■	
H	Hardened steel	■	■		■				

Item code	Tolerance Class	P Coated			JP Coated	JM Coated	TH Coated	DLC Coated	Size (mm)				Shape
		P405	P420	M460	P420	M460	TH30	D510	INSL	W1	RE	S	
JDTX070202R	M	●	●	●	●	●	●	●	6.4	4.3	0.2	2.45	E3
JDTX070202R		●	●	●	●	●	●	●	6.4	4.3	0.4	2.45	
JDTX070202R		●	●	●	●	●	●	●	6.4	4.3	0.8	2.45	
EDTX070220R-T		●	●	●	●	●			6.4	4.3	2	2.5	E4 Standard type
EDTX070220R		●	●	●	●	●			6.4	4.3	2	2.5	E4 Low-resistance type

Recommended Cutting Conditions

Side Milling standard cutting conditions for EDTX-type inserts：Low cutting depth, high feed rate

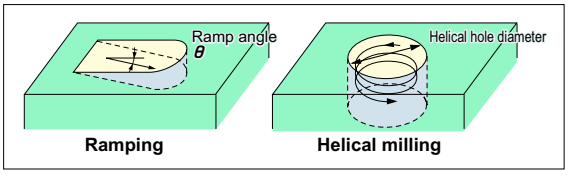
Work material	Recommended grade	Tool dia.	ϕ8 1 Flute	ϕ10 2 Flutes	ϕ12 3 Flutes	ϕ14 3 Flutes	ϕ16 4 Flutes	ϕ20 5 Flutes	ϕ25 6 Flutes	ϕ32 8 Flutes
Carbon Steel Alloy Steel <30HRC	P420 (vc=100～180)	n(min-1)	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
		vc(m/min)	120	120	120	120	120	120	120	120
		vf(mm/min)	～2,870	～4,590	～5,730	～6,550	～7,640	～7,640	～7,340	～7,640
		fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
		ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	3	7	12	16	23	25	37	50
Carbon Steel Alloy Steel 30～40HRC	P420 (vc=100～160)	n(min-1)	4,380	3,500	2,920	2,500	2,190	1,750	1,400	1,090
		vc(m/min)	110	110	110	110	110	110	110	110
		vf(mm/min)	～2,630	～4,200	～5,260	～6,010	～7,010	～7,010	～6,730	～7,010
		fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
		ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	2	6	11	14	21	23	34	46
Hardened Steel 40～50HRC	P420 (vc=80～120)	n(min-1)	3,580	2,870	2,390	2,050	1,790	1,430	1,150	900
		vc(m/min)	90	90	90	90	90	90	90	90
		vf(mm/min)	～1,430	～2,290	～2,870	～3,690	～4,300	～4,300	～4,130	～4,300
		fz(mm/t)	～0.4	～0.4	～0.4	～0.6	～0.6	～0.6	～0.6	～0.6
		ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	1	3	6	9	13	14	21	28
Stainless Steel	M460 P420 (vc=80～120)	n(min-1)	3,580	2,870	2,390	2,050	1,790	1,430	1,150	900
		vc(m/min)	90	90	90	90	90	90	90	90
		vf(mm/min)	～1,430	～2,290	～2,870	～3,690	～4,300	～4,300	～4,130	～4,300
		fz(mm/t)	～0.4	～0.4	～0.4	～0.6	～0.6	～0.6	～0.6	～0.6
		ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	1	3	6	9	13	14	21	28
Cast Iron/ Ductile Cast Iron	P420 (vc=120～220)	n(min-1)	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
		vc(m/min)	150	150	150	150	150	150	150	150
		vf(mm/min)	～3,580	～5,730	～7,170	～8,190	～9,550	～9,550	～9,170	～9,550
		fz(mm/t)	～0.6	～0.6	～0.6	～0.8	～0.8	～0.8	～0.8	～0.8
		ap(mm)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	3	9	15	20	29	32	47	63
Hardened Steel 50～60HRC	P405 P420 (vc=60～100)	n(min-1)	2,390	1,910	1,590	1,360	1,190	950	760	600
		vc(m/min)	60	60	60	60	60	60	60	60
		vf(mm/min)	～720	～1,150	～1,430	～1,630	～1,900	～1,900	～1,820	～1,900
		fz(mm/t)	～0.3	～0.3	～0.3	～0.4	～0.4	～0.4	～0.4	～0.4
		ap(mm)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		ae(mm)	～3	～5	～7	～8	～10	～11	～17	～22
		Q(cm3/min)	0.4	1	2	2	3	3	6	8



Ramping with EDTX-type inserts

Since the cutting flute does not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, cutting by direct milling without a pilot hole is possible for ramping and helical milling.

(mm)

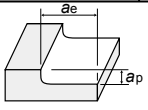


Inserts	EDTX0702									
Tool dia.	ϕ8	ϕ10	ϕ12	ϕ14	ϕ16	ϕ17	ϕ20	ϕ21	ϕ25	ϕ32
Recommended θ	Less than 0.5 °									
Hole Dia	10～15	13～19	17～23	21～27	25～31	27～33	33～39	35～41	43～49	57～63

Recommended Cutting Conditions

Side Milling standard cutting conditions for JDTX-type inserts

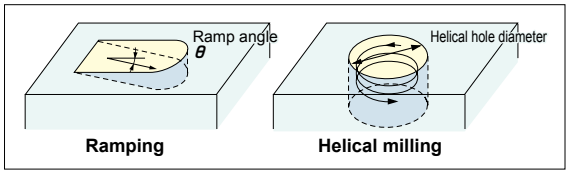
Work material	Recommended grade	Cutting speed v_c (m/min) / Feed rate per tooth f_z (mm/t)	Tool dia.	φ8 / 1 Flute	φ10 / 2 flutes	φ12 / 3 Flutes	φ14 / 3 Flutes	φ16 / 4 Flutes	φ20 / 5 Flutes	φ25 / 6 Flutes	φ32 / 8 Flutes
Carbon Steel Alloy Steel <30HRC	P420 TH30	v_c=150～200	n(min^{-1})	7,170	5,730	4,780	4,090	3,580	2,870	2,290	1,790
			v_c(m/min)	180	180	180	180	180	180	180	180
		f_z=0.04～0.09	v_f(mm/min)	500	800	1,000	860	1,000	1,000	960	1,000
			f_z(mm/t)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Die Tool Steel <30HRC	P420 TH30	v_c=130～180	n(min^{-1})	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
			v_c(m/min)	150	150	150	150	150	150	150	150
		f_z=0.04～0.07	v_f(mm/min)	360	570	720	610	720	720	690	720
			f_z(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Pre-Hardened Steel Alloy Steel Die Tool Steel 30～40HRC	P420 TH30	v_c=100～150	n(min^{-1})	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
			v_c(m/min)	120	120	120	120	120	120	120	120
		f_z=0.04～0.07	v_f(mm/min)	290	460	570	490	570	570	550	570
			f_z(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Pre-Hardened Steel Alloy Steel Die Tool Steel 40～50HRC	P420	v_c=80～120	n(min^{-1})	3,580	2,860	2,390	2,050	1,790	1,430	1,150	900
			v_c(m/min)	90	90	90	90	90	90	90	90
		f_z=0.04～0.07	v_f(mm/min)	220	340	430	370	430	430	410	430
			f_z(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
			a_p(mm)	2	2	2	2	2	2	2	2
			a_e(mm)	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC
Stainless Steel	M460 TH30 P420	v_c=100～150	n(min^{-1})	4,780	3,820	3,180	2,730	2,390	1,910	1,530	1,190
			v_c(m/min)	120	120	120	120	120	120	120	120
		f_z=0.04～0.09	v_f(mm/min)	290	460	570	490	570	570	550	570
			f_z(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Cast Iron/ Ductile Cast Iron	P420 TH30	v_c=130～180	n(min^{-1})	5,970	4,780	3,980	3,410	2,990	2,390	1,910	1,490
			v_c(m/min)	150	150	150	150	150	150	150	150
		f_z=0.04～0.10	v_f(mm/min)	420	670	840	720	840	840	800	840
			f_z(mm/t)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Alminum Alloy (Wet Condition)	D510 TH30 P420	v_c=200～500	n(min^{-1})	11,940	9,550	7,960	6,820	5,970	4,780	3,820	2,990
			v_c(m/min)	300	300	300	300	300	300	300	300
		f_z=0.04～0.12	v_f(mm/min)	960	1,530	1,910	1,640	1,910	1,910	1,830	1,910
			f_z(mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Hardened Steel 50～60HRC	P405 P420	v_c=60～100	n(min^{-1})	2,390	1,910	1,590	1,360	1,190	950	760	600
			v_c(m/min)	60	60	60	60	60	60	60	60
		f_z=0.04～0.07	v_f(mm/min)	140	230	290	240	290	290	270	290
			f_z(mm/t)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
			a_p(mm)	2	2	2	2	2	2	2	2
			a_e(mm)	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC	0.05DC



Ramping with JDTX-type inserts

Since the cutting flute does not extend to the center, there are limitations on the ramp angle and hole diameter, but as shown below, cutting by direct milling without a pilot hole is possible for ramping and helical milling.

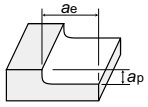
(mm)



Inserts	JDTX0702									
Tool dia.	φ8	φ10	φ12	φ14	φ16	φ17	φ20	φ21	φ25	φ32
Recommended θ	Less than 1 °									
Hole Dia	10～15	13～19	17～23	21～27	25～31	27～33	33～39	35～41	43～49	57～63

Cutting conditions for aluminum alloy and copper

<Shoulder cutting>：*a*e=0.5D　　<Recommended grade>：D510

Metric

Work material		ϕ8	ϕ10	ϕ12	ϕ14	ϕ16	ϕ17	ϕ20	ϕ21	ϕ25	ϕ32
Expanded aluminum alloy material 5052,7075, etc. (Wet：Water-soluble agent)	*n* (min^{-1})	11,900	12,700	10,600	11,400	9,900	9,400	9,500	9,100	7,600	6,000
	*v*f (mm/min)	950	2,040	2,550	2,730	3,180	3,000	3,820	3,640	3,670	3,820
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	300	400	400	500	500	500	600	600	600	600
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2
Cast aluminum alloy material 383.0, etc. (Wet：Water-soluble agent)	*n* (min^{-1})	9,900	11,100	9,300	9,100	8,000	7,500	8,000	7,600	6,400	5,000
	*v*f (mm/min)	800	1,780	2,230	2,180	2,550	2,400	3,180	3,030	3,060	3,180
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	250	350	350	400	400	400	500	500	500	500
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2
Pure copper C11000,C10200, etc. (Wet：Water-soluble agent)	*n* (min^{-1})	9,900	9,500	8,000	6,800	6,000	5,600	4,800	4,500	3,820	3,000
	*v*f (mm/min)	800	1,530	1,910	1,640	1,910	1,800	1,910	1,820	1,830	1,910
	*f*z (mm/t)	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	*v*c (m/min)	250	300	300	300	300	300	300	300	300	300
	*a*p (mm)	2	2	2	2	2	2	2	2	2	2