MECX

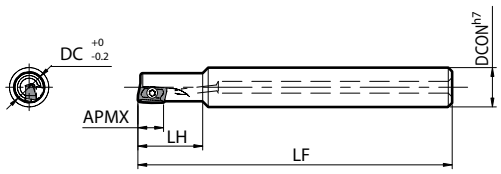


Fig. 1

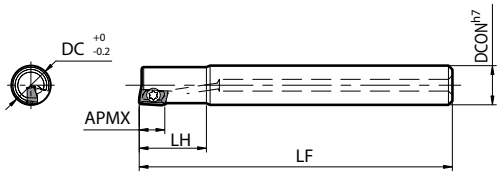


Fig. 2

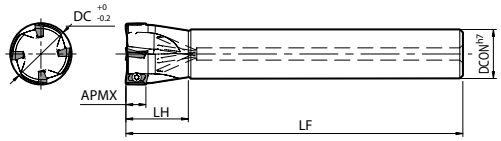


Fig. 3

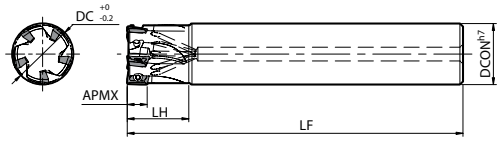


Fig. 4

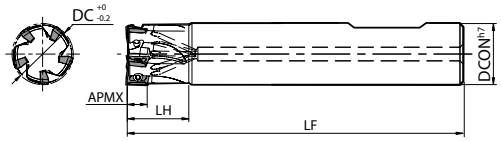


Fig. 5

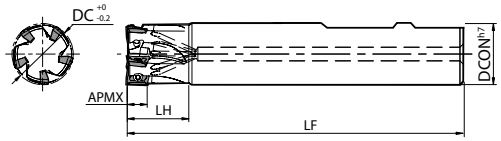


Fig. 6

Toolholder dimensions

Description				Availability	Inserts	Dimension (mm)					A.R. max. (°)	R.R. (°)	Coolant hole	Max. revolution (min⁻¹)	Fig.	Spare parts: Anti-seize compound	Spare parts: Screw	Spare parts: Wrench	Applicable inserts ➡ M100
						DC	DCON	LF	LH	APMX									
Standard shank	Standard	MECX	08-S10-07-1T	●	1	8	10	80	16	6	+11.7	-24	Yes	48100	1	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			14-S12-07-2T	●	2	14	12		18		+16.3	-12.1		44800	3				
			17-S16-07-3T	●	3	17	16	100	20			-11		42400	3		SB-2042TRG		
			18-S16-07-3T	●		18						-10.9		41600	3				
			20-S16-07-4T	●	4	20		110				-10.4		40200	3				
			21-S20-07-4T	●		21	20					-10.1		39500	3				
			25-S20-07-5T	●	5	25		120	25			-9.7		37000	3				
			26-S25-07-5T	●		26	25					-9.5		36500	3				
			33-S32-07-6T	●	6	33	32	130	30			-8.8		33100	3				
	Fine pitch	MECX	20-S16-07-5T	●	5	20	16	110	20	6	+16.3	-10.4	Yes	40200	3	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			25-S20-07-7T	●	7	25	20	120	25			-9.7		37000	3				
Same shank	Standard	MECX	10-S10-07-1T	●	1	10	10	80	17	6	+12.8	-18.7	Yes	47100	2	P-37	SB-2035TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			12-S12-07-2T	●	2	12	12		18		+14.3	-13.7		46200	4				
			16-S16-07-3T	●	3	16	16	100	20		+16.3	-11.3		43200	4		SB-2042TRG		
			20-S20-07-4T	●	4	20	20	110				-10.4		40200	4				
			25-S25-07-5T	●	5	25	25	120	25			-9.7		37000	4				
	Fine pitch	MECX	16-S16-07-4T	●	4	16	16	100	20	6	+16.3	-11.3	Yes	43200	4	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			20-S20-07-5T	●	5	20	20	110				-10.4		40200	4				
			25-S25-07-7T	●	7	25	25	120	25			-9.7		37000	4				
			32-S32-07-8T	●	8	32	32	130	30			-8.9		33600	4				
Long shank	Standard	MECX	17-S16-130-07-3T	●	3	17	16	130	20	6	+16.3	-11	Yes	42400	3	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			21-S20-140-07-4T	●	4	21	20	140				-10.1		39500	3				
			26-S25-160-07-5T	●	5	26	25	160	25			-9.5		36500	3				
Weldon	Standard	MECX	16-W16-07-3T	●	3	16	16	68.5	20	6	+16.3	-11.3	Yes	43200	5	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			20-W20-07-4T	●	4	20	20	81				-10.4		40200	5				
			25-W25-07-5T	●	5	25	25	88	25			-9.7		37000	6				
	Fine pitch	MECX	16-W16-07-4T	●	4	16	16	68.5	20	6	+16.3	-11.3	Yes	43200	5	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT BDMT0703...-JS
			20-W20-07-5T	●	5	20	20	81				-10.4		40200	5				
			25-W25-07-7T	●	7	25	25	88	25			-9.7		37000	6				

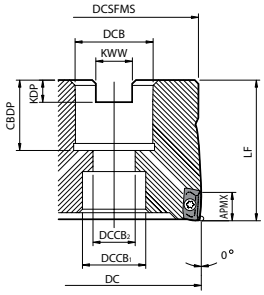
Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load. For more details, see „Warning“ on page **M101**.

For good shoulder finishes by MECX multistage ap. In order to obtain smooth machining wall surface by MECX multistage ap set ap within 5mm for each cut.

Coat Anti-seize Compound(P-37) thinly on portion of taper and thread when insert is fixed.

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

MECX



Toolholder dimensions

Description		Availability	Inserts	Dimension (mm)										A.R. MAX. (°)	R.R. (°)	Coolant hole	Max. revolution (min⁻¹)	Weight (kg)	Spare parts			Applicable inserts M100
		R		DC	DCSFMS	DCB	$DCCB_1$	$DCCB_2$	LF	CBDP	KDP	KWW	APMX						Anti-seize compound	Screw	Wrench	
MECX	032R-07-8T-M	●	8	32	30	16	14	8.5	40	20	5.5	8.5	6	+7	-8.9	Yes	33600	0.15	P-37	SB-2042TRG	DTM-6	BDMT0703...-JT
	040R-07-10T-M	●	10	40	38	22	18	12		22	6.3	10.4			-8.4		30500	0.25				BDMT0703...-JS

Max. revolution : Do not use the cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter even under no load.
For more details, see „Warning“ on page **M101**.
For good shoulder finishes by MECX multistage ap.
In order to obtain smooth machining wall surface by MECX multistage ap set ap within 5mm for each cut.
Coat Anti-seize Compound(P-37) thinly on portion of taper and thread when insert is fixed.
MECX032R comes with mounting bolt (HH8X25H) and MECX040R comes with mounting bolt (HH10X30H).

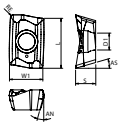
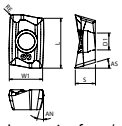
● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

BDMT

Classification of usage

★ : Roughing / 1st Choice
☆ : Roughing / 2nd Choice
■ : Finishing / 1st Choice
□ : Finishing / 2nd Choice
(In case hardness is 45HRC or under)

Carbon steel / Alloy steel				★	☆	P
Mold and die steel				★	☆	P
Austenitic stainless steel		☆		☆	★	M
Martensitic stainless steel	★				☆	M
Precipitation hardening stainless steel		☆			★	M
Gray cast iron			★			K
Nodular cast iron			★			K
Non-ferrous metals						N
Heat-resistant alloy	★				☆	S
Titanium alloy		☆			★	S
Hard materials						H

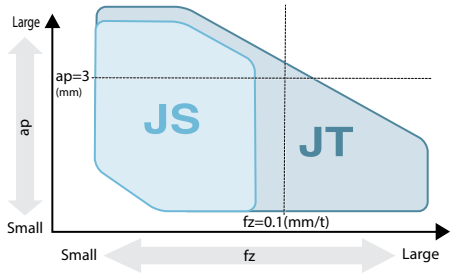
Insert		Description	No. of edges	Dimension (mm) S	D1	RE	L	W1	Angle (°) AN	AS	Carbide CVD CA6535	PVD PR1535	PR1810	PR1825	PR1835	Applicable toolholder ➡ M98 M99
		BDMT 070302ER-JT 070304ER-JT 070308ER-JT	2	2.6	2.3	0.2 0.4 0.8	6.7	4.6	15	16	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	MECX...-07-...
	 Low cutting force / Stainless steel	BDMT 070302ER-JS 070304ER-JS 070308ER-JS	2	2.6	2.3	0.2 0.4 0.8	6.7	4.6	15	16	● ● ●	● ● ●		● ● ●	● ● ●	MECX...-07-...

Handed insert shows Right-hand

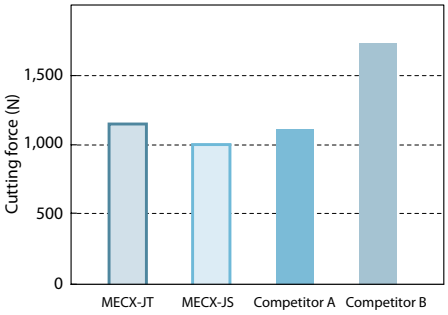
Recommended cutting conditions ➡ M101

● : Standard item R : Right-hand only L : Left-hand only □ : Check availability

Chipbreaker selection



Cutting force comparison (Internal evaluation)



C45
Vc = 150 m/min
ap x ae = 5x5 mm
fz = 0.07 mm/t

Warning Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about max. revolution indicated on main body

1. Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause inserts and parts to scatter or the body may be damaged even under no load.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000min^{-1}), refer to the table to adjust the balance of MECX and suitable arbor.

Revolution (min^{-1})	Balance quality grade G ISO 1940-1/8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

Recommended cutting conditions

Workpiece material	fz (mm/t)		Recommended insert grades (Vc: m/min)			
	JS chipbreaker	JT chipbreaker	MEGACOAT NANO EX (MEGACOAT NANO)			CVD coated carbide
			PR1835 (PR1535)	PR1825	PR1810	CA6535
Carbon steel	0.04~**0.08**~0.1	0.06~**0.1**~0.12	☆ 120~**180**~250	★ 120~**180**~250	-	-
Alloy steel	0.04~**0.06**~0.08	0.06~**0.08**~0.1	☆ 100~**160**~220	★ 100~**160**~220	-	-
Mold steel	0.04~**0.06**~0.08	0.06~**0.08**~0.1	☆ 80~**140**~180	★ 80~**140**~180	-	-
Stainless steel (Austenitic related)	0.03~**0.04**~0.05	0.05~**0.06**~0.07	★ 100~**160**~200	☆ 100~**160**~200	-	-
Stainless steel (Martensitic related)	0.03~**0.04**~0.05	0.05~**0.06**~0.1	☆ 150~**200**~250	-	-	★ 180~**240**~300
Stainless steel (Precipitation hardening)	0.03~**0.04**~0.05	0.05~**0.06**~0.1	★ 90~**120**~150	-	-	-
Gray cast iron	0.04~**0.08**~0.1	0.08~**0.1**~0.15	-	-	★ 120~**180**~250	-
Nodular cast iron	0.04~**0.06**~0.08	0.08~**0.1**~0.12	-	-	★ 100~**150**~200	-
Ni-base heat-resistant alloys	0.03~**0.04**~0.05	0.05~**0.06**~0.07	☆ 20~**30**~50	-	-	★ 20~**30**~50
Titanium alloys	0.04~**0.06**~0.08	0.08~**0.1**~0.12	★ 40~**60**~80	-	-	-

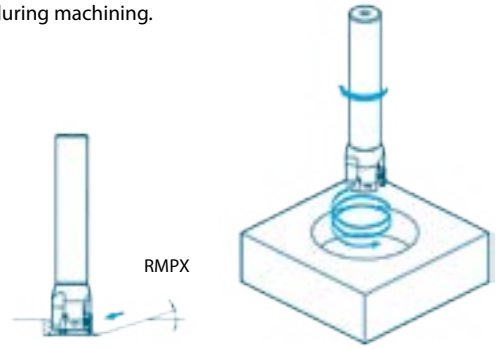
* Machining with coolant is recommended for Ni-base heat-resistant alloys and titanium alloys.

★: 1st Recommendation ☆: 2nd Recommendation

Ramping/Helical milling

Ramping angle is recommended under RMPX.

Refer to each tool's cutting performance list for sinking depth per revolution when helical milling.
Use compressed air during machining.



Cutting dia.	Applicable inserts	Max. ramping angle (RMPX)
ø8	BDMT0703 type	Not recommended
ø10		1.5°
ø12,ø14		2°
ø16		3°
ø17,ø18		1.5°
ø20		2°
ø21		1.8°
ø25		1.3°
ø26		1.2°
ø32		0.8°
ø33		0.5°

Guidance of minimum cutting dia. by helical milling

MECX	Cutting dia.	ø8	ø10	ø12	ø14	ø16	ø17	ø18	ø20
BDMT0703 type	Guidance of minimum cutting dia. by helical milling	Helical milling is not recommended	ø14	ø18	ø22	ø26	ø28	ø30	ø34
	Guidance of minimum cutting dia. in case of flatting bottom after helical milling		ø17	ø21	ø25	ø29	ø31	ø33	ø37

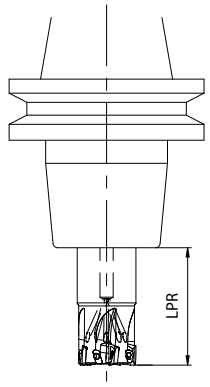
MECX	Cutting dia.	ø21	ø25	ø26	ø32	ø33
BDMT0703 type	Guidance of minimum cutting dia. by helical milling	ø36	ø44	ø46	ø58	ø60
	Guidance of minimum cutting dia. in case of flatting bottom after helical milling	ø39	ø47	ø49	ø61	ø63

Cutting performance of MECX end mill

(Vc = 150 m/min Workpiece material: C50)

Cutting dia.	Description	Overhang length LPR (mm)	
ø8	MECX08-S10-07-1T	16	-
ø10	MECX10-S10-07-1T	17	-
ø12	MECX12-S12-07-2T	18	30
ø16	MECX16-S16-07-3T	20	40
ø20	MECX20-S20-07-4T	20	40
ø25	MECX25-S25-07-5T	25	50
ø32	MECX32-S32-07-6T	30	50

Shape



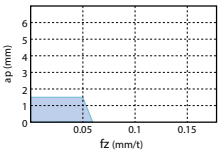
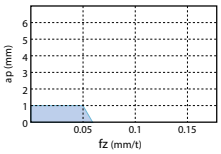
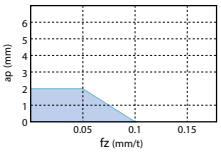
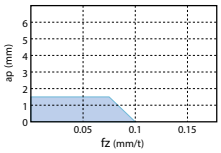
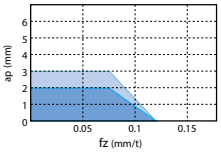
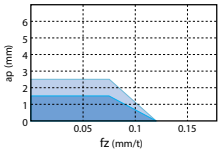
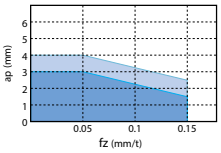
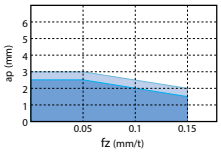
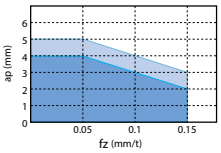
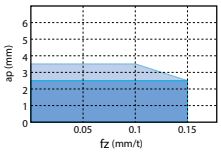
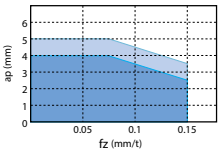
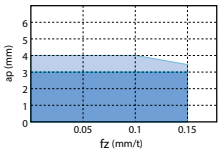
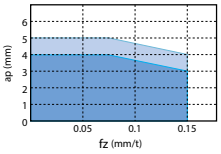
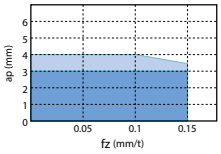
* Machining with extended Overhang length is not recommended for ø8 and ø10.

* The cutting performance list shows applicable range of JT chipbreaker with Standard flute-number type.

For multi-edge type, use with 70% or less of ap.

* Cutting conditions of JS chipbreaker

1. For MECX08~MECX12
   Decrease the feed rate by 25% according to cutting capability list.
2. For MECX16 and over
   Decrease the feed rate and ap by 30% according to cutting capability list.

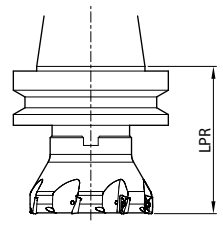
Description	Shouldering (Cutting width ae = DC/2)	Slotting Ramping and helical milling
MECX08-S10-07-1T		
MECX10-S10-07-1T		
MECX12-S12-07-2T		
MECX16-S16-07-3T		
MECX20-S20-07-4T		
MECX25-S25-07-5T		
MECX32-S32-07-6T		

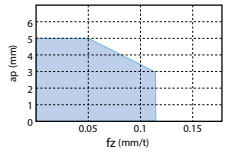
Cutting performance of MECX face mill

(Vc = 150 m/min Workpiece material: C50)

Cutting dia.	Description	Overhang length LPR (mm)
ø32	MECX032R-07-8T-M	100
ø40	MECX040R-07-10T-M	

Shape



Description	Shouldering (Cutting width ae=DC/2)
MECX032R-07-8T-M MECX040R-07-10T-M	

* Use JT chipbreaker.
* Slotting is not recommended.