

# PRODUCT NEWS

PN-U-003A

TYPE EXSIX

 **DIJET**®

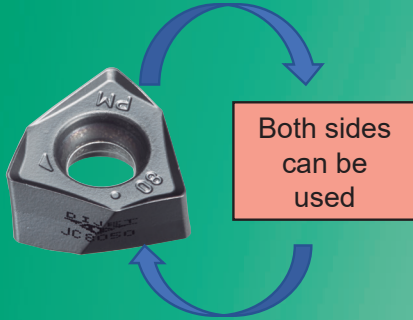
## ***SHOULDER SIX***

For shoulder milling with double-sided insert.

■ Face mill type  $\phi$  2.00" ~  $\phi$  6.00" ( $\phi$  50mm ~  $\phi$  160mm)



## FEATURES



- Double-sided insert with 6 cutting edges
- Max. ap: **.400"**
- High rigidity insert with **.295"** thickness
- Corner Radii available: **.031"** and **.062"**
- Low cutting force shape has unique 3D chip breaker

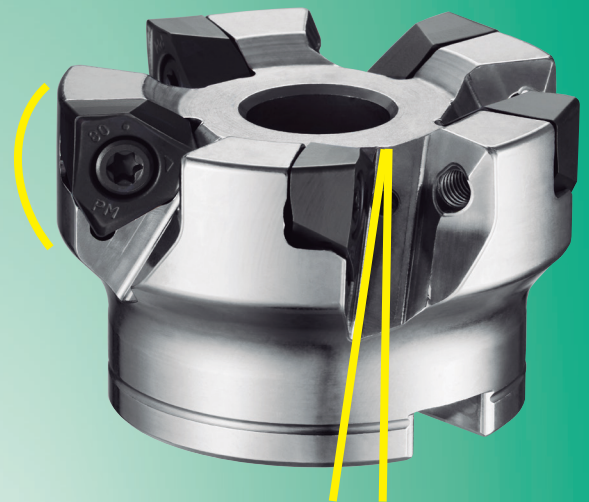
- Tool diameters from **2"** to **6"**

- Due to the arc-geometry on the peripheral cutting edge, the cusp height can be smaller even in case of large ap.

→ **Achieves high efficient & high precision machining for side walls**

- Body's A.R. is positive due to the unique 3D insert.

→ **Achieves low cutting force**



### Two insert grades available:

PVD coated grade "JC8050" achieves both fracture toughness and wear resistance.

PVD coated grade "JC8118" provides high versatility and can be widely applied to general steel, mold steel and high hardened die steel less than 50HRC.

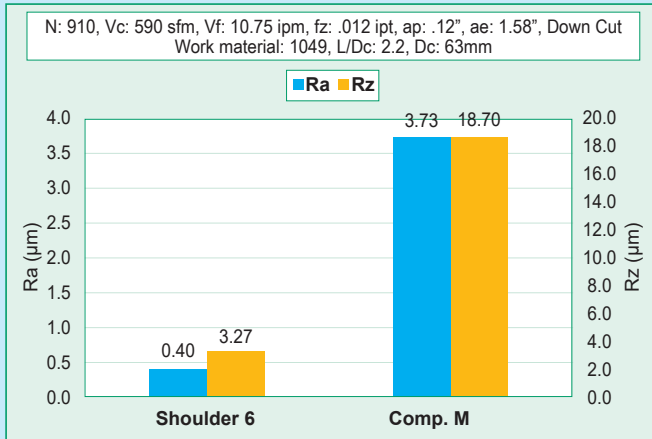
### ● Application

ISO	P					M					K				H		
	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	H01	H10	H20
Applicable Range				JC8050					JC8050								
		JC8118				JC8118					JC8118					JC8118	

## SURFACE FINISH COMPARISON

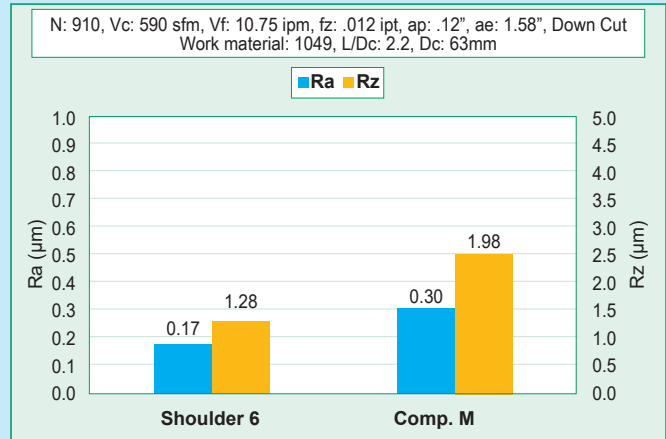
### Low depth of cut

#### Side wall



Good chip evacuation due to  
Positive Axial rake

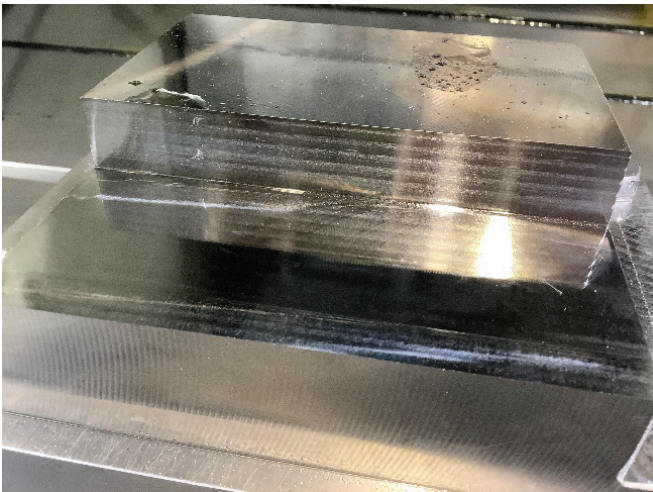
#### Bottom face



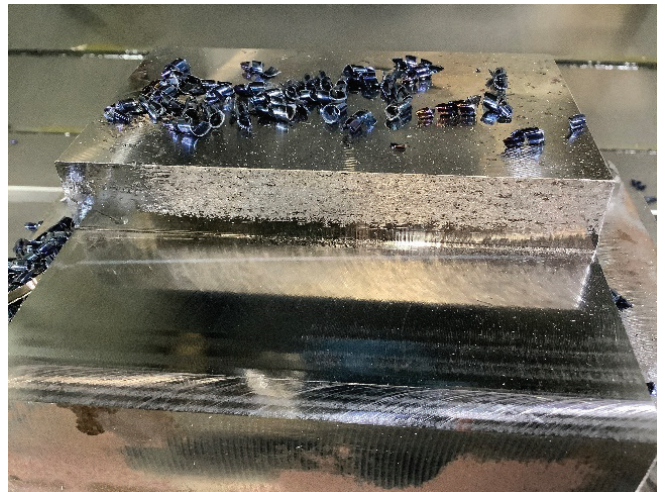
Excellent machined surface  
due to the effect of wiper edge

## SHOULDER CUTTING MACHINED SURFACES WITH LOW D.O.C.

### SHOULDER SIX

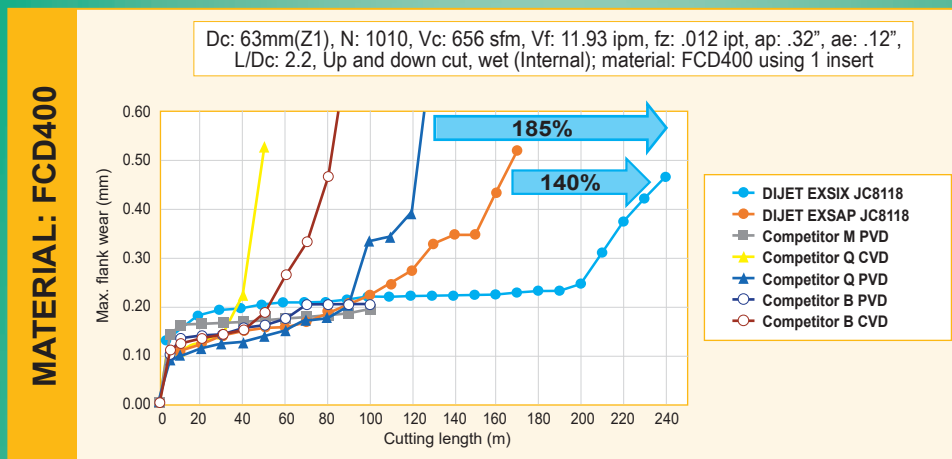
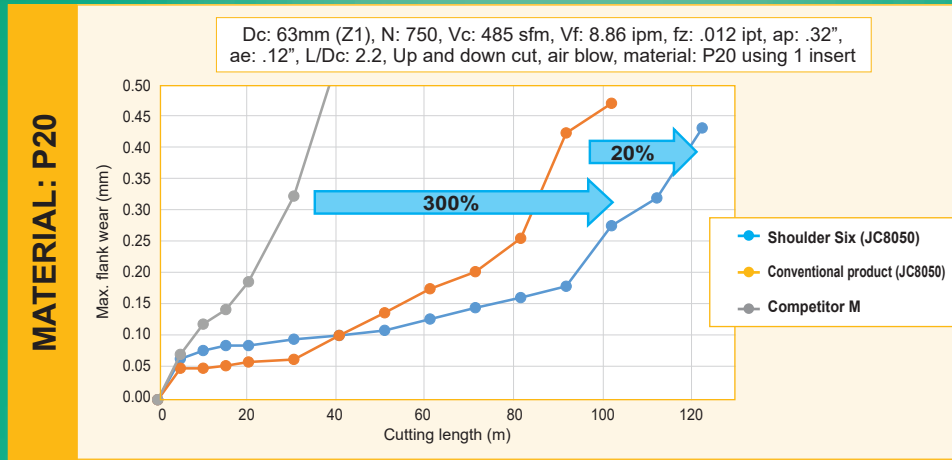


### COMPETITOR M

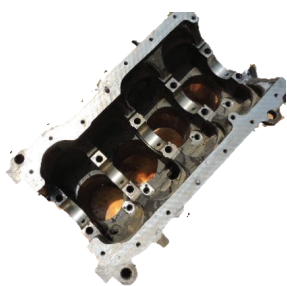

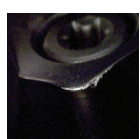


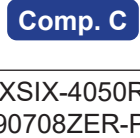



# SHOULDER SIX

## TOOL LIFE COMPARISON



## CUTTING DATA

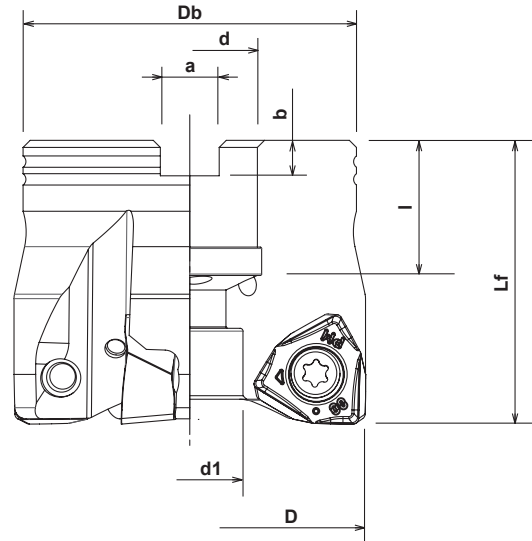
 <p><b>Rough bottom face</b></p>		 		<b>Work</b>	<b>Part Name</b>	Stamping die
		 			<b>Material</b>	Cast iron 35
		 			<b>Hardness</b>	-
				<b>Tool</b>	4N- Ø50mm	
<b>Tool No.</b>	EXSIX-4050R-22			<b>Cutting Conditions</b>	<b>Spindle Speed</b>	764 Min <sup>-1</sup>
<b>Inserts No.</b>	YCMU090708ZER-PM JC8118				<b>Cutting Speed</b>	394.7 sfm
<b>Competitor</b>	Comp. C Ø50-5N AXMT170508PEER-G ACK3000				<b>Feed Speed</b>	15 ipm
<b>Wear or Chipping</b>	Wear				<b>Chip Load</b>	.005 ipt
<b>Evaluation</b>	Tool life was the same, but the number of inserts was small, so production cost is reduced.				<b>Ap</b>	.2"
				<b>Ae</b>	1.57"	
				<b>Coolant</b>	Wet (Internal)	



**INCH**

# Shoulder Six

## FACE MILL EXSIX Type



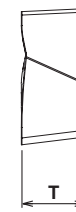
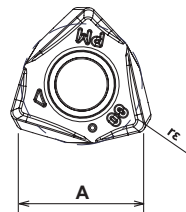
### Specifications - Inch

CATALOG NUMBER	STK	DIMENSIONS							INSERT	Q	PARTS		
		D	Lf	Db	d	d1	a	b			l	Screw	Wrench
EXSIX-4200R-075	•	2.00	1.575	1.85	.750	.590	.319	.197	.750	YCMU090708ZER-PM YCMU090716ZER-PM	4	CSW-513H	A-20
EXSIX-5250R-075	•	2.50	1.575	1.97	.750	.630	.319	.197	.750		5		
EXSIX-6300R-100	•	3.00	1.75	2.20	1.00	.787	.374	.236	.750		6		
EXSIX-6300R-125	•	3.00	2.00	2.20	1.25	1.02	.500	.315	.866		6		
EXSIX-7400R-150	•	4.00	2.37	3.78	1.50	1.19	.626	.394	1.00		7		
EXSIX-8500R-150	•	5.00	2.37	3.78	1.50	1.19	.626	.394	1.00		8		
EXSIX-9600R-150*	•	6.00	2.37	3.78	1.50	2.36	.626	.394	1.38		9		

\* NOTE: No coolant thru

Note: All cutters are supplied without inserts or wrench.

### INSERTS



### Insert Specifications

CATALOG NUMBER	DIMENSIONS				PVD COATED	
	TOLERANCE	A	T	rε	JC8050	JC8118
YCMU090708ZER-PM	M	.551	.295	.031	•	•
YCMU090716ZER-PM		.551	.295	.062	•	•



# Shoulder Six

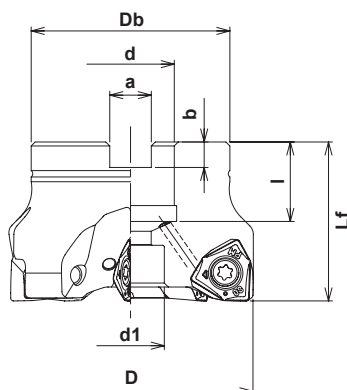
**METRIC**

## FACE MILL EXSIX Type



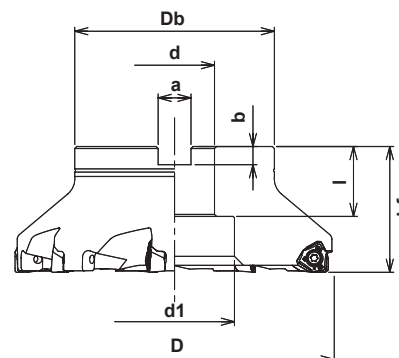
With Coolant Through

Fig. 1



Without Coolant Through

Fig. 2



## Specifications - Metric

CATALOG NUMBER	STK	DIMENSIONS								ARBOR BOLT	Q	FIG.	INSERT & PARTS
		D	Lf	Db	d	d1	a	b	l				
EXSIX-4050R-22	•	50	40	47	22	14	10.4	6.3	20	M10X1.5X25*	4	1	YCMU090708ZER-PM YCMU090716ZER-PM CSW-513H A-20
EXSIX-4052R-22	⊕	52	40	47	22	14	10.4	6.3	20	M10X1.5X25*	4	1	
EXSIX-5063R-22	•	63	40	50	22	17	10.4	6.3	20	M10	5	1	
EXSIX-5066R-22	⊕	66	40	50	22	17	10.4	6.3	20	M10	5	1	
EXSIX-6080R	•	80	50	56	25.4	20	9.5	6	24	M12X1.75X30*	6	1	
EXSIX-6080R-27	•	80	50	56	27	20	12.4	7	22	M12X1.75X30*	6	1	
EXSIX-7100R	•	100	63	85	31.75	26	12.7	8	32	M16X2X40*	7	1	
EXSIX-7100R-32	•	100	50	85	32	26	14.4	8	25	M16X2X30*	7	1	
EXSIX-8125R	•	125	70	100	38.1	32	15.9	10	38	M20X2.5X40*	8	1	
EXSIX-8125R-40	•	125	63	100	40	32	16.4	9	32	M20X2.5X40*	8	1	
EXSIX-9160R	•	160	63	100	50.8	85	19	11	38	M24	9	2	
EXSIX-9160R-40	•	160	63	100	40	60	16.4	9	35	M20	9	2	

⊕ - delivery may be longer

**Note: All cutters are supplied without inserts, wrench or moly.**
**NOTES:**

1. Arbor bolt included on cutters marked with \* under arbor bolt columns.

All other cutters use bolt supplied with arbor.

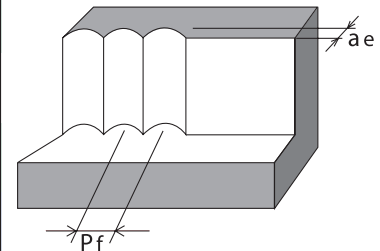
# Shoulder Six

## Recommended Cutting Data

Material	Grade	Side Milling				Face Milling			
		SFM	IPT	DOC	WOC	SFM	IPT	DOC	WOC
Gray Cast Iron	JC8118 JC8050	700	.012"	.320"	up tp 6% Dc	600	.012"	.240"	80%
Nodular Cast Iron	JC8118 JC8050	650	.012"	.320"	up to 5% Dc	550	.012"	.160"	80%
Carbon Steel	JC8118 JC8050	600	.012"	.320"	up to 5% Dc	500	.012"	.160"	80%
Low Alloy Steel	JC8118 JC8050	550	.012"	.320"	up to 5% Dc	450	.012"	.160"	80%
Mold Steel	JC8118 JC8050	500	.010"	.320"	up to 4% Dc	400	.010"	.160"	80%
Tool & Die Steel (40-50 HRC)	JC8118	400	.006"	.320"	up to 3% Dc	300	.006"	.100"	60%
Hardened Die Steel (50-60 HRC)	JC8118	300	.006"	.250"	up to 2.5% Dc	250	.006"	.080"	40%
Stainless Steel (Austenitic)	JC8050 JC8118	450	.010"	.320"	up to 5% Dc	300	.010"	.160"	60%
Stainless Steel (Martensitic)	JC8118 JC8050	500	.012"	.320"	up to 5% Dc	400	.012"	.160"	60%

## Recommended Cutting Data for Plunge Milling

Material	Grade	SFM	IPT	Ae (Radial DOC)	PF (Pick Feed)
Gray Cast Iron	JC8118 JC8050	700	.012"	0 ~ .200"	up to 50% Dc
Nodular Cast Iron	JC8118 JC8050	650	.012"	0 ~ .200"	up to 50% Dc
Carbon Steel	JC8118 JC8050	600	.010"	0 ~ .200"	up to 50% Dc
Low Alloy Steel	JC8118 JC8050	550	.008"	0 ~ .200"	up to 50% Dc
Mold Steel	JC8118 JC8050	500	.006"	0 ~ .200"	up to 50% Dc
Tool & Die Steel (40-50 HRC)	JC8118	400	.004"	0 ~ .200"	up to 50% Dc
Hardened Die Steel (50-60 HRC)	JC8118	250	.004"	0 ~ .200"	up to 20% Dc
Stainless Steel (Austenitic)	JC8050 JC8118	450	.006"	0 ~ .200"	up to 50% Dc
Stainless Steel (Martensitic)	JC8118 JC8050	500	.008"	0 ~ .200"	up to 50% Dc



- NOTE:**
- Above parameters should be adjusted according to the machine rigidity & work rigidity.
  - If chatter occurs, recommend to reduce DOC or spindle speed and maintain IPT.
  - If machine does not have enough power, recommend reducing DOC or spindle speed and feed.
  - Use air only.

# WORLDWIDE DISTRIBUTION



**DIJET, INC.**  
 45807 Helm Street, Plymouth, MI 48170  
 Phone: 1-800-743-4538 Fax: 1-734-454-9395  
[www.dijetusa.com](http://www.dijetusa.com)



**DIJET INDUSTRIAL CO., LTD.**  
 2-1-18, Kami-Higashi, Hirano-ku,  
 Osaka 547-0002, Japan  
 Phone: +81-6-6794-0167  
 Fax: +81-6-6793-3930  
[www.dijet.co.jp](http://www.dijet.co.jp)

**DIJET GmbH**  
 Immermannstr. 9  
 40210 Düsseldorf, Germany  
 Phone: +49 (0) 211-5008820  
 Fax: +49 (0) 211-5008823  
[www.dijet.de](http://www.dijet.de)

