



Catch^{THE} Wave

In High Speed ROUGHING of Aluminum

***Designed for
high performance
roughing and finishing
in Aluminum machining***

***State-of-the-art
patented flute profile
generating higher volume
of metal removal***



PM - Super Cobalt

**HIGH SPEED MACHINING FOR
ROUGHING OF ALUMINUM**

Maximum metal removal
at high feeds & speeds
High pressure coolant holes
polished flutes

**USINAGE GRANDE VITESSE POUR
ÉBAUCHE DE L'ALUMINIUM**

Enlèvement de matière grand débit
à hautes vitesses et avances
Trous refroidissant pour haute
pression goujures polies

**MECANIZADO A GRANDE
VELOCIDAD PARA DESBASTES
EN ALUMINIO**

Capacidad de arranque máximo
a alta velocidad y avances
Agujeros de lubricación para alta
presión – cuchillos pulidos

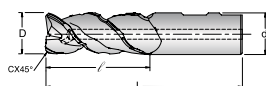
**ERHÖHTE GESCHWINDIGKEIT
BEIM SCHRUPPEN IN ALUMINIUM**

Maximale Spanabhebung mit
erhöhtem Vorschub und
Schnittgeschwindigkeit;
innere Kühlmittelzufuhr;
hochglanzpolierte Schneiden

LIST RPM (WITH COOLANT HOLES)



D	d	/	L	Z	Tool No. Uncoated	Tool No. TiCN
3/8	3/8	3/4	2-1/2	3	RPM-1208	TCRPM-1208
3/8	3/8	1	2-3/4	3	RPM-1210	TCRPM-1210
1/2	1/2	1-1/4	3-1/4	3	RPM-1612	TCRPM-1612
1/2	1/2	2	4	3	RPM-1620	TCRPM-1620
5/8	5/8	1-5/8	3-3/4	3	RPM-2016	TCRPM-2016
5/8	5/8	2-1/2	4-5/8	3	RPM-2025	TCRPM-2025
3/4	3/4	1-5/8	3-7/8	3	RPM-2416	TCRPM-2416
3/4	3/4	2-1/2	4-3/4	3	RPM-2425	TCRPM-2425
1	1	2	4-1/2	3	RPM-3220	TCRPM-3220
1	1	3	5-1/2	3	RPM-3230	TCRPM-3230
1-1/4	1-1/4	2	4-1/2	3	RPM-4020	TCRPM-4020
1-1/4	1-1/4	3	5-1/2	3	RPM-4030	TCRPM-4030
1-1/2	1-1/4	2	4-1/2	3	RPM-4820	TCRPM-4820
1-1/2	1-1/4	3	5-1/2	3	RPM-4830	TCRPM-4830
2	1-1/4	2	4-1/2	3	RPM-6420-40	TCRPM-6420-40
2	1-1/4	3	5-1/2	3	RPM-6430-40	TCRPM-6430-40
2	2	2	5-3/4	3	RPM-6420	TCRPM-6420
2	2	3	6-3/4	3	RPM-6430	TCRPM-6430



PM - Super Cobalt

**HIGH SPEED MACHINING FOR
ROUGHING OF ALUMINUM**

*Optimum performance
with maximum chip load per tooth
Increased toughness – exceptional
tool life – polished flutes*

**USINAGE GRANDE VITESSE POUR
EBAUCHE DE L'ALUMINIUM**

*Performance optimal avec avances
maximum par dent
Résistance accrue – durée de vie
prolongée – goujures polies*

**MECANIZADO A GRANDE
VELOCIDAD PARA DESBASTES
EN ALUMINIO**

*óptimo rendimiento con anticipos
máximo por diente
Resistencia superada – duración de
vida prolongada – cuchillos pulidos*

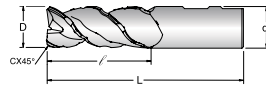
**HOCHLEISTUNGSSCHRUPPEN IN
ALUMINIUM**

*Optimale Leistung mit maximalem
Vorschub pro Zahn;
erhöhte Widerstandsfähigkeit –
außergewöhnliche Lebensdauer des
Werkzeuges;
hochglanzpolierte Schneiden*

LIST 930PM (WITHOUT COOLANT HOLES)



D	d	/	L	Z	Tool No. Uncoated	Tool No. TiCN
3/8	3/8	3/4	2-1/2	3	930PM-1208	TC930PM-1208
3/8	3/8	1-3/8	3-1/8	3	930PM-1213	TC930PM-1213
1/2	1/2	1-1/4	3-1/4	3	930PM-1612	TC930PM-1612
1/2	1/2	2	4	3	930PM-1620	TC930PM-1620
1/2	1/2	3	5	3	930PM-1630	TC930PM-1630
5/8	5/8	1-5/8	3-3/4	3	930PM-2016	TC930PM-2016
5/8	5/8	2-1/2	4-5/8	3	930PM-2025	TC930PM-2025
3/4	3/4	1-5/8	3-7/8	3	930PM-2416	TC930PM-2416
3/4	3/4	2-1/4	4-1/2	3	930PM-2422	TC930PM-2422
3/4	3/4	3	5-1/4	3	930PM-2430	TC930PM-2430
3/4	3/4	4	6-1/4	3	930PM-2440	TC930PM-2440
1	1	2	4-1/2	3	930PM-3220	TC930PM-3220
1	1	3	5-1/2	3	930PM-3230	TC930PM-3230
1	1	4	6-1/2	3	930PM-3240	TC930PM-3240
1	1	6	8-1/2	3	930PM-3260	TC930PM-3260
1-1/4	1-1/4	2	4-1/2	3	930PM-4020	TC930PM-4020
1-1/4	1-1/4	3	5-1/2	3	930PM-4030	TC930PM-4030
1-1/4	1-1/4	4	6-1/2	3	930PM-4040	TC930PM-4040
1-1/4	1-1/4	6	8-1/2	3	930PM-4060	TC930PM-4060



PM - Super Cobalt

**HIGH PERFORMANCE FOR
ROUGHING ALUMINUM**

Optimum performance
with high chip load per tooth
Higher feeds recommended
polished flutes

**HAUTE PERFORMANCE POUR
ÉBAUCHE DE L'ALUMINIUM**

Performance optimale
avec fortes avances par dent
Avances importantes recommandées
goujures polies

**ALTO RENDIMENTO PARA
ESBASTES EN ALUMINIO**

óptimo rendimiento con anticipos
máximo por diente
Avances importantes recomendado
cuchillos pulidos

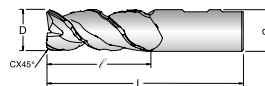
**HOCHLEISTUNGS SCHRUPPEN
IN ALUMINIUM**

Optimale Leistung mit maximalem
Vorschub pro Zahn;
erhöhte Widerstandsfähigkeit
au Bergewöhnliche Lebensdauer
des Werkzeuges;
hochglanzpolierte Schneiden

LIST 930P



D	d	ℓ	L	Z	Tool No. Uncoated	Tool No. TiCN
3/8	3/8	3/4	2-1/2	3	930-1208	TC930-1208
3/8	3/8	1-3/8	3-1/8	3	930-1213	TC930-1213
1/2	1/2	1-1/4	3-1/4	3	930-1612	TC930-1612
1/2	1/2	2	4	3	930-1620	TC930-1620
1/2	1/2	3	5	3	930-1630	TC930-1630
5/8	5/8	1-5/8	3-3/4	3	930-2016	TC930-2016
5/8	5/8	2-1/2	4-5/8	3	930-2025	TC930-2025
3/4	3/4	1-5/8	3-7/8	3	930-2416	TC930-2416
3/4	3/4	2-1/4	4-1/2	3	930-2422	TC930-2422
3/4	3/4	3	5-1/4	3	930-2430	TC930-2430
3/4	3/4	4	6-1/4	3	930-2440	TC930-2440
7/8	7/8	1-7/8	4-1/8	3	930-2818	TC930-2818
7/8	7/8	3-1/2	5-3/4	3	930-2835	TC930-2835
7/8	7/8	5	7-1/4	3	930-2850	TC930-2850
1	1	2	4-1/2	3	930-3220	TC930-3220
1	1	3	5-1/2	3	930-3230	TC930-3230
1	1	4	6-1/2	3	930-3240	TC930-3240
1	1	6	8-1/2	3	930-3260	TC930-3260
1-1/4	1-1/4	2	4-1/2	3	930-4020	TC930-4020
1-1/4	1-1/4	3	5-1/2	3	930-4030	TC930-4030
1-1/4	1-1/4	4	6-1/2	3	930-4040	TC930-4040
1-1/4	1-1/4	6	8-1/2	3	930-4060	TC930-4060
1-1/2	1-1/4	2	4-1/2	3	930-4820	TC930-4820
1-1/2	1-1/4	3	5-1/2	3	930-4830	TC930-4830
1-1/2	1-1/4	4	6-1/2	3	930-4840	TC930-4840
1-1/2	1-1/4	6	8-1/2	3	930-4860	TC930-4860
2	1-1/4	2	4-1/2	3	930-6420-40	TC930-6420-40
2	1-1/4	3	5-1/2	3	930-6430-40	TC930-6430-40
2	1-1/4	4	6-1/2	3	930-6440-40	TC930-6440-40
2	2	3	6-3/4	3	930-6430	TC930-6430
2	2	4	7-3/4	3	930-6440	TC930-6440
2	2	6	9-3/4	3	930-6460	TC930-6460
2	2	8	11-3/4	3	930-6480	TC930-6480



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43.5°



PM - Super Cobalt Extended Neck

**HIGH PERFORMANCE
FOR ROUGHING DEEP
POCKETS IN ALUMINUM**

*Higher metal removal
in high speed machining operations
High pressure coolant holes
polished flutes*

**HAUTE PERFORMANCE
POUR ÉBAUCHE POCHE
PROFONDES DE L'ALUMINIUM**

*Enlèvement de matière grand
débit à hautes vitesses et avances
Trous refroidissant haute pression
goujures polies*

**ALTO RENDIMIENTO PARA
DESBASTES BOSILLOS
PROFUNDO EN ALUMINIO**

*Capacidad de arranque máxima a
alta velocidad y avances
Agujeros de lubricación para alta
presión – cuchillos pulidos*

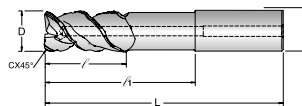
**HOCHLEISTUNG IM SCHRUPPEN
TIEFER TASCHEN IN ALUMINIUM**

*Erhöhte Spanabhebung bei hohen
Vorschub- und
Schnittgeschwindigkeiten;
innere Kühlmittelzufuhr;
polierte Schneiden*

LIST X930P (WITH COOLANT HOLES)



D	d	ℓ	ℓ ₁	L	Z	Tool No. Uncoated	Tool No. TiCN
1/2	1/2	1	3	5	3	X930P-1650	TCX930P-1650
1/2	1/2	1	4	6	3	X930P-1660	TCX930P-1660
5/8	5/8	1-1/4	2-1/2	4-5/8	3	X930P-2046	TCX930P-2046
5/8	5/8	1-1/4	4	6-1/8	3	X930P-2061	TCX930P-2061
3/4	3/4	1-1/2	3	5-1/4	3	X930P-2452	TCX930P-2452
3/4	3/4	1-1/2	4	6-1/4	3	X930P-2462	TCX930P-2462
3/4	3/4	1-1/2	6	8-1/4	3	X930P-2482	TCX930P-2482
1	1	1-1/2	3	5-1/2	3	X930P-3255	TCX930P-3255
1	1	2	4	6-1/2	3	X930P-3265	TCX930P-3265
1	1	2	6	8-1/2	3	X930P-3285	TCX930P-3285
1	1	2	8	10-1/2	3	X930P-32105	TCX930P-32105
1-1/4	1-1/4	2	4	6-1/2	3	X930P-4065	TCX930P-4065
1-1/4	1-1/4	2	6	8-1/2	3	X930P-4085	TCX930P-4085
1-1/4	1-1/4	2-1/2	8	10-1/2	3	X930P-40105	TCX930P-40105
1-1/4	1-1/4	2-1/2	10	12-1/2	3	X930P-40125	TCX930P-40125



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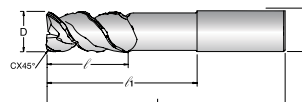
43.5°



LIST X930PN (WITHOUT COOLANT HOLES)



D	d	ℓ	ℓ ₁	L	Z	Tool No. Uncoated	Tool No. TiCN
1/2	1/2	1	3	5	3	X930PN-1650	TCX930PN-1650
1/2	1/2	1	4	6	3	X930PN-1660	TCX930PN-1660
5/8	5/8	1-1/4	2-1/2	4-5/8	3	X930PN-2046	TCX930PN-2046
5/8	5/8	1-1/4	4	6-1/8	3	X930PN-2061	TCX930PN-2061
3/4	3/4	1-1/2	3	5-1/4	3	X930PN-2452	TCX930PN-2452
3/4	3/4	1-1/2	4	6-1/4	3	X930PN-2462	TCX930PN-2462
3/4	3/4	1-1/2	6	8-1/4	3	X930PN-2482	TCX930PN-2482
1	1	1-1/2	3	5-1/2	3	X930PN-3255	TCX930PN-3255
1	1	2	4	6-1/2	3	X930PN-3265	TCX930PN-3265
1	1	2	6	8-1/2	3	X930PN-3285	TCX930PN-3285
1	1	2	8	10-1/2	3	X930PN-32105	TCX930PN-32105
1-1/4	1-1/4	2	4	6-1/2	3	X930PN-4065	TCX930PN-4065
1-1/4	1-1/4	2	6	8-1/2	3	X930PN-4085	TCX930PN-4085
1-1/4	1-1/4	2-1/2	8	10-1/2	3	X930PN-40105	TCX930PN-40105
1-1/4	1-1/4	2-1/2	10	12-1/2	3	X930PN-40125	TCX930PN-40125



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43.5°



PM - Super Cobalt

**SUPER FINISHER END MILLS
FOR ALUMINIUM**

Optimum performance
for finishing operations
Higher feeds – vibration free
polished flutes

**FRAISES SUPERFINITION
POUR ALUMINIUM**

Performance optimale
pour opérations de finition
Avances importantes – sans
vibration goujures polies

**FRESAS PARA SUPERACABADO
EL ALUMINIO**

óptimo rendiendo
para operaciones de acabado
Avances importantes – sin
vibración cuchillos pulidos

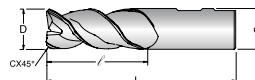
**SUPER SCHLICHTFRÄSER FÜR
ALUMINIUM**

Optimale Leistung beim Schlichten ;
beachtenswerte Vorschübe ;
vibrationsfrei; polierte Schneiden

LIST SF930



D	d	ℓ	L	Z	Tool No. Uncoated	Tool No. TiCN
3/8	3/8	3/4	2-1/2	3	SF930-1208	TCSF930-1208
3/8	3/8	1-3/8	3-1/8	3	SF930-1213	TCSF930-1213
1/2	1/2	1-1/4	3-1/4	3	SF930-1612	TCSF930-1612
1/2	1/2	2	4	3	SF930-1620	TCSF930-1620
1/2	1/2	3	5	3	SF930-1630	TCSF930-1630
5/8	5/8	1-5/8	3-3/4	3	SF930-2016	TCSF930-2016
5/8	5/8	2-1/2	4-5/8	3	SF930-2025	TCSF930-2025
3/4	3/4	1-5/8	3-7/8	3	SF930-2416	TCSF930-2416
3/4	3/4	2-1/4	4-1/2	3	SF930-2422	TCSF930-2422
3/4	3/4	3	5-1/4	3	SF930-2430	TCSF930-2430
3/4	3/4	4	6-1/4	3	SF930-2440	TCSF930-2440
7/8	7/8	1-7/8	4-1/8	3	SF930-2818	TCSF930-2818
7/8	7/8	3-1/2	5-3/4	3	SF930-2835	TCSF930-2835
7/8	7/8	5	7-1/4	3	SF930-2850	TCSF930-2850
1	1	2	4-1/2	3	SF930-3220	TCSF930-3220
1	1	3	5-1/2	3	SF930-3230	TCSF930-3230
1	1	4	6-1/2	3	SF930-3240	TCSF930-3240
1	1	6	8-1/2	3	SF930-3260	TCSF930-3260
1-1/4	1-1/4	2	4-1/2	3	SF930-4020	TCSF930-4020
1-1/4	1-1/4	3	5-1/2	3	SF930-4030	TCSF930-4030
1-1/4	1-1/4	4	6-1/2	3	SF930-4040	TCSF930-4040
1-1/4	1-1/4	6	8-1/2	3	SF930-4060	TCSF930-4060
1-1/2	1-1/4	2	4-1/2	3	SF930-4820	TCSF930-4820
1-1/2	1-1/4	3	5-1/2	3	SF930-4830	TCSF930-4830
1-1/2	1-1/4	4	6-1/2	3	SF930-4840	CSF930-4840
1-1/2	1-1/4	6	8-1/2	3	SF930-4860	TCSF930-4860
2	1-1/4	2	4-1/2	3	SF930-6420-40	TCSF930-6420-40
2	1-1/4	3	5-1/2	3	SF930-6430-40	TCSF930-6430-40
2	1-1/4	4	6-1/2	3	SF930-6440-40	TCSF930-6440-40
2	2	3	6-3/4	3	SF930-6430	TCSF930-6430
2	2	4	7-3/4	3	SF930-6440	TCSF930-6440



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43.5°



PM - Super Cobalt Extended Neck

**HIGH PERFORMANCE FINISHING
FOR DEEP POCKETS IN ALUMINUM**

*Higher feeds in high
speed machining operations
High pressure coolant holes
polished flutes – long shank*

**HAUTE PERFORMANCE FINITION
DE POCHES PROFONDES
DE L'ALUMINIUM**

*Avances importantes
en usinage grande vitesse
Trous refroidissant haute pression
goujures polies – queue allongée*

**ALTO RENDIMIENTO PARA
ACABADO BOSILLOS PROFUNDOS
EL ALUMINIO**

*Avances importantes
en fresar a alta velocidad
Agujeros de lubricación para alta
presión – cuchillos
pulidos – extra larga*

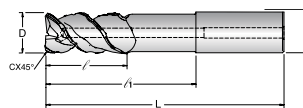
**SUPERSCHLICHTEN TIEFER
TASCHEN IN ALUMINIUM**

*Bedeutender Vorschub beim
Hochleistungsfräsen;
innere Kühlmittelzufuhr;
polierte Schneiden - extra langer
Schaft*

LIST XSF930 (WITH COOLANT HOLES)



D	d	ℓ	ℓ ₁	L	Z	Tool No. Uncoated	Tool No. TiCN
1/2	1/2	1	3	5	3	XSF930-1650	TCXSF930-1650
1/2	1/2	1	4	6	3	XSF930-1660	TCXSF930-1660
5/8	5/8	1-1/4	2-1/2	4-5/8	3	XSF930-2046	TCXSF930-2046
5/8	5/8	1-1/4	4	6-1/8	3	XSF930-2061	TCXSF930-2061
3/4	3/4	1-1/2	3	5-1/4	3	XSF930-2452	TCXSF930-2452
3/4	3/4	1-1/2	4	6-1/4	3	XSF930-2462	TCXSF930-2462
3/4	3/4	1-1/2	6	8-1/4	3	XSF930-2482	TCXSF930-2482
1	1	1-1/2	3	5-1/2	3	XSF930-3255	TCXSF930-32555
1	1	2	4	6-1/2	3	XSF930-3265	TCXSF930-3265
1	1	2	6	8-1/2	3	XSF930-3285	TCXSF930-3285
1	1	2	8	10-1/2	3	XSF930-32105	TCXSF930-32105
1-1/4	1-1/4	2	4	6-1/2	3	XSF930-4065	TCXSF930-4065
1-1/4	1-1/4	2	6	8-1/2	3	XSF930-4085	TCXSF930-4085
1-1/4	1-1/4	2-1/2	8	10-1/2	3	XSF930-40105	TCXSF930-40105
1-1/4	1-1/4	2-1/2	10	12-1/2	3	XSF930-40125	TCXSF930-40125



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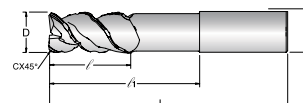
43.5°



LIST XSF930N (WITHOUT COOLANT HOLES)



D	d	ℓ	ℓ ₁	L	Z	Tool No. Uncoated	Tool No. TiCN
1/2	1/2	1	3	5	3	XSF930N-1650	TCXSF930N-1650
1/2	1/2	1	4	6	3	XSF930N-1660	TCXSF930N-1660
5/8	5/8	1-1/4	2-1/2	4-5/8	3	XSF930N-2046	TCXSF930N-2046
5/8	5/8	1-1/4	4	6-1/8	3	XSF930N-2061	TCXSF930N-2061
3/4	3/4	1-1/2	3	5-1/4	3	XSF930N-2452	TCXSF930N-2452
3/4	3/4	1-1/2	4	6-1/4	3	XSF930N-2462	TCXSF930N-2462
3/4	3/4	1-1/2	6	8-1/4	3	XSF930N-2482	TCXSF930N-2482
1	1	1-1/2	3	5-1/2	3	XSF930N-3255	TCXSF930N-32555
1	1	2	4	6-1/2	3	XSF930N-3265	TCXSF930N-3265
1	1	2	6	8-1/2	3	XSF930N-3285	TCXSF930N-3285
1	1	2	8	10-1/2	3	XSF930N-32105	TCXSF930N-32105
1-1/4	1-1/4	2	4	6-1/2	3	XSF930N-4065	TCXSF930N-4065
1-1/4	1-1/4	2	6	8-1/2	3	XSF930N-4085	TCXSF930N-4085
1-1/4	1-1/4	2-1/2	8	10-1/2	3	XSF930N-40105	TCXSF930N-40105
1-1/4	1-1/4	2-1/2	10	12-1/2	3	XSF930N-40125	TCXSF930N-40125



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43.5°



PM - Super Cobalt

**ROUGHING END MILL
FOR ALUMINIUM**

Efficient roughing
for low speed machining
High feed rates recommended
vibrations free

**FRAISES D'ÉBAUCHE
POUR ALUMINIUM**

Très efficace pour usiner
sur machines à basses vitesses
Avances accrues recommandées
sans vibrations

**FRESAS DESBASTES
PARA ALUMINIO**

Muy eficiente para fresar con
máquinas a bajas velocidades
Avances importantes recomendado
sin vibración

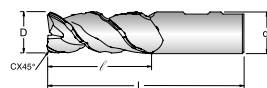
ALUMINIUM - SCHLICHTFRÄSER

Besonders leistungsfähig beim
Fräsen mit niedrigeren
Schneidgeschwindigkeiten;
hohe Vorschubraten empfohlen;
arbeitet vibrationsfrei

LIST 930



D	d	ℓ	L	Z	Tool No. Uncoated	Tool No. TiCN
3/8	3/8	3/4	2-1/2	3	930-1208	TC930-1208
3/8	3/8	1-3/8	3-1/8	3	930-1213	TC930-1213
1/2	1/2	1-1/4	3-1/4	3	930-1612	TC930-1612
1/2	1/2	2	4	3	930-1620	TC930-1620
1/2	1/2	3	5	3	930-1630	TC930-1630
5/8	5/8	1-5/8	3-3/4	3	930-2016	TC930-2016
5/8	5/8	2-1/2	4-5/8	3	930-2025	TC930-2025
3/4	3/4	1-5/8	3-7/8	3	930-2416	TC930-2416
3/4	3/4	2-1/4	4-1/2	3	930-2422	TC930-2422
3/4	3/4	3	5-1/4	3	930-2430	TC930-2430
3/4	3/4	4	6-1/4	3	930-2440	TC930-2440
7/8	7/8	1-7/8	4-1/8	3	930-2818	TC930-2818
7/8	7/8	3-1/2	5-3/4	3	930-2835	TC930-2835
7/8	7/8	5	7-1/4	3	930-2850	TC930-2850
1	1	2	4-1/2	3	930-3220	TC930-3220
1	1	3	5-1/2	3	930-3230	TC930-3230
1	1	4	6-1/2	3	930-3240	TC930-3240
1	1	6	8-1/2	3	930-3260	TC930-3260
1-1/4	1-1/4	2	4-1/2	3	930-4020	TC930-4020
1-1/4	1-1/4	3	5-1/2	3	930-4030	TC930-4030
1-1/4	1-1/4	4	6-1/2	3	930-4040	TC930-4040
1-1/4	1-1/4	6	8-1/2	3	930-4060	TC930-4060
1-1/2	1-1/4	2	4-1/2	3	930-4820	TC930-4820
1-1/2	1-1/4	3	5-1/2	3	930-4830	TC930-4830
1-1/2	1-1/4	4	6-1/2	3	930-4840	TC930-4840
1-1/2	1-1/4	6	8-1/2	3	930-4860	TC930-4860
2	1-1/4	2	4-1/2	3	930-6420-40	TC930-6420-40
2	1-1/4	3	5-1/2	3	930-6430-40	TC930-6430-40
2	1-1/4	4	6-1/2	3	930-6440-40	TC930-6440-40
2	2	3	6-3/4	3	930-6430	TC930-6430
2	2	4	7-3/4	3	930-6440	TC930-6440
2	2	6	9-3/4	3	930-6460	TC930-6460
2	2	8	11-3/4	3	930-6480	TC930-6480



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43.5°



METRIC SERIES

PM - Super Cobalt

**HIGH SPEED MACHINING FOR
ROUGHING OF ALUMINUM**

Maximum metal removal
at high feeds & speeds
High pressure coolant holes
polished flutes

**USINAGE GRANDE VITESSE POUR
EBAUCHE DE L'ALUMINIUM**

Enlèvement de matière grand débit
à hautes vitesses et avances
Trous refroidissant pour haute
pression goujures polies

**MECANIZADO A GRANDE
VELOCIDAD PARA DESBASTES
EN ALUMINIO**

Capacidad de arranque máximo
a alta velocidad y avances
Agujeros de lubricación para alta
presión – cuchillos pulidos

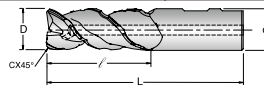
**ERHÖHTE GESCHWINDIGKEIT
BEIM SCHRUPPEN IN ALUMINIUM**


Maximale Spanabhebung mit
erhöhtem Vorschub und
Schnittgeschwindigkeit;
innere Kühlmittelzufuhr;
hochglanzpolierte Schneiden

LIST RPM



TOOL NO.	D	d	ℓ	L	Z	Uncoated EDP NO.	TiCN EDP NO.
RPM-1016	10	10	16	66	3	29000	29125
RPM-1022	10	10	22	72	3	29005	29130
RPM-1226	12	12	26	83	3	29010	29135
RPM-1253	12	12	53	110	3	29015	29140
RPM-1426	14	12	26	83	3	29020	29145
RPM-1453	14	12	53	110	3	29025	29150
RPM-1632	16	16	32	92	3	29030	29155
RPM-1663	16	16	63	123	3	29035	29160
RPM-1832	18	16	32	92	3	29040	29165
RPM-1863	18	16	63	123	3	29045	29170
RPM-2038	20	20	38	104	3	29050	29175
RPM-2056	20	20	56	122	3	29055	29180
RPM-2075	20	20	75	141	3	29060	29185
RPM-2545	25	45	25	121	3	29065	29190
RPM-2563	25	25	63	139	3	29070	29195
RPM-2590	25	25	90	166	3	29075	29200
RPM-3253	32	32	53	133	3	29080	29205
RPM-3275	32	32	75	155	3	29085	29210
RPM-3210	32	32	106	186	3	29090	29215
RPM-4056-32	40	32	56	136	3	29095	29220
RPM-4075-32	40	32	75	155	3	29100	29225
RPM-4010-32	40	32	106	186	3	29105	29230
RPM-5050-32	50	32	50	152	3	29110	29235
RPM-5075-32	50	32	75	177	3	29115	29240
RPM-5075	50	50	75	177	3	29120	29245



PM	 MINICUT GEOMETRY	 43.5°	 STRAIGHT SHANK
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PM - Super Cobalt

**HIGH SPEED MACHINING FOR
ROUGHING OF ALUMINUM**

*Optimum performance
with maximum chip load per tooth
Increased toughness – exceptional
tool life – polished flutes*

**USINAGE GRANDE VITESSE POUR
EBAUCHE DE L'ALUMINIUM**

*Performance optimal avec avances
maximum par dent
Résistance accrue – durée de vie
prolongée – goujures polies*

**MECANIZADO A GRANDE
VELOCIDAD PARA DESBASTES
EN ALUMINIO**

*óptimo rendimiento con anticipos
máximo por diente
Resistencia superada – duración de
vida prolongada – cuchillos pulidos*

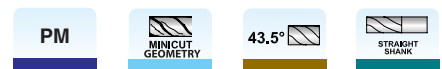
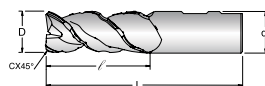
**HOCHLEISTUNGSSCHRUPPEN IN
ALUMINIUM**

*Optimale Leistung mit maximalem
Vorschub pro Zahn;
erhöhte Widerstandsfähigkeit –
außergewöhnliche Lebensdauer des
Werkzeuges;
hochglanzpolierte Schneiden*

LIST 930MP (WITHOUT COOLANT HOLES)



TOOL NO.	D	d	ℓ	L	Z	Uncoated EDP NO.	TiCN EDP NO.
930MP-1016	10	10	16	66	3	29260	29395
930MP-1022	10	10	22	72	3	29265	29400
930MP-1226	12	12	26	83	3	29270	29405
930MP-1253	12	12	53	110	3	29275	29410
930MP-1426	14	12	26	83	3	29280	29415
930MP-1453	14	12	53	110	3	29285	29420
930MP-1632	16	16	32	92	3	29290	29425
930MP-1663	16	16	63	123	3	29295	29430
930MP-1832	18	16	32	92	3	29300	29435
930MP-1863	18	16	63	123	3	29305	29440
930MP-2038	20	20	38	104	3	29310	29445
930MP-2075	20	20	75	141	3	29315	29450
930MP-2238	22	20	38	104	3	29320	29455
930MP-2275	22	20	75	141	3	29325	29460
930MP-2545	25	25	45	121	3	29330	29465
930MP-2590	25	25	90	166	3	29335	29470
930MP-2845	28	25	45	121	3	29340	29475
930MP-3045	30	25	45	121	3	29345	29480
930MP-3090	30	25	90	166	3	29350	29485
930MP-3253	32	32	53	133	3	29355	29490
930MP-3210	32	32	106	186	3	29360	29495
930MP-4063-32	40	32	63	143	3	29365	29500
930MP-4012-32	40	32	125	205	3	29370	29505
930MP-5075-32	50	32	75	155	3	29375	29510
930MP-5010	50	50	106	208	3	29380	29515
930MP-5010-32	50	32	106	186	3	29385	29520
930MP-50105	50	50	150	252	3	29390	29525



PM - Super Cobalt Extended Neck

**HIGH PERFORMANCE FOR
DEEP POCKET ROUGHING
IN ALUMINIUM**

Higher metal removal
in high speed machining operations
High pressure coolant holes
polished flutes

**HAUTE PERFORMANCE
POUR ÉBAUCHE POCHE
PROFONDES DE L'ALUMINIUM**

Enlèvement de matière grand
débit à hautes vitesses et avances
Trous refroidissant haute pression
goujures polies

**ALTO RENDIMENTO PARA
DESBASTES BOSILLOS
PROFUNDO EN ALUMINIO**

Capacidad de arranque máxima
a alta velocidad y avances
Agujeros de lubricación para alta
presión – cuchillos pulidos

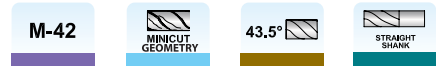
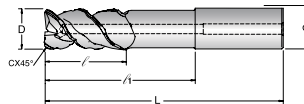
**HOCHLEISTUNG IM SCHRUPPEN
TIEFER TASCHEN IN ALUMINIUM**

Erhöhte Spanabhebung bei hohen
Vorschub- und
Schnittgeschwindigkeiten;
innere Kühlmittelzufuhr;
polierte Schneiden

LIST X930MP (WITH COOLANT HOLES)



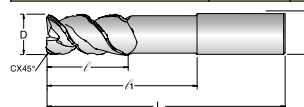
TOOL NO.	D	d	ℓ	ℓ ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
X930MP-20125	20	20	35	50	125	1.5	3	29540	29580
X930MP-20150	20	20	35	83	150	1.5	3	29545	29585
X930MP-25125	25	25	40	125	200	1.5	3	29550	29590
X930MP-25150	25	25	40	150	226	1.5	3	29555	29595
X930MP-32150	32	32	50	150	230	2.0	3	29560	29600
X930MP-32200	32	32	50	200	280	2.0	3	29565	29605
X930MP-40200	40	32	50	200	280	2.0	3	29570	29610
X930MP-40210	40	40	50	210	305	2.0	3	29575	29615



LIST X930MPN (WITHOUT COOLANT HOLES)



TOOL NO.	D	d	ℓ	ℓ ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
X930MP-20125	20	20	35	50	125	1.5	3	29540	29580
X930MP-20150	20	20	35	83	150	1.5	3	29545	29585
X930MP-25125	25	25	40	125	200	1.5	3	29550	29590
X930MP-25150	25	25	40	150	226	1.5	3	29555	29595
X930MP-32150	32	32	50	150	230	2.0	3	29560	29600
X930MP-32200	32	32	50	200	280	2.0	3	29565	29605
X930MP-40200	40	32	50	200	280	2.0	3	29570	29610
X930MP-40210	40	40	50	210	305	2.0	3	29575	29615



PM - Super Cobalt

**SUPER FINISHER END MILLS
FOR ALUMINIUM**

Optimum performance
for finishing operations
Higher feeds - vibration free
polished flutes

**FRAISES SUPERFINITION
POUR ALUMINIUM**

Performance optimale
pour opérations de finition
Avances importantes
sans vibration goujures polies

**FRESAS PARA SUPERACABADO
EL ALUMINIO**

óptimo rendiendo
para operaciones de acabado
Avances importantes
sin vibración cuchillos pulidos

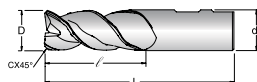
**SUPER SCHLICHTFRÄSER FÜR
ALUMINIUM**

Optimale Leistung beim Schlichten ;
beachtenswerte Vorschübe ;
vibrationsfrei ; polierte Schneiden

LIST SF930M



TOOL NO.	D	d	ℓ	L	Z	Uncoated EDP NO.	TiCN EDP NO.
SF930M-1016	10	10	16	66	3	29630	29740
SF930M-1022	10	10	22	72	3	29635	29745
SF930M-1226	12	12	26	83	3	29640	29750
SF930M-1253	12	12	53	110	3	29645	29755
SF930M-1426	14	12	26	83	3	29650	29760
SF930M-1453	14	12	53	110	3	29655	29765
SF930M-1632	16	16	32	92	3	29660	29770
SF930M-1663	16	16	63	123	3	29665	29775
SF930M-1832	18	16	32	92	3	29670	29780
SF930M-1863	18	16	63	123	3	29675	29785
SF930M-2038	20	20	38	104	3	29680	29790
SF930M-2075	20	20	75	141	3	29685	29795
SF930M-2238	22	20	38	104	3	29690	29800
SF930M-2275	22	20	75	141	3	29695	29805
SF930M-2545	25	25	45	121	3	29700	29810
SF930M-2590	25	25	90	166	3	29705	29815
SF930M-3045	30	25	45	121	3	29710	29820
SF930M-3090	30	25	90	166	3	29715	29825
SF930M-3253	32	32	53	133	3	29720	29830
SF930M-3210	32	32	106	186	3	29725	29835
SF930M-4063-32	40	32	63	143	3	29730	29840
SF930M-4012-32	40	32	125	205	3	29735	29845



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43.5°



PM - Super Cobalt Extended Neck

**HIGH PERFORMANCE FINISHING
FOR DEEP POCKET IN ALUMINUM**

*Higher feeds in high
speed machining operations
High pressure coolant holes
polished flutes – long shank*

**HAUTE PERFORMANCE FINITION
DE POCHES PROFONDES
DE L'ALUMINIUM**

*Avances importantes
en usinage grande vitesse
Trous refroidissant haute pression
goujures polies – queue allongée*

**ALTO RENDIMIENTO PARA
ACABADO BOSILLOS PROFUNDOS
EL ALUMINIO**

*Avances importantes
en fresar a alta velocidad
Agujeros de lubricación para alta
presión – cuchillos pulidos – extra
larga*

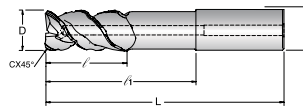
**SUPERSCHLICHTEN TIEFER
TASCHEN IN ALUMINIUM**

*Bedeutender Vorschub beim
Hochleistungsfräsen;
innere Kühlmittelzufuhr;
polierte Schneiden - extra langer
Schaft*

LIST XSF930M (WITH COOLANT HOLES)



TOOL NO.	D	d	ℓ	ℓ ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
XSF930M-20125	20	20	35	50	125	1.5	3	29860	29900
XSF930M-20150	20	20	35	83	150	1.5	3	29865	29905
XSF930M-25125	25	25	40	125	200	1.5	3	29870	29910
XSF930M-25150	25	25	40	150	226	1.5	3	29875	29915
XSF930M-32150	32	32	50	150	230	2.0	3	29880	29920
XSF930M-32200	32	32	50	200	280	2.0	3	29885	29925
XSF930M-40200	40	32	50	200	280	2.0	3	29890	29930
XSF930M-40210	40	40	50	210	305	2.0	3	29895	29935



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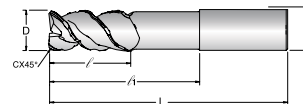
43.5°



LIST XSF930MN (WITHOUT COOLANT HOLES)



TOOL NO.	D	d	ℓ	ℓ ₁	L	C	Z	Uncoated EDP NO.	TiCN EDP NO.
XSF930M-20125	20	20	35	50	125	1.5	3	29860	29900
XSF930M-20150	20	20	35	83	150	1.5	3	29865	29905
XSF930M-25125	25	25	40	125	200	1.5	3	29870	29910
XSF930M-25150	25	25	40	150	226	1.5	3	29875	29915
XSF930M-32150	32	32	50	150	230	2.0	3	29880	29920
XSF930M-32200	32	32	50	200	280	2.0	3	29885	29925
XSF930M-40200	40	32	50	200	280	2.0	3	29890	29930
XSF930M-40210	40	40	50	210	305	2.0	3	29895	29935



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43.5°



PM - Super Cobalt

ROUGHING END MILL FOR ALUMINIUM

Efficient roughing
for low speed machining
High feed rates recommended
vibrations free

FRAISES D'ÉBAUCHE POUR ALUMINIUM

Très efficace pour usiner
sur machines à basses vitesses
Avances accrues recommandées
sans vibrations

FRESAS DESBASTES PARA ALUMINIO

Muy eficiente para fresar con
máquinas a bajas velocidades
Avances importantes recomendado
sin vibración

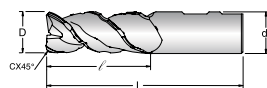
ALUMINIUM - SCHLICHTFRÄSER

Besonders leistungsfähig beim
Fräsen mit niedrigeren
Schneidgeschwindigkeiten;
hohe Vorschubraten empfohlen;
arbeitet vibrationsfrei

LIST 930M



TOOL NO.	D	d	ℓ	L	Z	Uncoated EDP NO.	TiCN EDP NO.
930M-1016	10	10	16	66	3	34100	34260
930M-1022	10	10	22	72	3	34105	34265
930M-1226	12	12	26	83	3	34110	34270
930M-1253	12	12	53	110	3	34115	34275
930M-1426	14	12	26	83	3	34120	34280
930M-1453	14	12	53	110	3	34125	34285
930M-1632	16	16	32	92	3	34130	34290
930M-1663	16	16	63	123	3	34135	34295
930M-1832	18	16	32	92	3	34140	34300
930M-1863	18	16	63	123	3	34145	34305
930M-2038	20	20	38	104	3	34150	34310
930M-2075	20	20	75	141	3	34155	34315
930M-2238	22	20	38	104	3	34160	34320
930M-2275	22	20	75	141	3	34165	34325
930M-2545	25	25	45	121	3	34170	34330
930M-2590	25	25	90	166	3	34175	34335
930M-2845	28	25	45	121	3	34180	34340
930M-2890	28	25	90	166	3	34185	34345
930M-3045	30	25	45	121	3	34190	34350
930M-3090	30	25	90	166	3	34195	34355
930M-3253	32	32	53	133	3	34200	34360
930M-3210	32	32	106	186	3	34205	34360
930M-3653	36	32	53	133	3	34210	34370
930M-3610	36	32	106	186	3	34215	34375
930M-4063	40	40	63	155	3	34220	34380
930M-4063-32	40	32	63	143	3	34225	34385
930M-4012	40	40	125	217	3	34230	34390
930M-4012-32	40	32	125	205	3	34235	34395
930M-5075-32	50	32	75	155	3	34240	34400
930M-5010	50	50	106	208	3	34245	34405
930M-5010-32	50	32	106	186	3	34250	34410
930M-5015	50	50	150	252	3	34255	34415



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43.5°



MINICUT PATENTED - SUPER COBALT END MILL

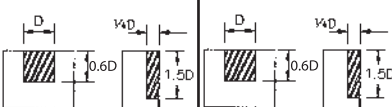
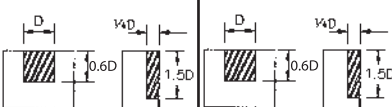
Recommended Cutting Parameters

Vitesses de coupe suggérées

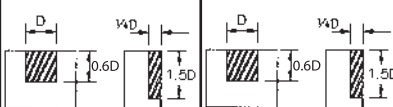
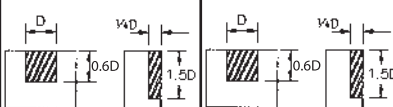
Velocidades y Avances Recomendados

Empfohlene Schnittparameter

INCH SERIES

MATERIAL SPEED LIST NO.		ALUMINIUM ALUMINIO		HSM-UGV Alta Velocidad ALUMINIUM ALUMINIO	
		1000-2000 SFM		2000-4000 SFM	
		930 /930P X930P / SF930 XSF930 / SC950 X930PN / XST930N		RPM	
\emptyset	n / v_f				
3/8	n v_f	12730 76	12730 100	22000 98	22000 128
1/2	n v_f	10600 95	10600 124	21200 127	21200 165
5/8	n v_f	7950 95	7950 124	19900 179	19900 232
3/4	n v_f	6360 95	6360 124	17000 167	17000 217
1	n v_f	5100 107	5100 140	12730 153	12730 222
1 1/4	n v_f	3970 107	3970 140	9950 149	9950 194
1 1/2	n v_f	3180 105	3180 136	7950 142	7950 184
2	n v_f	2540 91	6400 119	6400 124	6400 161

METRIC SERIES

MATERIAL SPEED LIST NO.		ALUMINIUM ALUMINIO ALLUMINIO		HSM-UGV Alta Velocidad Alta Velocità ALUMINIUM ALUMINIO ALLUMINIO	
		300-600 M/min.		600-1200 M/min.	
		930M /930MP X930MP / SF930M XSF930M / SC999M 940MP		RPM	
\emptyset MM	n / v_f				
10	n v_f	12730 1940	12730 2520	22000 2500	22000 3250
12	n v_f	10600 2420	10600 3150	21200 3230	21200 4200
16	n v_f	7950 2425	7950 3150	19900 4547	19900 5900
20	n v_f	6360 2430	6360 3160	17000 4240	17000 5510
25	n v_f	5100 2720	5100 3540	12730 3880	12730 5645
32	n v_f	3970 2720	3970 3540	9950 3790	9950 4925
40	n v_f	3180 2665	3180 3465	7950 3600	7950 4680
50	n v_f	2540 2320	6400 3015	6400 3155	6400 4100

THE ABOVE CUTTING FEEDS AND SPEEDS APPLY TO SHORT SERIES ONLY.
FOR LONG LENGTH TOOLS USE THE FOLLOWING REDUCTION FACTORS:

CUTTING LENGTH	Multiply by	REDUCTION FACTOR %
2 times dia.	Multiply by	AS PER CHART
2.5 times dia.	Multiply by	X 0.85
3 times dia.	Multiply by	X 0.75
4 times dia.	Multiply by	X 0.45
5 times dia.	Multiply by	X 0.35
6 times dia.	Multiply by	X 0.25

When using TiCN coated RPM, X930P and XSF930 Series with coolant holes and a High Pressure coolant system, Increase Speeds & Feeds by 30%.

For long length tools, see reduction factor chart on this page.

NOTE: 1) For aluminum reduce RPM and Feed as per above reduction factors.
2) For all other materials reduce Feed only, maintain same RPM.



Minicut
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Leader in Cutting Tool Technology

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