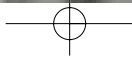
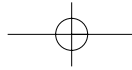


Alu-Mills





Alu-Mills



ALU-MILLS

ALU MILLS, metallo duro micrograna e HSS-P,
rivestito con gli esclusivi trattamenti OSAWA
DIAMOND, TiCN e PV10.

ALU MILLS, geometria specifica per la fresatura di
alluminio e rame.

ALU MILLS, grazie alla speciale geometria ed ai
rivestimenti DIAMOND, TiCN e PV10, garantiscono
lunga durata, finitura eccezionale e taglio preciso
anche alle altissime velocità.

126



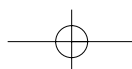
ALU MILLS, micrograin carbide coated with exclusive
OSAWA DIAMOND or TiCN coatings.
ALU MILLS, special geometry for aluminium and
copper milling.
ALU MILLS, thanks to the special geometry and to
the exclusive DIAMOND or TiCN coatings, guaran-
tees long tool life, perfect finishing and precise
cutting even at ultra fast cutting speed.



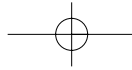
ALU MILLS, Mikrokorn-Hartmetall mit dem exklusiven
Beschichtungen OSAWA DIAMOND oder TiCN.
ALU MILLS, Spezialgeometrie zum Fräsen von
Aluminium und Kupfer.
ALU MILLS, sichern dank der Spezialgeometrie und
den Beschichtungen DIAMOND und TiCN lange
Haltbarkeit, exzellente Fertigungsqualität und
präzises Schneiden, auch bei höchsten Drehzahlen.



ALU MILLS, carbure monobloc micrograin revêtu
avec les traitements exclusifs OSAWA DIAMOND
ou TiCN.
ALU MILLS, géométrie spécifique pour le fraisage
d'aluminium et de cuivre.
ALU MILLS, grâce à la géométrie spéciale et aux
revêtements DIAMOND et TiCN, ces fraises
garantissent une longue durée, une finition
exceptionnelle et une coupe précise même à des
vitesses très élevées.



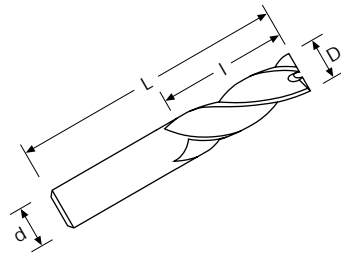
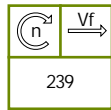
CODICE · ITEM NO. ARTIKEL NR. · RÉFÉRENCE	DESCRIZIONE · DESCRIPTION EZEICHUNG · DESCRIPTION	PAGINA · PAGE SEITE · PAGE	
MPA200	2F 45° DIAMOND corta · short · kurz · courte	128	 NEW
MDCSA2	2F 45° corta · short · kurz · courte	129	
MDTCCSA2	2F 45° TiCN corta · short · kurz · courte	129	
MCA211R	2F CR TiCN corta · short · kurz · courte	130	 NEW
MCA212R	2F CR TiCN corta · short · kurz · courte	131	 NEW
MCA250	2FB TiCN corta · short · kurz · courte	132	 NEW
MCA350	3FB TiCN corta · short · kurz · courte	132	 NEW
PAWSAR	ALU-WF PV10 corta · short · kurz · courte	133	 NEW
PAWLAR	ALU-WF PV10 lunga · long · lang · longue	134	 NEW
WSA2	2F 42° ALU DIN844 8%Co	135	
TAWSA2	2F 42° PV10 ALU DIN844 8%Co	135	
WSAR	ALU WR DIN844 8%Co corta · short · kurz · court	136	
TAWSAR	ALU WR PV10 DIN844 8%Co corta · short · kurz · court	136	



Alu-Mills



🇮🇹 FRESE 2F 45°
 🇬🇧 2F 45° END MILLS
🇩🇪 2F 45° FRÄSER
 🇫🇷 FRAISES 2F 45°

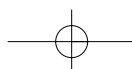


DIAMOND

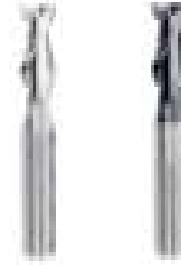
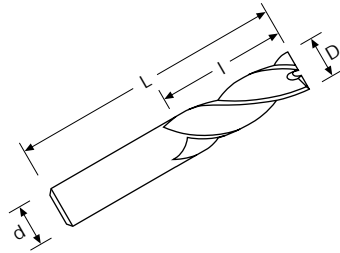
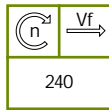
ALU-MILLS

CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				MPA200
TIPO / TYPE / TYP / TYPE				ALU
NR.TAGLIENTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				2
ATTACCO / SHANK / SCHAFT / QUEUE				C
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				M
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				DIAMOND
NORMA / NORM / NORM / NORME				OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				*
ELICA / HELIX / SPIRAL / HÉLICE				45°
D	d (h6)	l	L	Stock
MM. 1	4	3	40	●
MM. 1.5	4	4	40	●
MM. 2	4	6	40	●
MM. 2.5	4	8	40	●
MM. 3	6	8	45	●
MM. 3.5	6	10	45	○
MM. 4	6	11	45	●
MM. 5	6	13	50	●
MM. 6	6	13	50	●
MM. 7	8	16	60	○
MM. 8	8	19	60	●
MM. 9	10	19	70	○
MM.10	10	22	70	●
MM.11	12	22	75	○
MM.12	12	26	75	●
MM.16	16	32	90	○
MM.20	20	38	100	○

Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-25
D*	-14/-28	-20/-38	-25/-47	-32/-59	-40/-73
d h6	0/-6	0/-8	0/-9	0/-11	0/-13

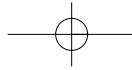


 FRESE 2F 45° CORTE
  2F 45° SHORT END MILLS
 2F 45° KURZE FRÄSER
  FRAISES 2F 45° COURTES



CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				MDCSA2	MDTCCSA2
TIPO / TYPE / TYP / TYPE				W	W
NR.TAGLIANTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				2	2
ATTACCO / SHANK / SCHAFT / QUEUE				C	C
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				CARBIDE	CARBIDE
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				BR	TICN
NORMA / NORM / NORM / NORME				OSAWA	OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				h10	h10
ELICA / HELIX / SPIRAL / HÉLICE				45°	45°
D	d (h6)	l	L	Stock	Stock
MM. 3	6	8	57	●	○
MM. 4	6	11	57	●	○
MM. 5	6	13	57	●	○
MM. 6	6	13	57	●	○
MM. 8	8	19	63	●	○
MM.10	10	22	72	●	○
MM.12	12	26	83	●	○
MM.14	14	26	83	●	○
MM.16	16	32	92	●	○
MM.18	18	32	92	●	○
MM.20	20	38	104	●	○

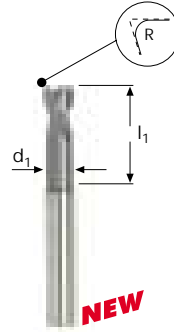
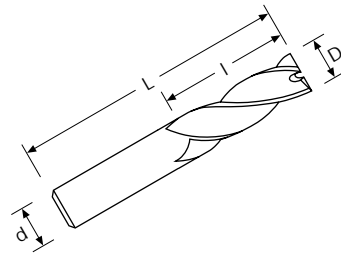
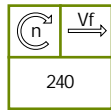
Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-30
D h10	0/-40	0/-48	0/-58	0/-70	0/-84
d h6	0/-6	0/-8	0/-9	0/-11	0/-13



Alu-Mills



🇮🇹 FRESE 2F, TORICHE 🇬🇧 2F END MILLS, CORNER RADIUS
🇩🇪 2F, ECKRADIUS FRÄSER 🇫🇷 FRAISES 2F, TORIQUES

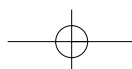


ALU-MILLS

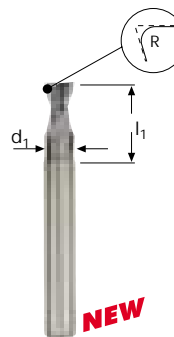
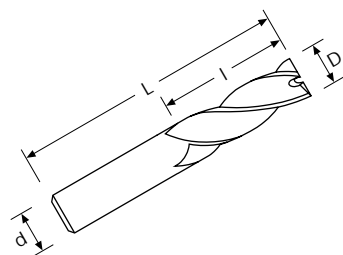
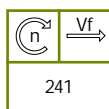
CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE	MCA211R						
TIPO / TYPE / TYP / TYPE	ALU						
NR.TAGLIANTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS	2CR						
ATTACCO / SHANK / SCHAFT / QUEUE	C						
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE	CARBIDE						
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT	TICN						
NORMA / NORM / NORM / NORME	OSAWA						
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE	e8						
ELICA / HELIX / SPIRAL / HÉLICE	30°						
D	d (h6)	d1	l	l1	L	Stock	
MM. 4	xR0.3	6	3.6	5	10	50	●
MM. 6	xR0.5	6	5.4	8	20	60	●
MM. 8	xR0.6	8	7.2	10	30	70	●
MM.10	xR0.8	10	9	12	36	80	●
MM.12	xR1	12	11	14	40	90	●
MM.16	xR1.3	16	14.5	18	45	100	○
MM.20	xR1.6	20	18	24	45	100	○

R: ± 0.02mm

Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-25
D e8	-14/-28	-20/-38	-25/-47	-32/-59	-40/-73
d h6	0/-6	0/-8	0/-9	0/-11	0/-13



🇮🇹 FRESE 2F, TORICHE 🇬🇧 2F END MILLS, CORNER RADIUS
🇩🇪 2F, ECKRADIUS FRÄSER 🇫🇷 FRAISES 2F, TORIQUES

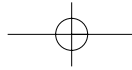


CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE							MCA212R
TIPO / TYPE / TYP / TYPE							ALU
NR.TAGLIENTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS							2CR
ATTACCO / SHANK / SCHAFT / QUEUE							C
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE							CARBIDE
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT							TiCN
NORMA / NORM / NORM / NORME							OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE							h10
ELICA / HELIX / SPIRAL / HÉLICE							25°
D	d (h6)	d1	l	l1	L	Stock	
MM. 2	xR0.2	3	1.9	3	6	●	
MM. 3	xR0.2	3	2.9	4	8	●	
MM. 4	xR0.2	4	3.8	5	12	●	
MM. 5	xR0.2	5	4.8	8	14	●	
MM. 6	xR0.2	6	5.7	8	18	●	
MM. 8	xR0.2	8	7.7	10	22	●	
MM.10	xR0.2	10	9.7	14	28	●	
MM.12	xR0.2	12	11.5	16	35	●	
MM.16	xR0.2	16	15.5	20	40	○	
MM.20	xR0.2	20	19.5	25	50	○	

R: ± 0.02mm

Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-25
Dh10	0/-40	0/-48	0/-58	0/-70	0/-84
d h6	0/-6	0/-8	0/-9	0/-11	0/-13

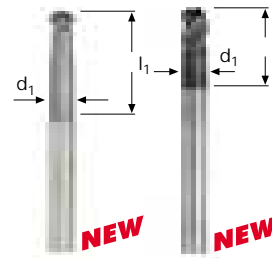
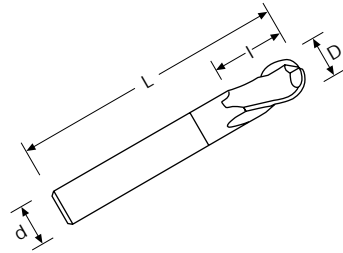
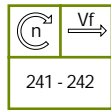
ALU-MILLS



Alu-Mills



🇮🇹 FRESE 2F,3F RAGGIATE 🇬🇧 2F, 3F BALL NOSE END MILLS
🇩🇪 2F, 3F FRÄSER MIT RUNDER STIRN 🇫🇷 FRAISES 2F, 3F À BOUT HÉMISPHERIQUE

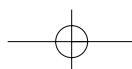


ALU-MILLS

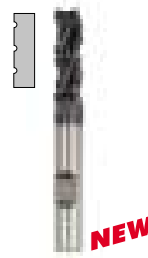
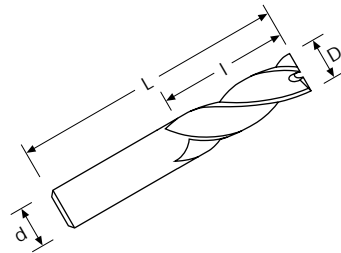
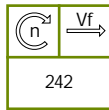
CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE						MCA250	MCA350
TIPO / TYPE / TYP / TYPE						ALU	ALU
NR.TAGLIANTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS						2B	3B
ATTACCO / SHANK / SCHAFT / QUEUE						C	C
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE						CARBIDE	CARBIDE
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT						TiCN	TiCN
NORMA / NORM / NORM / NORME						OSAWA	OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE						*	e8
ELICA / HELIX / SPIRAL / HÉLICE						50°	40°
D	d (h6)	d1	l	l1	L	Stock	
MM. 2	6	1.9	3	5	60		●
MM. 2.5	6	2.4	4	6	60		●
MM. 3	6	2.8	4.5	6.5	60		●
MM. 4	6	3.7	6	8	65		●
MM. 5	6	4.6	7.5	10	65		●
MM. 6	6	5.6	9	12	75		●
MM. 6	6	5.4	5.5	25	55	●	
MM. 8	8	7.4	12	25	75		●
MM. 8	8	7.2	7	30	65	●	
MM.10	10	9.4	15	30	80		●
MM.10	10	9	8.5	35	75	●	
MM.12	12	11.4	18	36	90		●
MM.12	12	11	10.5	40	75	●	
MM.16	16	15.4	24	40	100		○
MM.16	16	14.5	14	50	90	○	
MM.20	20	18	17	50	100	○	

R: ± 0.01mm

Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-25
D*	±2	±2	±2	±2	±2
D e8	-14/-28	-20/-38	-25/-47	-32/-59	-40/-73
d h6	0/-6	0/-8	0/-9	0/-11	0/-13

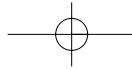


 FRESE A SGROSSARE, CORTE
  ROUGHING END MILLS, SHORT
 KURZE SCHRUPPFÄSER
  FRAISES D'EBAUCHE, COURTES



CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				PAWSAR
TIPO / TYPE / TYP / TYPE				ALU-WF
NR.TAGLIENTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				3
ATTACCO / SHANK / SCHAFT / QUEUE				W
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				HSS-P
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				PV10
NORMA / NORM / NORM / NORME				OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				js12
ELICA / HELIX / SPIRAL / HÉLICE				42°
D	d (h6)	l	L	Stock
MM.12	12	26	83	●
MM.14	12	26	83	●
MM.16	16	32	92	●
MM.18	16	32	92	●
MM.20	20	38	104	●
MM.22	20	38	104	○
MM.25	25	45	121	○
MM.28	25	45	121	○
MM.32	32	53	133	○

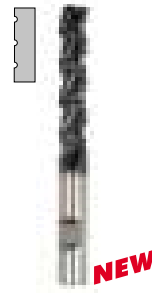
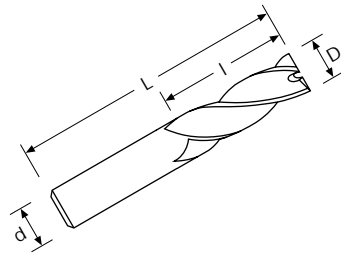
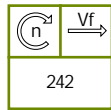
Ø mm.	Tol. µ					
	1-3	3.5-6	6.5-10	10.5-12	19-30	31-50
D js12	±50	±60	±75	±90	±105	+/-125
d h6	0/-6	0/-8	0/-9	0/-11	0/-13	0/-16



Alu-Mills



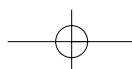
FRESE A SGROSSARE, LUNGHE ROUGHING END MILLS, LONG
 LANGE SCHRUPPFÄSER FRAISES D'EBAUCHE, LONGUES



ALU-MILLS

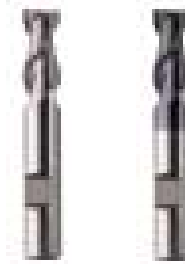
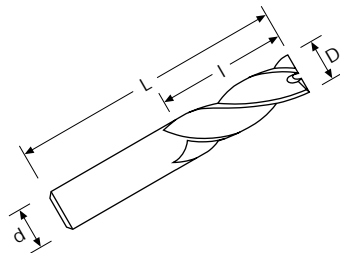
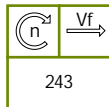
CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				PAWLAR
TIPO / TYPE / TYP / TYPE				ALU-WF
NR.TAGLIENTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				3
ATTACCO / SHANK / SCHAFT / QUEUE				W
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				HSS-P
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				PV10
NORMA / NORM / NORM / NORME				OSAWA
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				js12
ELICA / HELIX / SPIRAL / HÉLICE				42°
D	d (h6)	l	L	Stock
MM.12	12	53	110	●
MM.14	12	53	110	●
MM.16	16	63	123	●
MM.18	16	63	123	●
MM.20	20	75	141	●
MM.22	20	75	141	○
MM.25	25	90	166	○
MM.28	25	90	166	○
MM.32	32	106	186	○

Ø mm.	Tol. µ					
	1-3	3.5-6	6.5-10	10.5-18	19-30	31-50
D js12	±50	±60	±75	±90	±105	±125
d h6	0/-6	0/-8	0/-9	0/-11	0/-13	0/-16





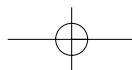
FRESE 2F 42° CORTE
 2F 42° SHORT END MILLS
 2F 42° KURZE FRÄSER
 FRAISES 2F 42° COURTES



ALU-MILLS

CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				WSA2	TAWSA2
TIPO / TYPE / TYP / TYPE				W	W
NR.TAGLIANTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				2	2
ATTACCO / SHANK / SCHAFT / QUEUE				W	W
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				Co 8%	Co 8%
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				BR	PV10
NORMA / NORM / NORM / NORME				844	844
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				e8	e8
ELICA / HELIX / SPIRAL / HÉLICE				42°	42°
D	d (h6)	l	L	Stock	Stock
MM. 1	6	3	49	○	○
MM. 1.5	6	5	49	○	○
MM. 2	6	7	51	●	○
MM. 2.5	6	8	52	●	○
MM. 3	6	8	52	●	●
MM. 3.5	6	10	54	○	○
MM. 4	6	11	55	●	●
MM. 4.5	6	11	55	○	○
MM. 5	6	13	57	●	●
MM. 5.5	6	13	57	○	○
MM. 6	6	13	57	●	●
MM. 6.5	10	16	66	○	○
MM. 7	10	16	66	○	○
MM. 7.5	10	16	66	○	○
MM. 8	10	19	69	●	●
MM. 8.5	10	19	69	○	○
MM. 9	10	19	69	○	○
MM.10	10	22	72	●	●
MM.11	12	22	79	○	○
MM.12	12	26	83	●	●
MM.13	12	26	83	○	○
MM.14	12	26	83	●	○
MM.15	12	26	83	○	○
MM.16	16	32	92	●	○
MM.17	16	32	92	○	○
MM.18	16	32	92	●	○
MM.19	16	32	92	○	○
MM.20	20	38	104	●	○
MM.21	20	38	104	○	○
MM.22	20	38	104	●	○
MM.24	25	45	121	○	○
MM.25	25	45	121	●	○
MM.26	25	45	121	○	○
MM.28	25	45	121	●	○
MM.30	25	45	121	●	○
MM.32	32	53	133	○	○

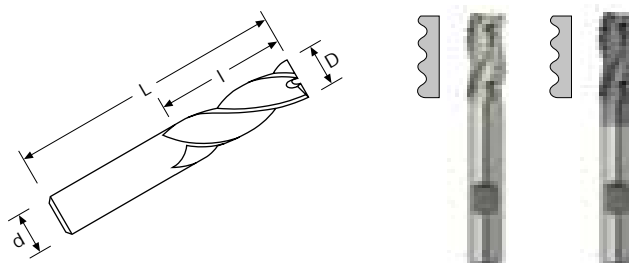
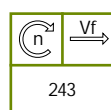
Ø mm.	Tol. µ				
	1-3	3.5-6	6.5-10	10.5-18	19-25
D e8	-14/-28	-20/-38	-25/-47	-32/-59	-40/-73
d h6	0/-6	0/-8	0/-9	0/-11	0/-13



Alu-Mills



FRESE A SGROSSARE, CORTE SHORT ROUGHING END MILLS
 KURZE SCHRUPPFÄSER FRAISES D'ÉBAUCHE, COURTES



ALU-MILLS

CODICE / ITEM NO. / ARTIKEL NR. / RÉFÉRENCE				WSAR	TAWSAR
TIPO / TYPE / TYP / TYPE				WR	WR
NR.TAGLIANTI / FLUTES NO. / NUTENZAHL / NB.DE DENTS				3	3
ATTACCO / SHANK / SCHAFT / QUEUE				W	W
MATERIALE / MATERIAL / WERKSTOFF / MATIÈRE				Co 8%	Co 8%
RIVESTIMENTO / COATING / BESCHICHTUNG / REVÊTEMENT				BR	PV10
NORMA / NORM / NORM / NORME				844	844
TOLLERANZA / TOLERANCE / TOLERANZ / TOLÉRANCE				js12	js12
ELICA / HELIX / SPIRAL / HÉLICE				40°	40°
D	d (h6)	l	L	Stock	Stock
MM. 6	6	13	57	●	○
MM. 8	10	19	69	●	○
MM.10	10	22	72	●	○
MM.12	12	26	83	●	○
MM.14	12	26	83	●	○
MM.16	16	32	92	●	○
MM.18	16	32	92	●	○
MM.20	20	38	104	●	○
MM.22	20	38	104	○	○
MM.25	25	45	121	●	○
MM.30	25	45	121	○	○

Ø mm.	Tol. µ					
	1-3	3.5-6	6.5-10	10.5-18	19-30	30-40
D js12	±50	±60	±75	±90	±105	±125
d h6	0/-6	0/-8	0/-9	0/-11	0/-13	0/-16

