

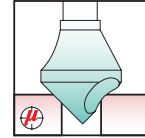
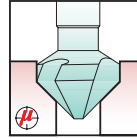
performances

Vc = vitesse speed velocidad velocidad = m/min.

Vf = avance feed avance avanzamento = mm/min.

$\frac{Vc \times 1000}{\pi \times \varnothing} =$ Tours par min. Rev. / min.
Giri / min. revoluciones por minuto.

ÉBAVURAGE - CHANFREINAGE DEBURRING - COUNTERSINKING DESBARBADO - AVELLANADO SVASATURA - SBAVATURA



Recommandation
Recomendación
Suggerimento

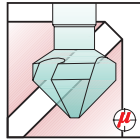
N° 1

N° 2

Autres
Otros
Others
Altre soluzioni

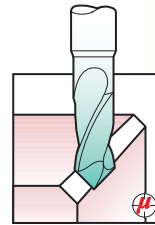
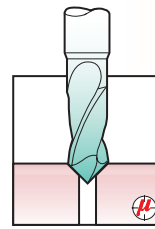
MATIÈRE MATERIAL MATERIALE		HSS-Co	HSS-Co + TiN	HSS 8% Co	HSS 8% Co + Red'X	Carbure Carbide Metallo Duro	Carbure Carbide + Hard'X	HSS-Co	HSS-Co + TiN	HSS-Co	HSS-Co + TiN
Pages Páginas Pagine		47 ~ 57		49		49 ~ 56		60 - 61		62 - 63	
Aciers Steels	Vc	17~22	17~22	35~45	35~45	40~80	40~80	35~45	35~45	35~45	35~45
Aceros Acciai	Vf	85	85	165	165	250	250	165	165	165	165
≤ 500 N/mm ²		45	45	85	85	125	125	85	85	85	85
Ø 10		30	30	55	55	85	85	55	55	55	55
Ø 20		30	30	55	55	85	85	55	55	55	55
Ø 30		30	30	55	55	85	85	55	55	55	55
Aciers Steels	Vc	10~15	10~15	20~30	20~30	30~60	30~60	20~30	20~30	20~30	20~30
Aceros Acciai	Vf	60	60	110	110	170	170	110	110	110	110
500 ~ 800 N/mm ²		30	30	55	55	85	85	55	55	55	55
Ø 10		20	20	35	35	60	60	35	35	35	35
Ø 20		20	20	35	35	60	60	35	35	35	35
Ø 30		20	20	35	35	60	60	35	35	35	35
Aciers Steels	Vc	8~12	8~12	16~20	16~20	20~40	20~40	15~20	15~20	15~20	15~20
Aceros Acciai	Vf	35	35	55	55	100	100	55	55	55	55
800 ~ 1000 N/mm ²		25	25	35	35	60	60	35	35	35	35
Ø 10		15	15	25	25	45	45	25	25	25	25
Ø 20		15	15	25	25	45	45	25	25	25	25
Ø 30		15	15	25	25	45	45	25	25	25	25
Inox Stainless steel	Vc	6~10	6~10	12~15	12~15	20~40	20~40	12~15	12~15	12~15	12~15
Aceros Inoxidables	Vf	30	30	45	45	100	100	45	45	45	45
1000 ~ 1300 N/mm ²		15	15	25	25	60	60	25	25	25	25
Ø 10		10	10	20	20	40	40	20	20	20	20
Ø 20		10	10	20	20	40	40	20	20	20	20
Ø 30		10	10	20	20	40	40	20	20	20	20
Acier anti-abrasion Abrasive tough	Vc				12~15	15~20	15~20				
Steel < 420 HB	Vf				40	55	55				
Acero resistente a la abrasión					30	35	35				
Ø 10					20	25	25				
Ø 20					20	25	25				
Ø 30					20	25	25				
Bronze dur Inconel, Nimonic	Vc			4~6	4~6	10~12	10~12				
Hard bronze	Vf			16	16	30	30				
Bronce/Bronzo duro				8	8	16	16				
Ø 10				6	6	10	10				
Ø 20				6	6	10	10				
Ø 30				6	6	10	10				
Acier traité Treated steel	Vc					8~10	10~12				
≥ 60 HRC	Vf					20	30				
Acero tratado Acciai trattati						10	16				
Ø 10						8	10				
Ø 20						8	10				
Ø 30						8	10				
Fonte Cast iron	Vc	15~25	15~25	20~40	20~40	40~80	40~80	20~40	20~40	20~40	20~40
Fundición	Vf	70	70	125	125	250	250	125	125	125	125
Ghisa		40	40	75	75	150	150	75	75	75	75
Ø 10		30	30	50	50	100	100	50	50	50	50
Ø 20		30	30	50	50	100	100	50	50	50	50
Ø 30		30	30	50	50	100	100	50	50	50	50
Aluminium Alluminio	Vc	35~45	35~45	50~60	50~60	40~100	40~100	50~60	50~60	50~60	50~60
Ø 10	Vf	200	200	255	255	350	350	255	255	255	255
Ø 20		130	130	180	180	230	230	180	180	180	180
Ø 30		110	110	150	150	200	200	150	150	150	150
Laiton Brass	Vc	20~30	20~30	30~40	30~40			30~40	30~40	30~40	30~40
Bronze	Vf	120	120	150	150			150	150	150	150
Latòn - Bronce		85	85	110	110			110	110	110	110
Bronzo		70	70	90	90			90	90	90	90
Ø 10		70	70	90	90			90	90	90	90
Ø 20		70	70	90	90			90	90	90	90
Ø 30		70	70	90	90			90	90	90	90
Cuivre Copper	Vc	15~25	15~25	20~30	20~30	50~80	50~80	20~30	20~30	20~30	20~30
Cobre	Vf	95	95	120	120	300	300	120	120	120	120
Rame		60	60	80	80	200	200	80	80	80	80
Ø 10		45	45	65	65	175	175	65	65	65	65
Ø 20		45	45	65	65	175	175	65	65	65	65
Ø 30		45	45	65	65	175	175	65	65	65	65
Stratifié Laminated	Vc	35~70	35~70	35~70	35~70			50~100	50~100	50~100	50~100
Laminados	Vf	300	300	300	300			400	400	400	400
Laminati		200	200	200	200			300	300	300	300
Ø 10		150	150	150	150			250	250	250	250
Ø 20		150	150	150	150			250	250	250	250
Ø 30		150	150	150	150			250	250	250	250
Nylon PVC	Vc	35~70	35~70	35~70	35~70			50~100	50~100	50~100	50~100
Plastics / Plásticos	Vf	400	400	400	400			450	450	450	450
Plastiche		300	300	300	300			350	350	350	350
Ø 10		250	250	250	250			300	300	300	300
Ø 20		250	250	250	250			300	300	300	300
Ø 30		250	250	250	250			300	300	300	300

**CONTOURNAGE
CONTOURING
CONTORNEADO
SCONTORNATURA**



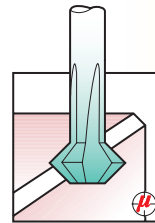
MATIÈRE MATERIAL MATERIALE		HSS-Co	HSS-Co + TiN	HSS 8% Co	HSS 8% Co + Red'X	Carbure Carbide Metallo Duro	Carbure Carbide + Hard'X
Pages	Páginas	47 ~ 57		49		49 ~ 56	
Pages	Páginas	47 ~ 57		49		49 ~ 56	
Aciers	Vc	17~22	17~22	35~45	35~45	40~80	40~80
Steels	Ø 10	85	85	165	165	250	250
Aceros Acciai	Ø 20 Vf	45	45	85	85	125	125
≤ 500 N/mm ²	Ø 30	30	30	55	55	85	85
Aciers	Vc	10~15	10~15	20~30	20~30	30~60	30~60
Steels	Ø 10	60	60	110	110	170	170
Aceros Acciai	Ø 20 Vf	30	30	55	55	85	85
500 ~ 800 N/mm ²	Ø 30	20	20	35	35	60	60
Aciers	Vc	8~12	8~12	16~20	16~20	20~40	20~40
Steels	Ø 10	35	35	55	55	100	100
Aceros Acciai	Ø 20 Vf	25	25	35	35	60	60
800 ~ 1000 N/mm ²	Ø 30	15	15	25	25	45	45
Inox	Vc	6~10	6~10	12~15	12~15	20~40	20~40
Stainless steel	Ø 10	30	30	45	45	100	100
Aceros Inoxidables	Ø 20 Vf	15	15	25	25	60	60
1000 ~ 1300 N/mm ²	Ø 30	10	10	20	20	40	40
Acier anti-abrasion	Vc				12~15	15~20	15~20
Abrasive tough	Ø 10				40	55	55
steel < 420 HB	Ø 20 Vf				30	35	35
Acero resistente a la abrasión	Ø 30				20	25	25
Bronze dur	Vc			4~6	4~6	10~12	10~12
Inconel, Nimonic	Ø 10			16	16	30	30
Hard bronze	Ø 20 Vf			8	8	16	16
Bronze/Bronzo duro	Ø 30			6	6	10	10
Acier traité	Vc					8~10	10~12
Treated steel	Ø 10					20	30
≥ 60 HRC	Ø 20 Vf					10	16
Acero tratado Acciai trattati	Ø 30					8	10
Fonte	Vc	15~25	15~25	20~40	20~40	40~80	40~80
Cast iron	Ø 10	70	70	125	125	250	250
Fundición	Ø 20 Vf	40	40	75	75	150	150
Ghisa	Ø 30	30	30	50	50	100	100
Aluminium	Vc	35~45	35~45	50~60	50~60	40~100	40~100
Alluminio	Ø 10	200	200	255	255	350	350
	Ø 20 Vf	130	130	180	180	230	230
	Ø 30	110	110	150	150	200	200
Laiton Brass	Vc	20~30	20~30	30~40	30~40		
Bronze	Ø 10	120	120	150	150		
Latòn - Bronce	Ø 20 Vf	85	85	110	110		
Bronzo	Ø 30	70	70	90	90		
Cuivre	Vc	15~25	15~25	20~30	20~30	50~80	50~80
Copper	Ø 10	95	95	120	120	300	300
Cobre	Ø 20 Vf	60	60	80	80	200	200
Rame	Ø 30	45	45	65	65	175	175
Stratifié	Vc	35~70	35~70	35~70	35~70		
Laminated	Ø 10	300	300	300	300		
Laminados	Ø 20 Vf	200	200	200	200		
Laminati	Ø 30	150	150	150	150		
Nylon	Vc	35~70	35~70	35~70	35~70		
PVC	Ø 10	400	400	400	400		
Plastics / Plásticos	Ø 20 Vf	300	300	300	300		
Plastiche	Ø 30	250	250	250	250		

**AUTRES SOLUTIONS
OTHER SOLUTIONS
OTRAS SOLUCIONES
ALTRE SOLUZIONI**



1 **MULTI-V**® =
10 OPERATIONS

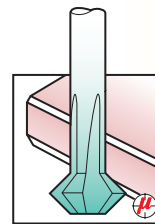
Pages Páginas Pagina **84 ~ 89**



Biface

FRAISES À CHANFREINER
AVANT ET ARRIÈRE

FRONT AND BACK
CHAMFERING



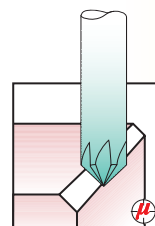
AVELLANADORES
FRONTAL Y TRASERO

FRESE PER SBAVARE
IN SPINTA ED IN TRAZIONE

Pages Páginas Pagina **94 ~ 97**

FRAISES À ANGLER
MULTIDENTS

MULTI-FLUTES CONICAL
CUTTERS



FRESAS CÓNICAS MULTILABIO

FRESE MULTI-DENTI
PER SMUSSATURE

Page Pagina **52-53**