

ACCIAI INOX



Profondità maschiatura fino a $3 \times D_1$

Lubrificazione con emulsione

Gambo in tolleranza h6

Z70

IT-ID-1016



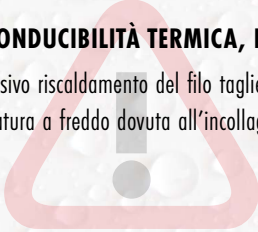
THREADING SOLUTIONS

LA SFIDA

LAVORARE GLI ACCIAI INOSSIDABILI

BASSA CONDUCIBILITÀ TERMICA, DI CONSEGUENZA

- Eccessivo riscaldamento del filo tagliente
- Saldatura a freddo dovuta all'incollaggio tra il materiale e l'utensile



TRUCIOLI LUNGI, DI CONSEGUENZA

- Difficile evacuazione del truciolo in presenza di fori ciechi profondi
- Rischio di formazione di gomitolì di truciolo intorno al gambo dell'utensile

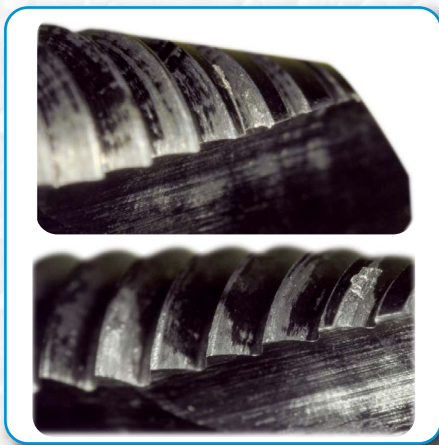


ELEVATA DUREZZA DEL MATERIALE, DI CONSEGUENZA

- Difficile da lavorare
- Vita utensile limitata



LE CONSEGUENZE



SALDATURA A FREDDO



GOMITOLI DI TRUCIOLO



INSODDISFAZIONE DEL CLIENTE

LA SOLUZIONE

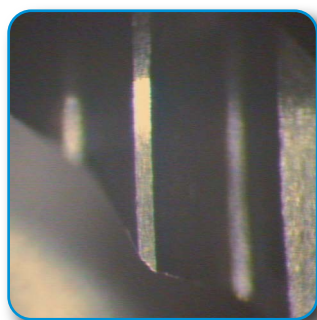


ZINNOX



PROPRIETÀ

Maschio HSSE-PM con o senza lubrificazione interna, scanalature elicoidali R45 per fori ciechi fino a $3 \times D_1$ negli acciai inossidabili e acciai legati con un forte coefficiente d'allungamento.



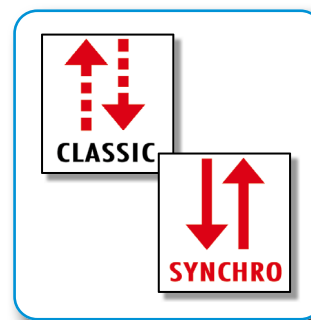
ADATTO ALL'EMULSIONE

Il rivestimento della superficie VS offre una protezione contro l'usura e le saldature fredde. Grazie ad un coefficiente di scorrimento elevato, viene facilitata l'evacuazione dei trucioli e riduce la coppia.



SICUREZZA DEL PROCESSO FINO A $3 \times D_1$

La geometria di taglio e la forma delle scanalature R45 generano dei trucioli compatti e regolari. Viene così garantita la sicurezza del processo.







A VOSTRA DISCREZIONE

La geometria di taglio è adatta alla maschiatura tradizionale con mandrino a compensazione, così come ad una maschiatura rigida (gambo h6 per calettamento a caldo).
























TABELLA D'IMPIEGO

Impiego

-  Ottimale con olio da taglio
-  Funzionale con olio da taglio
-  Ottimale con emulsione
-  Funzionale con emulsione




Classificazione dei materiali

Gruppi di materiali	Tipologie dei materiali	Durezza (HB)	Resistenza Rm (N/mm ²)	Allungamento A (%)	Z. 70VS	Z. 73VS	Z. 20VS	Vc (m/min)
								
10 Acciai	11 Acciai da tornitura	< 200	< 700	< 10				
	12 Acciai da costruzione / da cementazione	< 200	< 700	< 30				
	13 Acciai al carbonio	< 300	< 1000	< 20				
	14 Acciai legati <850 N/mm ²	< 250	< 850	< 30				
	15 Acciai legati / trattati >850 - <1150 N/mm ²	> 250	> 850	< 30				6 - 12
	16 Acciai ad alta resistenza	> 250	> 850	< 12				
20 Acciai inox	21 Acciai inox allo zolfo	< 250	< 850	< 25				20 - 30
	22 Acciai inox austenitici	< 250	< 850	> 20				6 - 12
	23 Ferritici e martensitici <850 N/mm ²	< 250	< 850	> 20				6 - 12
	24 Ferritici e martensitici >850 - <1150 N/mm ²	> 250	> 850	> 15				4 - 8
30 Ghisa	31 Ghisa grigia	< 250	< 850	< 10				
	32 Ghisa grafitica sferoidale e malleabile	< 250	< 850	> 10				
40 Titanio	41 Titanio puro	< 250	< 850	> 20				
	42 Leghe al titanio	> 250	> 850	< 20				
50 Nickel	51 Leghe al Nickel 1 <850 N/mm ²	< 250	< 850	> 25				6 - 12
	52 Leghe al Nickel 2 >850 - <1150 N/mm ²	> 250	> 850	< 25				4 - 8
	53 Leghe al Nickel 3 >1150 - ≤1600 N/mm ²	> 340	> 1150	< 20				
60 Rame	61 Rame puro (elettrolitico)	< 120	< 400	> 12				12 - 16
	62 Ottone, bronzo (trucioli corti)	< 200	< 700	< 12				
	63 Ottone (trucioli lunghi)	< 200	< 700	> 12				
70 Alluminio Magnesio	71 Alluminio non legato	< 100	< 350	> 15				
	72 Leghe di alluminio Si < 1.5 %	< 150	< 500	> 15				
	73 Leghe di alluminio Si > 1.5 % - < 10 %	< 120	< 400	< 15				
	74 Leghe di all. Si > 10 %, Leghe al magnesio	< 120	< 400	< 10				

Simboli

PM HSSE-PM

VS Protezione antiusura 

 Scanalature elicoidali con elica 45° a destra

C 2.5 x P  2 - 3 filetti d'imbocco, forma C

Referenze: DIN

15 Acciai legati / trattati > 850 - < 1150 N/mm ² 1.3553 X82WMoCrV6-5-4 1.6580 30CrNiMo8 1.7220 34CrMo4 1.7225 42CrMo4 1.8507 34CrAlMo5	21 Acciai inox, allo zolfo 1.4005 X12CrS13 1.4104 X14CrMoS17 1.4305 X10CrNiS18-9	22 Acciai inox austenitici 1.4301 X5CrNi18-10 1.4406 X2CrNiMoN17-12-2 1.4435 X2CrNiMo18-14-3 1.4541 X6CrNiTi18-10 1.4571 X6CrNiMoTi17-12-2	23 Ferritici e martensitici < 850 N/mm ² 1.4112 X90CrMoV18 1.4540 X4CrNiCuNb16-4 1.4582 X4CrNiMoNb25-7 1.4762 X10CrAl24 1.4922 X20CrMo11-1
24 Ferritici e martensitici > 850 - < 1150 N/mm ² 1.4057 X17CrNi17-2 1.4125 X105CrMo17 1.4542 X5CrNiCuNb16-4 1.4548 X5CrNiCuNb17-4-4 1.4748 X85CrMoV18-2	51 Leghe al Nickel 1 < 850 N/mm ² 1.3912 Ni36 (Invar) 2.4360 NiCu30Fe (Monel 400) 2.4816 NiCr15Fe (Inconel 600) 1.4876 X10NiCrAlTi32-20	52 Leghe al Nickel 2 > 850 - < 1150 N/mm ² 2.4375 NiCu30Al (MonelK500) 2.4631 NiCr20TiAl (Nimonic 80) 2.4668 NiCr19NbMo (Inconel718)	61 Rame puro (elettrolitico) 2.0060 E-Cu57 (E-Cu)

Referenze: AISI/ASTM

15 Acciai legati / trattati > 850 - < 1150 N/mm ² 1.3553 - 1.6580 4340 1.7220 4135 1.7225 4140 1.8507 A355CLD (K23510)	21 Acciai inox, allo zolfo 1.4005 416 1.4104 430F 1.4305 303	22 Acciai inox austenitici 1.4301 304 1.4406 316LN 1.4435 316L 1.4541 321 1.4571 316Ti	23 Ferritici e martensitici < 850 N/mm ² 1.4112 440B 1.4540 XM12 (15-5PH) 1.4582 - 1.4762 446 1.4821 4922
24 Ferritici e martensitici > 850 - < 1150 N/mm ² 1.4057 431 1.4125 440C 1.4542 630 (17-4PH) 1.4748 -	51 Leghe al Nickel 1 < 850 N/mm ² 1.3912 K93600 2.4360 N04400 1.4816 N08800	52 Leghe al Nickel 2 > 850 - < 1150 N/mm ² 2.4375 N05500 (B865) 2.4631 N07080 (B637) 2.4668 N07718 (B637)	61 Rame puro (elettrolitico) 2.0060 C11000



Classe di tolleranza 6HX



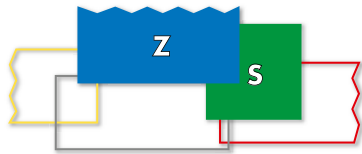
Foro cieco < 3 x D, trucioli lunghi



Per maschiatura classica



Per maschiatura sincrona



Z362VS-3



Z370VS-3



Z373VS-3

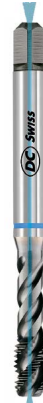


Z362VS-3

Z370VS-3

Z370VS-3

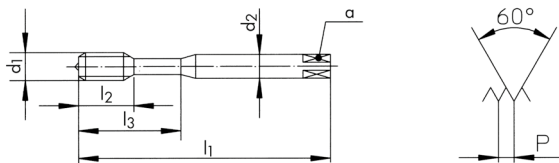
Z373VS-3



PM

PM

PM



6HX

6HX

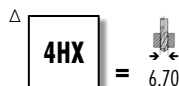
4HX

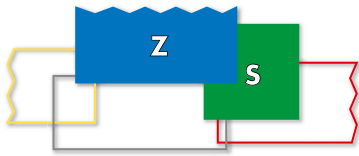
6HX

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID
* 3	0.50	56	5.5	18	3.5	2.7	3	2.50	111504
4	0.70	63	7.5	21	4.5	3.4	3	3.30	111505
5	0.80	70	9.0	25	6.0	4.9	3	4.20	111506
6	1.00	80	11.0	30	6.0	4.9	3	5.00	111507
8	1.25	90	12.5	35	8.0	6.2	3	6.80	111508
10	1.50	100	14.0	39	10.0	8.0	3	8.50	111509

* Z360VS-3

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm			ID	ID	ID
3	0.50	56	5.5	18	3.5 (h9)	2.7	3	2.50	162776	165324	165236
4	0.70	63	7.5	21	4.5 (h9)	3.4	3	3.30	162777	165325	165237
5	0.80	70	9.0	25	6.0	4.9	3	4.20	162778	165326	165238
6	1.00	80	11.0	30	6.0	4.9	3	5.00	162779	165327	165239
8	1.25	90	12.5	35	8.0	6.2	3	Δ 6.80	162780	165328	165240
10	1.50	100	14.0	39	10.0	8.0	3	8.50	162781	165438	165241





Z462VS-3

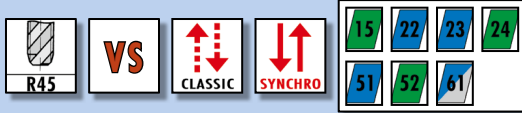
Z470VS-3

Z473VS-3

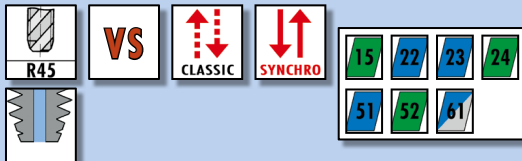
Z462VS-3



Z470VS-3

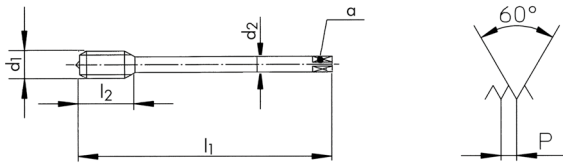


Z473VS-3



PM



PM



6HX



6HX

6HX

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
12	1.75	110	14.0	9.0	7.0	4	10.20
16	2.00	110	18.0	12.0	9.0	4	14.00
20	2.50	140	24.0	16.0	12.0	4	17.50

ID

111510
111511
111512

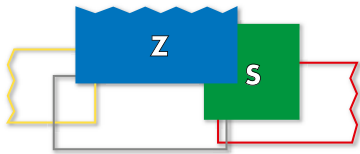
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 h6 mm	a mm		
12	1.75	110	14.0	*10.0	*8.0	4	10.20
14	2.00	110	14.0	*12.0	*9.0	4	12.00
16	2.00	110	18.0	12.0	9.0	4	14.00
18	2.50	125	21.0	14.0	11.0	4	15.50
20	2.50	140	24.0	16.0	12.0	4	17.50
22	2.50	140	24.0	16.0	12.0	4	19.50
24	3.00	160	27.0	16.0	12.0	4	21.00

ID

ID

162782 165242
162783 165244
162784 165244
170643 165234
162785 165234
175190 165235
162786 165235

* Norma DC



Z320VS-4

Z420VS-4

Z320VS-4



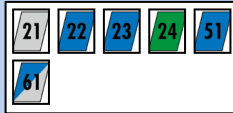
VS



Z420VS-4



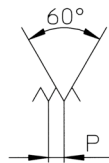
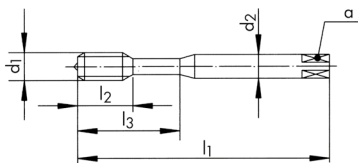
VS



PM



PM



**ISO 2
6H**



**ISO 2
6H**

$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
2.5	0.45	50	10.0		2.8	2.1	3	2.05
3	0.50	56	12.0	18	3.5	2.7	3	2.50
4	0.70	63	14.0	21	4.5	3.4	3	3.30
5	0.80	70	15.0	25	6.0	4.9	3	4.20
6	1.00	80	17.0	30	6.0	4.9	3	5.00
8	1.25	90	20.0	35	8.0	6.2	3	6.80
10	1.50	100	22.0	39	10.0	8.0	3	8.50
12	1.75	110	24.0		9.0	7.0	3	10.20
14	2.00	110	28.0		11.0	9.0	3	12.00
16	2.00	110	30.0		12.0	9.0	3	14.00
20	2.50	140	36.0		16.0	12.0	4	17.50

ID

ID

143683

104830

104831

104832

104833

104834

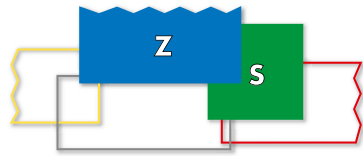
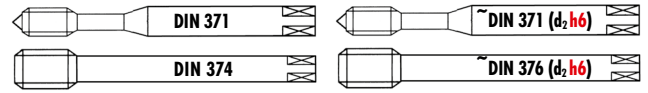
104835

104836

143684

111569

111570



Z320VS-4

Z420VS-4

Z370VS-3

Z470VS-3



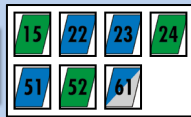
Z320VS-4



Z420VS-4



Z370VS-3



Z470VS-3



PM



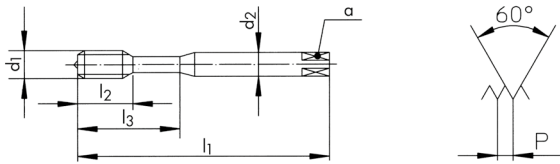
PM



PM



PM



ISO 2
6H



ISO 2
6H



6HX



6HX

∅ d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
8	1.00	90	20.0	35	8.0	6.2	3	7.00
10	1.00	100	22.0	39	10.0	8.0	3	9.00
12	1.50	100	24.0		9.0	7.0	3	10.50
14	1.50	100	24.0		11.0	9.0	3	12.50
16	1.50	100	26.0		12.0	9.0	3	14.50

ID

ID

124289

120060

120421

120688

120878

∅ d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm		
6	0.75	80	11.0	30	6.0	4.9	3	5.25
8	1.00	90	12.5	35	8.0	6.2	3	7.00
10	1.00	100	14.0	39	10.0	8.0	3	9.00
12	1.50	110	14.0		*10.0	*8.0	4	10.50
14	1.50	110	14.0		*12.0	*9.0	4	12.50
16	1.50	110	18.0		12.0	9.0	4	14.50

ID

ID

166117

166118

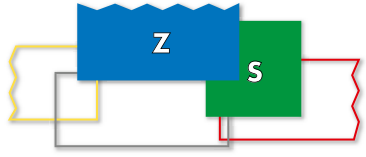
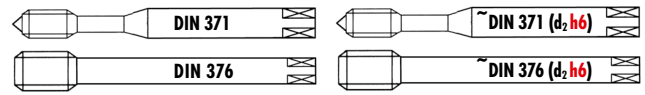
166119

166120

166121

166122

* Norma DC

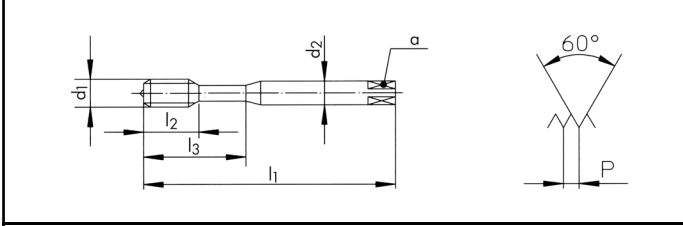


Z320VS-4	Z420VS-4	Z370VS-3	Z470VS-3
----------	----------	----------	----------

Z320VS-4		VS	
Z420VS-4		VS	
Z370VS-3		VS	
Z470VS-3		VS	



PM	PM	PM	PM



2B	2B	2BX	2BX

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	α mm		
6	32	3.50	56	13.0	20	4.0	3.0	3	2.75
8	32	4.16	63	14.0	21	4.5	3.4	3	3.40
10	24	4.82	70	15.0	25	6.0	4.9	3	3.80
1/4	20	6.35	80	17.0	30	7.0	5.5	3	5.10
5/16	18	7.93	90	20.0	35	8.0	6.2	3	6.50
3/8	16	9.52	100	22.0	39	10.0	8.0	3	8.00
1/2	13	12.70	110	24.0		9.0	7.0	3	10.80
5/8	11	15.87	110	30.0		12.0	9.0	3	13.60
3/4	10	19.05	125	33.0		14.0	11.0	4	16.60

ID	ID
111560	
111561	
111562	
111563	
111564	
111565	
	111566
	111567
	111568

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	α mm		
6	32	3.50	56	6.5	20	4.0(h9)	3.0	3	2.75
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3.40
10	24	4.82	70	9.0	25	6.0	4.9	3	3.80
1/4	20	6.35	80	11.0	30	*6.0	*4.9	3	5.10
5/16	18	7.93	90	12.5	35	8.0	6.2	3	6.50
3/8	16	9.52	100	14.0	39	10.0	8.0	3	8.00
7/16	14	11.11	100	14.0		8.0	6.2	3	9.30
1/2	13	12.70	110	14.0		*10.0	*8.0	4	10.80
5/8	11	15.87	110	18.0		12.0	9.0	4	13.60
3/4	10	19.05	125	21.0		14.0	11.0	4	16.60
1	8	25.40	160	27.0		16.0	12.0	4	22.30

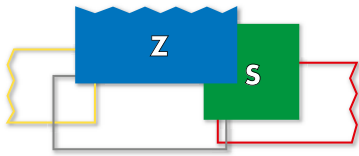
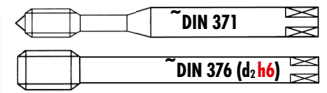
ID	ID
	166123
	166124
	166125
	166126
	166127
	166128
	166129
	166130
	166131
	166132
	175703

* Norma DC

3B
UNC(J) Vedi catalogo generale

UNF ANSI B1.1

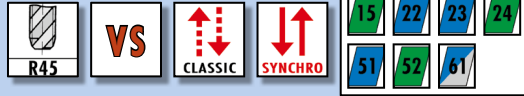
PM



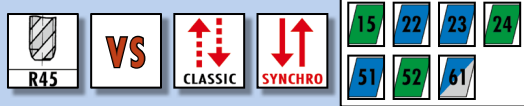
Z370VS-3

Z470VS-3

Z370VS-3

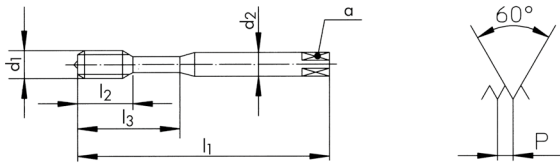


Z470VS-3



PM

PM



2BX

2BX

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
10	32	4.82	70	9.0	25	6.0	4.9	3	4.05
1/4	28	6.35	80	11.0	30	* 6.0	* 4.9	3	5.50
5/16	24	7.93	90	12.5	35	8.0	6.2	3	6.90
3/8	24	9.52	100	14.0	39	10.0	8.0	3	8.50
7/16	20	11.11	100	14.0		8.0	6.2	3	9.80
1/2	20	12.70	110	14.0		* 10.0	* 8.0	4	11.40

* Norma DC

ID

ID

166136

166135

166134

166133

166138

166137

3B
UNF(J)

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
10	32	4.82	70	9.0	25	6.0	4.9	3	4.15
1/4	28	6.35	80	11.0	30	* 6.0	* 4.9	3	5.55
5/16	24	7.93	90	12.5	35	8.0	6.2	3	7.00
3/8	24	9.52	100	14.0	39	10.0	8.0	3	8.60

* Norma DC

ID

165121

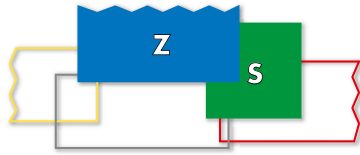
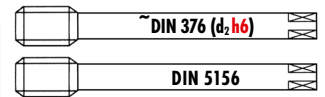
165122

165123

165124

G DIN ISO 228 (BSP)

PM



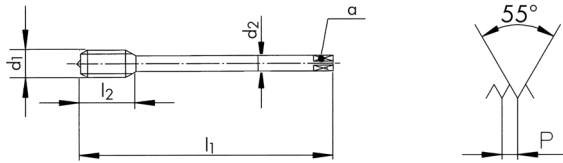
Z420VS-4

Z470VS-3

Z420VS-4



Z470VS-3



\varnothing " d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm			ID
1/8	28	9.72	90	22.0	7.0	5.5	3	8.75	142800
1/4	19	13.15	100	20.0	11.0	9.0	3	11.60	119303
3/8	19	16.66	100	20.0	12.0	9.0	3	15.20	142802
1/2	14	20.95	125	22.0	16.0	12.0	4	18.90	142803

\varnothing " d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ h ₆ mm	α mm			ID
1/8	28	9.72	100	14.0	* 8.0	* 6.2	3	8.75	165198
1/4	19	13.15	110	14.0	* 12.0	* 9.0	4	11.60	165199
3/8	19	16.66	110	18.0	12.0	9.0	4	15.20	165200
1/2	14	20.95	125	20.0	16.0	12.0	4	18.90	165201

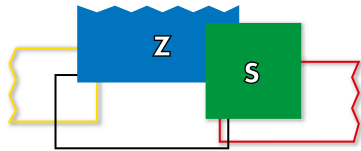
* Norme DC

EG UNC/UNF

NASM33537



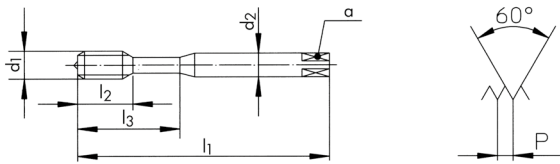
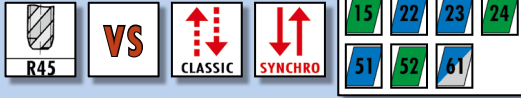
PM



Z370VS-3



Z370VS-3



Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
4	40	3.67	56	6.5	20	4.0 (h9)	3.0	3	3.05
6	32	4.53	70	9.0	25	6.0	4.9	3	3.75
8	32	5.19	70	9.0	25	6.0	4.9	3	4.45

ID

165126
165127
165128

Ø" d ₁ EG UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
10	32	5.85	80	11.0	30	6.0	4.9	3	5.10
1/4	28	7.52	90	12.5	35	8.0	6.2	3	6.65
5/16	24	9.31	90	12.5	35	*8.0	*6.2	3	8.20

ID

165129
165130
165131

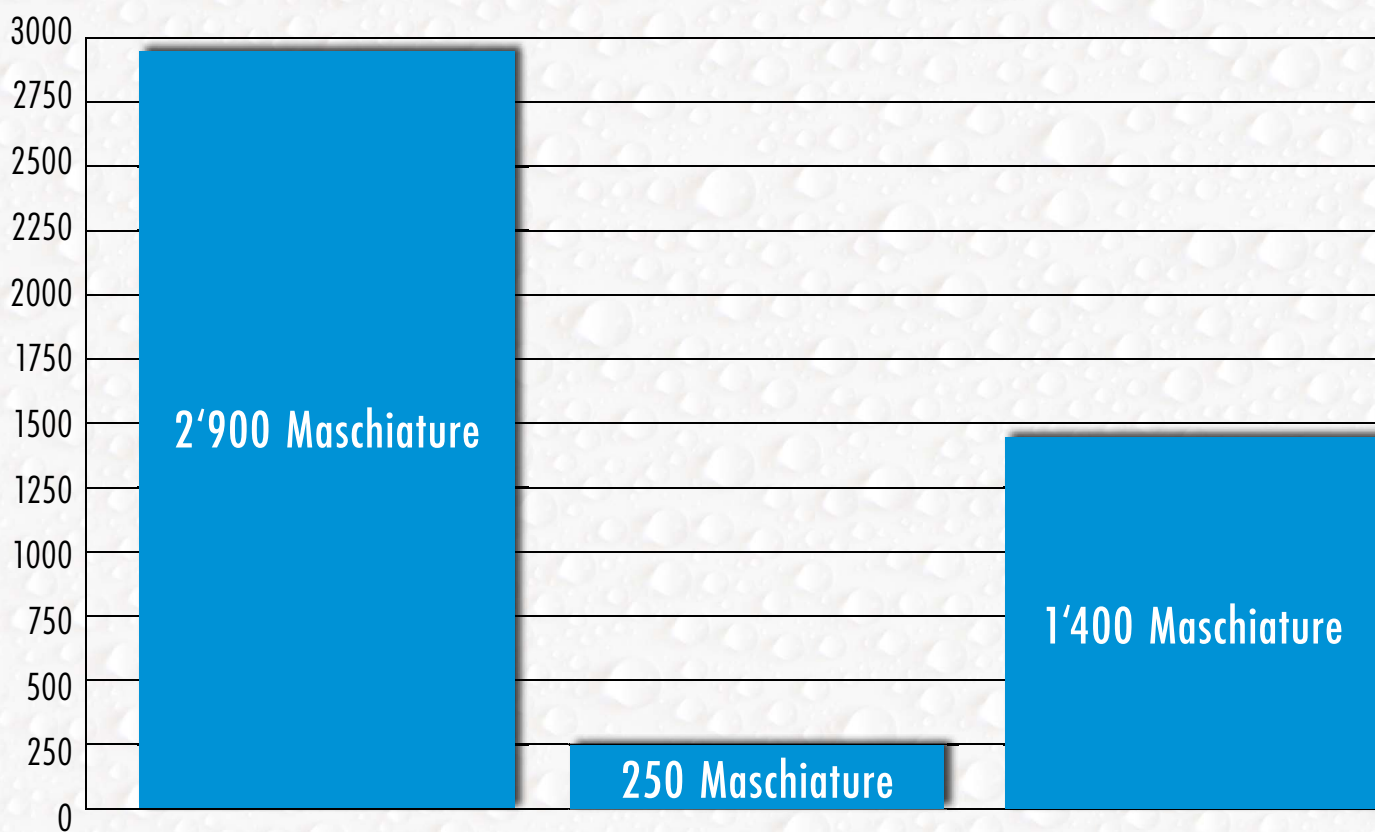
* Norme DC

APPLICAZIONE 1

Materiale: Acciaio inox austenitico
DIN: 1.4301/ AISI 304
Resistenza alla trazione: 500 - 700 N/mm²
Foro cieco: M10 6H
Profondità maschiatura: 20 mm

Metodo: Maschiatura sincrona
Lubrificante: Olio da taglio

**CON
OLIO DA TAGLIO**



FAS381VS-3

Vc = 12 m/min

Maschiatura per deformazione

Protezione antiusura VS

Z362V-3

Vc = 3 m/min

Maschiatura

Trattamento di superficie «V»

Z370VS-3

Vc = 10 m/min

Maschiatura

Protezione antiusura VS

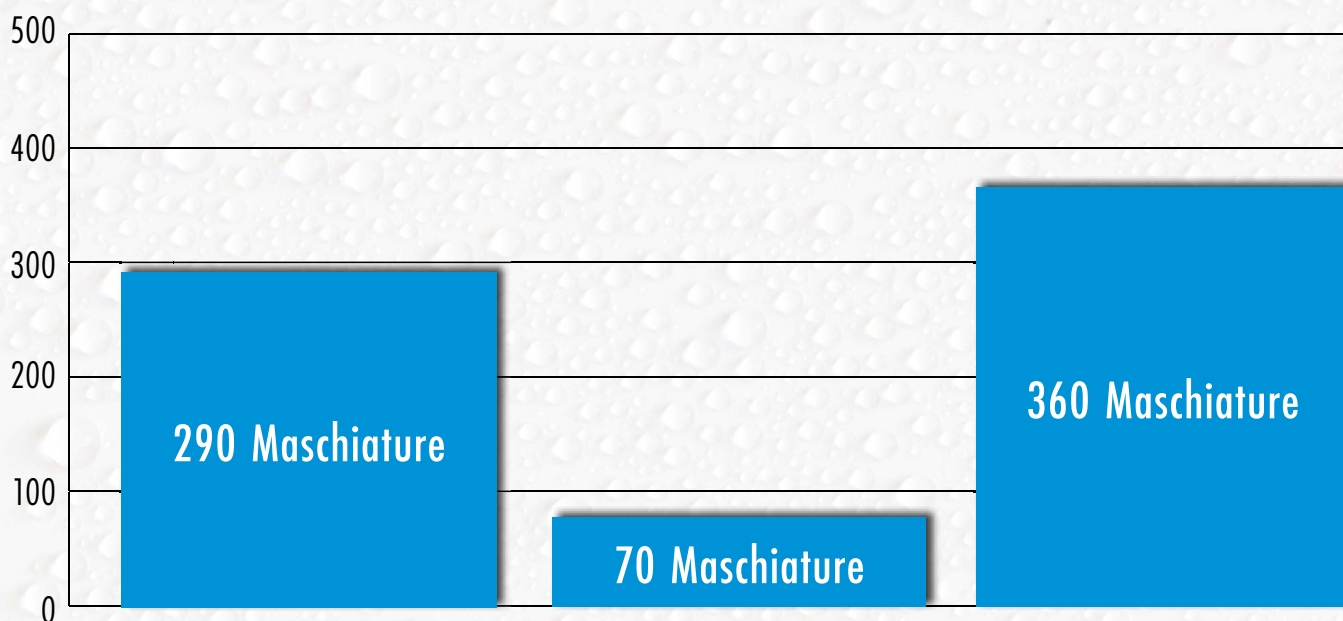


APPLICAZIONE 2

Materiale: Acciaio inox austenitico
DIN: 1.4301/ AISI 304
Resistenza alla trazione: 500 - 700 N/mm²
Foro cieco: M10 6H
Profondità maschiatura: 20 mm

Metodo: Maschiatura sincrona
Lubrificante: Emulsione 8 - 10%

**CON
EMULSIONE**



FAS381VS-3

Vc = 12 m/min

Maschiatura per deformazione

Protezione antiusura VS

Z362V-3

Vc = 3 m/min

Maschiatura

Tattamento di superficie «V»

Z370VS-3

Vc = 8 m/min

Maschiatura

Protezione antiusura VS





« UN PROCESSO CORRETTO DI MASCHIATURA É FONDAMENTALE. DC SWISS GARANTISCE L’AFFIDABILITÀ RICHIESTA, ANCHE NELLA LAVORAZIONE DI MATERIALI TENACI. »



THREADING SOLUTIONS

DC SWISS SA
Grand-Rue 19
CH-2735 Malleray
Tel. + 41 32 491 63 63
info@dcswiss.ch

DC Swiss GmbH
Graseggerstrasse 125
DE-50737 Köln
Tel. + 49 221 995 532 0
info@dcswiss.de

DC Nano Tools SA
Grand-Rue 19
CH-2735 Malleray
Tel. + 41 32 491 63 63
info@dcswiss.ch

DC Swiss s.r.l
Via Canova 10
IT-20017 Rho
Tel. + 39 02 669 40 41
info@dcswiss.it

 **SWISSQUALITY**

DC Swiss UK Ltd
9 Orgreave Road
GB-Sheffield S13 9LQ
Tel. + 44 114 293 90 13
info@dcswiss.co.uk