

$$\text{rpm} = (\text{mt/min} \times 1000) / (D \times 3,14)$$

$$\text{mm/min} = \text{mm/rev} \times \text{rpm}$$

$$= \text{mt/min}$$

$$= \text{mm/rev} \text{ (vedi tabella - see table page pag. 9)}$$

PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGHT								PUNTE CORTE TWIST DRILLS, JOBBER LENGHT							
CL100								CL104							
CL101								CL104R							
CL118								CL107							
CL118								CL108							
CL118								CL104CR							
CL118								CL106							
DIN 1897								DIN 338							
HSS								HSS							
HSS+8%Co								HSS+5%Co							
HSS+8%Co								HSS+5%Co							
HSS+8%Co								HSS+5%Co							

Pag. 330	TIPO DI ACCIAIO TYPE OF STEEL	N/mm²	HV	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	mt/min mm/ev	
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel 1	500	157	30 b	42 d	55 c	60 c	38 c	50 c	57 c	30 b	37 c					30 b	35 c	50 c
	Acciai da costruzione Structural steel 2	700	219	22 c	35 c	45 b	55 b	30 c	40 b	50 b	22 c	30 b					22 c	28 b	40 b
	Acciai da tempra Hardening steel 3	900	280	13 c		35 b	40 b		30 b	38 b	13 c	20 b					13 c	18 b	30 b
	Acciaio automatico Automatic steel 4	1200	373																
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel 3	850	265	17 b	26 c	32 b	36 b	22 b	28 b	34 b	17 b	22 b					17 b	20 b	28 b
	Austenitico Austenitic 3	850	265	8 c	18 d	18 c	22 c	12 c	15 c	20 c	8 c	12 c					8 c	10 c	15 c
	Ferritico+austenitico Ferritic austenitic 4	1000	311	10 b		22 c	26 c	15 b	18 c	24 c	10 b	15 b					10 b	13 b	18 c
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb 2	500	157	30 d	38 d	45 c	48 d	36 d	42 c	45 d	30 d	37 d					30 d	35 d	42 c
	Ghisa oltre 180 hb Cast iron over 180hb 3	700	219	20 b	28 c	32 c	35 d	26 b	30 c	32 d	20 b	25 b					20 b	23 b	30 c
TITANIO TITANIUM	Titanio non legato Unalloyed titanium 5	500	157	22 b	33 d	36 d	40 d	28 c	31 c	38 d	22 b	26 b					22 b	24 b	31 c
	Leghe di titanio Titanium alloys 5	900	280	10 a	24 d	27 d	30 d	18 c	21 c	28 d	10 a	14 a					10 a	12 a	21 c
RAME COPPER	Rame Copper 9	350	110	30 c	42 d			40 c			30 c	40 c		30 c			30 c	38 c	
	Ottone Brass 9	700	219	33 c	45 d	55 c		43 b	50 c		33 c	43 b	33 c				33 c	41 b	50 c
	Bronzo Bronze 9	700	219	15 c	24 d	50 c		22 b	45 c		15 c	23 b	15 c				15 c	20 b	45 c
NICHEL NICKEL	Nichel non legato Unalloyed nichel 6	700	219	10 b	18 c	22 c	26 d	16 c	20 c	24 d	10 b	16 c					10 b	14 c	20 c
	Leghe di nichel Nickel alloys 6	900	280	5 a	15 c	12 c	16 d	12 b	10 c	14 d	5 a	11 b					5 a	9 b	10 c
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium 7	350	110	35 d	40 d	70 d		38 d	60 d		35 d	39 d		35 d			35 d	37 d	60 d
	Alluminio con leghe Alloyed aluminium 7	400	125	30 d	35 d	60 d		33 d	55 d		30 d	34 d		30 d			30 d	32 d	55 d
	Alluminio con leghe Alloyed aluminium 7	500	157	25 c	30 c	45 c		28 c	40 c		25 c	29 c		25 c			25 c	27 c	40 c

PUNTE CORTE TWIST DRILLS, JOBBER LENGHT											PUNTE LUNGHE TWIST DRILLS, LONG SERIES				PUNTE EXTRA LUNGHE TWIST DRILLS, EXTRA LONG SERIES					
																				
CL106	CL105		CL109			CL119			CL200	CL230			CL111/1	CL110/1			CL111/2	CL110/2		
																				
HSS+8%Co			HSS+5%Co								HSS	HSS+5%Co			HSS	HSS+5%Co			HSS	HSS+5%Co
																				
mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	mm/min mm/rev	
57 c	42 d	55 c	60 c	38 c	50 c	57 c	38 c	50 c	57 c	30 b	38 c	50 c	57 c	30 b	38 c	50 c	57 c	30 b	38 c	
50 b	35 c	45 b	55 b	30 c	40 b	50 b	30 c	40 b	50 b	22 c	30 c	40 b	50 b	22 c	30 c	40 b	50 b	22 c	30 c	
38 b		35 b	40 b		30 b	38 b		30 b	38 b	13 c		30 b	38 b	13 c		30 b	38 b	13 c		
34 b	26 c	32 b	36 b	22 b	28 b	34 b	22 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b	
20 c	18 d	18 c	22 c	12 c	15 c	20 c	12 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c	
24 c		22 c	26 c	15 b	18 c	24 c	15 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b	
45 d	38 d	45 c	48 d	36 d	42 c	45 d	36 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d	
32 d	28 c	32 c	35 d	26 b	30 c	32 d	26 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b	
38 d	33 d	36 d	40 d	28 c	31 c	38 d	28 c	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c	
28 d	24 d	27 d	30 d	18 c	21 c	28 d	18 c	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c	
	42 d			40 c			40 c			30 c	40 c			30 c	40 c			30 c	40 c	
	45 d	55 c		43 b	50 c		43 b	50 c		33 c	43 b	50 c		33 c	43 b	50 c		33 c	43 b	
	24 d	50 c		22 b	45 c		22 b	45 c		15 c	22 b	45 c		15 c	22 b	45 c		15 c	22 b	
24 d	18 c	22 c	26 d	16 c	20 c	24 d	16 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c	
14 d	15 c	12 c	16 d	12 b	10 c	14 d	12 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b	
	40 d	70 d		38 d	60 d		38 d	60 d		35 d	38 d	60 d		35 d	38 d	60 d		35 d	38 d	
	35 d	60 d		33 d	55 d		33 d	55 d		30 d	33 d	55 d		30 d	33 d	55 d		30 d	33 d	
	30 c	45 c		28 c	40 c		28 c	40 c		25 c	28 c	40 c		25 c	28 c	40 c		25 c	28 c	

$$\text{rpm} = (\text{mt/min} \times 1000) / (D \times 3,14)$$

$$\text{mm/min} = \text{mm/rev} \times \text{rpm}$$

$$= \text{mt/min}$$

$$= \text{mm/rev} \text{ (vedi tabella - see table page pag. 9)}$$

PUNTE EXTRA LUNGHE TWIST DRILLS, EXTRA LONG SERIES				PUNTE DOPPIE DOUBLE TWIST DRILLS				PUNTE PER CENTRI NC NC-SPOTTING DRILLS				
DIN 1869/2		DIN 1869/3		CARMON NORM.				CARMON NORM.				DIN 333/A
HSS+5%Co	HSS	HSS+5%Co		HSS				HSS+8% Co				

Pag. 330	TIPO DI ACCIAIO TYPE OF STEEL	N/mm ²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel 1	500	157	50 c	57 c	30 b	38 c	50 c	57 c			35 c	50 c	57 c	35 c	50 c	57 c	30 b
	Acciai da costruzione Structural steel 2	700	219	40 b	50 b	22 c	30 c	40 b	50 b			28 b	40 b	50 b	28 b	40 b	50 b	22 c
	Acciai da tempra Hardening steel 3	900	280	30 b	38 b	13 c		30 b	38 b			18 b	30 b	38 b	18 b	30 b	38 b	13 c
	Acciaio automatico Automatic steel 4	1200	373															
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel 3	850	265	28 b	34 b	17 b	22 b	28 b	34 b			20 b	28 b	34 b	20 b	28 b	34 b	17 b
	Austenitico Austenitic 3	850	265	15 c	20 c	8 c	12 c	15 c	20 c			10 c	15 c	20 c	10 c	15 c	20 c	8 c
	Ferritico+austenitico Ferritic austenitic 4	1000	311	18 c	24 c	10 b	15 b	18 c	24 c			13 b	18 c	24 c	13 b	18 c	24 c	10 b
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb 2	500	157	42 c	45 d	30 d	36 d	42 c	45 d			35 d	42 c	45 d	35 d	42 c	45 d	30 d
	Ghisa oltre 180 hb Cast iron over 180hb 3	700	219	30 c	32 d	20 b	26 b	30 c	32 d			23 b	30 c	32 d	23 b	30 c	32 d	20 b
TITANIO TITANIUM	Titanio non legato Unalloyed titanium 5	500	157	31 c	38 d	22 b	28 c	31 c	38 d			24 b	31 c	38 d	24 b	31 c	38 d	22 b
	Leghe di titanio Titanium alloys 5	900	280	21 c	28 d	10 a	18 c	21 c	28 d			12 a	21 c	28 d	12 a	21 c	28 d	10 a
RAME COPPER	Rame Copper 9	350	110			30 c	40 c					38 c			38 c			30 c
	Ottone Brass 9	700	219	50 c		33 c	43 b	50 c				41 b	50 c		41 b	50 c		33 c
	Bronzo Bronze 9	700	219	45 c		15 c	22 b	45 c				20 b	45 c		20 b	45 c		15 c
NICHEL NICKEL	Nichel non legato Unalloyed nickel 6	700	219	20 c	24 d	10 b	16 c	20 c	24 d			14 c	20 c	24 d	14 c	20 c	24 d	10 b
	Leghe di nichel Nickel alloys 6	900	280	10 c	14 d	5 a	12 b	10 c	14 d			9 b	10 c	14 d	9 b	10 c	14 d	5 a
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium 7	350	110	60 d		35 d	38 d	60 d				37 d	60 d		37 d	60 d		35 d
	Alluminio con leghe Alloyed aluminium 7	400	125	55 d		30 d	33 d	55 d				32 d	55 d		32 d	55 d		30 d
	Alluminio con leghe Alloyed aluminium 7	500	157	40 c		25 c	28 c	40 c				27 c	40 c		27 c	40 c		25 c

PUNTE DA CENTRO CENTER DRILLS					PUNTE A GRADINO CON ELICHE INDEPENDENTI SUBLAND DRILLS WITH INDEPENDENT SPIRAL			PUNTE EXTRA CORTE TWIST DRILLS, STUB LENGHT		PUNTE CORTE TWIST DRILLS, JOBBER LENGHT		PUNTE CON CODOLO RINFORZATO TWIST DRILLS WITH REINFORCED SHANK					PUNTE CODOLO CONICO TAPER SHANK TWIST DRILLS	
QUARTZ	QUARTZ	QUARTZ	QUARTZ	QUARTZ				SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE	SAPPHIRE		
CL910	CL920	CL930			CL270	CL271	CL272	CL400		CL410		CL415	CL425	CL420	CL430	CL435	CM300	CM303
DIN 333/A	DIN 333/R	DIN 333/B			DIN 8376	DIN 8374	DIN 8378	DIN 6539		DIN 338		DIN 6537K	DIN 6537K	DIN 6537L	DIN 6537L	CARMON NORVL		DIN 345
HSS					HSS			HM		HM		HM					HSS	HSS+5%Co
mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev	mi/min mm/rev
37 c	30 b	37 c	30 b	37 c	30 b	30 b	30 b	85 a	120 f	85 a	120 f	120 c	150 c	120 c	150 c	150 c	30 c	35 c
30 b	22 c	30 b	22 c	30 b	22 c	22 c	22 c	70 a	115 f	70 a	115 f	100 b	120 b	100 b	120 b	120 b	22 b	28 b
20 b	13 c	20 b	13 c	20 b	13 c	13 c	13 c	45 a	90 f	45 a	90 f	80 b	100 b	80 b	100 b	100 b	13 b	18 b
								40 a	50 f	40 a	50 f	60 a	70 a	60 a	70 a	70 a		
22 b	17 b	22 b	17 b	22 b	17 b	17 b	17 b	50 g	55 f	50 g	55 f	70 c	80 c	70 c	80 c	80 c	17 b	20 b
12 c	8 c	12 c	8 c	12 c	8 c	8 c	8 c	45 g	50 f	45 g	50 f	60 c	70 c	60 c	70 c	70 c	8 c	10 c
15 b	10 b	15 b	10 b	15 b	10 b	10 b	10 b					40 e	50 e	40 e	50 e	50 e	10 b	13 b
37 d	30 d	37 d	30 d	37 d	30 d	30 d	30 d	75 b	90 f	75 b	90 f	75 c	75 c	80 c	80 c	80 c	30 d	35 d
25 b	20 b	25 b	20 b	25 b	20 b	20 b	20 b	55 b	70 f	55 b	70 f	65 b	65 b	65 b	65 b	65 b	20 b	23 b
26 b	22 b	26 b	22 b	26 b	22 b	22 b	22 b	45 a	55 a	45 a	55 a	55 c	65 c	55 c	65 c	65 c	22 b	24 b
14 a	10 a	14 a	10 a	14 a	10 a	10 a	10 a	30 a	40 a	30 a	40 a	45 b	55 b	45 b	55 b	55 b	10 a	12 a
40 c	30 c	40 c	30 c	40 c	30 c	30 c	30 c	300 f		300 f							18 c	30 c
43 b	33 c	43 b	33 c	43 b	33 c	33 c	33 c	300 f		300 f							20 c	33 c
23 b	15 c	23 b	15 c	23 b	15 c	15 c	15 c	300 f		300 f							12 c	15 c
16 c	10 b	16 c	10 b	16 c	10 b	10 b	10 b	45 a	55 f	45 a	55 f	40 b	50 b	40 b	50 b	50 b	10 b	14 c
11 b	5 a	11 b	5 a	11 b	5 a	5 a	5 a	30 a	45 f	30 a	45 f	30 a	40 a	30 a	40 a	40 a	5 a	9 b
39 d	35 d	39 d	35 d	39 d	35 d	35 d	35 d										35 d	37 d
34 d	30 d	34 d	30 d	34 d	30 d	30 d	30 d										30 d	32 d
29 c	25 c	29 c	25 c	29 c	25 c	25 c	25 c										25 c	27 c

rpm

$$= (\text{mt/min} \times 1000) / (D \times 3,14)$$

mm/min

$$= \text{mm/rev} \times \text{rpm}$$

= mt/min

= mm/rev (vedi tabella - see table page pag. 9)

PUNTE CODOLO CONICO TAPER SHANK TWIST DRILLS

PUNTE LUNGHE CODOLO CONICO TAPER SHANK DRILLS, LONG SERIES

PUNTE EXTRA LUNGHE CODOLO CONICO TWIST DRILLS TAPER SHANK EXTRALONG

CM303		CM301		CM302		CM304		CM306		CM305	CM307
DIN 345				DIN 341				DIN 1870/1			DIN 1870/2
HSS+5% Co		HSS		HSS+5% Co		HSS		HSS+5% Co		HSS	HSS+5% Co

Pag. 330	TIPO DI ACCIAIO TYPE OF STEEL	N/mm²	HV	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
ACCIAI COMUNI COMMON STEEL	Acciai teneri Soft steel 1	500	157	50 c	57 c	30 c	38 c	50 c	57 c	30 c	38 c	50 c	57 c	30 c	38 c	
	Acciai da costruzione Structural steel 2	700	219	40 b	50 b	22 b	30 c	40 b	50 b	22 b	30 c	40 b	50 b	22 b	30 c	
	Acciai da tempra Hardening steel 3	900	280	30 b	38 b	13 b		30 b	38 b	13 b		30 b	38 b	13 b		
	Acciaio automatico Automatic steel 4	1200	373													
ACCIAI INOX STAINLESS STEEL	Acciaio automatico Automatic steel 3	850	265	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b	28 b	34 b	17 b	22 b	
	Austenitico Austenitic 3	850	265	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c	15 c	20 c	8 c	12 c	
	Ferritico+austenitico Ferritic austenitic 4	1000	311	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b	18 c	24 c	10 b	15 b	
GHISA CAST IRON	Ghisa fino a 180 hb Cast iron up to 180hb 2	500	157	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d	42 c	45 d	30 d	36 d	
	Ghisa oltre 180 hb Cast iron over 180hb 3	700	219	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b	30 c	32 d	20 b	26 b	
TITANIO TITANIUM	Titanio non legato Unalloyed titanium 5	500	157	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c	31 c	38 d	22 b	28 c	
	Leghe di titanio Titanium alloys 5	900	280	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c	21 c	28 d	10 a	18 c	
RAME COPPER	Rame Copper 9	350	110	40 c		18 c	38 c	40 c		18 c	38 c	40 c		18 c	38 c	
	Ottone Brass 9	700	219	43 b	50 c	20 c	41 b	43 b	50 c	20 c	41 b	43 b	50 c	20 c	41 b	
	Bronzo Bronze 9	700	219	22 b	45 c	12 c	20 b	22 b	45 c	12 c	20 b	22 b	45 c	12 c	20 b	
NICHEL NICKEL	Nichel non legato Unalloyed nichel 6	700	219	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c	20 c	24 d	10 b	16 c	
	Leghe di nichel Nichel alloys 6	900	280	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b	10 c	14 d	5 a	12 b	
ALLUMINIO ALUMINIUM	Alluminio non legato Unalloyed aluminium 7	350	110	60 d		35 d	38 d	60 d		35 d	38 d	60 d		35 d	38 d	
	Alluminio con leghe Alloyed aluminium 7	400	125	55 d		30 d	33 d	55 d		30 d	33 d	55 d		30 d	33 d	
	Alluminio con leghe Alloyed aluminium 7	500	157	40 c		25 c	28 c	40 c		25 c	28 c	40 c		25 c	28 c	

**PUNTE A DUE DIAMETRI
SUBLAND TWIST DRILLS**

CM370	CM371	CM372
DIN 8377	DIN 8375	DIN 8379
HSS		
mt/min mm/rev	mt/min mm/rev	mt/min mm/rev
30 c	30 c	30 c
22 b	22 b	22 b
13 b	13 b	13 b
17 b	17 b	17 b
8 c	8 c	8 c
10 b	10 b	10 b
30 d	30 d	30 d
20 b	20 b	20 b
22 b	22 b	22 b
10 a	10 a	10 a
18 c	18 c	18 c
20 c	20 c	20 c
12 c	12 c	12 c
10 b	10 b	10 b
5 a	5 a	5 a
35 d	35 d	35 d
30 d	30 d	30 d
25 c	25 c	25 c

FORATURA DRILLING	TABELLA PARAMETRI DI AVANZAMENTO mm/giro - <i>RECOMMENDED FEED DATA</i> mm/rev.																	
	DIAMETRO DELLA PUNTA DRILL DIAMETER																	
	LETTERA DI RIFERIMENTO REFERENCE LETTER	D. 1	D. 2	D. 3	D. 4	D. 5	D. 6	D. 8	D. 10	D. 12	D. 14	D. 16	D. 20	D. 25	D. 30	D. 35	D. 40	D. 50
	a	0,015	0,030	0,038	0,047	0,053	0,060	0,075	0,090	0,100	0,120	0,127	0,160	0,200	0,230	0,250	0,300	0,350
	b	0,020	0,050	0,070	0,085	0,100	0,120	0,150	0,180	0,200	0,230	0,250	0,270	0,290	0,330	0,350	0,380	0,400
	c	0,023	0,080	0,100	0,130	0,150	0,180	0,250	0,270	0,280	0,300	0,330	0,370	0,420	0,450	0,470	0,500	0,550
	d	0,030	0,100	0,160	0,180	0,220	0,240	0,300	0,370	0,400	0,450	0,480	0,500	0,530	0,550	0,580	0,600	0,630
	e	0,035	0,120	0,200	0,250	0,270	0,300	0,350	0,450	0,470	0,500	0,530	0,550	0,600	0,640	0,680	0,700	0,730
	f	0,050	0,150	0,220	0,250	0,320	0,400	0,490	0,620	0,650	0,720	0,850	0,900	1,100	1,130	1,170	1,200	1,250
	g	0,070	0,160	0,250	0,270	0,360	0,470	0,620	0,830	0,900	0,950	1,100	1,200	1,280	1,330	1,400	1,470	1,520
	h	0,090	0,200	0,270	0,300	0,400	0,520	0,750	1,000	1,100	1,200	1,300	1,350	1,430	1,500	1,650	1,700	1,800