



palbit 
CUTTING TOOLS SOLUTIONS

GUN DRILLS
CATALOG



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GUN DRILLS

GUN DRILLS



SINGLE AND TWIN FLUTED GUN DRILLS

RANGE MAX. Ø4,00 TO 32mm
MAX. TOTAL LENGTH 3000mm



GUN DRILLS

PALBIT

Palbit is reference brand since 1952 as a hardmetal producer.

We produce and repair the gun drills in a reliable process to fulfill the most demanding needs.

As a certificated company according to the ISO9001:2008 we are able to guarantee the efficiency during the production chain.

APPLICATION PROCESS

The Gun Drills are applied in the execution of deep horizontal and vertical holes. Its V channel configuration, allows two cutting edges that facilitates the chip removal during the drilling process.

Due to the characteristic design of its guides, this drill is capable to do deep holes with good linear and with nice finish.

SINGLE FLUTED GUN DRILLS

* For drivers design see page 11

The Gun Drill as three components:

• soft steel driver

• hard steel shank

• solid carbide cutting tip



COUNTOUR TYPES - Cutting edge configuration



ST - STANDARD



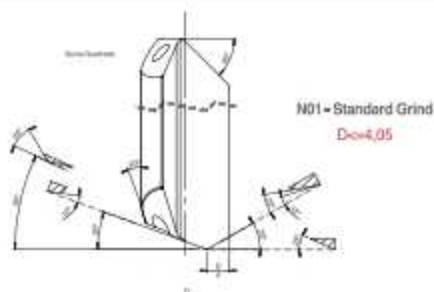
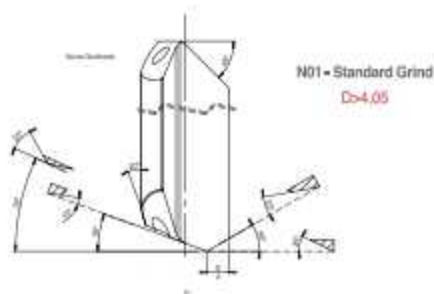
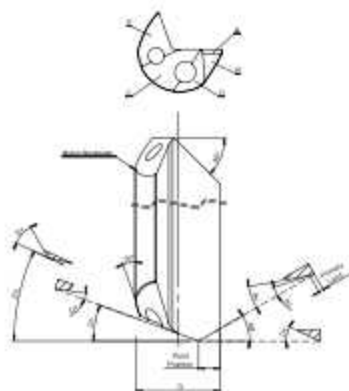
CI - CAST IRON



GB - GUN BORING

CS - CRANKSHAFT
ANGULAR HOLES
ALUMINUM

NOSE GRINDS TYPES - Point configuration

N01 - Standard Grind
D > 4.05N01 - Standard Grind
D > 4.05

DRILL DIA.	PRIMARY LAND	CHAMFER AT 20°
Ø 3.0 to 12.0	0.4 - 0.8	0.4 - 0.8
Ø 12.0 to 25.0	0.6 - 0.8	0.6 - 0.8
Ø 25.0 to 32.0	0.8 - 1.2	0.8 - 1.2

FACET DESCRIPTION	N02 ALUMINUM		N03 CAST IRON		N05 FLAT BOTTOM	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
A. OUTER PRIMARY	+15°	+15°	+40°	+12°	+1°	+12°
B. OUTER SECONDARY	+14.5°	+20°	+39.5°	+25°	+1°	+20°
C. INNER RELIEF	+20°	+15°	+20°	+12°	-	-
D. FRONT CLEARANCE	0°	+25°	0°	+35°	-	-
E. CH. DUB-OFF	+25°	+15°	+25°	+12°	25°	+12°
POINT POSITION	D/4		D/4		D/2	

FACET DESCRIPTION	N06 SUPER ALLOYS		N08 WOOD GRIND		N090 MALLEABLE MATL.	
	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
A. OUTER PRIMARY	+42°	+14°	+30°	+20°	+20°	+20°
B. OUTER SECONDARY	+41.5°	+95°	-	-	-	-
C. INNER RELIEF	+17°	+14°	+20°	+20°	+20°	+20°
D. FRONT CLEARANCE	0°	+30°	0°	+30°	0°	+25°
E. CH. DUB-OFF	-22°	-15°	-25°	-15°	-25°	-15°
POINT POSITION	D/5		D/3.5		D/3.5	

SINGLE FLUTED GUN DRILLS - Ø 25 DRIVER

GUN DRILLS

ORDER CODE	REF.	STOCK	ORDER CODE	REF.	STOCK
214016300	GDM-E1-C06,00xL0400-ST-P1-N01-PH0705	⊕	214008800	GDM-E1-D15,00xL0400-ST-P1-N01-PH0705	⊕
214016400	GDM-E1-C06,00xL0600-ST-P1-N01-PH0705	⊕	214009900	GDM-E1-D15,00xL0600-ST-P1-N01-PH0705	⊕
214016500	GDM-E1-C06,00xL0800-ST-P1-N01-PH0705	⊕	214003800	GDM-E1-D15,00xL0800-ST-P1-N01-PH0705	⊕
214016600	GDM-E1-C06,00xL1000-ST-P1-N01-PH0705	⊕	214006800	GDM-E1-D15,00xL1000-ST-P1-N01-PH0705	⊕
214016700	GDM-E1-C06,00xL1200-ST-P1-N01-PH0705	⊕	214003700	GDM-E1-D15,00xL1200-ST-P1-N01-PH0705	⊕
214076200	GDM-E1-C06,00xL1500-ST-P1-N01-PH0705	○	214008700	GDM-E1-D15,00xL1500-ST-P1-N01-PH0705	⊕
214000200	GDM-E1-C07,00xL0400-ST-P1-N01-PH0705	⊕	214003900	GDM-E1-D15,00xL0400-ST-P1-N01-PH0705	⊕
214000300	GDM-E1-C07,00xL0600-ST-P1-N01-PH0705	⊕	214006100	GDM-E1-D15,00xL0600-ST-P1-N01-PH0705	⊕
214000400	GDM-E1-C07,00xL0800-ST-P1-N01-PH0705	⊕	214003800	GDM-E1-D15,00xL0800-ST-P1-N01-PH0705	⊕
214006700	GDM-E1-C07,00xL1000-ST-P1-N01-PH0705	⊕	214006200	GDM-E1-D15,00xL1000-ST-P1-N01-PH0705	⊕
214006800	GDM-E1-C07,00xL1200-ST-P1-N01-PH0705	○	214004000	GDM-E1-D15,00xL1200-ST-P1-N01-PH0705	⊕
214006900	GDM-E1-C07,00xL1500-ST-P1-N01-PH0705	○	214004100	GDM-E1-D15,00xL1500-ST-P1-N01-PH0705	⊕
214000600	GDM-E1-C08,00xL0400-ST-P1-N01-PH0705	⊕	214009000	GDM-E1-D17,00xL0400-ST-P1-N01-PH0705	⊕
214000700	GDM-E1-C08,00xL0600-ST-P1-N01-PH0705	⊕	214004200	GDM-E1-D17,00xL0600-ST-P1-N01-PH0705	⊕
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214000900	GDM-E1-C09,00xL0400-ST-P1-N01-PH0705	⊕	214006500	GDM-E1-D18,00xL0400-ST-P1-N01-PH0705	⊕
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214001500	GDM-E1-D10,00xL0800-ST-P1-N01-PH0705	⊕	214004400	GDM-E1-D19,00xL0800-ST-P1-N01-PH0705	⊕
214001600	GDM-E1-D10,00xL1000-ST-P1-N01-PH0705	⊕	214010100	GDM-E1-D19,00xL1000-ST-P1-N01-PH0705	⊕
214001700	GDM-E1-D10,00xL1200-ST-P1-N01-PH0705	⊕	214004500	GDM-E1-D19,00xL1200-ST-P1-N01-PH0705	⊕
214001800	GDM-E1-D10,00xL1500-ST-P1-N01-PH0705	⊕	214010200	GDM-E1-D19,00xL1500-ST-P1-N01-PH0705	⊕
214018900	GDM-E1-D11,00xL0600-ST-P1-N01-PH0705	⊕	214010300	GDM-E1-D19,00xL1500-ST-P1-N01-PH0705	○
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214002000	GDM-E1-D11,00xL0600-ST-P1-N01-PH0705	⊕	214004800	GDM-E1-D20,00xL0600-ST-P1-N01-PH0705	⊕
214002100	GDM-E1-D11,00xL0800-ST-P1-N01-PH0705	⊕	214010600	GDM-E1-D20,00xL0800-ST-P1-N01-PH0705	⊕
214002200	GDM-E1-D11,00xL1000-ST-P1-N01-PH0705	⊕	214004700	GDM-E1-D20,00xL1000-ST-P1-N01-PH0705	⊕
214008300	GDM-E1-D11,00xL1200-ST-P1-N01-PH0705	⊕	214010700	GDM-E1-D20,00xL1200-ST-P1-N01-PH0705	⊕
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214002800	GDM-E1-D12,00xL1500-ST-P1-N01-PH0705	⊕	214011000	GDM-E1-D21,00xL1500-ST-P1-N01-PH0705	○
214002900	GDM-E1-D13,00xL0400-ST-P1-N01-PH0705	⊕	214017800	GDM-E1-D22,00xL0400-ST-P1-N01-PH0705	⊕
214008000	GDM-E1-D13,00xL0600-ST-P1-N01-PH0705	⊕	214011100	GDM-E1-D22,00xL0600-ST-P1-N01-PH0705	⊕
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214008100	GDM-E1-D13,00xL1000-ST-P1-N01-PH0705	⊕	214011200	GDM-E1-D22,00xL1000-ST-P1-N01-PH0705	⊕
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214003300	GDM-E1-D14,00xL0800-ST-P1-N01-PH0705	⊕	214005100	GDM-E1-D23,00xL0800-ST-P1-N01-PH0705	⊕
214008400	GDM-E1-D14,00xL1000-ST-P1-N01-PH0705	⊕	214011600	GDM-E1-D23,00xL1000-ST-P1-N01-PH0705	⊕
214003400	GDM-E1-D14,00xL1200-ST-P1-N01-PH0705	⊕	214011700	GDM-E1-D23,00xL1200-ST-P1-N01-PH0705	⊕
214008500	GDM-E1-D14,00xL1500-ST-P1-N01-PH0705	○	214011800	GDM-E1-D23,00xL1500-ST-P1-N01-PH0705	○

⊕ Stock / Em stock ○ Available on request / Disponível sob encomenda / Disponible bajo consulta

SINGLE FLUTED GUN DRILLS - Ø 25 DRIVER

ORDER CODE	REF.	STOCK
214018000	GDM-E1-D24,00xL0400-ST-F1-N01-PH0705	🚚
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214012100	GDM-E1-D24,00xL1000-ST-F1-N01-PH0705	🚚
214012200	GDM-E1-D24,00xL1200-ST-F1-N01-PH0705	🚚
214012300	GDM-E1-D24,00xL1500-ST-F1-N01-PH0705	🚚
214018800	GDM-E1-D25,00xL0400-ST-F1-N01-PH0705	🚚
214012400	GDM-E1-D25,00xL0600-ST-F1-N01-PH0705	🚚
214005200	GDM-E1-D25,00xL0800-ST-F1-N01-PH0705	🚚
214012500	GDM-E1-D25,00xL1000-ST-F1-N01-PH0705	🚚
214012600	GDM-E1-D25,00xL1200-ST-F1-N01-PH0705	🚚
214012700	GDM-E1-D25,00xL1500-ST-F1-N01-PH0705	🚚
214018100	GDM-E1-D26,00xL0400-ST-F1-N01-PH0705	🚚
214012800	GDM-E1-D26,00xL0600-ST-F1-N01-PH0705	🚚
214005300	GDM-E1-D26,00xL0800-ST-F1-N01-PH0705	🚚
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214013300	GDM-E1-D27,00xL0800-ST-F1-N01-PH0705	🚚
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214013600	GDM-E1-D27,00xL1500-ST-F1-N01-PH0705	🚚
214018300	GDM-E1-D28,00xL0400-ST-F1-N01-PH0705	🚚
214005400	GDM-E1-D28,00xL0600-ST-F1-N01-PH0705	🚚
214013700	GDM-E1-D28,00xL0800-ST-F1-N01-PH0705	🚚
214013800	GDM-E1-D28,00xL1000-ST-F1-N01-PH0705	🚚
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214014000	GDM-E1-D28,00xL1500-ST-F1-N01-PH0705	🚚
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214015000	GDM-E1-D30,00xL1500-ST-F1-N01-PH0705	🚚
214018600	GDM-E1-D31,00xL0400-ST-F1-N01-PH0705	🚚
214015100	GDM-E1-D31,00xL0600-ST-F1-N01-PH0705	🚚
214015200	GDM-E1-D31,00xL0800-ST-F1-N01-PH0705	🚚
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214018700	GDM-E1-D32,00xL0400-ST-F1-N01-PH0705	🚚
214015600	GDM-E1-D32,00xL0600-ST-F1-N01-PH0705	🚚
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214015900	GDM-E1-D32,00xL1200-ST-F1-N01-PH0705	🚚
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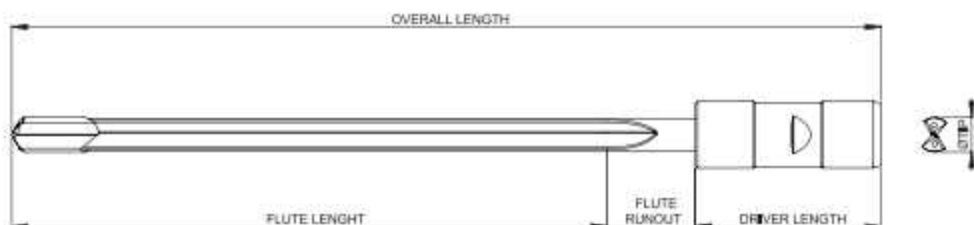
SINGLE FLUTED GUN DRILLS - Ø 19,05 DRIVER

ORDER CODE	REF.	STOCK
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214026200	GDM-E2-D04,00xL0300-ST-F1-N01-PH0705	🚚
214187200	GDM-E2-D04,00xL0400-ST-F1-N01-PH0705	🚚
214076400	GDM-E2-D04,00xL0500-ST-F1-N01-PH0705	🚚
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214076600	GDM-E2-D04,00xL0800-ST-F1-N01-PH0705	🚚
214187700	GDM-E2-D05,00xL0200-ST-F1-N01-PH0705	🚚
214181400	GDM-E2-D05,00xL0300-ST-F1-N01-PH0705	🚚
214151500	GDM-E2-D05,00xL0400-ST-F1-N01-PH0705	🚚
214076700	GDM-E2-D05,00xL0500-ST-F1-N01-PH0705	🚚
214076800	GDM-E2-D05,00xL0600-ST-F1-N01-PH0705	🚚
214076900	GDM-E2-D05,00xL0800-ST-F1-N01-PH0705	🚚
214077000	GDM-E2-D06,00xL0200-ST-F1-N01-PH0705	🚚
214077100	GDM-E2-D06,00xL0300-ST-F1-N01-PH0705	🚚
214077200	GDM-E2-D06,00xL0400-ST-F1-N01-PH0705	🚚
214077300	GDM-E2-D06,00xL0500-ST-F1-N01-PH0705	🚚
214077400	GDM-E2-D06,00xL0600-ST-F1-N01-PH0705	🚚
214077500	GDM-E2-D06,00xL0800-ST-F1-N01-PH0705	🚚
214077600	GDM-E2-D07,00xL0200-ST-F1-N01-PH0705	🚚
214077700	GDM-E2-D07,00xL0300-ST-F1-N01-PH0705	🚚
214077800	GDM-E2-D07,00xL0400-ST-F1-N01-PH0705	🚚
214077900	GDM-E2-D07,00xL0500-ST-F1-N01-PH0705	🚚
214078000	GDM-E2-D07,00xL0600-ST-F1-N01-PH0705	🚚
214078100	GDM-E2-D07,00xL0800-ST-F1-N01-PH0705	🚚
214078200	GDM-E2-D08,00xL0200-ST-F1-N01-PH0705	🚚
214078300	GDM-E2-D08,00xL0300-ST-F1-N01-PH0705	🚚
214078400	GDM-E2-D08,00xL0400-ST-F1-N01-PH0705	🚚
214078500	GDM-E2-D08,00xL0500-ST-F1-N01-PH0705	🚚
214078600	GDM-E2-D08,00xL0600-ST-F1-N01-PH0705	🚚
214078700	GDM-E2-D08,00xL0800-ST-F1-N01-PH0705	🚚
214187800	GDM-E2-D09,00xL0200-ST-F1-N01-PH0705	🚚
214187900	GDM-E2-D09,00xL0300-ST-F1-N01-PH0705	🚚
214188000	GDM-E2-D09,00xL0400-ST-F1-N01-PH0705	🚚

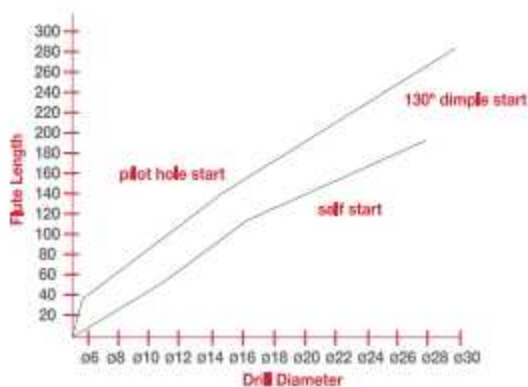
🚚 Stock item 🚚 In stock 🚚 Available under request / Depósito de sobressalentes / Depósito de peças sobressalentes

TWIN FLUTED GUN DRILLS

* For drivers design - see page 11



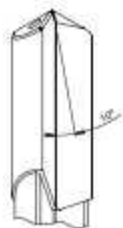
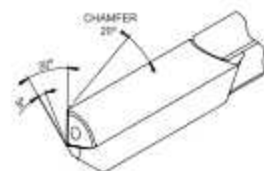
HOLE STARTING INSTRUCTIONS



POINT GEOMETRY

POINT CHN		
DRILL DIA.	MIN	MAX
5,00 - 6,20	0,24	0,32
6,20 - 8,00	0,30	0,42
8,20 - 10,2	0,36	0,50
10,2 - 12,2	0,40	0,57
12,2 - 15,2	0,40	0,78
15,2 - 18,2	0,50	0,83
18,2 - 21,2	0,60	0,97
21,2 - 25,2	0,70	1,10
25,2 - 28,2	0,80	1,20
28,2 - 30,2	0,80	1,25

DRILL DIA.	CHAMFER AT 20°
5 - 10	0,4 - 0,8
10 - 20	0,6 - 0,8
20 - 30	0,8 - 1,2



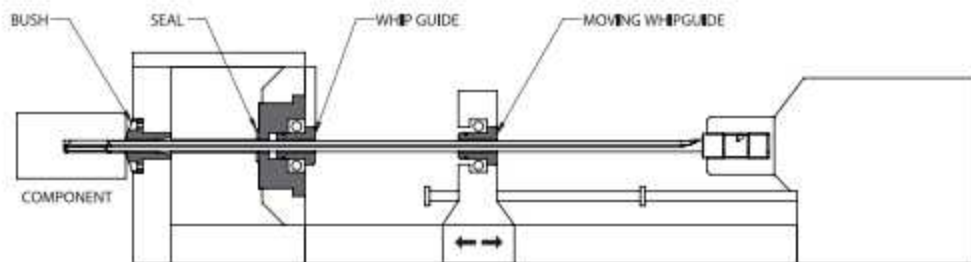
TWIN FLUTED GUN DRILLS - Ø 19,05 DRIVER

ORDER CODE	REF.	STOCK
214017200	SFM-E2-005,00-L0200-ST-P1-N01-PH0705	○
214028000	SFM-E2-005,00-L0300-ST-P1-N01-PH0705	○
214017300	SFM-E2-005,00-L0400-ST-P1-N01-PH0705	○
214074300	SFM-E2-005,50-L0200-ST-P1-N01-PH0705	○
214074200	SFM-E2-005,50-L0300-ST-P1-N01-PH0705	○
214074100	SFM-E2-005,50-L0400-ST-P1-N01-PH0705	○
214076300	SFM-E2-006,00-L0200-ST-P1-N01-PH0705	○
214073000	SFM-E2-006,00-L0300-ST-P1-N01-PH0705	○
214074000	SFM-E2-006,00-L0400-ST-P1-N01-PH0705	○
214020300	SFM-E2-006,50-L0200-ST-P1-N01-PH0705	○
214073800	SFM-E2-006,50-L0300-ST-P1-N01-PH0705	○
214073700	SFM-E2-006,50-L0400-ST-P1-N01-PH0705	○
214076100	SFM-E2-007,00-L0200-ST-P1-N01-PH0705	○
214076000	SFM-E2-007,00-L0300-ST-P1-N01-PH0705	○
214017400	SFM-E2-007,00-L0400-ST-P1-N01-PH0705	○
214020400	SFM-E2-007,50-L0200-ST-P1-N01-PH0705	○
214073600	SFM-E2-007,50-L0300-ST-P1-N01-PH0705	○
214073500	SFM-E2-007,50-L0400-ST-P1-N01-PH0705	○
214073400	SFM-E2-008,00-L0200-ST-P1-N01-PH0705	○
214073300	SFM-E2-008,00-L0300-ST-P1-N01-PH0705	○
214032100	SFM-E2-008,00-L0400-ST-P1-N01-PH0705	○
214073200	SFM-E2-008,50-L0200-ST-P1-N01-PH0705	○
214073100	SFM-E2-008,50-L0300-ST-P1-N01-PH0705	○
214073000	SFM-E2-008,50-L0400-ST-P1-N01-PH0705	○
214072900	SFM-E2-009,00-L0200-ST-P1-N01-PH0705	○
214072800	SFM-E2-009,00-L0300-ST-P1-N01-PH0705	○
214072700	SFM-E2-009,00-L0400-ST-P1-N01-PH0705	○
214072600	SFM-E2-009,50-L0200-ST-P1-N01-PH0705	○
214072500	SFM-E2-009,50-L0300-ST-P1-N01-PH0705	○
214072400	SFM-E2-009,50-L0400-ST-P1-N01-PH0705	○
214075800	SFM-E2-010,00-L0200-ST-P1-N01-PH0705	○
214075800	SFM-E2-010,00-L0300-ST-P1-N01-PH0705	○
214075700	SFM-E2-010,00-L0400-ST-P1-N01-PH0705	○

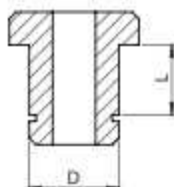
Back to stock In stock Available on request / Depende de pedido sob consulta / Depende de pedido sob consulta

GUN DRILLS ACCESSORIES

GUN DRILLS



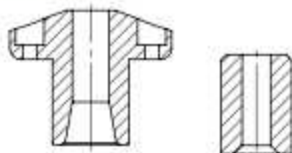
POLYURETHANE WHIP GUIDES



D	L
17,0	10
30,0	13

When ordering please specify the tip diameter of the drill.

START BUSHES



Manufactured to order.

CHIP DEFLECTORS



TYPE	D	d RANGE
A	19,12	3,17 to 6,34
B	24,40	6,35 to 9,51
C	31,75	9,52 to 15,86
D	37,72	15,87 to 19,04
E	44,25	19,05 to 25,39
F	50,85	25,40 to 31,74

When ordering please specify the tip diameter of the drill. The d range has a size to suit each diameter of tube.
 Pabst also manufacture special gun drilling spindles, toolstocks and reamer work heads.

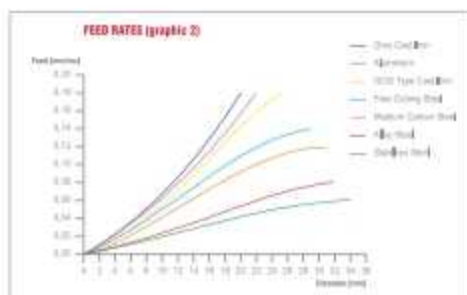
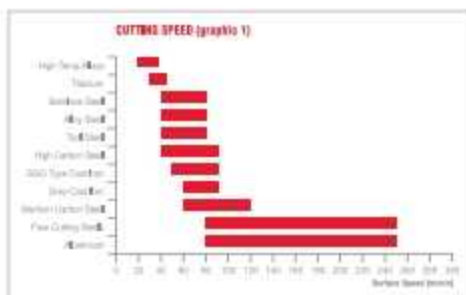
TECHNICAL DATA



CUTTING PARAMETERS

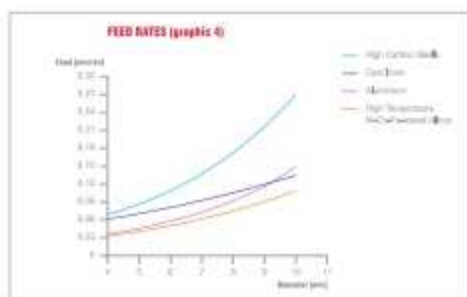
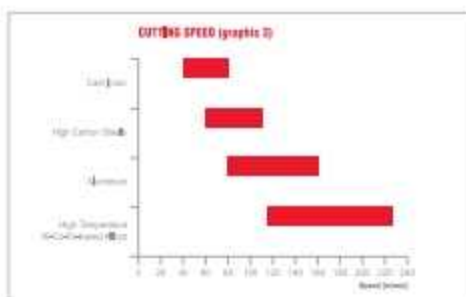
GUN DRILLS

Gun drills operate at relatively high cutting speeds with low feeds per revolution. Approximate starting values are shown on the charts (graphic 1 and 2).



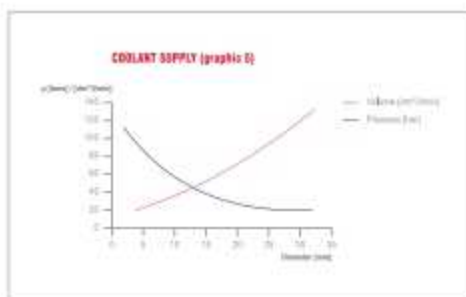
TWIN FLUTED GUN DRILLS

Twin fluted gun drills operate at relatively high cutting speeds. Approximate starting values are shown on the charts (graphic 3 and 4).

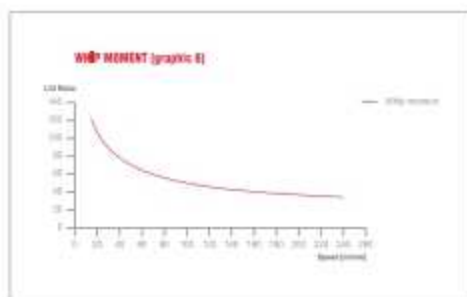


CUTTING CONDITIONS

The execution of deep horizontal and vertical holes is influenced by several factors. The data from the following graphics should be adapted to each case.

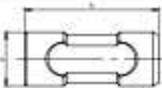
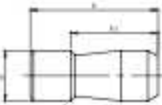
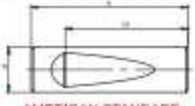
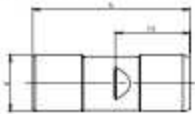
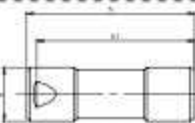
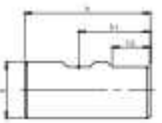




A good chip removed can be provided by the lubrication in the process. The reference values are given in the graphic 5.



To establish the maximum length to diameter ratio of an unsupported drill for any given surface speed, trace the surface to the intersection of the curve and read off the L/D ratio on the vertical scale.

DRIVERS DESIGN

STYLE	PAJET REF.	d	h	h1	h2
	P1	16	40		
	P2	25	50		
	P3	36	60		
	A1	13	38	26	
	A2	19	70	46	
 <p>AMERICAN STANDARD</p>	A3	25	70	55	
	A4	32	70	55	
	A5	38	70	55	
 <p>EUROPEAN STANDARD</p>	E1	25	70	34	
	E2	19	70	46	
	E3	10	40	24	
	E4	16	45	31	
	E5	20	70	34	
	E6	32	70	34	
	B1	16	50	47	
 <p>WELDON</p>	W1	16	48	24	
	W2	20	50	25	
	W3	25	56	32	17
	W4	32	60	36	19
	W5	40	70	40	19
	C1	10	60	M6,0 x 0,5	
	C2	16	80	M10 x 1,0	
	C3	25	100	M16 x 1,5	
	C4	36	120	M25 x 1,5	
	D1	16	112	Tr16x1.5	
	D2	20	126	Tr20x2.0	
	D3	28	126	Tr28x2.0	
	D4	36	162	Tr36x2.0	
Without Driver	ND				
Re-tip	RT				
Reduction	RD				
Re-grind	RG				
Modification	MO				

CODE SYSTEM OF GUNDRILLING

1. TYPE	Gun drill Gun reamer Twinfuted Gun drill Speedbit Ventec Proben Special	GD GR SF SB VT PT XS
2. SYSTEM	Metric system Imperial system	M I
3. DRIVER DESIGN	See "Drivers Design"	
4. DIAMETER	DXX,XX (D10,00 or D0,625)	D10,00
5. LENGTH	Gun drills - OAL Gun reamer - OAL Twinfuted Gun drill - FTL Speedbit - FTL Ventec - FTL	L0400 L0400 L0270 L0270 L0270
6. CONTOUR	ST Standard CI Cast Iron GB Gun boring CS Crankshafts, Aluminium > dia Ø 4,0 XS Special	ST CI GB CS XS
7. WORKPIECE MATERIAL	Steel/Non ferrous Cast Iron Cast Iron (High Phosphorous content) Stainless steel, High Si content Aluminium	P1 K1 K2 M1
8. NOSE GRINDS	PALBIT Standard up to 4,05 / PALBIT Standard above to 4,05 Aluminium Cast Iron Stack Flat bottom Incone Crankshaft Wood Special	N01 N02 N03 N04 N05 N06 N07 N08 NXX
9. CARBIDE GRADE	Carbide grade PHXXXX	PH0705

TECHNICAL DATA

1	2	3	4	5	6	7	8	9
GD	M	E1	D10,00	L0400	ST	P1	N01	PH0705

Example: GDME1-D10,00-L0400-ST-P1-N01-PH0705

TROUBLESHOOTING

	TOOL PROBLEMS										HOLE PROBLEMS											
	Insert life	Excess tool disintegration	Excessive dispersion of the supports	Cutting detachability edge	Cratering	Flank disintegration	Friction of the cham	Reduction of the time	Outburst of the tip	Chip accumulation	Breaked edge	Tool break	Poor superficial finish	Underrun of the hole	Carve soil	Chips exiters	Pre-hole hole	Qualification of the hole	Dimensional precision along the hole	Hole taper the nominal diameter	Hole above the nominal diameter	
Excessive entrance angle																						
Excessive way out angle																						
Twisted gun drill																						
Bad chip formation																						
Bad peripheral grinding																						
Tip way out angle insufficient																						
Point way out angle insufficient																						
Excessive insert way out																						
Incorrect welding process																						
Incorrect hardness grade																						
Need for sharpening																						
Deficient sharp tip																						
Hardness of the piece																						
Piece with thin walls																						
Excessive feed speed																						
Insufficient feed speed																						
Cutting speed to high																						
Cutting speed to low																						
Heating of the fluid																						
Excessive pressure of the fluid																						
Inadequate lubrication																						
Pressure / flow of the fluid insufficient for cutting																						
Fixation of the inadequate tool																						
Pre hole or guide with diameter																						
Rotation sense in retreat																						
Excessive free length																						
Underfeed																						
Guide is moved away from the piece																						
Excessive heating of the piece and consequent grip																						

SEE ALSO:



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