



Power requirement for YES Carbide Drill

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$$\text{Power}(P) = \frac{D \times f \times V \times ks}{24,480 \times 0.7} \text{ (kw)}$$

ex)

$$\text{Power}(P) = \frac{11.5 \times 0.2 \times 60 \times 230}{24,480 \times 0.7} = 1.852 \text{kw}$$

- D = drill diameter (mm)
- f = feed (mm/rev)
- V = cutting speed (mm/min)
- ks = specific cutting force (kg/mm)
- ? = constants of performance(0.7~0.85)

• Specific cutting force (ks)

Material		Condition	HB	ks(kg/mm)
Steel	Unalloyed steel	C = 0.15%	100~150	195
		C = 0.35%	120~180	215
		C = 0.60%	200~250	230
	Low alloy steel	Non hardened	120~200	215
		Hardened & Tempered	250~300	265
		Hardened & Tempered	300~350	290
	High alloy steel	Annealed	150~250	265
		Hardened	300~350	290
	Stainless steel	Martensitic/ ferritic	175~225	235
		Austenitic	150~200	250
	Steel casting	Unalloyed	150~200	205
		Low alloyed	175~225	255
High alloyed		200~250	275	
Hard steel	Hardened steel	HRc 55	460	
Cast iron	Grey casting iron	Low tensile strength	150~225	110
		High tensile strength	200~300	150
	Malleable cast iron		110~250	115
	Nodular cast iron	Ferritic	125~200	115
		Pearlitic	200~300	185
Chilled cast iron		350~450	310	
Non ferrous	Aluminium alloys	Non heat treatable	40~80	50
		Heat treatable	80~120	80
	Aluminium alloys,Cast	Non heat treatable	50~100	80
		Heat treatable	65~115	95
	Copper alloys	Brass	65~115	80
		Bronze	75~115	180