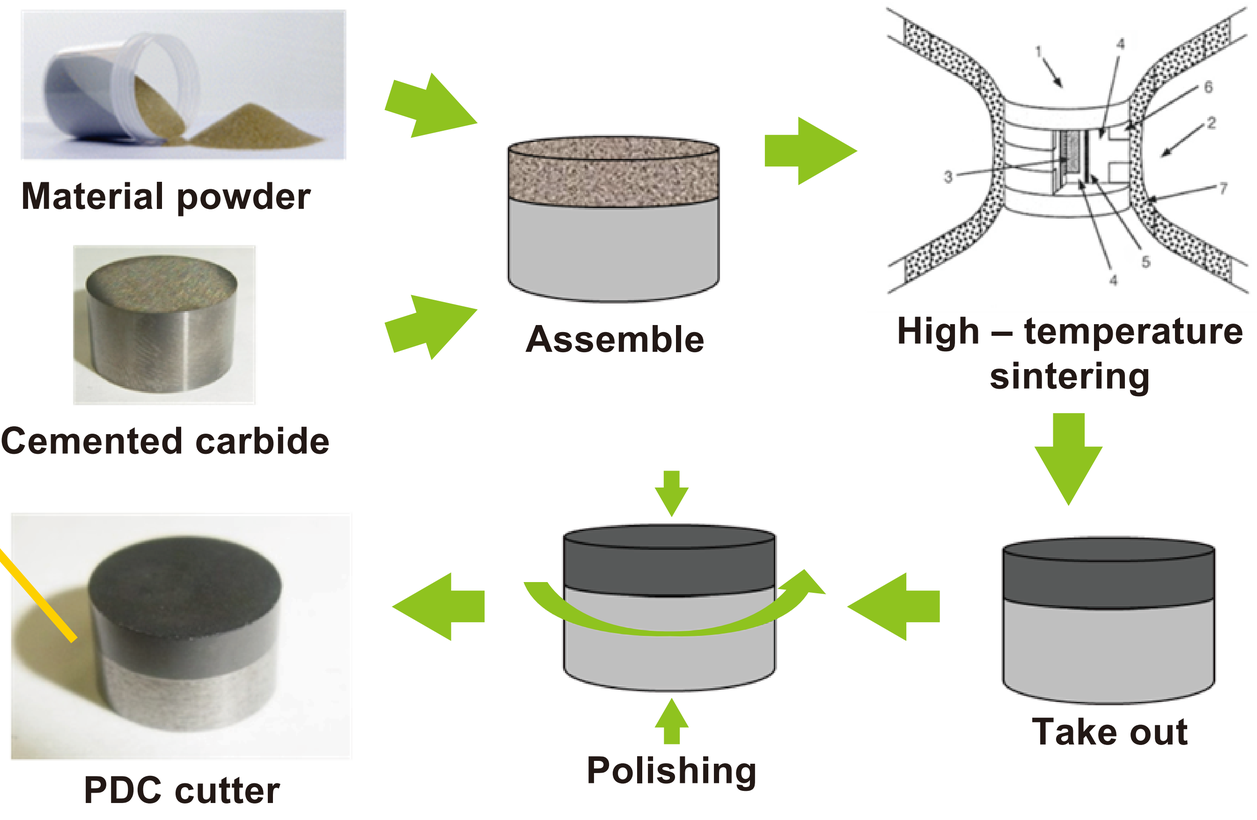
Geothermal

Development of Geothermal PDC Bits

JOGMEC is developing a PDC (Polycrystalline Diamond Compact) bit, that can replace the conventional roller corn bit used in geothermal drilling.
This bit is expected to dramatically improve the penetration rates and lifetime of bits.

Roller corn bit

PDC bit



Our Final Goals (8-1/2” bit)

Drilling Efficiency	120 m/day (Roller corn bit: 60 m/day)
Bit Life	750 m (Roller corn bit: 150 m)

@Field with 100 MPa uniaxial compressive strength

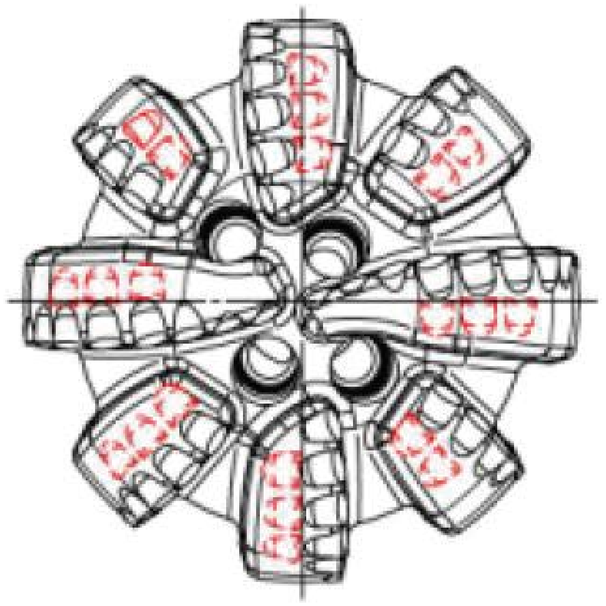
Results up to 2016

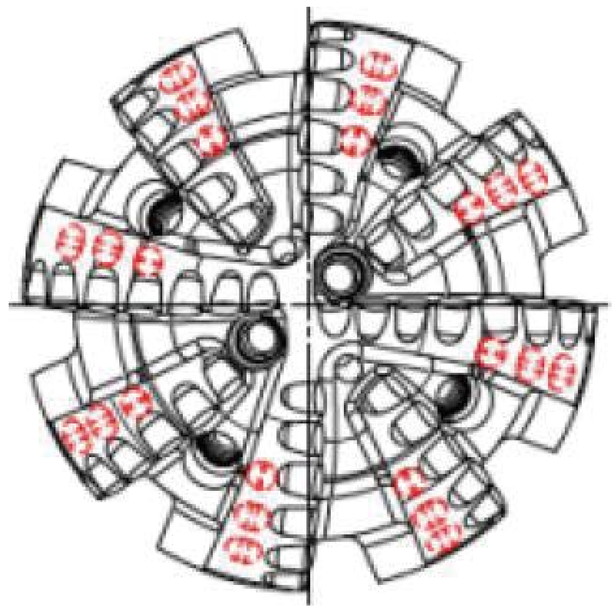
Development of PDC Cutters

We developed cutters with the excellent resistance of abrasion and impact.
The Cutters are made from Diamond and Cobalt.

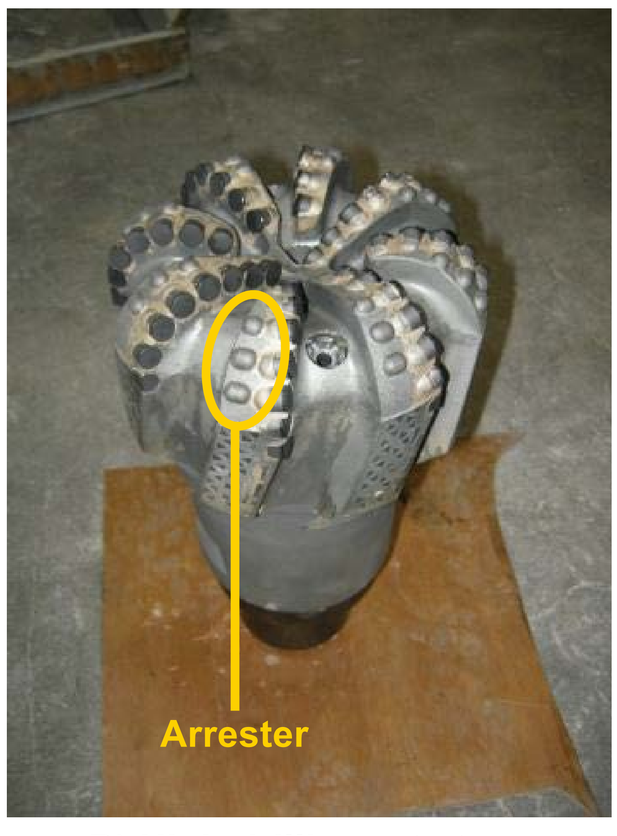
Development of PDC Bits

We developed two types of 8-1/2” PDC bits.
A) Long-life type B) High drilling rate type
They mainly differ in the number of PDC cutters and the presence or absence of arresters.





A) Long-life type



B) High drilling rate type

Results of Field Test @Bandai Field

A field test of two PDC bits was conducted in Bandai geothermal field with 120 MPa uniaxial compressive strength. As a result, both drilling efficiency and bit life of our developed PDC bits (especially type B) were superior to the conventional roller corn bit.

	Roller corn	Type A	Type B
Drilling Efficiency	60 m/day	66 m/day	110 m/day
Drilling time	——	43 hour	31 hour
Bit Life	150 m	123 m	161 m
	@100 MPa	@120 MPa	

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