

COMBICHAM Engineered for **MAXIMUM** Drilling Performance for Wind Turbines

NEW
HIGH PRODUCTIVITY
COMBI DRILL FOR
WINDMILLS



Drilling is one of the major machining operations in wind turbine manufacturing, especially for these parts:

Engineered for
MAXIMUM
DRILLING Performance



Planetary Ring Gear

Ring gears embrace the gearbox's planetary gears, allowing them to transform low incoming speed to high outgoing speed.



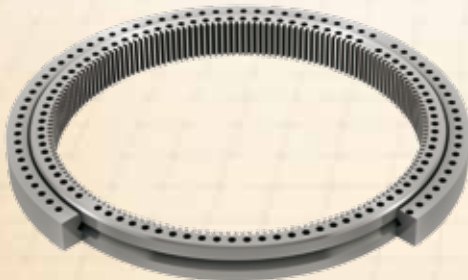
Yaw Ring

The yaw system of wind turbines is the component responsible for the orientation of the wind turbine rotor towards the wind. This is a mechanism that rotates the nacelle to face the changing wind direction. Made of alloy or bearing steel.



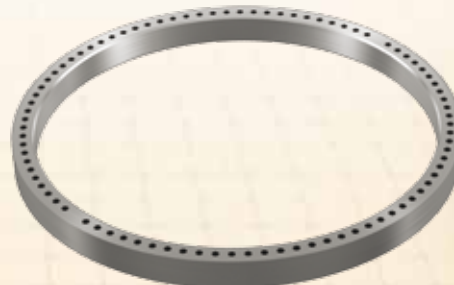
ON REQUEST
Drill up to **12xD**

2 Guide Pads
GP-03



Blade Bearing

Adjusts the angle of the blades by rotating a bearing at the root of each blade. The blade bearing enables to control power and slow the rotor. Made of bearing steel.

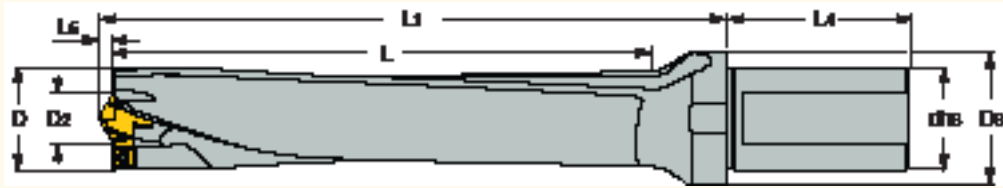
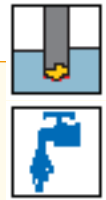


Tower Flange

The vast majority of commercial wind turbines use tubular steel towers. Tower heights depend on rotor diameter and wind speed conditions of the site. Their heights range from 50 meters for a 1 MW turbine to as high as 125 meters and more for very large turbines. The flange comprises a large scale of rolled steel which connects the tower's conical links.

MNC

Large Diameter Indexable Drills with Integral Pilot Drills and One Flat Shanks, Drilling Depth 5xD



Designation	D	D ₂	L	L ₁	L ₄	L ₅	d	D ₃	Insert ⁽¹⁾	Insert ⁽²⁾
MNC 260-130 A32-150-06-5D	26.00	15.00	130.0	167.3	60.0	3.30	32.00	42.00	SOGX 060304-W	ICP 150
MNC 265-132 A32-155-06-5D	26.50	15.50	132.0	167.3	60.0	3.30	32.00	42.00	SOGX 060304-W	ICP 155
MNC 270-135 A32-160-06-5D	27.00	16.00	135.0	170.4	60.0	3.40	32.00	42.00	SOGX 060304-W	ICP 160
MNC 280-140 A32-170-06-5D	28.00	17.00	140.0	174.5	60.0	3.50	32.00	42.00	SOGX 060304-W	ICP 170
MNC 290-145 A32-160-07-5D	29.00	16.00	145.0	180.4	60.0	3.40	32.00	42.00	SOGX 070305-W	ICP 160
MNC 295-148 A32-165-07-5D	29.50	16.50	148.0	183.5	60.0	3.50	32.00	42.00	SOGX 070305-W	ICP 165
MNC 300-150 A32-165-07-5D	30.00	16.50	150.0	186.5	60.0	3.50	32.00	42.00	SOGX 070305-W	ICP 165
MNC 310-155 A32-175-07-5D	31.00	17.50	155.0	193.6	60.0	3.60	32.00	42.00	SOGX 070305-W	ICP 175
MNC 320-160 A32-185-07-5D	32.00	18.50	160.0	198.8	60.0	3.80	32.00	42.00	SOGX 070305-W	ICP 185
MNC 330-165 A32-175-09-5D	33.00	17.50	165.0	203.6	60.0	3.60	32.00	42.00	SOGT 09T306-W	ICP 175
MNC 340-170 A32-180-09-5D	34.00	18.00	170.0	208.7	60.0	3.70	32.00	42.00	SOGT 09T306-W	ICP 180
MNC 350-175 A32-189-09-5D	35.00	18.90	175.0	213.8	60.0	3.80	32.00	42.00	SOGT 09T306-W	ICP 189
MNC 360-180 A32-190-10-5D	36.00	19.00	180.0	219.3	60.0	4.30	32.00	42.00	SOGT 100408-W	ICP 190
MNC 370-185 A32-200-10-5D	37.00	20.00	185.0	224.5	60.0	4.50	32.00	42.00	SOGT 100408-W	ICP 200
MNC 375-188 A32-205-10-5D	37.50	20.50	188.0	227.6	60.0	4.60	32.00	42.00	SOGT 100408-W	ICP 205
MNC 380-190 A40-209-10-5D	38.00	20.90	190.0	231.7	68.0	4.70	40.00	50.00	SOGT 100408-W	ICP 209
MNC 390-195 A40-215-10-5D	39.00	21.50	195.0	237.8	68.0	4.80	40.00	50.00	SOGT 100408-W	ICP 215
MNC 400-200 A40-225-10-5D	40.00	22.50	200.0	244.9	68.0	4.90	40.00	50.00	SOGT 100408-W	ICP 225
MNC 405-203 A40-235-10-5D	40.50	23.50	203.0	248.1	68.0	5.10	40.00	50.00	SOGT 100408-W	ICP 235
MNC 410-205 A40-239-10-5D	41.00	23.90	205.0	250.1	68.0	5.10	40.00	50.00	SOGT 100408-W	ICP 239
MNC 420-210 A40-249-10-5D	42.00	24.90	210.0	255.3	68.0	5.30	40.00	50.00	SOGT 100408-W	ICP 249
MNC 430-215 A40-259-10-5D	43.00	25.90	215.0	263.5	68.0	5.50	40.00	50.00	SOGT 100408-W	ICP 259
MNC 440-220 A40-210-12-5D	44.00	21.00	220.0	265.2	68.0	5.20	40.00	50.00	SOGT 120408-W	ICP 210
MNC 450-225 A40-219-12-5D	45.00	21.90	225.0	270.3	68.0	5.30	40.00	50.00	SOGT 120408-W	ICP 219
MNC 460-230 A40-229-12-5D	46.00	22.90	230.0	275.5	68.0	5.50	40.00	50.00	SOGT 120408-W	ICP 229
MNC 470-235 A40-239-12-5D	47.00	23.90	235.0	281.6	68.0	5.60	40.00	50.00	SOGT 120408-W	ICP 239
MNC 480-240 A40-249-12-5D	48.00	24.90	240.0	285.8	68.0	5.80	40.00	50.00	SOGT 120408-W	ICP 249
MNC 490-245 A40-259-12-5D	49.00	25.90	245.0	293.0	68.0	6.00	40.00	50.00	SOGT 120408-W	ICP 259
MNC 500-250 A40-269-12-5D	50.00	26.90	250.0	292.0	68.0	6.10	40.00	50.00	SOGT 120408-W	ICP 269

• Hole tolerance: D+0.10/-0.05 in average conditions. However, it can be higher or lower according to machine and tooling conditions.

(1) Outer insert (2) Central insert • Note: minimum coolant pressure requirements - 15 bar.

ON REQUEST - Tool Design for Drilling Operations up to 12xD Ratio

The tool features polished spiral flute geometry for improved chip evacuation process. Central SUMOCHAM head with peripheral 4 SOMT/X inserts combined with 2 supporting guide pads ensure a stable and safe machining process.



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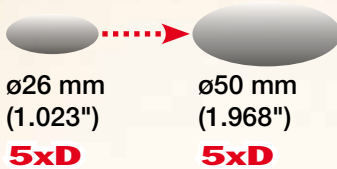
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COMBICHAM

NEW

**HIGH PRODUCTIVITY
COMBI DRILL FOR
WINDMILLS**

Polished
Drill Body



High Productivity COMBI DRILL for Windmills

New **COMBICHAM** drilling line provides minimum cycle time and the most cost effective solution for this operation.

Features

- Diameter range: 26-50 mm
- 2 effective cutting edges for high productivity
- Drilling ratio 5XD

The central **SUMOCHAM** head provides a self-centering ability for premium hole accuracy.

No pre-hole is needed up to 5XD drilling ratio.

Peripheral **SOMT/X** wiper inserts feature 4 cutting edges and ensure premium surface quality.



ISCAR