



KEY FEATURES

- High torque anti backlash drive for operation in with anti backlash gearing
- Mounting system options for standard flanges or blade production
- Fast mount patented hydraulic clamp
- Minimal blade distortion
- Accurate and repeatable process time
- Trolley systems available – no need for cranes
- Adjustable drive facing arm

DESCRIPTION

A range of orbital milling machines designed specifically for the wind power manufacturing industry. The machines have an in-built degree of flexibility to cope with new blade designs.

APPLICATIONS

Applications for Mirage WP and OM machines include: wind turbine blade root end milling and wind tower flange machining.

DRIVE SYSTEMS

Machine Name

| | | | |
|-----------------|------------------------|------------------------|---------------------|
| WP2500-H | Min Blade PCD - 1836mm | Max Blade PCD - 2436mm | Weight – 1678.5 kgs |
| WP3500-H | Min Blade PCD - 2300mm | Max Blade PCD - 3200mm | Weight – 1668.7 kgs |
| WP4500-H | Min Blade PCD - 2800mm | Max Blade PCD - 4700mm | Weight - 3610 kgs |

DRIVE SYSTEM DETAILS

| | | | |
|--|---|-------|--|
| Rotational Drive | Hydraulic | | |
| Milling Spindle | Hydraulic | | |
| Typical Cutting Speed (0.7mm depth of cut) | 150 - 200mm/minute | | |
| Max Traverse Speed | 300mm/min | | |
| Typical Spindle R.P.M | 350mm | | |
| Flatness Tolerance | Achieves current industry flatness for root diameters of +/-0.15mm (Flatness requirements can fluctuate relative to the root diameter). | | |
| Spindle Travel | 80mm | 3.15" | |
| Minimum Hydraulic Supply required @ 100 bar (1450 p.s.i) | 70 L/min | | |

BLADE CLAMPING MODULES

| Blade Bolt P.C.D | Minimum Clamping Diameter | Maximum Clamping Diameter | Weight | Part No. |
|------------------|---------------------------|---------------------------|------------------|-----------|
| 1800mm | 1695mm 66" | 1745mm 68" | 990 Kgs 2183lb | WP2500-7 |
| 2100mm | 2010mm 79" | 2060mm 81" | 2902 Kgs 6397 lb | WP2500-6 |
| 2450mm | 2335mm 94" | 2410mm 96" | 2021 Kgs 4456lb | WP2500-9 |
| 2500mm | 2422mm 95" | 2522mm 99" | 2021kgs 4456lb | WP2500-10 |
| 3200mm | 3116mm 123" | 3216mm 127" | 3070 Kgs 6768lb | WP3500-6 |
| 4200mm | 4537mm 179" | 4637mm 183" | 3765 Kgs 8300lb | WP4700-5 |

STANDARD WITH A WP MACHINE

- ✓ Rotational drive motor & reduction gearbox
- ✓ Machining facing arm
- ✓ 90mm dia column milling spindle
- ✓ Internal hydraulic chuck base assembly
- ✓ Jaw blocks, fixed and hydraulically actuated clamping jaws
- ✓ Toolkit, Face Mill Cutter and inserts
- ✓ Shipping box
- ✓ CE certificate, packing list
- ✓ Operation / maintenance manual

SET UP AND OPERATION

The operator must be:

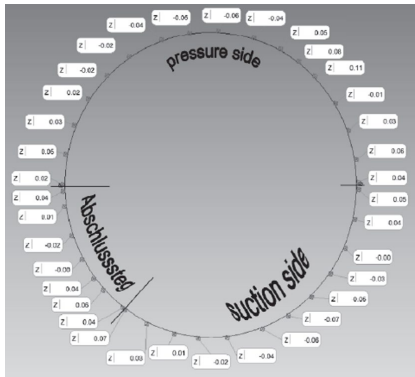
- Trained and conversant with the product
- Able to identify the correct and incorrect use of static or portable machines.
- Comply with all local and internationally recognised regulations regarding safe use of powered machines.

FLATNESS TOLERANCE

Example check for flatness of machined flange.
Measurement accuracy +/- 0.15mm.

Result of flatness check ("Best Fit" calculation):
Minimum = -0.07mm/maximum = +0.11mm.

Flatness tolerances achieved are independently third party verified by laser on a 61.5m blade root end with the WP3500 drive, a WP3500 6 hydraulic clamping base and PP3 hydraulic power pack.



SHIPPING WEIGHTS

| Machine name | kg | lbs |
|--------------|------|-------|
| WP2500 | 4159 | 9169 |
| WP3500 | 4440 | 9789 |
| WP4500 | 8590 | 18938 |

SHIPPING DIMENSIONS

| | Length | Width | Height |
|----------------------|--------------|--------------|--------------|
| WP2500 machine | 267cm (105") | 172cm (68") | 96cm (38") |
| WP2500 Base(typical) | 237cm (93") | 237cm (93") | 54cm (21.2") |
| WP3500 machine | 291cm (115") | 181cm (71") | 102cm (40") |
| WP3500 Base(typical) | 236cm (93") | 226cm (89") | 230cm (91") |
| WP4500 machine | 482cm (190") | 247cm (97") | 97cm (38") |
| WP4500 Base(typical) | 262cm (103") | 252cm (99") | 76cm (30") |
| WP4500 legs | 267cm (105") | 257cm (101") | 72cm (28") |

MACHINE AND STANDARD BASE WEIGHTS

| Machine name | kg | lbs |
|--------------|------|-------|
| WP2500 | 3730 | 8223 |
| WP3500 | 3948 | 8704 |
| WP4500 | 7480 | 16491 |

Weights and dimensions are approximate and provided for guidance only.

IMPORTANT
PLEASE REVIEW OPTIONS, ACCESSORIES
AND SPARE PARTS ON NEXT PAGES



WP ORBITAL MILLING OPTIONS & ACCESSORIES

PP3 HYDRAULIC POWER PACK 15kw

50 Lpm / 20 Lpm @ 100 bar-
380/440v 3 phase -pendant control
Oil cooler
Frame with lifting points
Supplied without oil
Shipping details: 135 x 70 x 135cm
Weight: 350kgs



LASER-1 LASER FOR FLANGE FLATNESS

High precision laser system for measuring root end flatness once machined. Spin laser technology with target and portable reader



TOOLING

Mirage can supply all inserted face mills & inserts and special form tools on request

