



Southern Cross "Z" Pattern Windmills

The outstanding features of these mills are:—

- Completely enclosed, dust and weather proof.
- Automatic Oiling.
- Strong Tension Arm Windwheel with spring steel fans.
- Double Balanced Gears.
- Strong, electrically welded stub tower.
- All parts heavily galvanised after all cutting and punching is complete.

SPECIFICATION.

SIZES: 6ft., 8ft., 10ft., 12ft. and 14ft. diameter of wheel.

DESIGN: Geared Action, Fully-Enclosed and Automatically Oiled. Dust Proof and Weather Proof.

GEAR RATIOS:

| | | | | |
|--------|--------|----------|-----------|-----------|
| 6ft. | 8ft. | 10ft. | 12ft. | 14ft. |
| 4 to 1 | 3 to 1 | 2.7 to 1 | 2.33 to 1 | 2.33 to 1 |

All sizes are double geared, thus distributing the load evenly between the gears.

LENGTH OF STROKES:

| | | | | |
|------|------|-------|-------|-------|
| 6ft. | 8ft. | 10ft. | 12ft. | 14ft. |
| 5¼" | 5¾" | 6½" | 7¼" | 7¾" |

GOVERNOR: Governing is by means of the Southern Cross Gravity Principle. The Vane Hinge is set at an inclined plane so that the vane lifts through a helical curve and provides sufficient resistance at any wind pressure to ensure the entire safety of the machine and yet keeps the wheel running at normal pumping speed. The wheel is set slightly off centre and when the wind reaches a certain velocity it turns the wheel around

so that a smaller area is exposed to the wind. As the wind decreases the mill turns back to its normal position.

The Southern Cross Gravity Governor employs neither springs nor counter balances and does not ever require adjustment.

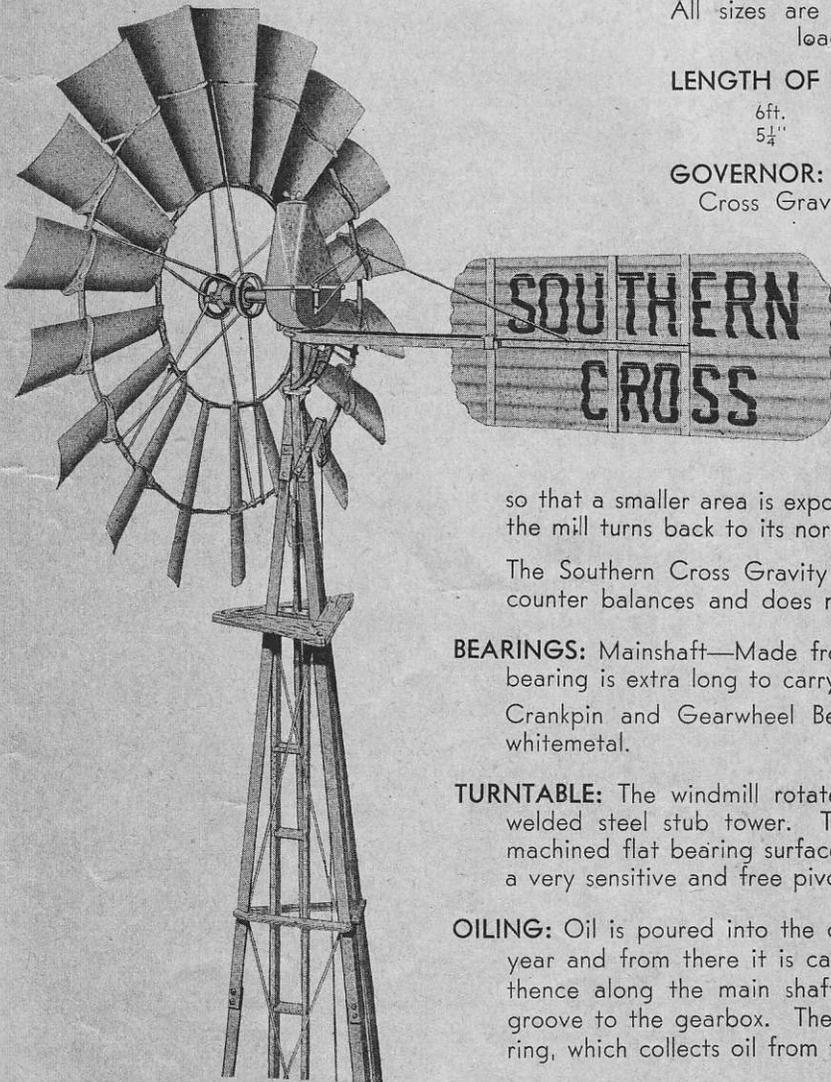
BEARINGS: Mainshaft—Made from first quality Whitemetal. The front bearing is extra long to carry the weight of the wheel.

Crankpin and Gearwheel Bearings are also made of first quality whitemetal.

TURNTABLE: The windmill rotates on a fixed pivot tube on top of a welded steel stub tower. The weight of the mill is carried on a machined flat bearing surface which is constantly oiled and provides a very sensitive and free pivoting turntable.

OILING: Oil is poured into the crankcase which holds sufficient for one year and from there it is carried by the gearwheels to the pinions, thence along the main shaft to the bearings, returning by an oil groove to the gearbox. The cross head is oiled by means of an oil ring, which collects oil from the top of the gearwheels.

WINDWHEEL: Strong tension arm type combining lightness and great strength. The arms of the wheel are connected under tension to the rings and make a rigid frame to carry the fans. The whole wheel is GALVANISED.



Southern Cross "Z" Pattern Windmill
 For—Prices }
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Southern Cross "Z" Pattern Windmills

— SPECIFICATION (Cont.) —

FANS: Are made of a special grade of galvanised spring steel curved and fitted with pressed steel brackets for bolting to wheel rings. The outer wheel ring passes through the centre of the fans.

VANE: Corrugated Galvanised Steel stiffened by Galvanised Steel bars and supported on angular vane arm suitably braced.

STUB TOWER: A welded steel stub tower is bolted to the top of the mill tower forming an apex for the tower and making a very rigid structure and a very convenient attachment for fitting this mill to old towers.

INSPECTION LADDER: A Rotating Inspection Ladder is fitted to the 10ft., 12ft. and 14ft. size windmills and is a great convenience. This ladder is not necessary on

the smaller size mills as the 6ft. and 8ft. mills can be inspected from the tower platform.

HELMET: A galvanised iron helmet fits over the mill engine and fully protects it from dust, rain, etc.

REEFING MECHANISM: Is all outside the Mast Pipe. The Mill is reefed by just pulling down on the handle provided at the base of the tower.

BRAKE: None really necessary, but, when required, a brake can be supplied for use with these windmills when lightly loaded to prevent the wheel from turning when the mill is in the reefed position. The brake only acts as a damper and is not to be regarded as a definite lock for the wheel. The extra price for these brakes is:—

| | | | | |
|------|------|-------|-------|-------|
| 6ft. | 8ft. | 10ft. | 12ft. | 14ft. |
| 15/- | 17/6 | 20/- | 22/6 | 25/- |

PUMPING CAPACITIES: See Page 18.

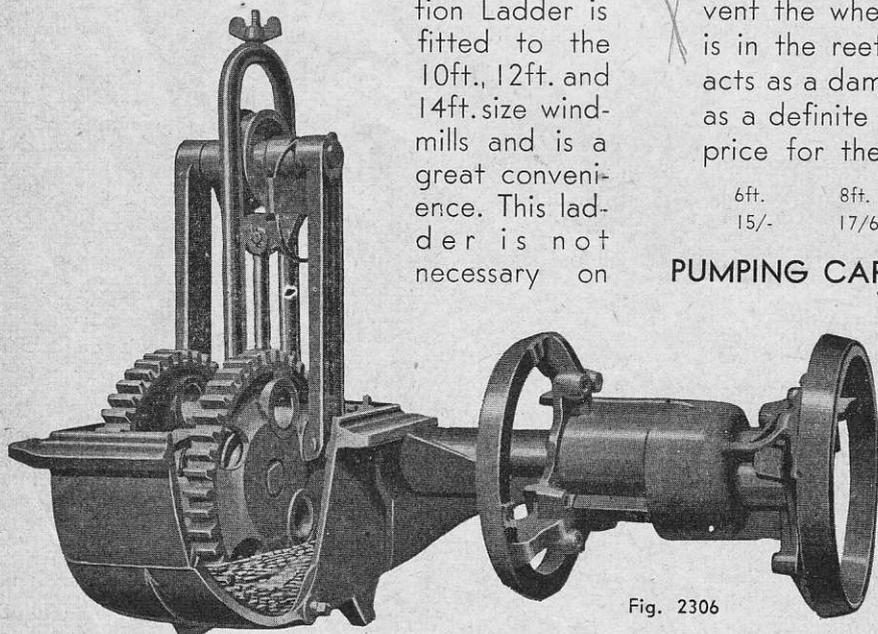


Fig. 2306

Illustration showing "Z" Pattern Windmill Engine with portion of Gear-box cut away so that the Double Gearing may be plainly seen.

Notice that the gears are running in oil all the time.

NEW WINDMILLS ON OLD TOWERS

These "Z" Pattern Windmills can be fitted to any make of tower either 3-post or 4-post without extra cost for special parts. There are a considerable number of windmills which are twenty years or more old which are wearing out and, generally, it is cheaper to replace the old mill with a new one on the old tower; providing, of course, that the old tower is still in good order, which is often the case and almost always the case if the old tower is a galvanised structure.

Refer to the price of the mill head only as shown at the top of Page 18 and you will see that the cost of a few major parts for the old windmill would equal the cost of a new mill.

Southern Cross "Z" Pattern Windmill Towers

The Southern Cross "Z" Pattern Windmill Towers are, of course, of THREE-POST Construction and are made throughout from B.H.P. standard steel angles and 80 tons tensile steel rod. After fabrication they are heavily galvanized, thus preventing rust and greatly increasing the life of the tower.

HEIGHT: Southern Cross Towers are measured from ground level. That is to say, a tower referred to as 40 feet high is 40 feet above ground level and has Anchor Posts and Foundation Plates for embedding in concrete in the ground in addition.

LEG SECTIONS: All the legs of these towers are made of heavy section B.H.P. standard steel angle and, with the exception of the 25ft. tower all sections are 10ft. long for convenience in transport. In the 25ft. tower there are two 10ft. sections and one 5ft. section.

GIRTS: The girts are made of heavy section B.H.P. standard steel angle spaced at 4ft. 9in. intervals.

BRACES: Are made from special 80 tons tensile steel rod and will always remain taut.

ANCHOR POSTS: These are supplied with all towers in addition to the height above ground level. They are heavily galvanized just the same as the remainder of the tower.

FOUNDATION PLATES: Are of galvanized steel angles and there are two Foundation Plates to each leg.

BOLTS AND WASHERS: All bolts and washers are galvanized and are amply strong.

LADDER: The ladder is made of galvanized steel angle with steel angle rungs and reaches from the bottom girt to the fixed platform on the tower.

PLATFORM: Is made of First Class Hardwood and is sufficiently wide to stand on easily.

STRENGTH: By bracing with special high tensile steel rods and using heavy leg angles and girts and an electrically welded steel stub tower we have produced in the "Z" pattern tower, a tower 20 per cent. stronger than other designs. So sure are we of the strength of the Southern Cross 3-post Tower that, as shown in the warranty on Page 5 of this catalogue, we warrant the Southern Cross Windmill Towers for three years from delivery and no reservation regarding storms or tempests is made because the windmill is built to withstand these.

ERECTION: These towers are erected on the ground and can be built by anyone by simply following the erecting instructions supplied with each mill. After being built on the ground they are then pulled up into position.

We recommend that all Southern Cross Towers be erected in concrete foundations, and we will supply towers for erection on wood blocks only when specially ordered.

FOUR POST TOWERS: To make a four-post tower of only the same strength as the standard three-post Southern Cross Tower, requires that the tower be made one-third heavier than the standard three-post tower and, consequently, it is one-third more in price. There is no advantage in paying that extra cost but we will, if required, supply a four-post tower.

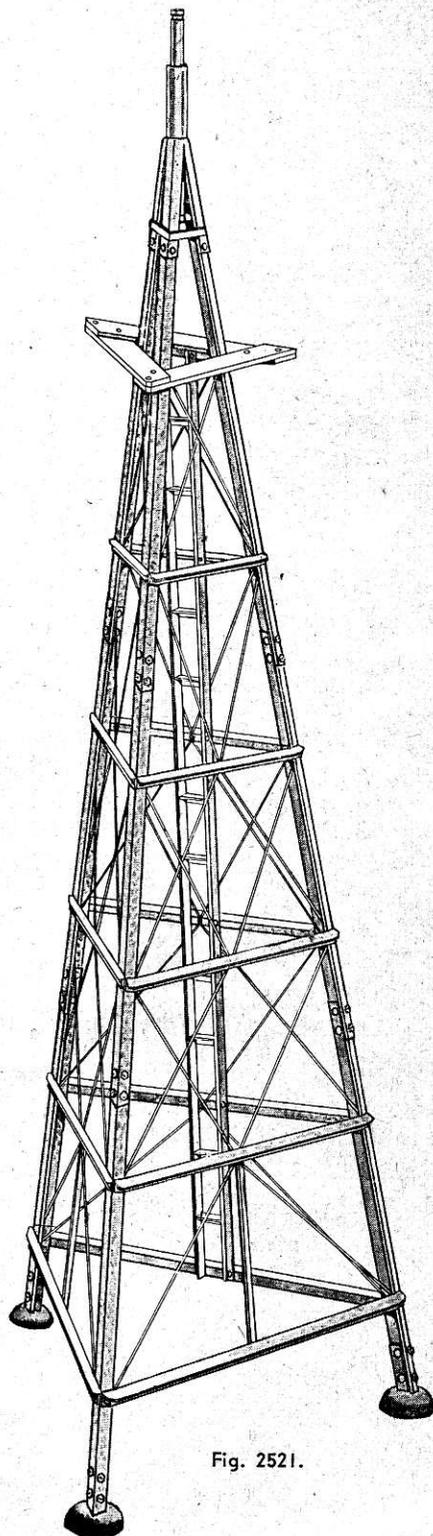


Fig. 2521.

Southern Cross "Z" Pattern Windmills PRICES.

| Size Mill | *Mill Only | Mill with 20ft. Tower | Mill with* 25ft. Tower | Mill with 30ft. Tower | Mill with 40ft. Tower | Mill with 50ft. Tower | Mill with 60ft. Tower |
|-----------|------------|-----------------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 6ft. | £10 10 0 | £16 2 6 | £17 7 6 | £18 17 6 | £21 17 6 | £25 10 0 | £29 15 0 |
| 8ft. | £13 17 6 | £20 10 0 | £22 2 6 | £23 17 6 | £27 7 6 | £31 15 0 | £36 5 0 |
| 10ft. | £19 7 6 | — | £29 12 6 | £31 17 6 | £35 12 6 | £42 7 6 | £49 15 0 |
| 12ft. | £27 5 0 | — | £38 17 6 | £41 5 0 | £48 7 6 | £55 10 0 | £63 15 0 |
| 14ft. | £35 17 6 | — | — | £52 2 6 | £60 15 0 | £68 0 0 | £76 0 0 |

*This price refers to Mill Only with 3 or 4-post Stub Tower for bolting to existing tower.
 The 6ft. "Z" Pattern Southern Cross Windmill may be supplied with Mast Pipe for mounting on Wooden Post (instead of Stub Tower for attaching to tower) at

£10/10/-

This price does not include Post, Guy Lines and Platform.

PUMPING CAPACITIES

The right combination of windmill and pump is always that which will allow the mill to work easily in light winds.

The pumping table set out below shows the average daily supply which can be expected from each combination of windmill and pump up to the depth given, in most districts in Australia; provided that the windmill is erected on a sufficiently high tower in a good open site where the wind can reach it freely.

There are, however, some districts where the wind is not so strong or does not blow for so many hours per day as the average and, in these, customers should specify a larger size windmill, or a larger size windmill and pump, according to the conditions, than would normally be used.

With a windmill plant it is the regular daily supply that is important, and greater satisfaction will always be got from a lightly loaded windmill.

| Size Mill | | DIAMETER OF PUMP CYLINDER. | | | | | | | | | | | | |
|-----------|-----------------------|----------------------------|------|--------|--------|--------|------|--------|--------|------|--------|--------|------|-------|
| | | 1 3/4" | 2" | 2 1/4" | 2 1/2" | 2 3/4" | 3" | 3 1/4" | 3 1/2" | 4" | 4 1/2" | 4 1/2" | 5" | 6" |
| 6ft. | Total Lift in Feet | 61 | 50 | 39 | 31 | 26 | 22 | 19 | 16 | 13 | 11 | 10 | 20 | 12 |
| | Average Gals. per day | 700 | 1040 | 1310 | 1640 | 1970 | 2350 | 2636 | 3200 | 3990 | 4510 | 5050 | 20 | 12 |
| 8ft. | Total Lift in Feet | 122 | 106 | 85 | 68 | 56 | 46 | 41 | 35 | 27 | 23 | 21 | 29 | 20 |
| | Average Gals. per day | 800 | 1090 | 1360 | 1700 | 2060 | 2470 | 2850 | 3300 | 4300 | 4940 | 5450 | 5720 | 9700 |
| 10ft. | Total Lift in Feet | 238 | 182 | 145 | 117 | 97 | 81 | 69 | 59 | 46 | 40 | 36 | 37 | 20 |
| | Average Gals. per day | 950 | 1240 | 1560 | 1930 | 2320 | 2780 | 3260 | 3780 | 4940 | 5590 | 6260 | 7730 | 11150 |
| 12ft. | Total Lift in Feet | 311 | 237 | 187 | 151 | 127 | 105 | 89 | 77 | 59 | 52 | 45 | 37 | 26 |
| | Average Gals. per day | 1050 | 1380 | 1740 | 2150 | 2570 | 3100 | 3640 | 4220 | 5510 | 6220 | 7000 | 8620 | 12450 |
| 14ft. | Total Lift in Feet | 491 | 375 | 297 | 240 | 198 | * | * | * | * | * | * | * | * |
| | Average Gals. per day | 900 | 1180 | 1490 | 1840 | 2230 | * | * | * | * | * | * | * | * |

*For these combinations we recommend the 14ft. Southern Cross "AG" Pattern Direct Action Windmill.

PACKED WEIGHTS.

| Size Mill. | Mill Only | Mill with 20ft. Tower | Mill with 25ft. Tower | Mill with 30ft. Tower | Mill with 40ft. Tower | Mill with 50ft. Tower | Mill with 60ft. Tower |
|------------|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | c. q. lb. | c. q. lb. | c. q. lb. | c. q. lb. | c. q. lb. | c. q. lb. | c. q. lb. |
| 6ft. | 1-3-21 | 4-0-20 | 4-2-18 | 5-0-22 | 6-1-6 | 7-2-2 | 8-3-12 |
| 8ft. | 3-1-3 | 5-3-20 | 6-2-2 | 7-0-13 | 8-1-17 | 9-3-8 | 11-1-17 |
| 10ft. | 5-3-11 | 9-1-2 | 10-0-0 | 10-3-1 | 12-1-15 | 14-0-20 | 16-0-18 |
| 12ft. | 8-1-2 | 12-1-5 | 13-0-15 | 14-0-1 | 15-3-13 | 17-3-18 | 20-0-18 |
| 14ft. | 10-3-22 | 15-2-16 | 16-2-12 | 17-2-17 | 19-3-3 | 22-0-12 | 24-2-19 |

SHIPPING MEASUREMENTS OF WINDMILLS WITHOUT TOWERS.

| | | | |
|-----------|------------|-----------|------------|
| Size Mill | Cubic Feet | Size Mill | Cubic Feet |
| 6ft. | 4 1/2 | 12ft. | 18 |
| 8ft. | 8 | 14ft. | 23 1/2 |
| 10ft. | 13 1/4 | | |