

CHALLENGE WIND MILLS

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Lowest cost farm power that brings big returns with liberal water supply for comfort and better living—for healthier and more profitable livestock. Since 1870 Challenge windmills have been a landmark of sound farm management. Using free wind power they provide water for farm and ranch with more economy than any other pumping power. Their sturdy construction assures a lifetime of service. They are the greatest time, labor, and money saver a farm can have, an investment that you will never regret.

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**ECONOMICAL!
DEPENDABLE!**

CHECK THESE 10 Outstanding FEATURES!

✓ A powerful combination of modern double feature construction—double gears, pinions, pitmans, and guide rods. Double roller frictionless crosshead. Double locked connections at every point. Adjustable strokes on every mill.

✓ Perfect balance has made Challenge known as "the windmill that pumps when many others are standing still." It makes use of the lightest breeze to pump more water.

✓ A thoroughly galvanized wheel with slats, sections, and arms formed and placed to develop and control the wind for greatest pumping efficiency. Special steel slats have 50-75% more resistance to vibration plus strength adding "beads." One piece heavy arms with extra wide base spread and with bridge-like truss reinforcements.

✓ Machine milled semi-steel gears and pinions retaining the natural hard, chilled surface that makes them run easier and last longer. Running in oil differential action assures an equalized load and quiet operation.

✓ Positive gravity, splash and elevator oiling system that cannot fail. Absolutely fool-proof, "once a year lubrication." No oil pumps to clog or get out of order. Weather-proof metal cover protects all working parts against rain, snow or dust.

✓ Automatic multiplying spring governor protects mill in the strongest winds and allows it to do a maximum of work in ordinary winds. Challenge is known as "the perfectly governed windmill."

✓ All castings made of tough semi-steel. Many of them are chilled for long wear. Guide rods and rollers are case hardened. Wheel shafts of material

originated for automobile propeller shafts and average 35% stronger than ordinary cold rolled shafting.

✓ Sensitive turntable with grease packed bearings turning in hardened raceways supports the motor load and faces the wheel into the lightest breeze. Tower cap selection makes it easy to place Challenge mills on any make or type of tower. No stub attachments needed.

✓ Timken bearings available on all sizes. These nationally known bearings have proved themselves with frictionless operation in every type of high grade machine from automobiles to railroad cars. They permit pumping in light winds and require little attention.

✓ Bronze bearings are optional at lower cost on some sizes. They are highly efficient and will not crack or break if lubrication is neglected because by a patented process they contain 25-35% oil reserve.

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A MILL THAT RUNS IN THE LIGHTEST BREEZE!

CROSS HEAD WITH
DOUBLE HARDENED
STEEL ROLLERS

HARDENED
STEEL GUIDE
RODS

RECOMMENDED TO YOU BY
FARMERS AND RANCHERS
— EVERYWHERE —

SEMI-STEEL
PITMANS

GUIDE ROD
BRACE

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SEMI-STEEL GEARS
RUN IN OIL

WINDMILL PARTS
BRAKE ROD
SPIRAL WIRE
CARRIES OIL TO
FRONT BEARING

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POSITIVE STEEL
AUTO BAND BRAKE

POT HUB SPIDER
WHEEL SETS OVER
OUTER BEARING

COLD ROLLED
STEEL SHAFT

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TIMKEN OR BRONZE
BEARING

OIL DRAIN PLUG
USE ONCE A YEAR

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SEMI-STEEL PINIONS

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OIL RESERVOIR GEARS RUN IN OIL

BALL BEARING CHAIR
TURNS EASILY TO WIND

CUT-A-WAY VIEW OF THE FAMOUS
CHALLENGE SELF OILING MOTOR
SHOWING THE DETAILS OF MASTER CONSTRUCTION

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• Simplicity is the keynote of this design. No complicated or delicate mechanism. A minimum number of working parts. Fool-proof automatic oiling. Straight up and down lift with load centered between gears, pinions, pitmans and guide rods.

Wheel shaft material 35% stronger than ordinary cold rolled shafting. Double roller frictionless crosshead. Entire mechanism protected with a heavy weather proof helmet that gives absolute protection against rain, snow, and dust.