

General FT4 Conventional Frame

It is the purpose of the following specifications to describe a self propelled, hydraulically powered rotary type mower, which shall mow forward and right of rear tire. This 72" side mounted unit shall be designed to interchange with a 60" or 75" side mounted flail mower, a 50" or 60" rotary boom mower, a 50" or 63" flail boom mower, a 22" rotary ditcher or a 22" rotary boom ditcher, or a front and wing snow plow. All cutter heads can be fitted with optional WetCut and a 48" saw blade. The unit shall be of the manufacturer's current production model, meeting or exceeding the terms of these specifications. Unit(s) shall be the manufacturer's most heavy-duty model available. The manufacturer shall furnish parts and operation manuals for the unit(s) bid. The manufacturer shall also guarantee equipment against defects in workmanship and materials for a period of (1) year. For any offer to be considered, all items must be of a standard production model, "not" modified for bid purposes. It is a requirement of this bid that vendors submit the pertinent information requested in each section marked "(VENDOR REQUIREMENT)". In the event the requested material and responses are not supplied, by the bidder, the bid submitted will be considered non-responsive and will automatically be rejected.

SPECIFICATIONS REQUIRED	COMPLY YES/NO	LIST (IN DETAIL) ANY EXCEPTIONS AND/OR DEVIATIONS.
SAFETY AND TESTING		
Shall meet the following industry standards: SAE: J232, J284, J990, J1065. ANSI/ASAE- 201.4, S203.13, S205.2, S279.12, S350, EP363.1, S483, S493, ASTM: A370. (VENDOR REQUIREMENT) Submit compliance report signed by a registered Professional Engineer(PE).		
Non-restrictive mower control valve shall stop cutter assembly in 7 seconds at full RPM.		
Safety chains shall be provided on mower front and safety discharge flap shall be provided at the rear of cutter.		
Travel and transport hook and pin locks shall be required.		
Operator shall not leave operators position to place unit in a travel position. A manual lock up pin with R-clip shall be provided for transport.		
MAIN FRAME		
Main Frame shall be constructed to be supported on the front tractor bolster, center of tractor and rear axel housings, to absorb side torque and impact of severe applications.		
Main Frame shall be constructed of fabricated 80,000 PSI steel, bolted directly to each side of tractor frame. An underbelly frame member, running under engine, shall be welded, box frame constructed, and connect the mainframe to each side of tractor (specifically excluding frames over hood designs). A welded mast assembly shall have an integral swing cylinder as a welded assembly with the main frame.		

DRAFT BEAM	<p>Lift assembly shall have one single acting and one double acting hydraulic cylinders controlling inboard and outboard ends of cutter head. Cutter Head control (tilt) shall be accomplished by means of direct connected linkage to a double acting cylinder, allowing precise operation of cutting assembly. A single acting cylinder provides lift for the cutter head assembly. Specifically excluding cable type lift systems.</p> <p>Mower lift for the inner control shall be a double acting, industrial welded type cylinder of not less than 3" diameter with 12" of stroke.</p> <p>Mower lift for the outer control shall be a single acting, industrial welded type cylinder of not less than 3" diameter with 10" of stroke.</p>
ROTARY SPECIFICATIONS	<p>Cutting width is 72" of actual cut.</p> <p>Cutter head shall not weigh less than 1,020 lbs.</p> <p>Cutter head shall have 19" of inboard travel and not less than 8" curb lift.</p> <p>Cutter head shall have a cutting arc of not less than 150°.</p>
CUTTING DISH	<p>Dish shall be one piece, dynamically balanced (per ISO quality G2.5 spec), formed 40° angle outer edge extending 3 1/2" beyond bend radius, 37 9/16" diameter x 1/2" thick, 80,000 PSI yield steel and attached by (6) six 5/8" x 1 3/4", grade 8 bolts. (VENDOR REQUIREMENT) Vendor shall list any deviation to the above.</p> <p>Dish shall have no structural welds.</p> <p>Dish assembly shall accommodate 2 standard, or optional 3, Knives shall be attached by 1 3/4" x 3 3/8" shouldered and Minimum clearance shall be 9" between deck and knife edge.</p>
SPINDLE ASSEMBLY	<p>Spindle housing shall be attached to deck as to absorb 240,000 lbs. of shear force and distribute load over 169 square inches.</p> <p>Spindle shall rotate at 19,000 FPM blade tip speed at rated tractor RPM.</p>

Spindle shall be (1) one piece forged alloy steel, mounted in double tapered roller bearings and sealed in oil. (VENDOR Spindle diameter shall be 7 1/4" x 10 7/8" length and bearing areas of 2" and 2 5/8" with 5" minimum between centers. Spindle housing shall have bearing wrap protection. (VENDOR REQUIREMENT) Vendor shall describe type and method of bearing wrap protection. Spindle shall be attached by flexible coupler with dust cover. (VENDOR REQUIREMENT) Vendor shall describe method of attaching motor to spindle assembly.		
CUTTER HOUSING		
Cutter head shall have 1/4" steel top and full length 3/8" steel sides.		
Cutter head shall be attached to draft beam with 2, 1 1/2" pins spaced not less than 29 1/2" center to center.		
Deck shall have full length, abrasion resistant, hardened, replaceable skid shoes.		
HYDRAULICS		
Hydraulic motor shall have a rating of 99 H.P.		
Hydraulic pressure connections shall meet SAE O-ring and JIC standards.		
Motors shall have cast steel housing with steel gears.		
Hydraulic pump shall be gear type with a rating of 96 input H.P., 45.1 GPM at 3,250 PSI.		
Pump shall be direct drive from the tractor front crankshaft adapter. (rubber mounted engine design shall have a double u-joint pump drive shaft) (VENDOR REQUIREMENT) Submit type of shaft attachment and number of u-joints supplied.		
Reservoir shall be internally treated against corrosion with industry approved chemical agent at time of manufacture. Reservoir shall have a in tank filter rated at 75 GPM, 10 micron, 200 beta, element with bypass, restriction gauge, minimum (1) one PSI pressure at suction outlet and have ball valve at suction line. Tank pressurized to 3 PSI. (VENDOR REQUIREMENT) Submit material used to treat reservoir. Type, design and micron size of filter element.		

Reservoir shall be mounted in tractors left hand rear wheel well. Reservoir shall have sufficient clearance for proper cooling and shall be a minimum 37 gallons of oil in an operating condition. Reservoir shall have a minimum of not less than 5" clearance (oil cold) from top of reservoir for expansion. Hydraulic fluid level and temperature gauge to be built-in reservoir.		
Oil to cutter head shall not pass through restriction causing valve, while in operation.		
All Hydraulic oil cleaned to ISO 16-14-11. (VENDOR REQUIREMENT) Vendor to supply copy of hydraulic oil sample record.		
Valve shall be electrically controlled pilot operated floating spool with starter lockout.		
Non-restrictive mower control valve shall stop cutter in 7 seconds at full RPM. (VENDOR REQUIREMENT) Vendor to state maximum number of seconds required to stop cutter from turning at operating RPM to stop.		
Valve shall not cause restriction to generate drift while in the off position.		
All hoses and tubes shall be triple projectile cleaned and capped prior to installation to minimize contamination to hydraulic system. (VENDOR REQUIREMENT) Vendor shall describe method and industry standard of cleaning.		
Pressure and return system hoses shall be 1" unrestricted inside diameter. Hoses shall have a burst pressure of 4 times working pressure		
Suction line shall be an unrestricted 1-1/4" inside diameter. (Specifically excluding suction filters and screens)		
LIFT CONTROLS		
Inner and outer lift controls shall be provided by tractors service control valves. 2 required, self centering without float positions.		
OPTIONAL CABLE CONTROL LIFT VALVE		

	<p>Mower lift control levers shall be of the single action design. Levers shall be pre-loaded to the center position, and have a force of not more than 15 lbs. at full travel. Lever action shall be symmetrical +or- 30° maximum lever on mounting center line. Control levers shall have a working load of not less than 100 lbs. (VENDOR REQUIREMENT) Submit manufacturer, model, and part number of component.</p>
	<p>Mower lift control system shall be mechanically controlled by stainless steel, polyethylene cables. Cables shall have a 1 x 7 Core with nylon covering. Core shall be not less than .93" diameter, covered to .125" diameter with high efficient conduit cover. Conduit cover construction shall have a polyethylene liner with black polyethylene covering and shall have a heat range of not less than -65° F to +225° F. Core shall have a nominal movement of 2", with bulkhead end and grooved end for attachment. Terminal ends shall be constructed of stainless steel rod, with brass plated tube. (VENDOR REQUIREMENT) Submit manufacturer, model, and part number of component.</p>
	<p>Mower lift, hydraulic control valve, shall be closed center, load sense, sectional valve, with individual section compensation. Valve shall provide precision metered spools with metering notches. The valve shall have a low operating effort, and a working capability of 3,000 PSI. Valve shall have chrome plated, tapered, and metered spools, and employ individual pressure compensated work sections, flow divider (principle to maintain flow relationships), fully interchangeable spools, shuttle disk type load sense control with neutral drain to tank, and priority flow capability. Valve shall have load checks in each valve section. System shall incorporate a single load sense line to load sense pump (fixed displacement pump systems shall incorporate an inlet unloader option). All functions shall be protected by individual pilot operated, port pressure relief valves, equipped with built in anti-cavitation check valves, and provide a detented float position.</p>