

Specifications and features exclusive to Schulte are indicated by →.

## Standards

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Schulte equipment displays the ISO 9001:2000 seal ensuring a commitment to the highest standards of product quality and customer satisfaction.

The XH1500 Series 3 complies with and if required is tested to the following standards:

- SAE J232 Industrial Rotary Mower Surface Vehicle Standard
- ASAE S474.1 Agricultural Rotary Mower Safety
- ASAE EP363.1 Technical Publications for Agricultural Equipment
- ANSI/ASAE S318.16 Safety for Agricultural Field Equipment
- ASAE S338.5 Field Equipment for Agriculture - Safety Chain for Towed Equipment
- ASAE S279.13 Lighting and Marking of Agricultural Equipment on Highways
- ASAE S276.6 Slow Moving Vehicle Identification Emblem (SMV Emblem)
- ASAE S483.1 Rotary Mower Blade Ductility Test

## Basic Unit

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The basic unit is available with either 540 or 1000 RPM PTO drive. The center blade set is available with clockwise or counterclockwise rotation. Clockwise rotation is recommended for cutting in the same direction as traffic and counterclockwise rotation is recommended when cutting opposite to the traffic direction.

## Gearboxes

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A four gearbox drive arrangement is used with individual slip clutches protecting each blade set. Gearbox housing material is ductile iron ASTM 60-40-18 (GS400/12). Gearbox shaft and gear material is AISI 3120 (20CrMnTi).

## Power divider

Manufacturer's rating is 250 HP (184 KW) at 540 or 1000 RPM. Industry rating is 260 HP (194 KW). Input and output shafts are  $\varnothing 1\text{-}3/4$ " (44.5 mm) 20 spline. A dipstick breather is provided for checking oil level.

## Center and wing

Manufacturer's rating is 125 HP (92 KW). Industry rating is 210 HP (157 KW). Input shaft is  $\varnothing 1\text{-}3/4$ " (44.5 mm) 20 spline. Output shaft is a ASA 8/16 Z18,  $\varnothing 2\text{-}3/8$ " (60 mm) tapered spline. The output shaft seal is protected by a seal shield which forms a labyrinth with the pan hub. A breather dip stick is provided for checking oil level.

→ *Oil drain plug is located below the output shaft bearing so that the gearbox can be completely drained.*

- *A DIN2093 36 X 4 MM belleville spring washer is used between the pan and splined gearbox output shaft in order to maintain a tight fit.*
- *Oil passages in the gearbox casting speed up filling with oil.*

## Hitch Options

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### Trailing Hitch, CV style

The trailing hitch includes a number of drawbar attachment options (listed below). A rest for the tractor drive shaft is provided, along with storage slots for tractor hydraulic tips. The angle of the hitch jack mount is adjustable so that the jack remains vertical for the common range of drawbar heights.

#### Tractor drive shafts:

**540 RPM** - ASAE Category 6, Bondioli & Pavesi, size 8 SFT with 80° constant velocity joint and 4 lobe sliding members. Inner sliding member is Rilsan coated to reduce sliding friction. Torque rating for connecting members is 35,402 inch lbs (4000 NM). Tractor yoke is 1-3/8-6 spline spring tension locking type with three locking balls for quick secure attachment. Implement yoke is 1-3/4-20 spline with tapered locking pin.

**1000 RPM** - ASAE Category 5, Bondioli & Pavesi, size 6 SFT with 80° constant velocity joint, and 4 lobe sliding members. Inner sliding member is Rilsan coated to reduce sliding friction. Torque rating for connecting members is 26,553 inch lbs (3000 NM). Tractor yoke is 1-3/4-21 spline spring tension locking type with three locking balls for quick secure attachment. Implement yoke is 1-3/4-20 spline with tapered locking pin.

#### Drawbar hitch options:

- Open clevis or use with standard drawbar. Standard - 2" (50.8mm) wide opening,  $\varnothing$ 1-5/16" (33.3mm) pin hole. Wide - 2-3/16" (55.6mm) wide opening,  $\varnothing$ 2-1/8" (54mm) pin hole.
- Solid tongue for use with standard drawbar and hammer strap. 2" (50.8mm) thick,  $\varnothing$ 1-11/16" (42.9mm) pin hole.

- *Adjustable clevis - The clevis opening is adjustable providing a snug fit for a variety of drawbar thickness'. Pin hole size is  $\varnothing$ 1-7/16" (36.5mm). Opening for drawbar thickness can be varied from 1" (25.4mm) to 1-3/4" (44.5mm).*
- *Precision hitch - The precision hitch bolts to the tractor drawbar providing precise pivot points for turn and tilt. Precision hitch components are greaseable and are carburized to a case depth of 0.050" (1.27mm) and surface hardness of RC50-55 for extended service life. Minimum drawbar pin hole size is 1-1/8". Can accommodate drawbars up to 4" (101.6mm) wide with up to 1-1/2" (38.1) drawbar pin hole (with spacer).*

### Equal angle hitch

- *The equal angle hitch allows the use of a standard (no CV) tractor drive shaft, while retaining the ability to make tight turns without driveline chatter. The equal angle hitch is able to maintain constant velocity drive line operation in tight turns because of*

*its geometry. The distance between the center of the tractor drive shaft yoke and the drawbar pin center is the same as the distance from the pin center to the center of the implement drive yoke. Unlike drive arrangements using jack shafts, the equal angle hitch uses a full length tractor drive shaft with a long telescoping range, ensuring that the drive shaft does not separate or bottom out even when operated over very hilly terrain.*

**Tractor drive shaft:**

**540 RPM** - ASAE Category 7, Weasler 55E with splined sliding members. Tractor yoke is 1-3/8"-6 spline spring tension locking type. Implement yoke is 1-3/4"-20 spline with double bolt clamp.

The equal angle hitch incorporates a built-in, precision hitch with adjustable shim packs to accommodate different widths of drawbars. Pin hole size is  $\varnothing 1-7/16$ " (36.5mm). Opening for drawbar thickness is 2" (50.8mm). Adjustment for drawbar width is 2-3/8" (60.3mm) to 3-3/8" (85.7mm).

This built-in, precision-type hitch moves the load point of the hitch forward of the draw bar pin hole reducing stress on the drawbar.

The central pivot pin is induction hardened to RC55-60. All pivot points are greaseable with replaceable spring steel bushings and locking pin heads. A rest for the tractor drive shaft is provided, along with storage slots for tractor hydraulic tips. The angle of the hitch jack mount is adjustable so that the jack remains vertical for the common range of drawbar heights.

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**Drive shafts**

Wing drive shafts are ASAE Category 5, Bondioli & Pavesi, Size 6 with SFT style 4 lobe sliding members and two plate slip clutches set at 10,621 inch lbs (1200 NM). The inner sliding member is heat treated to increase service life.

Center drive shaft is ASAE Category 5, Bondioli & Pavesi, Size 6 with splined sliding member and two plate slip clutch set at 12,834 inch lbs (1450 NM) for 540 RPM drives or 8,851 inch lbs (1000 NM) for 1000 RPM drives.

Slip clutches are large diameter two plate type to reduce service costs. Clutch plates employ a nitride steel surface to reduce sticking in damp weather. All connecting yokes are 1-3/4"-20 spline with tapered locking pins.

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**Deck construction**

Deck surfaces are constructed of 7GA ASTM A569 sheet formed into a domed shape in order to shed water and debris. The top of the deck is continuously welded in order to add strength and to prevent rusting. The bottom of the deck is continuously welded except for non-critical areas where weld distortion may be a problem. ASTM A500 hollow structural tubing is used along hinge lines and around the perimeter of the center and wing frames.

→ ***Safety chain curtains are mounted to 2-1/2 X 2-1/2 X 3/16 wall ASTM A500 hollow structural tubes placed around the perimeter of the center and wing frames. HSS tube***

*has a much greater torsional strength than formed channels, ensuring that frames cannot be twisted or otherwise damaged even in the most severe working conditions.*

→ *Each hinge line is comprised of 10, 5" (127mm) long, ASTM A915 cast steel hinge line components with wiper lip to minimize material blow through.*

## **Deck rings**

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Deck protection rings are standard equipment and are provided for each blade set. The deck rings are 3/8" (9.5mm) thick and at least 4-3/4" (111.1mm) deep and are located within 5-3/8" (136.5mm) of the tip of the blade.

→ *Deck protection rings are positioned only 3" (76.2mm) from the top of the blade in order to prevent a severe bend in the blade should it hit an obstruction.*

## **Blades**

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Material: 1/2" X 4" (12.7 X 101.6mm) SAE 5160 chrome-vanadium steel. Forged cutting edge with 2-3/4" (70mm) drop. The following tests are conducted to ensure that blades fall within the requirements of Alamo MS 0001 'Rotary Cutter Blade Material Specification':

- Blade ductility per ASAE S483
- Hardness per ASTM A370-03
- Charpy V-notch per ASTM A370-03a
- Decarburization
- Grain size per ASTM E112-96
- Non-metallic inclusions per ASTM E45-97

The blade bolt hole has a chamfer or radius to eliminate stress risers due to a sharp edge.

→ *The surface surrounding the blade bolt hole is shot peened on both sides to increase fatigue life.*

## **Blade bolts**

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Material: Forged Grade 8 per SAE J429.

1-1/8 - 12 UNF thread with pentagon shaped shank

→ *Pentagon shaped shank stops the bolt from turning and ensures easy installation.*

## **Blade bolt retention locknut**

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1-1/2-12 UNF Grade 8 nylon insert type locknut.

→ *The nylon insert type locknut is the best solution to preventing the blade bolt from loosening due to vibration.*

## **Pans**

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Material: Spun formed 1/4" (6.4 mm) ASTM A36 pan skin with 1" X 5" (25.4 X 127mm) ASTM A36 cross bar and additional cross bracing on larger pans.

- *Spin forming ensures that pans are balanced without the need to weld on balancing slugs. Pans are 3" (76.2mm) deep with an additional lip on the top edge to increase stiffness and prevent dents if a solid object is encountered.*
- *Replaceable pentagon bushings are pressed and then welded into the pan cross bar. Pentagon pan bushings are made from forged C1045 steel.*

## **Skids**

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Center skids are 5-1/4" wide by 3/8" thick (133 X 9.5mm), ASTM A514.

Wing skids are 4-1/2" wide by 3/8" thick (114 X 9.5mm), ASTM A514.

- *The normal mounting position for the wing skid is to the outside. They can also be positioned to the inside when cutting close to posts or other objects.*

## **Phasing cylinder lift**

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Three phased hydraulic cylinders are used to raise and lower the machine. The phasing cylinder lift allows the center walking axles to be positioned as close to the center blade set as possible, for improved ground following. Since each wing is lifted with its own hydraulic cylinder stresses are not transferred across the hinge line as with a single cylinder linked type lift system. The phasing cylinder style lift can be used to retract the wing wheels for transport resulting in a narrow 90" (2.29 m) transport width.

Hydraulic cylinders are 8" (203mm) stroke, 3-1/2", 3-1/4" and 3" diameter, welded construction. Cylinders are rated for 3000 psi working pressure. Rods are Ø1.25" nitrosteel.

## **Wing lift**

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Wing lift cylinders are welded construction with 14" (356mm) stroke and 3" bore. Cylinders are rated for 3000 psi working pressure. Rods are Ø1.25" nitrosteel. Wings can be lowered to 25degrees below horizontal and raised to a transport position of either 90 degrees or 86 degrees depending on how the wing lift is configured.

- *Wings are free to float up 35° degrees without pumping the wing lift cylinders.*

Transport width at 90 degrees is 90" with wheels retracted.

Transport width at 86 degrees is 100" with wheels not retracted.

## **Hydraulic hoses**

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SAE 100R2AT, Ø1/4" (6.4mm) two wire braid, rated at 5000 psi (346 bar) working pressure. Hose, fittings and assemblies meet the requirements of SAE J517, J516 and J1754-1.

## **Hydraulic Options**

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### **Double acting wing lift cylinder kit**

Allows the wing lift hydraulic circuit to be connected to the tractor using a double acting circuit.



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### Independent double acting wing lift cylinder kit

Allows each wing to be independently raised and lowered using a double acting hydraulic circuit.

### Spool valve kit

For installations that have less than two remote hydraulic circuits.

### Hubs and tires

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Hubs are heavy duty 5-bolt, 5.5" bolt circle, with 4.00" pilot. Hub capacity is 2760 lbs (1255 KG) based on a 20,000 mile, B10 bearing life at tractor speed and 14, 000 psi maximum fiber stress on spindles. Spindles are  $\varnothing 1\text{-}5/8"$  (41 mm) bolt in type. Axles are replaceable bolt in type.

Tire options include; recapped aircraft tire, 24 X 7.7 X 10 (18-22 ply), solid laminated tire, 6 X 9 X 20 or foam filled recapped aircraft tire, 24 X 7.7 X 10 (18-22 ply). Wheels are split, two piece type.

### Walking axle

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Walking axles are standard for the center section and optional for the wings.

- *Axles are 19-3/8" between centers to so that the walking effect is optimized for rough terrain.*
- *The distance from the hitch point to the pivot center of the waling axle is 167" (4.24 m) resulting in excellent ground following and maneuverability.*
- *The main pivot uses  $\varnothing 1\text{-}3/8"$  (35mm) LM48548, sealed tapered roller bearings to increase service life and to manage side loads*

### Suspension and wheel standards

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Wing and center section suspension is based on  $\varnothing 3\text{-}1/2"$  (89mm) rubber pucks. Puck material is 70 durometer natural rubber with a tensile strength of 3900 psi. One puck is used for each wing wheel standard and three pucks are used with the center wheel standard. The center section suspension mechanism is centrally located so as not to create any unwanted side to side sway. The center suspension linkage is connected by link rods to the front hitch, so it also cushions the tractor hitch.

Wing wheel standards are constructed of  $3/8"$  (9.5 mm) wall 4 X 3 (102 X 76 mm) ASTM A500 hollow structural tubing. The center wheel standard is constructed of  $1/4"$  (6.4 mm) wall 4 X 4 (102 X 102) ASTM A500 hollow structural tubing arms connected by a  $1/4"$  (6.4 mm) wall,  $\varnothing 6"$  (152 mm) ASTM A500 hollow structural round tube.

### Floating hitch

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Link rods connect the rear wheel standard to the front hitch in order to obtain a parallel lift. The link rods are always in tension except when the front skids slide over an obstruction. In this

case the link rods are free to collapse in length so that the cutter can freely float over the obstruction without levering up the back of the machine and possibly bending the link rods.

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## **Integrated center and wing transport locks**

→ *The center transport lock is independent of the hydraulic cylinder. This allows all phasing cylinders to be retracted or removed for service, and the cutter still maintains its transport position. This also allows the wings to be tucked in for a narrower transport width.*

Wing transport lock pins are also independent of the hydraulic cylinders.  
All transport locks are easily accessible from the rear of the machine.

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## **Safety chain curtain**

A double chain curtain extends across the front and back of the machine. (one strand positioned directly in front of the other), 1-1/4 lateral spacing, extending 2-3/8" below the blades. Chain is 5/16 proof coil, closed link.

In addition, 6" wide PVC 250# CBS front rubber belting positioned in front of the double chains is optional.

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## **Safety chain**

A safety chain is provided as an auxiliary attaching system per ASAE S338.3. The safety chain will help control the rotary cutter should it accidentally separate from the drawbar. The safety chain has a 10,100 lbs (4591 KG) capacity and 59" (1500mm) minimum length.

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## **Hitch jack**

Side wind hitch jack, 15" (381mm) travel, lift capacity 3000 lbs (1364 KG), static capacity 5000 lbs (2273 KG). Storage provided on left wing or on the 10' wing skirt.

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## **XH1000 Series 3**

The XH1000 Series 3 rotary cutter uses a skirt in place of the left wing to achieve a cutting width of 10' (3 M). The skirt weighs a total of 979 lbs (445 KG), including three counterweights each weighing 254 (115 KG) lbs. The skirt includes a full length skid, 3/8" (9.5mm) thick by 2-1/2" (63.5mm) wide, made of ASTM A514.

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## **Options**

### **Wing winch kit**

The kit includes a 1500 lbs (682 KG) capacity, 5.1:1 ratio, manual winch for raising the left or right wing, if a hydraulic wing lift cylinder should fail.



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### **Towing hitch kit**

The tow hitch pin point extends 27" (686mm) past the pivot point for the center section walking axle. The hitch pin hole size is  $\varnothing$ 1-1/32" (26.2mm). The hitch tongue is 3/4" (19mm) thick.

### **Wing gauge wheel kit**

A gauge wheel kit is available for the left or right wing. The gauge wheel helps the wing travel over severe terrain such as steep ditches. The kit includes a hub and laminated tire. The assembly bolts to the outside of the wing skirt. Four (4) 21/32" diameter holes must be drilled in the wing skirt in order to mount the gauge wheel frame.

Laminated tire size is 5" (127mm) wide, 15" (381mm) outer diameter.

Hub is 4-bolt, 5" bolt circle, with 3.62" pilot. Hub capacity is 1500 lbs (682 KG) based on a 20,000 mile, B10 bearing life at tractor speed and 14, 000 psi maximum fiber stress on spindles. Spindle is  $\varnothing$ 1-1/4" (41 mm) straddle type.

### **Tool box kit**

Includes a toolbox, winch stand and toolbox mounting platform. The toolbox is approximately 32" (813mm) long by 8-3/4" (222mm) wide by 9-1/4" (235mm) deep.

### **Safety light kit**

Meets requirements of standard ASAE S279.13 Lighting and Marking of Agricultural Equipment for lighting of equipment that obscures vehicle illumination.

The kit includes 2 sets of amber and red lamps mounted in a protective framework. Light sets are mounted to the center wheel standard. Red lamps are 41" (1.04 M) apart and amber lamps are 49" (1.24 M) apart. Lamps are 45" (1.14 M) above the ground with the machine in transport position. A 16 gauge/4 conductor harness and 7 pin tractor plug connect to the tractor.

The lighting kit has enhanced lighting standard capability. During a turn the red lamp next to the amber turn side lamp will rapidly flash from low beam to high beam in unison with the amber lamp, and the red lamp on the opposite side will go from low beam to high beam, effectively looking like the brakes have been applied and the implement is slowing down and ready to make the turn. This lighting system improves road safety by alerting everyone that tractors and implements are making a turn.



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### General Specifications

	<b>XH1500</b>	<b>XH1000</b>
Cutting width	180" (4.57 m)	126" (3.20 m)
Overall width	190" (4.83 m)	139" (3.53 m)
Overall length	192" (4.88 m)	192" (4.88 m)
Overall length, with wing walking axle	204" (5.18 m)	204" (5.18 m)
Transport width, minimum	90" (2.29 m)	90" (2.29 m)
Transport height, 24" tires	91" (2.31 m)	91" (2.31 m)
Deck thickness mm)	7GA (3/16") (4.6 mm)	7GA (3/16") (4.6 mm)
Weight, approximate	5800 lbs (2636 kg)	5200 lbs (2364 kg)
Hitch weight, approximate	1900 lbs (864 kg)	1700 lbs (773 kg)
Minimum tractor HP	65 HP (48 KW)	50 HP (37 KW)
Recommended tractor HP	85 HP (63 KW)	75 HP (56 KW)
Hydraulic requirement psi (Two remote hydraulic circuits) bar)	10 GPM @ 1500 psi  (38 lpm @ 104 bar)	10 GPM @ 1500  (38 lpm @ 104 bar)
Cutting height	1.5 to 17.5" (38-444 mm)	
Ground clearance	17" (432 mm)	
Cutting capacity	4" material (102 mm)	
Blade overlap	6.5" (165 mm)	
Divider gearbox rating	260 HP (194 KW)	
Centre/wing gearbox rating	210 HP (157 KW)	
Blade speed, 540 rpm		
Centre	848 rpm, 15,991 ft/min (4874 m/min)	
Wing	986 rpm, 15,493 ft/min (4722 m/min)	
Blade speed, 1000 rpm		
Centre	850 rpm, 16,022 ft/min (4884 m/min)	
Wing	1002 rpm, 15,743 ft/min (4798 m/min)	
Wing working range	25° down to 90° up	

\* All heights measured with 24" (610 mm) aircraft tires. Heights are 1" (25.4 mm) lower with 22" (559 mm) solid laminated tires.