

Power Splitter

Hydraulic Nut Splitter

Operation & Maintenance Guide



KEEP FOR YOUR RECORDS

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Introduction

You have chosen the high quality Power Splitter. Now you can cut through the biggest, hardest nuts in seconds. Some of the many benefits to the Power Splitter are:

- ▶ Versatility; it can be used on a wide range of nut sizes
- ▶ Flexibility; it fits into tight spaces and cuts virtually any shape nut
- ▶ Precision; the cutting chisel can be calibrated so that only the nut is cut, with no damage to the bolt or stud threads
- ▶ Speed; from tool-box to use in less than five minutes and only 20-30 seconds to cut a nut
- ▶ Safety; no hammers, no impact, no sparks or flame, no hot permits required, and no flying fragments

Safety Tips

Always wear the appropriate protective equipment, such as safety glasses and gloves.

Do not allow the hydraulic hoses to kink, twist, curl or bend so tightly that the oil flow within is blocked or reduced.

Never attempt to grasp a leaking pressurized hose.

Never exceed 10,000 psi of hydraulic pressure while operating the Power Splitter.

Never place any body part between the tool and the equipment being worked on, especially moving parts such as the chisel.

Do not split nuts into sections smaller than half of the nut. Smaller pieces may fly off the nut if it is split in small sections.

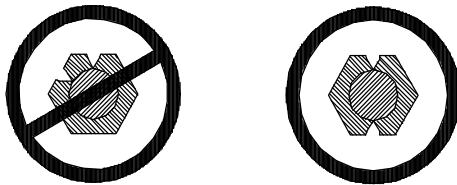


Figure 1

Power Requirements

The Power Splitter is hydraulically driven. All models require a hydraulic pump that delivers 10,000 psi of pressure. Any type of hydraulic pump may be used; including air, electric, and hand driven pumps.

TITAN Hydraulic Pumps that may be used with the Power Splitter

Splitter Model #	100-H Manual Hand	105-A Air	115-E Electric	150-H Manual Hand	150-F Manual Foot	205-A Air	215-E Electric
AS100	X	X	X	X	X	X	X
AS105	X	X	X	X	X	X	X
AS200	X	X	X	X	X	X	X
AS204	X	X	X	X	X	X	X
AS210	X	X	X	X	X	X	X
AS308	X	X	X	X	X	X	X
AS314	X	X	X	X	X	X	X

Table 1

All TITAN hydraulic pumps include the necessary fittings and hoses.

If a TITAN hydraulic pump is not being used to power the Power Splitter, the following requirements must be met:

Power Splitter Model #	Valve Type	Hose Rated at:	Usable Minimum Capacity
AS100	2-Way	10,000 psi	5 in ³
AS105-AS200	2-Way	10,000 psi	10 in ³
AS204-AS210	2-Way	10,000 psi	44 in ³
AS308-AS314	2-Way	10,000 psi	82 in ³
AS404-AS506	4-Way	10,000 psi	460 in ³

Table 2

Parts List

Type 1

Power Splitters with externally threaded chisel holders; used in nut splitters with internal threads in the piston rod.

Item	Description	AS100	AS105	AS200
1	Housing	D88045	C87112	C87114
2	Set Screw	SSN4-20	SSN4-20	SSN4-20
3	Allen Wrench	WSS2	WSS2	WSS2
4	Chisel	B88046	B86216	B86216
5	Chisel Holder	A90002	B86215	B86215
6	Spacers Set		A99077	A99077
7	Set Screw for Chisel Holder	SSN04-20	SS#6-32	SS#6-32
8	Allen Wrench for Chisel Holder		WSS1	WSS1
9	Hydraulic Cylinder	C-10	C-25	C-25
10	Quick Disconnect Female	C-604	C-604	C-604
13	Tool Box	25TB	25TB	25TB

Table 3

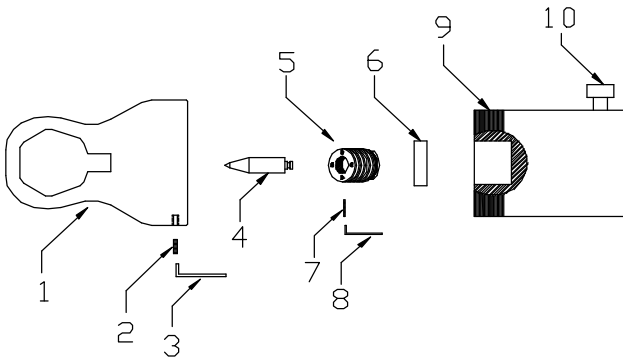


Figure 2

Assembly

There are two types of Auto-Splitter® nut splitters. The only design difference between the two is the chisel holder. See *figures 4 and 5 and the table below.*

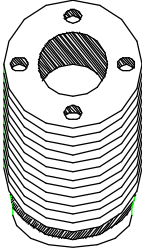


Figure 4

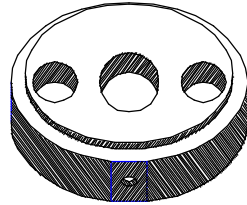


Figure 5

The assembly directions are separated into two sections: Section 1 applies only to type 1 splitters, Section 2 applies to type 2 splitters only. Refer to the table below to find which type of Auto-Splitter assembly directions to follow.

Type 1 Models	Type 2 Models
AS100	AS204AH
AS105AH	AS210AH
AS200AH	AS308AH
	AS314AH

Table 5

Section 1 - Assembly Directions Type 1

Type 1 Auto-Splitters® with externally threaded chisel holders; used in nut splitters with internal threads in the piston rod.

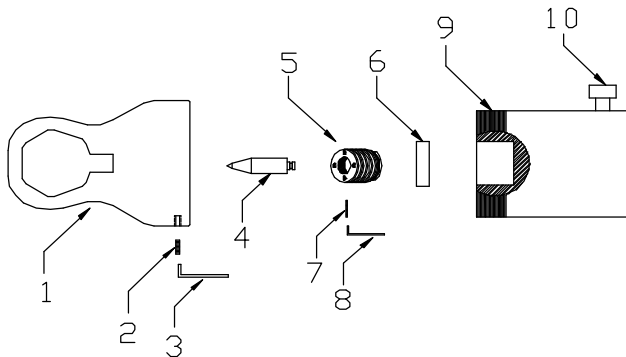


Figure 6

1. Unscrew the chisel holder (5) from cylinder (9).
2. Place the cutting chisel (4) in the drilled hole in the chisel holder (5). Insert the set screw (7) into the side of the chisel holder and tighten using the provided Allen Wrench (8).

Note Do not overtighten the set screw. The chisel should be free to turn.

3. Drop spacer with printed size face up into cylinder (6).*

Note Each Auto-Splitter® is designed to cut a wide range of sizes. This is achieved by using calibration spacers. For example, to cut a 1-7/8" nut (AS200 or AS204) simply insert

the spacer marked 1-7/8". No other spacer is needed. The largest nut size in the range of each nut splitter does not require a spacer.

*The AS100 does not come equipped with spacers. Explanation of how to adjust the AS100 for various nut sizes can be found at the end of this assembly section.

4. Screw in the chisel holder (5) until it is seated metal to metal.

Warning Thread the chisel holder completely, failure to do so will result in severe damage to the cylinder rod and chisel holder.

5. Connect the quick disconnect (10) to a hydraulic pump using a 10,000 psi hose. Refer to the Power Requirements on page 3 for appropriate hose and pump.

6. Extend the cylinder rod and hold it in the extended position.

7. Place the housing (1) on the hydraulic cylinder (9). The chisel (4) will project into the housing. Make sure that the longest edge of the chisel is on the same side as the slope of the housing (1). *See figure 7.*

8. Completely thread the housing onto the cylinder while holding the cylinder extended. Back the housing off one full turn.* Lock in place by inserting the set screw (2) on the side of the housing and tightening with the Allen Wrench (3).

*The AS100 should be adjusted according to the table below, for various nut sizes.

Nut Size Across the Flats	Turns to Back Off
1/2"	None (Completely Threaded)
5/8"	Half
9/16"	One
3/4"	One and a Half
7/8"	Two
1"	Two and a Half

Table 6

Please note that these are only guidelines, and adjustments may be necessary.

9. Retract the cylinder rod - the cylinder will retract.

10. Proceed to the Operation Section of this manual.

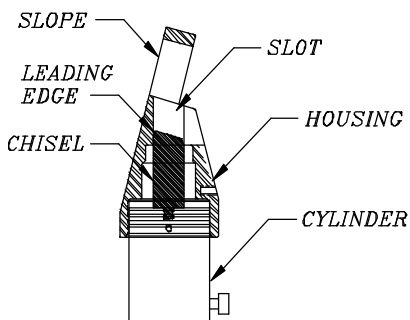


Figure 7

Section 2 - Assembly Directions

Type 2

Type 2 Auto-Splitters® that have a cylinder with threaded bolt holes in the piston rod and chisel holders that use socket head cap screws.

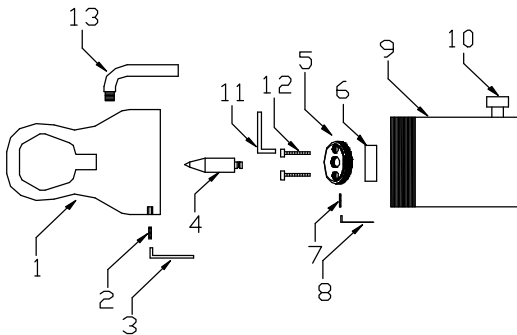


Figure 8

1. Remove the two socket head cap screws (12) from the cylinder (9) using the Allen Wrench (11).
2. Place the cutting chisel (4) into the center drilled hole in the chisel holder (5). Insert the set screw (7) into the side of the chisel holder and tighten using the provided Allen Wrench (8).

Note Do not overtighten the set screw. The chisel should be free to turn.

3. Line up the holes of the spacer (6) (when needed) and the chisel holder (5) with the bolt holes in the cylinder (9).

Use the socket head cap screws (12)* to bolt both the spacer and chisel holder onto the cylinder.

*Some splitter models are equipped with two lengths of cap screw to accommodate spacer thickness. The cap screws should be long enough to fasten the spacer and chisel holder to the cylinder. Make sure that the cap screws are not too long. If the longer screws are used without spacers, the chisel holder will not be held tightly in place.

Note Each Auto-Splitter® is designed to cut a wide range of sizes. This is achieved by using calibration spacers. For example, to cut a 1-7/8" nut (AS200 or AS 204) simply insert the spacer marked 1-7/8". No other spacer is needed. The largest nut size in the range of each nut splitter does not require a spacer. The only exception is the AS100 which does not come equipped with spacers.

4. Connect the quick disconnect (10) to a hydraulic pump using a 10,000 psi hydraulic hose. Refer to Power Requirements on page 3 for appropriate hose and pump.

5. Extend cylinder rod; HOLD in the extended position.

6. Place the housing (1) on the hydraulic cylinder (9). The chisel (4) will project into housing. Make sure that the longest edge of the chisel is on the same side as the slope of the housing (1). *See figure 9.*

7. Completely thread the housing onto the cylinder while the chisel is extended. Back off the housing one full turn. Lock in place by inserting the set screw (2) on the side of the housing and tightening with the Allen Wrench (3).

8. Retract the cylinder rod - the chisel will retract.

9. Proceed to the Operation Section of this manual

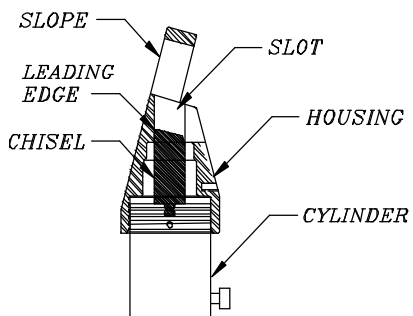


Figure 9

Operation

Note: Read and follow the assembly instructions and safety tips before operating the Auto-Splitter®.

1. Lubricate the tip of the chisel with a high grade anti-seize lubricant like FASTORQ 70+ before each cut.
2. Place the internal hex of the housing over the nut. Pull the housing against the back side of the nut, with the nut centered on the back side of the internal hex. The housing of the nut splitter should be flat on the surface of the flange. The cutting chisel should be as close to the bottom of the nut as possible and be centered on a flat of the nut. See *figure 10*.

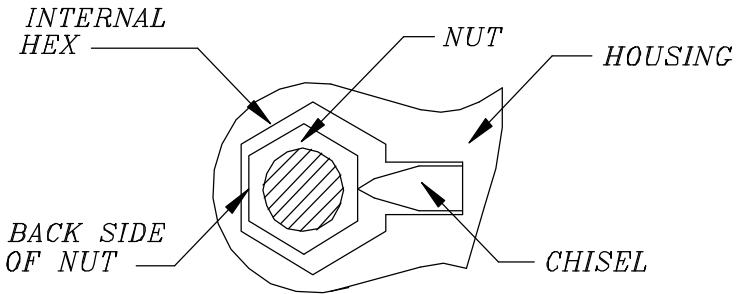


Figure 10

3. Extend the chisel slowly until it makes contact with the nut face. Check that the chisel is resting squarely on the center of a nut flat. See *figure 11*.

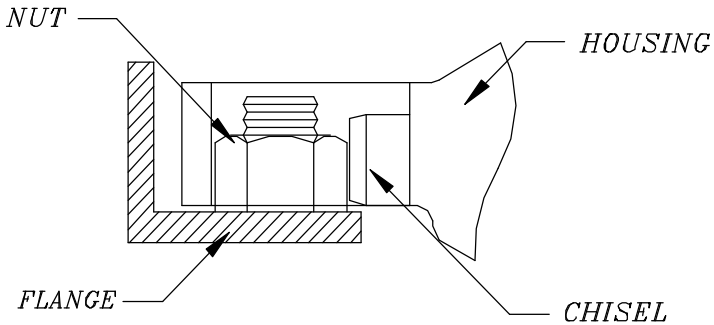


Figure 11

4. Continue to apply hydraulic pressure to the cylinder until the nut is severed. A loud pop will occur, signifying that the nut is split.

Note For complete nut removal, it may be necessary to cut the opposite face of the nut so that it falls away from the stud. If a second cut is required, proceed with the following steps:

5. Rotate the nut 180 degrees, after the first face has been split. An oversized wrench or hammer may be required to turn the nut.

6. Split the second face. Return to step 1 and follow the same procedure.

Maintenance

The Auto-Splitter® is designed to be a low maintenance tool. The following should be done on a regular basis to increase the longevity of the tool:

- √ Always lubricate the chisel point with anti-seize lubricant before each cut.
- √ Do not let the chisel get dull. Resharpener the chisel with a hand whetstone or slowly with a grinder. Be sure to keep the chisel wet while sharpening.
- √ Replace the dust covers on the quick disconnects and thread protectors on the cylinder after each use.
- √ Store the Auto-Splitter in its custom-made tool box.

Trouble Shooting Table

Problem:	Possible Causes:	Possible Solutions:
Cylinder does not hold pressure	<ol style="list-style-type: none"> 1. Cylinder seal leaking 2. Leaking connection 3. Pump malfunction 	<ol style="list-style-type: none"> 1. Change cylinder 2. Tighten connections 3. Change pump
Cylinder does not advance or advances partially	<ol style="list-style-type: none"> 1. Pump release valve open 2. Not enough oil in pump 3. Air in system 4. Couplers not tightened 5. Pump reservoir too small 	<ol style="list-style-type: none"> 1. Close valve 2. Add oil 3. Bleed air 4. Fully tighten couplers 5. Change pump (use one with a larger reservoir)
Cylinder advances slowly	<ol style="list-style-type: none"> 1. Leaking connection 2. Restricted hydraulic hose or fitting 3. Loose coupler 4. Pump flow rate too slow 	<ol style="list-style-type: none"> 1. Tighten connections 2. Change hoses or fittings 3. Tighten couplers 4. Change pump (use one with a faster flow rate)

Trouble Shooting Table (Continued)

Problem:	Possible Causes:	Possible Solutions:
Cylinder does not retract, retracts slowly or retracts partially	<ol style="list-style-type: none"> 1. Pump release valve closed 2. Coupler not fully closed 3. Blocked hydraulic hose 4. Damage retraction spring in cylinder (AS100-AS314 only) 5. Pump reservoir overfilled 	<ol style="list-style-type: none"> 1. Open valve 2. Close coupler 3. Replace hoses 4. Replace spring 5. Remove excess oil
Chisel does not penetrate nut	<ol style="list-style-type: none"> 1. Inadequate pump pressure 2. Using incorrect spacer 3. Chisel edge dull 4. Housing not fully threaded 	<ol style="list-style-type: none"> 1. Increase to 10,000 psi 2. Change spacers 3. Sharpen or replace chisel 4. Thread housing all the way
Chisel cuts through nut and damages the stud	<ol style="list-style-type: none"> 1. Using incorrect spacer 2. Housing threaded more than necessary 	<ol style="list-style-type: none"> 1. Check spacer size, change spacer 2. Back housing off a half turn at a time

Table 7

Common Questions

How many cuts will the chisel make?

Answer: Over 100 cuts have been achieved with proper maintenance and operation. It is recommended to have two chisels on every job to be used alternately without letting any one chisel get too dull.

Can I sharpen the chisel?

Answer: Yes, but ensure the chisel stays cool while sharpening. Refer to the Maintenance Section for further instructions.

Must I always have 10,000 psi capability?

Answer: Yes, regardless of the nut splitter model or the nut size.

How do I know what size power unit to use?

Answer: All nut splitter models require 10,000 psi. Please refer to the Power Requirements Section on page 3 for pump specifications.

My nut splitter is not cutting. Why?

Answer: Make sure you have 10,000 psi; check couplers for tight connections; refer to the trouble shooting guide.

How can I be sure not to cause sparks?

Answer: Use steam or spray water on cutting chisel during use.

The chisel seems slow. How do I increase the speed?

Answer: Change to a different pump unit with a faster flow rate.

Auto-Splitter® Models

Choose the right Auto-Splitter® for your needs.
Auto-Splitter® Dimensions See figure 12

Model #	Stud Diameter	Nut A/F	A	B	C	D	E	F	Weight
AS100	5/16"-5/8" 8-16 mm	1/2"-1" 13-24 mm	11/16" 17.5 mm	8" 203 mm	30°	1/4" 6 mm	1-1/16" 27 mm	2-3/4" 70 mm	7 lbs. 3.2 kg
AS105AH	7/16"-7/8" 11-22 mm	5/8"-1-7/16" 16-36 mm	1-1/8" 28.6 mm	11" 279.4 mm	60°	1/2" 12.7 mm	1-1/2" 38.1 mm	4" 101.6 mm	20 lbs. 9 kg
AS200AH	7/8"-1-1/4" 22-32 mm	1-7/16"-2" 36-51 mm	1-1/4" 31.7 mm	11-3/4" 298.4 mm	45°	1/2" 12.7 mm	2-1/8" 54 mm	4" 101.6 mm	21 lbs. 9.5 kg
AS204AH	1-1/4"-1-1/2" 32-38 mm	1-13/16"-2-3/8" " " 46-60 mm	1-5/8" 41.3 mm	16" 406.4 mm	30°	9/16" 14.3 mm	2-1/2" 63.5 mm	6" 152.4 mm	61 lbs. 27.7 kg
AS210AH	1-3/8"-1-3/4" 35-45 mm	2-1/4"-2-3/4" 57-70 mm	1-7/8" 47.6 mm	16" 406.4 mm	30°	3/4" 19 mm	2-7/8" 73 mm	6" 152.4 mm	62 lbs. 28.2 kg
AS308AH	1-3/4"-2-1/4" 45-57 mm	2-3/4"-3-1/2" 70-89 mm	2-1/4" 57.1 mm	17-3/4" 450.8 mm	30°	3/4" 19 mm	3-7/8" 98.4 mm	7-1/4" 184.2 mm	95 lbs. 43.2 kg
AS314AH	2"-2-1/2" 50-64 mm	3-1/8"-3-7/8" 79-98 mm	2-1/2" 63.5 mm	18" 457.2 mm	30°	7/8" 22.2 mm	4-1/4" 108 mm	7-1/4" 184.2 mm	100 lbs. 45.4 kg

Table 8

Auto-Splitter® Anglehead

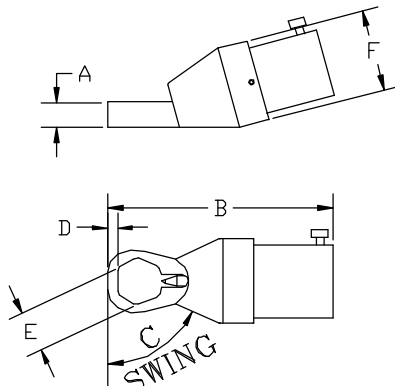


Figure 12

Limited Warranty

FASTORQ Bolting Systems, Inc. warrants its products against defects in workmanship and materials for 180 days from date of delivery to customer. Warranty does not cover ordinary wear and tear, abuse, misuse, overloading, or altered products.

Auto-Splitter® Serial Number: _____



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