



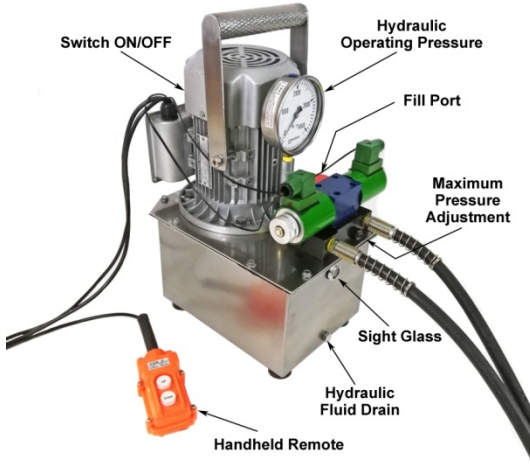
Hydraulic Iron Fist

Scientific 710, LLC

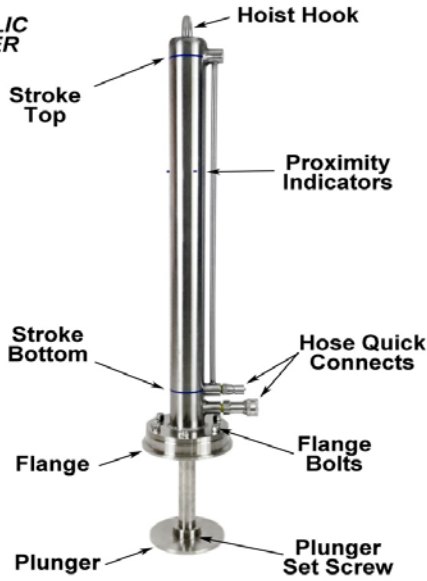
Contents

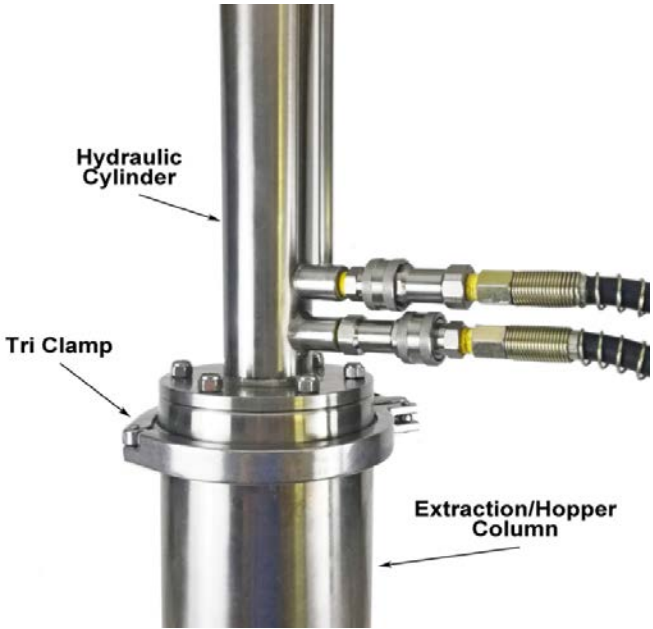
Product Features	5
Parts	6
Setup	6
Loading.....	7
Maximum Force	9
Unloading.....	10
Maintenance.....	11
Specifications	12
About Us	13

HYDRAULIC POWER UNIT



HYDRAULIC CYLINDER





HORIZONTAL STAND



VERTICAL STAND



Product Features

- Effortlessly pack columns with 20-100% more material (depending on column size), increasing yields and reducing overall solvent consumption.
- Evenly distributes packing pressure promoting uniform solvent distribution, reducing solvent channeling.
- Effortlessly unpack columns in seconds.
- Unloaded material remains compacted minimizing biomass waste volume.
- Latent solvent stays trapped in material when unloading, reducing fire danger.
- Encases column when in use reducing airborne particles in accordance with occupational safety and health standards.
- Removes wax, lipids, oils, etc. from column walls with each use.
- Double acting cylinder extends and retracts using handheld remote for easy operation.
- Can be used in any orientation.
- Easily adaptable to different column sizes with additional plunger and flange set (sold separately).
- USP grade NSF 3H, H1 registered and complies with FDA CFR 172.878 3H hydraulic fluid.
- Food grade stainless steel construction, user manual, 1 year parts and labor warranty, Made in the USA.

Parts

- *Hydraulic Cylinder*
- *Hydraulic Power Unit*
- *ON/OFF Switch*
- *Fill Port*
- *Handheld Remote*
- *Sight Glass*
- *Proximity Indicators*
- *Plunger*
- *Flange*
- *Maximum Pressure Adjustment*
- *Food Grade Hydraulic Fluid*
- *Funnel*
- *Quick Connectors*
- *Terpklene*

Setup

1. Remove all items from their packaging.
2. The *Hydraulic Cylinder* comes pre-filled with hydraulic fluid; however, the *Hydraulic Power Unit* does not. You will need to fill the reservoir with approximately 1.9 gallons of FMO-46 Food Grade Hydraulic Fluid. Unscrew the orange breather cap from the *Fill Port*. Fill the *Hydraulic Power Unit* to the sight glass with fluid. Replace the breather cap.
3. Connect the *Hydraulic Power Unit's* hoses to the *Hydraulic Cylinder* using the *Quick Connectors*.
4. Connect the *Hydraulic Power Unit* to a reliable 110V power source capable of providing at least 12 amps.

Loading

1. See the Maximum Force Chart (page 9) to determine the maximum *Hydraulic Operating Pressure*. The maximum *Hydraulic Operating Pressure* is dependent on the *Tri Clamp* pressure rating which is dependent on its diameter and design and should not be exceeded or clamp breakage may occur.
2. If you purchased our *Vertical Stand*, connect the *Extraction Column* to the *Vertical Stand* using a *Tri Clamp*. If your *Extraction Column* is mounted to a rack, you can add an end cap to the base of the *Extraction Column* before loading if needed. If ceiling height is an issue an end cap can also be used to load *Extraction Columns* horizontally using the *Horizontal Stand*.
3. Fill the *Extraction Column* with material / biomass.
4. Attach the *Hydraulic Cylinder* to the *Extraction Column* using a *Tri Clamp*.
5. Turn the *Hydraulic Power Unit* to the ON position.

6. Using the *Hand Held Remote*, press the “Down” button to compress the material the desired amount being cautious not to exceed the force the tri clamps used can withstand. The blue *Proximity Indicators* show the *Plunger’s* position in the *Extraction Column* and the *Hydraulic Operating Pressure* indicates the force applied to the material in the *Extraction Column*. Release the button on the *Handheld Remote* when the desired amount of force has been applied. You can adjust the *Maximum Pressure Adjustment* to change the preset maximum supply pressure if needed. It is preset at 3,000 psi which is more than ample for most applications. If more force is needed please consult with Scientific 710 first.
 7. Press the “Up” button on the *handheld remote* to retract the *Hydraulic Cylinder*. Remove the *hydraulic cylinder* from the *Extraction Column*.
 8. Repeat steps 3-7 until the desired amount of material is loaded into the *Extraction Column*.
- *Extraction Column/s* can be loaded in one step by attaching an additional *Hopper Column* between the *Hydraulic Cylinder* and the *Extraction Column*. Fill the columns then compress the material from the *Hopper Column* into the *Extraction Column*.

Maximum Force

Gauge Pressure (psi) X 3.14 = Force Applied (Lbs)

Maximum Force Chart													
		Clamp Diameter and Design											
		3"		4"		6"		8"		10"		12"	
		Hinged Clamp	Bolted Clamp	Hinged Clamp	Bolted Clamp	Hinged Clamp	Bolted Clamp	Hinged Clamp	Bolted Clamp	Hinged Clamp	Bolted Clamp	Hinged Clamp	Bolted Clamp
Clamp Pressure Rating (psi)		350	1,000	200	800	150	300	100	250	40	200	30	150
2" Bore IF	Maximum Allowable Hydraulic Operating Pressure (psi)	788	2,250	800	3,200	1,350	2,700	1,600	4,000	1,000	4,000	1,080	4,000
	Force Applied (Lb)	2,473	7,065	2,512	10,048	4,239	8,478	5,024	12,560	3,140	12,560	3,391	12,560
2.5" Bore IF	Maximum Allowable Hydraulic Operating Pressure (psi)									640	3,200	691	3,456
	Force Applied (Lb)									3,140	15,700	3,391	16,956

Unloading

1. Attach the *Hydraulic Cylinder* to the *Extraction Column* using a *Tri Clamp*.
2. If you purchased our *Horizontal Stand*, place the *Hydraulic Cylinder* and *Extraction Column* onto the stand. Place a suitable container/tote under the open end of the *Extraction Column*. Adjust the height of the *Horizontal Stand* as necessary.
3. Turn the *Hydraulic Power Unit* to the ON position.
4. Using the *Hand Held Remote*, extend the *Hydraulic Cylinder* forcing the material out of the *Extraction Column* and into the container/tote. If the maximum *Hydraulic Operating Pressure* is reached and the material is not being removed then the material has become stuck to the *Extraction Column* interior walls causing resistance beyond what the *Tri Clamp* used is capable of withstanding. If you are using a hinged *Tri Clamp* consider using a bolted *Tri Clamp* which can withstand more force. Alternatively, one can heat the *Extraction Column* exterior walls to reduce the amount of force required to remove the material.
5. Once the material has been removed from the *Extraction Column*, retract the *Hydraulic Cylinder* and remove from the *Extraction Column*.

Maintenance

Hydraulic Power Unit – It's recommended to replace the *Food Grade Hydraulic Fluid* approximately once a year if used on a daily basis.

Hydraulic Cylinder – It may be necessary to occasionally remove plant resin build up from the *Plunger* and clean. **Terplene** can be applied to quickly dissolve plant resins. **Terplene** is Food Grade and made from terpenes (Limonene and Myrcene) found in all strains of cannabis so residuals will not adulterate the final product.

Specifications

Product Specifications	
Model:	IF-600 (fits 6" tri-clamp columns)
Type:	Hydraulic IRON FIST
Dimensions:	Cylinder: Stroke + 6"
	Hydraulic Power Unit: 9.4" Wide X 15.7" Tall X 11.8" Deep
Weight:	Cylinder: 8 Lbs / foot
	Hydraulic Power Unit: 55 Lbs
Stroke Length:	Any
Cylinder Bore	Any
Construction:	Stainless Steel
Application:	Pack and Unpack Material Columns
Voltage:	110 Volts / 60 Hz
Watts:	900 Watts Max
Amperage:	11.5 Amps Max
Motor:	Sparkless Inductive
Hydraulic Pump:	Dual Stage
Hydraulic Flow	1.3 GPM
Tank Capacity:	1.9 Gallons
Pressure:	3,000 psi
Working Fluid:	Direct Food Contact White Oil, ISO 22
Fluid Type:	USP Grade NSF 3H, H1 Registered Oil. Complies with FDA CFR 172.878 3H
Installation:	Freestanding
Valving	Double Acting Solenoid with Handheld Remote
Display Type:	Analog Pressure Gauge
Warranty:	1 Year Parts and Labor

About Us

Scientific 710 designs, tests, and manufactures innovative solutions for the cannabis industry specializing in essential oil extraction technology and equipment.

Scientific 710 manufacture's its products in Hillsboro, Oregon.

Please email any questions you may have to:

info@scientific710.com

or use our '[Contact Us](#)' page online at :

www.scientific710.com

Thank you,

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