

Hydraulic Presses and Accessories for Infra Red; XRF and General Applications

Keywords:- Atlas™, Presses, Dies, Heated Platens, Film Makers

The Atlas™ Range Of Manual, Power and Automatic Hydraulic Presses



Atlas™ Manual 15T/25T



Atlas™ Power/Auto 8T/15T/25T



Atlas™ Auto 40T

There is also a range of accessories that can be used within the presses themselves, for the formation and preparation of particular sample types prior to analysis by techniques such as Infrared or X-Ray spectroscopy. The Specac accessories that can be used within the presses are evacuable pellet dies, heated platens and film maker systems.

The Specac Atlas™ presses themselves can be categorised as manual or automatic operated press systems. For manual operation this involves building up the pressure on the system and hence the load that can be applied by hand pumping the press, whereas an automatic press is the build up of pressure on the system and application of a load via pushing of a button. There are different versions of automatic presses and they can be further categorised as to their mode of operation and functionality.

The following table helps to categorise the press offerings.

Press Name	Part Number	Type	Pressure System (Fluid)	Operation To Apply Load	Functionality To Apply Load	Load Range In Tons
Atlas™ Manual 15T	GS15011	Manual	Oil (CL 37)	Hand Pump	Manual	1 to 15
Atlas™ Manual 25T	GS25011	Manual	Oil (CL 37)	Hand Pump	Manual	1 to 25
Atlas™ Power 8T	GS25400	Automatic	Oil (CL 37)	Button Press	Power Assisted	1 to 8
Atlas™ Power 15T	GS25430	Automatic	Oil (CL 37)	Button Press	Power Assisted	2 to 15
Atlas™ Power 25T	GS25420	Automatic	Oil (CL 37)	Button Press	Power Assisted	3 to 25
Atlas™ Auto 8T	GS25440	Automatic	Oil (CL 37)	Button Press	Programmable Automatic	1 to 8
Atlas™ Auto 15T	GS25450	Automatic	Oil (CL 37)	Button Press	Programmable Automatic	2 to 15
Atlas™ Auto 25T	GS25460	Automatic	Oil (CL 37)	Button Press	Programmable Automatic	3 to 25
Atlas™ Auto 40T	GS25470	Automatic	Oil (CL 37)	Button Press	Programmable Automatic	4 to 40

Each press can be specifically chosen to fulfil a particular application dependent principally on the load range that can be applied. The load is **applied** according to the operation and **the way** that the load is applied is due to the functionality of the press.

Further to the functionality in respect of the Atlas™ Power 8T/15T/25T presses and Atlas™ Auto 8T/15T/25T/40T presses, incorporated into the pressing mechanism are compression disc springs that allow for a slow release of any load to the sample pressing procedure. In the compression process the disc springs will be initially compressed before full resistance is met to stop the travel of the piston. When any stored load is released the disc springs will relax to their non-compressed state and hence provide for a slow release of a full load. For some samples, a slow load release helps to keep the sample in a compacted state and to minimise risk of fracture.

Accessories To Be Used In The Atlas™ Hydraulic Presses

The Specac Atlas™ hydraulic presses are designed to apply a specific **load** to a sample, but it is actually the accessory itself within the press that determines the specific **pressure** applied to the sample.

To give an example, if a 13mm Atlas™ Evacuatable Pellet Die P/N GS03000 filled with a powder sample is placed within an Atlas™ Manual 15T press P/N GS15011, an applied load of 10 tons (i.e. 22400 lbs) is being spread over an area of 132.73 mm² (or 0.205 in²). This equates to a pressure of 109,268 lbs per square inch or 48.78 tons per square inch.

Similarly, when an Atlas™ Film Maker accessory (P/N's GS15640 or GS15800) is placed in a press, the load is being spread over an area of film of 660.51 mm², the films being produced having a 29mm diameter. During this method of film preparation from a melted sample, a load of 1 to 2 tons is usually sufficient to apply an appropriate pressure to the sample.

Atlas™ Evacuatable Pellet Dies

Atlas™ Evacuatable Pellet Dies will fit into any of the Atlas™ range of Specac hydraulic presses. However, it is usual that a larger diameter size of evacuatable pellet die requires a higher load to be applied by a press for compaction of the sample. The dies themselves are rated to a particular tonnage load maximum and so when certain combinations of a die size are used in a particular press, care must be observed that the maximum tonnage load for the die is not exceeded.

The range of Atlas™ Evacuatable Pellet Dies supplied as standard are:-

P/N GS03060	Atlas™ 5mm evacuatable pellet die	(Max load 2.0 Tons)
P/N GS03100	Atlas™ 10mm evacuatable pellet die	(Max load 5.0 Tons)
P/N GS03000	Atlas™ 13mm evacuatable pellet die	(Max load 10.0 Tons)
P/N GS03165	Atlas™ 20mm evacuatable pellet die	(Max load 25.0 Tons)
P/N GS03300	Atlas™ 32mm evacuatable pellet die	(Max load 50.0 Tons)
P/N GS03290	Atlas™ 40mm evacuatable pellet die	(Max load 85.0 Tons)



Atlas™ Lightweight Dies

Two sizes of Atlas™ lightweight evacuatable pellet dies are available for use in all of the Atlas™ range of hydraulic presses, but most specifically in combination with the Atlas™ Power and Auto presses. These dies lighter body weight, due to their smaller physical size, makes them easier to handle when carrying out repetitive pressing applications such as pellet preparation for XRF spectroscopy. These dies do not have any internal pressing pellets. A sample powder is compressed between the plunger and base.

P/N GS25410	32mm Atlas™ Lightweight evacuatable pellet die	(Max load 25.0 Tons)
P/N GS25411	40mm Atlas™ Lightweight evacuatable pellet die	(Max load 25.0 Tons)

Atlas™ Heated Platens P/N GS15515



The Atlas™ Heated Platens P/N GS15515 fit into all of the Specac Atlas™ hydraulic presses as standard. This accessory converts a press to offer a heated surface of 100mm diameter for pressing at temperatures up to 300°C and a maximum load of 15 tons.

Film Maker Accessories P/N's GS15640 and GS15800



Atlas™ Constant Thickness
Film Maker GS15640



Atlas™ High Temperature
Film Maker GS15800

The Atlas™ Film Maker accessories from Specac are supplied in two versions. The Atlas™ Constant Thickness Film Maker Accessory P/N GS15640 **must** be used in conjunction with the Atlas™ Heated Platens P/N GS15515 and can be operated up to 300°C temperatures and at loads up to 4 tons maximum.

The Atlas™ High Temperature Film Maker Accessory P/N GS15800 has its own form of heated platens built into the accessory and so does not require use of the Atlas™ Heated Platens P/N GS15515. This Film Maker accessory has a maximum operating temperature of 400°C and an operating load of 2 tons.

Both Atlas™ Film Maker Accessories can be used in the Atlas™ Manual 15T and 25T hydraulic presses P/N's GS15011 and GS25011 and the 8T versions of Atlas™ Power (P/N GS25400) and Auto (P/N GS25440) Presses.

Both Atlas™ Film Maker accessories produce 29mm diameter films with thicknesses at 0.015, 0.025, 0.05, 0.1, 0.2 and 0.5mms, depending on the choice of spacing ring being used. In operation, users must be careful not to exceed the specified maximum loads in order to prevent damage to the accessory and heated platens.



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