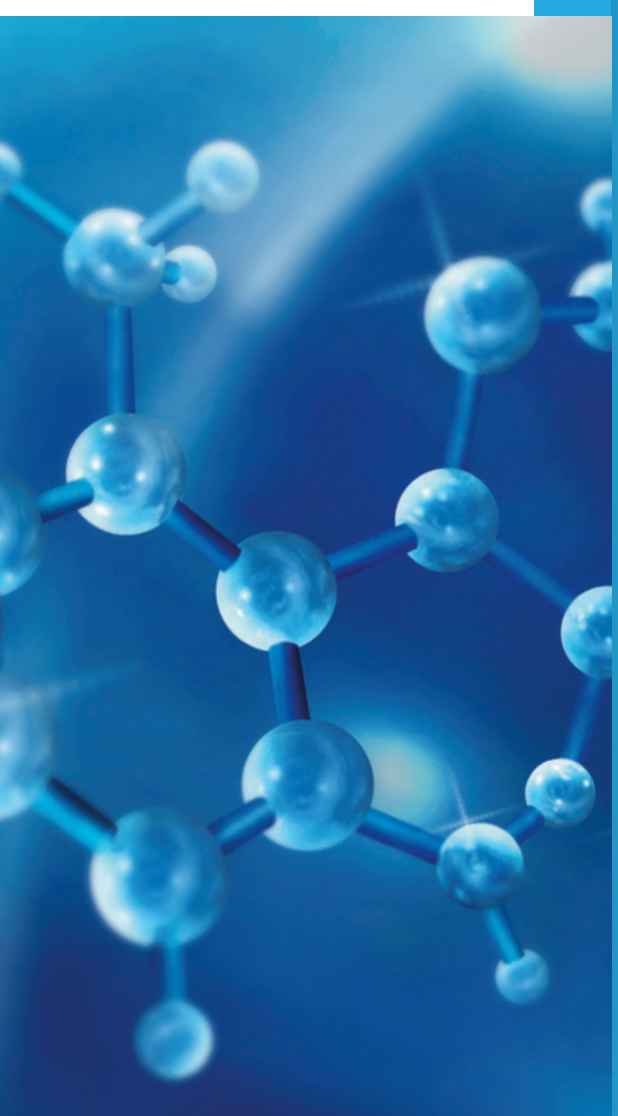
Accessories for Sample Preparation



Accessories for Sample Preparation - Introduction

Specac manufactures a comprehensive range of accessories for sample preparation

Accessories for Sample Preparation

This section of the catalogue is concerned with accessories that are used for the preparation of samples prior to transmission or reflectance spectroscopy measurements.

Classically, hydraulic presses and dies are used to make pellet disks from a pre-ground mixture of KBr and sample. However, the hydraulic presses can be adapted for use in other applications.

For instance, they can be used in conjunction with heated platens and film making systems for the production of a wide range of solid/film type samples.

Specac produces a wide range of sample mounts from simple cards to X-Y stages.

In addition, Specac offers comprehensive sampling kits that combine all the vital parts and accessories you need to analyze virtually any sample by IR Spectroscopy.

Press Choice - Introduction

A concise and easy to understand guide on which Specac Press to choose

Specac makes a variety of hydraulic presses for a wide range of pressing applications. 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 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.

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™ Auto or Power 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.

The following table categorizes our press range

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 (Tellus 37)	Hand Pump	Manual	1 to 15
Atlas™ Manual 25T	GS25011	Manual	Oil (Tellus 37)	Hand Pump	Manual	1 to 25
Atlas™ Power 8T	GS25400	Automatic	Oil (Tellus 37)	Button Press	Power Assisted	1 to 8
Atlas™ Power 15T	GS25430	Automatic	Oil (Tellus 37)	Button Press	Power Assisted	2 to 15
Atlas™ Power 25T	GS25420	Automatic	Oil (Tellus 37)	Button Press	Power Assisted	3 to 25
Atlas™ Auto 8T	GS25440	Automatic	Oil (Tellus 37)	Button Press	Programmable Automatic	1 to 8
Atlas™ Auto 15T	GS25450	Automatic	Oil (Tellus 37)	Button Press	Programmable Automatic	2 to 15
Atlas™ Auto 25T	GS25460	Automatic	Oil (Tellus 37)	Button Press	Programmable Automatic	3 to 25
Atlas™ Auto 40T	GS25470	Automatic	Oil (Tellus 37)	Button Press	Programmable Automatic	4 to 40

Press Accessories

Specac 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 evacuable pellet die P/N **GS03000** filled with a powder sample is placed within a 15 ton manual hydraulic 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 a 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™ Manual Hydraulic Press - 15T & 25T

Easy to use, rugged and durable Hydraulic Presses suitable for a wide range of applications

Key Features

- Polycarbonate safety guards
- Adjustable upper bolster
- Adjustable pressure control valve
- Vacuum Ports
- Pressure release valve
- Gauges for low pressure applications (0-1, 0-2, 0-5 Tons optional)

Atlas™ Manual Hydraulic Press 15T & 25T

The Atlas™ 15T and 25 T Manual Hydraulic Presses have been designed to handle a wide variety of pressing applications. They are specifically suited to the preparation of KBr discs using the Specac Evacuable Pellet Die assembly.

The Atlas™ Presses can also be used with Specac Heated Platens for applications such as the preparation of thin polymer films.

Ordering Information

GS15011	Atlas™ 15T Manual Hydraulic Press
GS25011	Atlas™ 25T Manual Hydraulic Press

Spares and Consumables

GS15100	Seals and Gaskets Kit for 15 and 25 Ton Presses
GS15101	Hydraulic Oil for 15 and 25 Ton Presses (1 litre)

Options / Associated products

GS15051	Gauge Conversion Kit 0-1 Ton
GS15052	Gauge Conversion Kit 0-2 Ton
GS15055	Gauge Conversion Kit 0-5 Ton

Specifications

Max height (at handle) 610mm
Max width 310mm
Max depth 190mm
Weight 50kg
Lower piston stroke 25.4mm
Upper bolster screw travel 89mm
Minimum distance between pressing faces 38mm
Maximum distance between pressing faces 152mm
Lower pressing face diameter 86mm
Upper pressing face diameter 32mm
Max width of sampling
Area (side-to-side) 134mm
Max Depth of Sampling
Area (back-to-front) 141mm

Low Tonnage Conversion Kit for Atlas™ 15T Manual Hydraulic Press

The standard 0 to 15 ton manual hydraulic press P/N GS15011 can be operated to apply up to a 15 ton maximum load. On the press itself there is a pressure relief valve (located under the load gauge) which can be set to "vent off" any excess pressure in the pumping system such that a maximum load setting can be selected on the press. This maximum load is indicated on the standard 0 to 15 ton load gauge. Hence, if this pressure relief valve is adjusted accordingly, then it is possible to build up a pressure that corresponds to e.g. a maximum of 5 tons load as indicated at the 15 ton load gauge.

Any further pulls on the pump handle of the press results in this excess pressure being vented off at the pressure release valve. In this way it acts as a safety device to prevent overloading to a sample (or die assembly) in the pressing area.

The low tonnage gauge conversion kits, 0 to 1 tons (P/N **GS15051**), 0 to 2 tons (P/N **GS15052**) and 0 to 5 tons (P/N **GS15055**) provide an additional load gauge to be used along with the standard 15 ton load gauge on the press.

The appropriate gauge kit is fitted by the customer to allow both gauges to be connected to the press. The lower tonnage gauge can be isolated from the system but any pressure of oil in the system will always be registered at the 15 ton gauge. The lower tonnage load gauge has finer divisions for reading of an applied load so if it is important to know that you are applying say 4.1 tons as opposed to say possibly 4.5 tons, then the 0 to 5 ton load gauge reading may be required. But, the press itself could only be operated up to a maximum load allowable with the low tonnage gauge switched on line for reading. As a precaution it is recommended to have the pressure release valve set at the low tonnage gauge load maximum to prevent possible damage to the lower tonnage gauge should it accidentally not be isolated from its own valve tap.

Therefore, in essence the 15 ton press will allow you to apply any load up to 15 tons to a sample or an evacuable pellet die in the pressing area. However, if a finer reading of the load applied up to a maximum of 5 tons is required, then the additional gauge kit P/N **GS15055** can be fitted to the press.

The low ton gauges available for the 15 ton manual hydraulic press and their divisions are:-

0 to 1 ton gauge - gauge divisions every 0.05 tons load.

0 to 2 ton gauge - gauge divisions every 0.10 tons load.

0 to 5 ton gauge - gauge divisions every 0.20 tons load.

As the gauges are analogue (needle pointers) it should be possible to read a value between these divisions, hence for a 0 to 1 ton gauge every 0.025 tons and so on.

Ordering Information

GS15051	Gauge Conversion Kit 0-1 Ton
GS15052	Gauge Conversion Kit 0-2 Ton
GS15055	Gauge Conversion Kit 0-5 Ton

Atlas™ Power Press - 8T, 15T & 25T

Key Features

- Microprocessor controlled pressure application and release
- Large working distance between pressing surfaces
- Fully CE Marked
- Low noise operation
- Liquid crystal digital display
- Multi-lingual display option
- Integral high clarity PETG safety Guards
- Fully compatible with Specac sample preparation accessories

Atlas™ Power Press 8T, 15T & 25T

The Atlas™ Series Power Presses 8T, 15T & 25T, are power assisted hydraulic presses operating to 8 Tons, 15 Tons & 25 Tons respectively. They have been designed to handle a wide variety of pressing applications, including XRF and IR sample preparation. All Presses are fully compatible with Specac dies and other sample preparation accessories.

The presses enable the controlled application and release of applied load and can accommodate large samples up to 200mm in diameter. The LCD display shows press status and load conditions giving a digital display of load applied.

The power unit is extremely quiet and operates below 62dB(A). Fitted with PETG safety guards as standard, the Atlas™ Series Power Presses are fully CE marked to comply with strict European regulations.

The Atlas™ Series Power Presses have a generous working distance of up to 155mm between the pressing faces and are suitable for the preparation of KBr discs for infrared analysis using Specac evacuable pellet dies. They can also be used with heated platens for applications including the preparation of thin polymer film substrates.

The Atlas™ Series Power Presses are durable, easy to use and ideal for repetitive pressing operations at higher loads when used in conjunction with Atlas™ Series Lightweight Dies for x-ray fluorescence sample preparation.

Specifications	8T	15T	25T
Max. Piston Load	8 Tons	15 Tons	25 Tons
Digital Display (.5 Ton steps)	1-8 Tons		
Digital Display (.5 Ton steps)		2-15 Tons	
Digital Display (1 Ton steps)			3-25 Tons

Specifications 8T, 15T & 25T	
Top Bolster Diameter	32mm
Top Lead Screw Vertical travel	90mm
Ram (Piston) Bolster Diameter	83mm
Ram (Piston) Stroke	24mm
Max/Min Pressing Faces Dist.	155mm - 40mm
Sample Area (Dia x Ht)	220mm Dia x 155mm
Base Footprint (W x D)	425mm x 405mm
Height (without lead screw)	500mm
Height	545mm - 640mm
Oil Type	Tellus 37
Oil Reservoir Capacity	0.6 litres
Weight	95Kg

Ordering Information

8T	15T	25T	
GS25400	**GS25430**	**GS25420**	UK/Europe (230v, 50Hz)
GS25401	**GS25431**	**GS25421**	USA (110v, 60Hz)
GS25402	**GS25432**	**GS25422**	Japan (100v, 50/60Hz)
GS25403	**GS25433**	**GS25423**	China (230v, 50Hz)
GS25404	**GS25434**	**GS25424**	Korea (230v, 60Hz)

Atlas™ Series Dies		Max. Load
GS25410	Lightweight 32mm Die	25 Tons
GS25411	Lightweight 40mm Die	25 Tons

ELECTRIC

Atlas™ Auto Press - 8T, 15T, 25T & 40T

Key Features

- Programmable microprocessor controlled pressure application and release
- Simple user operation procedures via symbols and prompts
- Maintain load applied from automatic "top up"
- Graphics display with LED backlight control
- End of cycle alarm or indication
- Integral high clarity PETG safety guards
- Fully CE marked
- Fully compatible with Specac sample preparation accessories

Atlas™ Auto Press - 8T, 15T, 25T & 40T

The Atlas™ Auto Presses 8T, 15T, 25T & 40T are programmable, microprocessor controlled, power assisted hydraulic presses, operating to 8 Tons, 15 Tons, 25 Tons and 40 Tons respectively. They have been designed for a wide variety of pressing applications including XRF and IR sample preparation. All presses are fully compatible with Specac dies and other sample preparation accessories.

The Presses enable the controlled application and release of an applied load, accommodating samples up to 200mm in diameter. The applied load can be maintained indefinitely, or to a specific time via user programmable functionality.

The graphic display shows the press program status and load conditions providing a digital display of load applied, together with an end of cycle alarm/indicator.

The power unit is extremely quiet and operates below 62dB.

Fitted with PETG safety guards as standard the Atlas™ Auto Presses are fully CE marked to comply with strict European regulations.

The Atlas™ Auto Presses have a generous working distance of up to 155mm between the pressing faces and are suitable for the preparation of KBr discs for infrared analysis using Specac evacuable pellet dies. They can also be used with the Atlas™ Heated Platens for applications including the preparation of the polymer film substrates.

The Atlas™ Auto Presses are simple to use and program via the use of screen symbols and prompts. Options include user selectable languages and load units. The Presses durability are ideal for applications such as X-ray fluorescence sample preparation using Atlas™ Series Lightweight Dies.

Atlas™ Auto Press - 8T, 15T, 25T & 40T

Ordering Information

8T

GS25440	UK/Europe (230v, 50Hz)
GS25441	USA (110v, 60Hz)
GS25442	Japan (100v, 50/60Hz)
GS25443	China (230v, 50Hz)
GS25444	Korea (230v, 60Hz)

15T

GS25450	UK/Europe (230v, 50Hz)
GS25451	USA (110v, 60Hz)
GS25452	Japan (100v, 50/60Hz)
GS25453	China (230v, 50Hz)
GS25454	Korea (230v, 60Hz)

25T

GS25460	UK/Europe (230v, 50Hz)
GS25461	USA (110v, 60Hz)
GS25462	Japan (100v, 50/60Hz)
GS25463	China (230v, 50Hz)
GS25464	Korea (230v, 60Hz)

40T

GS25470	UK/Europe (230v, 50Hz)
GS25471	USA (110v, 60Hz)
GS25472	Japan (100v, 50/60Hz)
GS25473	China (230v, 50Hz)
GS25474	Korea (230v, 60Hz)

ELECTRIC

Atlas™ Series Dies		Max. Load
GS25410	Lightweight 32mm Die	25 Tons
GS25411	Lightweight 40mm Die	25 Tons

Specifications

Max. Piston Load

8T	15T	25T	40T
8 Tons	15 Tons	25 Tons	40 Tons

8T	Digital Display (.2 Ton Steps)	1-8 Tons
15T	Digital Display (.2 Ton Steps)	2-15 Tons
25T	Digital Display (.5 Ton Steps)	3-25 Tons
40T	Digital Display (.5 Ton Steps)	4-40 Tons

Specifications 8T, 15T, 25T & 40T

Top Bolster Diameter	32mm
Top Lead Screw Vertical travel	90mm
Top Lead Screw Vertical travel	80mm (40T)
Ram (Piston) Bolster Diameter	82mm
Ram (Piston) Stroke	24mm
Ram (Piston) Stroke	38mm (40T)
Max/Min Pressing Faces Dist.	155mm - 40mm
Max/Min Pressing Faces Dist.	140mm - 60mm (40T)
Sample Area (Dia. x Hgt)	220mm x 155mm
Sample Area (Dia. x Hgt)	240mm x 220mm (40T)
Base Footprint (W x D)	425mm x 405mm
Base Footprint (W x D)	430mm x 405mm (40T)
Height (without lead screw)	500mm
Height (without lead screw)	550mm (40T)
Height (Lead Screw At Min. & Max. Distances Between Pressing Faces)	545mm - 640mm
Height (Lead Screw At Min. & Max. Distances Between Pressing Faces)	580mm - 660mm (40T)
Oil Type	Tellus 37
Oil Reservoir Capacity	0.6 litres & 1litre (40T)
Weight	95Kg & 130Kg (40T)
Communication Type	USB
Display Units	Tons, Tonnes, US Tons
Hold Times	0.1 to 99 minutes and infinity
Optimised Release Rates	Fast, Medium, Slow
Stored Programs	6
Maximum Program Segments	10

Thank you for reading this data sheet.

For pricing or for further information, please contact us at our UK Office, using the details below.

UK Office
Keison Products,
P.O. Box 2124, Chelmsford, Essex, CM1 3UP, England.
Tel: +44 (0)330 088 0560
Fax: +44 (0)1245 808399
Email: sales@keison.co.uk