

Pressure Test/Calibration Pumps

Selection Guide

Model	Photo	Type	Range in psi	Range in bar	Media	Adjustment Resolution	Weight	See Page
Additel 901A		Pneumatic	(-6 to 6) psi	(-0.4 to 0.4) bar	Air	0.001 mbar	3.5 lb	P58
Additel 912A		Pneumatic	(-14 to 60) psi	(-0.95 to 4) bar	Air	0.001 mbar	6.2 lb	P59
Additel 914A		Pneumatic	(-14 to 375) psi	(-0.95 to 25) bar	Air	0.1 mbar	3.3 lb	P60
Additel 916		Pneumatic	(-14 to 600) psi	(-0.95 to 40) bar	Air	0.1 mbar	5.9 lb	P61
Additel 917		Pneumatic	(-14 to 1,000) psi	(-0.95 to 70) bar	Air	0.1 mbar	5.7 lb	P62
HOT Additel 918		Pneumatic	(-14 to 1,500) psi	(-0.95 to 100) bar	Air	0.1 mbar	5.7 lb	P63
Additel 919A		Pneumatic	(-14 to 2,000) psi	(-0.95 to 140) bar	Air	0.1 mbar	14.3 lb	P64
HOT Additel 920		Pneumatic	(-14 to 3,000) psi	(-0.95 to 200) bar	Air	0.1 mbar	14.3 lb	P66
Additel 925		Hydraulic	(-12.5 to 6,000) psi	(-0.85 to 400) bar	Oil/ Water ^[1]	1 mbar	3.7 lb	P67
Additel 927		Hydraulic	(-12.5 to 10,000) psi	(-0.85 to 700) bar	Oil/ Water ^[1]	1 mbar	7 lb	P69
Additel 928		Hydraulic	(0 to 15,000) psi	(0 to 1,000) bar	Oil/ Water ^[1]	1 mbar	8.6 lb	P70
Additel 936		Hydraulic	(-12.5 to 15,000) psi	(-0.85 to 1,000) bar	Oil	1 mbar	35.2 lb	P71
Additel 937					Oil ^[2]			P72
Additel 938					Water			P73
Additel 946		Hydraulic	(0 to 15,000) psi	(0 to 1,000) bar	Oil	1 mbar	28.7 lb	P74
Additel 949		Hydraulic	(-12.5 to 40,000) psi	(-0.85 to 2,800) bar	Oil	1 mbar	35.2 lb	P75
HOT Additel 959		Hydraulic	(0 to 40,000) psi	(0 to 2,800) bar	Oil	1 mbar	28.7 lb	P76
NEW Additel 960		Hydraulic	(0 to 60,000) psi	(0 to 4,200) bar	Oil	1 mbar	28.7 lb	P77

[1] Oil is default media liquid. Pump with water as media to be ordered optionally (ADT9XXW).

[2] Oil, compatible to phosphoric acid fluid or skydrol oil.

Additel 901A

Low Pressure Test Pump



- Generate 6 psi (0.4 bar) vacuum to 6 psi (0.4 bar) pressure
- Portable, only 3.5 lb
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors

OVERVIEW

The 901A Low Pressure Test Pump is a hand operated pressure pump designed to generate pressures from -6 psi (-0.4 bar) to 6 psi (0.4 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 0.1 Pa (0.001 mbar). The 901A is a very stable low pressure calibrator. It makes use of an isothermal bellows chamber which is designed for reducing the possible effects of environmental temperature change. Most pumps make use of a check valve (non-returning valve) and are not well insulated which will cause large fluctuations in pressure with a change in ambient temperature or when the unit is touched. The 901A does not use a check valve and is remarkably stable. Two hand-tight connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 901A is an ideal comparison test pump for low pressure applications.

FEATURES

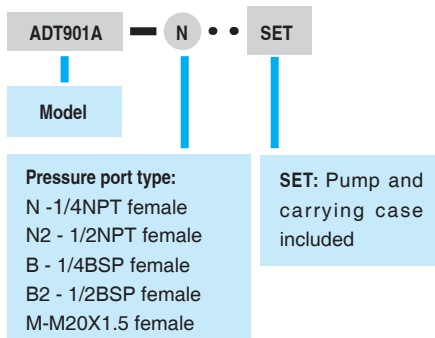
- **Portable:** Only 3.5 lb (1.6 kg)
- **Adjustment Resolution**
0.1Pa (0.001 mbar); Specially designed screw press for fine pressure adjustment.
- **Great Stability**
Isothermal chamber: the pressure chamber is insulated to reduce the influence from environmental temperature changes.
Specially designed bellows minimize leakage to guarantee excellent stability.
- **Durable and Minimal Maintenance**
Without non-returning valve that is usually used on troublesome hand pump.
- **Easy-to-use**
Pressure could be set and adjusted precisely and quickly through a simple turn of the handle.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
6 psi (0.4 bar) vacuum to 6 psi (0.4 bar) positive pressure.
- **Adjustment Resolution:** 0.1 Pa (0.001 mbar).
- **Material:**
Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:** Height: 5.7" (145mm)
Base: 9.65" (245 mm) x 6.50" (165mm)
- **Weight:** 3.5 lb (1.6 kg).
- **Warranty:** 1 year.

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (901A-X-SETmodels only)

Optional Accessories

Model number	Description
ADT901-X-kit	Test kit for ADT901A (barb fitting, connection hoses, and adapters). X=connection type e.g. N-1/4NPTM, N2-1/2NPTM, B-1/4BSPM, B2-1/2BSPM, M-M20X1.5M.
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
9901-901	Carrying Case for one ADT901A pump and two ADT681 gauges or ADT672 calibrators
ADT901A-MK	Maintenance kit for Additel 901A pump
9240	Differential pressure gauge holder

Note: For oil free applications contact Additel.

Additel 912A

Low Pressure Test Pump

- Generate 95% vacuum to 60 psi (4 bar) pressure
- Portable
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors



OVERVIEW

The 912A Pneumatic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 60 psi (4 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 0.1 Pa (0.001 mbar). The 912A is a very stable low pressure calibrator. It makes use of an isothermal bellows chamber which is designed for reducing the possible effects of environmental temperature change. Most pumps make use of a check valve (non-returning valve) and are not well insulated which will cause large fluctuations in pressure with a change in ambient temperature or when the unit is touched. The 912A does not use a check valve and is remarkably stable. Two hand-tight connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 912A is an ideal comparison test pump for low pressure application.

FEATURES

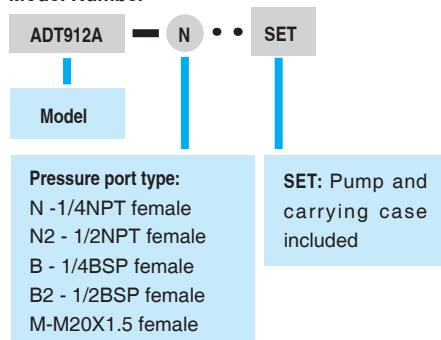
- **Portable:** Only 6.2 lb (2.8 kg)
- **Adjustment Resolution**
0.1 Pa (0.001 mbar)
High-quality screw press for fine pressure adjustment
- **Great Stability**
Isothermal chamber: the pressure chamber is insulated to reduce the influence from environmental temperature changes
Specially designed bellows minimize leakage to guarantee excellent stability
Shut-off valve closes the air in the isothermal chamber during calibration
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt
- **Easy-to-use**
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
95% vacuum to 60 psi (4 bar) positive pressure
- **Adjustment Resolution:** 0.1 Pa (0.001 mbar).
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Piston volume:** 21 ml (1.3 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 5.51" (140 mm)
Base: 10.75" (273 mm) x 10.16" (258 mm)
- **Weight:** 6.2 lb (2.8 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (912A-X-SETmodels only)

Optional Accessories

Model number	Description
ADT912-X-kit	Test kit for ADT912A (barb fitting, connection hoses, and adapters). X=connection type e.g. N-1/4NPTM, N2-1/2NPTM, B-1/4BSPM, B2-1/2BSPM, M-M20X1.5M.
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9904-912	Carrying Case for one 912A pump and two 681 gauges or 672 calibrators.
ADT912A-MK	Maintenance kit for Additel 912A pump
9240	Differential pressure gauge holder

Note: For oil free applications contact Additel.

Look us up on www.additel.com or call today (1)714-998-6899



Additel 914A Handheld Pneumatic Pressure Test Pump

- Generate 95% vacuum to 375 psi (25 bar) pressure
- Portable, only 3.3 lb
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors



OVERVIEW

The 914A Pneumatic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 375 psi (25 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 10 Pa (0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 914A is an ideal comparison test pump for pressure instruments calibration.

FEATURES

- **Portable:**
Only 3.3 lb (1.5 kg)
- **Adjustment Resolution**
10 Pa (0.1 mbar)
High-quality screw press for fine pressure adjustment
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt
- **Easy-to-use**
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range:** 95% vacuum to 375 psi (25 bar) positive pressure
- **Adjustment Resolution:** 10 Pa (0.1 mbar).
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Piston volume:** 21 ml (1.3 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 5.12" (130 mm)
Base: 9.45" (240 mm) x 4.72" (120 mm)
- **Weight:** 3.3 lb (1.5 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Model

Pressure port type:
N - 1/4NPT female
N2 - 1/2NPT female
B - 1/4BSP female
B2 - 1/2BSP female
M-M20X1.5 female

SET: Pump and carrying case included

Accessories included

O-ring: 20 pcs
Manual: 1 pc
Carrying case (914A-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9901-914	Carrying Case for one 914A pump and two 681 gauges or 672 calibrators
ADT914A-MK	Maintenance kit for Additel 914A pump

Note: For oil free applications contact Additel.



Additel 916 Pneumatic Pressure Test Pump

- Generate 95% vacuum to 600 psi (40 bar) pressure
- Portable, only 5.9 lb
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors



OVERVIEW

The 916 Pneumatic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 600 psi (40 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 10 Pa (0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 916 is an ideal comparison test pump for pressure instruments calibration.

FEATURES

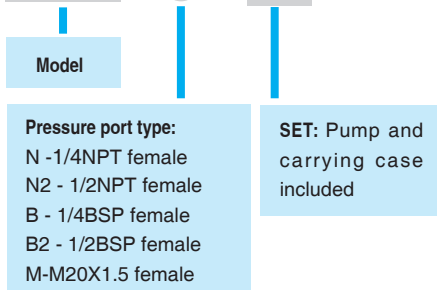
- **Portable**
Only 5.9 lb (2.7 kg)
- **Adjustment Resolution**
10 Pa (0.1 mbar)
High-quality screw press for fine pressure adjustment
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration.
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt.
- **Easy-to-use**
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
95% vacuum to 600 psi (40 bar) positive pressure
- **Pressure Resolution:** 10 Pa (0.1 mbar).
- **Material**
Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Piston volume:** 21 ml (1.3 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 5.5" (140 mm)
Base: 12.4" (315 mm) x 7.8" (198 mm)
- **Weight:** 5.9 lb (2.7 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (916-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9904-916	Carrying Case for one ADT916 pump and two ADT681 gauges or ADT672 calibrators
ADT916-MK	Maintenance kit for Additel 916 pump

Note: For oil free applications contact Additel.



Additel 917 Pneumatic Pressure Test Pump

- Generate 95% vacuum to 1,000 psi (70 bar) pressure
- Portable, only 5.7 lb
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors



OVERVIEW

The 917 Pneumatic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 1,000 psi (70 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 10 Pa (0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. The 917 can be special ordered to comply with oxygen free applications. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 917 is an ideal comparison test pump for pressure instruments calibration.

FEATURES

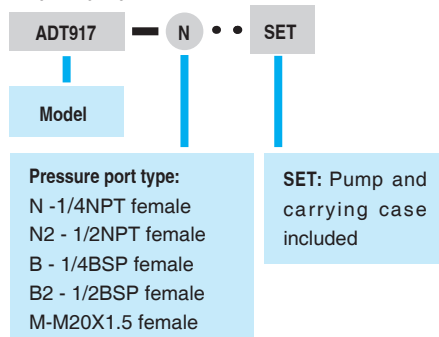
- **Portable**
Only 5.7 lb (2.6 kg)
- **High Resolution**
10 Pa (0.1 mbar)
High-quality screw press for fine pressure adjustment
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration.
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt.
- **Easy-to-use**
Pressurized to desired pressure by the lever directly and make fine adjustment. No high-pressurized valve needed.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
95% vacuum to 1,000 psi (70 bar) positive pressure
- **Adjustment Resolution:** 10 Pa (0.1 mbar).
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Piston volume:** 27 ml (1.6 in³)
- **Connection:**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:**
Height: 5.5" (140 mm)
Base: 12.4" (315 mm) x 7.8" (198 mm)
- **Weight:** 5.7 lb (2.6 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (917-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9904-917	Carrying Case for one 917 pump and two 681 gauges or 672 calibrators
ADT917-MK	Maintenance kit for Additel 917 pump

Note: For oil free applications contact Additel.



Additel 918 Pneumatic Pressure Test Pump

- Generate 95% vacuum to 1,500 psi (100 bar) pressure
- Portable, only 5.7 lb
- Great stability and high resolution
- Minimal maintenance
- Hand-tight quick connectors



OVERVIEW

The 918 Pneumatic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 1,500 psi (100 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 10 Pa (0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. The 918 can be special ordered to comply with oxygen free applications. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 918 is an ideal comparison test pump for pressure instruments calibration.

FEATURES

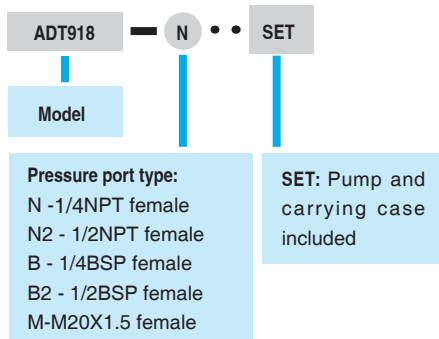
- **Portable**
Only 5.7 lb (2.6 kg)
- **High Resolution**
0.001psi (10 Pa , 0.1 mbar)
High-quality screw press for fine pressure adjustment
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration.
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt.
- **Easy-to-use**
Pressurize to desired pressure by the pump lever directly, and then make fine adjustment. No high-pressure valve needed.
- **Hand-tight Quick Connectors**
Allows easy connection and disconnection to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
95% vacuum to 1,500 psi (100 bar) positive pressure
- **Adjustment Resolution:** 0.001 psi (10 Pa , 0.1 mbar).
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, FTM, PTFE, Copper Alloy
- **Piston volume:** 27 ml (1.6 in³)
- **Connection:** Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:**
Height: 5.5" (140 mm)
Base: 12.4" (315 mm) x 7.8" (198 mm)
- **Weight:** 5.7 lb (2.6 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (918-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9904-918	Carrying Case for one 918 pump and two 681 gauges or 672 calibrators
ADT918-MK	Maintenance kit for Additel 918 pump

Note: For oil free applications contact Additel.



Additel 919A High Pressure Test Pump

- Generate 95% vacuum to 2,000 psi (140 bar) pressure
- Generate 2,000 psi (140 bar) in 30 seconds
- Minimal maintenance
- Hand-tight quick connectors
- First one in the world



OVERVIEW

The 919A High Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 2,000 psi (140 bar). With a long lever, it just takes 30 seconds to reach 2,000 psi (140 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 0.001 psi (10 Pa , 0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. The residual liquid in the pump introduced from the devices under test will be collected and then pushed out during pressure release. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 919A is an ideal comparison test pump for pressure instruments calibration.

FEATURES

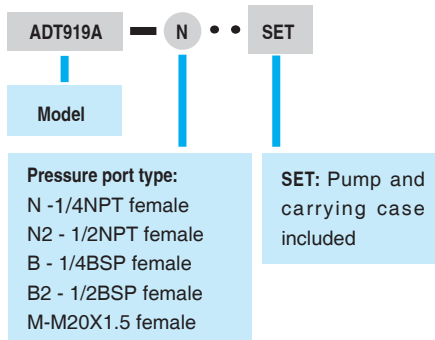
- **High Efficiency**
Generate 2,000 psi (140 bar) in 30 seconds.
- **Adjustment Resolution**
0.001 psi (10 Pa , 0.1 mbar).
High-quality screw press for fine pressure adjustment.
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration.
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt.
The residual liquid in the pump introduced from devices under test will be collected and then pushed out and collected during pressure release.
Anticorrosive and wear resistant material are used to improve the reliability further.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range:** 95% vacuum to 2,000 psi (140 bar) positive pressure
- **Adjustment Resolution:** 10 Pa (0.1 mbar/0.0015 psi)
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Piston volume:** 60 ml (3.7 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:**
Height: 7.00" (178 mm);
Base: 21.26" (540 mm) x 10.63" (270 mm).
- **Weight:** 14.3 lb (6.5 kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Accessories included

- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (919A-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9909-919A	Carrying Case for one 919A pump and two 681 gauges or 672 calibrators
ADT919A-MK	Maintenance kit for Additel 919A pump

Note: For oil free applications contact Additel.

Application Note

Improved Methods for High Pressure Pneumatic Calibrations in the Field

Are you tired of dragging a nitrogen bottle and dead weight tester out to the field to perform pneumatic high pressure calibrations? Does it trouble you to use a hydraulic pump or dead weight tester for your gas gauges every time you have to go above 600 psi? This application note details the limitations to traditional methods and provides a solution to calibration of gas gauges up to 3,000 psi (200 bar) with a field-ready calibration tool.

Limitations with Traditional Methods

Traditional methods for performing high pressure gas gauge calibrations in the field require the use of a controller or comparison systems and a nitrogen bottle. This solution typically provides the performance needed to do the job but adds a considerable inconvenience in having to transport several pieces of heavy equipment to the calibration site. Not to mention the time and effort in setting up the system. Dead weight testers and hydraulic pumps have also been used as a solution. Hydraulic pumps are problematic for this application as the liquid can damage the gas gauge you are attempting to calibrate. It is common that these hydraulic comparison pumps also lack the stability and resolution required to calibrate many gas gauges. Dead weight testers typically have the accuracy required but will require a gas supply for high pressure pneumatic applications. If the dead weight tester uses hydraulic fluid as the medium it will achieve much higher pressures but has similar drawbacks as hydraulic pumps.

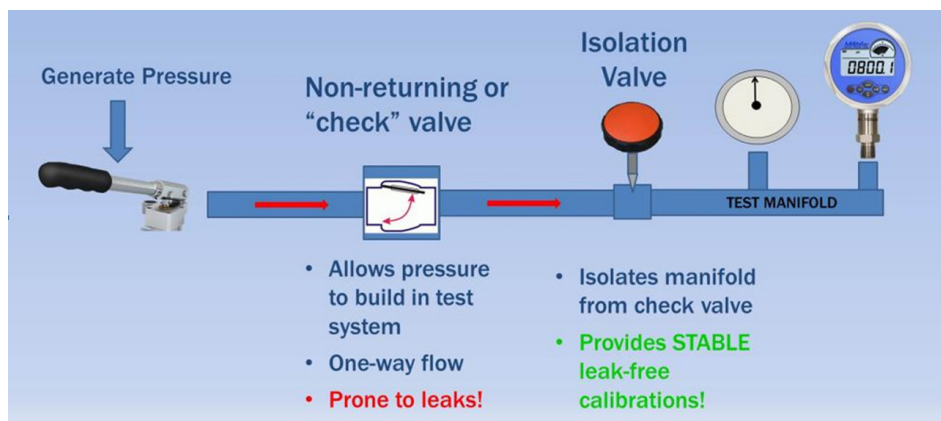
A More Practical Solution

Additel developed their high pressure pneumatic pumps specifically to address high pressure gas calibrations in the field. The Additel 919A goes to 2,000 psi (140 bar) and the 920 goes to 3,000 psi (200 bar) without the use of hydraulic fluids or the need for a gas supply. Each pump can also generate to 95% of vacuum. The ADT920 will generate 3,000 psi (200 bar) in 40 seconds and the pump weighs about 14 lbs (6.5 kg) which makes it easy to take to the field.



The high pressure range, portability, and speed to pressure are not the only things that make this series of pumps unique. The Additel pneumatic pump design allows for high stability and resolution to 0.001 psi (0.1 mbar). Like many pumps on the market, the ADT919A and the ADT920 use a check valve, also referred to as a non-returning valve, to protect the pump from contaminants that could cause damage. However, we've seen with most pumps on the market that the check valve tends to lose its seal over time which causes unstable measurements. The Additel design incorporates a high-quality isolation valve and screw press which allows for you to isolate the calibration volume from the check valve and achieve very stable measurements and resolution to 0.001 psi (0.1 mbar).

The diagram below illustrates the pump construction.



The method of operation is as follows: To generate pressure, use the pump handle on top of the unit. When you've generated 70% - 80% of the desired pressure with the pump handle, then close the isolation valve (this isolates the calibration volume from the pump handle and check valve). Next, use the fine-adjust screw press to generate the remaining pressure. Each pump comes with two hand-tight, quick-connect pressure ports that do not require the use of PTFE tape or wrenches. Combine this pump with any of our digital pressure gauges and you have an accurate, portable and practical field calibration solution for gas calibrations up to 3,000 psi (200 bar).

Conclusion

Traditional solutions for high pressure gas calibrations are not convenient or practical for field applications or they require the use of hydraulic fluids which could damage the sensor being tested. The Additel 919A and 920 pneumatic pressure pumps solve many of the problems that exist with traditional solutions and provide a reliable, field-ready, accurate and affordable solution to meet your needs!



Additel 920 High Pressure Test Pump

- Generate 95% vacuum to 3,000 psi (200 bar) pressure
- Generate 3,000 psi (200 bar) in 40 seconds
- Minimal maintenance
- Hand-tight quick connectors
- First one in the world



OVERVIEW

The 920 High Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 95% vacuum to 3,000 psi (200 bar). With a long lever, it just takes 40 seconds to reach 3,000 psi (200 bar). A high-quality screw press is designed for fine pressure adjustment, with an adjustment resolution up to 10 Pa (0.1 mbar). A specially designed shut-off valve makes the pressure as stable as possible during calibration. A built-in gas-liquid isolator protects the pump from moisture and dirt to reduce the need for maintenance. The residual liquid in the pump introduced from devices under test will be pushed out and collected during pressure release. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 920 is an ideal comparison test pump for pressure instruments calibration.

FEATURES

- **High Efficiency**
Generate 3,000 psi (200 bar) in 40 seconds.
- **Adjustment Resolution**
0.001 psi (10 Pa, 0.1 mbar).
High-quality screw press for fine pressure adjustment.
- **Great Stability**
A specially designed shut-off valve makes the pressure as stable as possible during calibration.
- **Durable and Minimal Maintenance**
Built-in gas-liquid isolator protects the pump from moisture and dirt.
The residual liquid in the pump introduced from devices under test will be collected and then pushed out and collected during pressure release.
Anticorrosive and wear resistant material are used to improve the reliability further.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Air.
- **Generated Pressure Range**
95% vacuum to 3,000 psi (200 bar) positive pressure
- **Adjustment Resolution:** 10 Pa (0.1 mbar/0.0015 psi)
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, F357, PTFE, Copper Alloy
- **Piston volume:** 60 ml (3.7 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:**
Height: 7.00" (178 mm);
Base: 21.26" (540 mm) x 10.63" (270 mm).
- **Weight:** 14.3 lb (6.5kg).
- **Warranty:** 1 year

ORDERING INFORMATION

Model Number



Model

Pressure port type:
N - 1/4NPT female
N2 - 1/2NPT female
B - 1/4BSP female
B2 - 1/2BSP female
M-M20X1.5 female

SET: Pump and carrying case included

Accessories included

O-ring: 20 pcs
Manual: 1 pc
Carrying case (920-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9909-920	Carrying Case for one 920 pump and two 681 gauges or 672 calibrators
ADT920-MK	Maintenance kit for Additel 920 pump

Note: For oil free applications contact Additel.



Additel 925 Handheld Hydraulic Pressure Test Pump

- Generate 85% vacuum to 6,000 psi (400 bar) pressure
- Portable, only 3.7 lb
- Minimal maintenance
- Increase and decrease pressure smoothly
- Hand-tight quick connectors



OVERVIEW

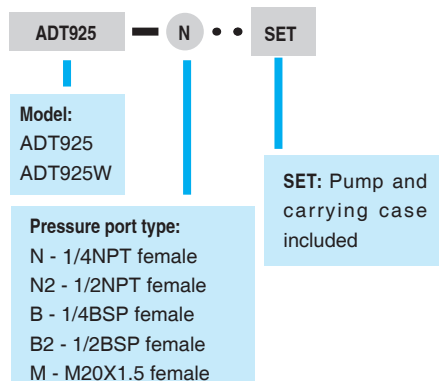
The 925 Hydraulic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 85% vacuum to 6,000 psi (400 bar). With the patented screw press technology, the high pressure can be easily generated, as well as increased and decreased smoothly. With no check valve (non-returning valve), the 925 avoids the troublesome leakage issues that is usually experienced with most hand pumps and allows for minimal maintenance. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 925 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers in the field or laboratory.

FEATURES

- **Portable**
Only 3.7 lb (1.7 kg)
- **Durable and Minimal Maintenance**
Patented screw press technology, without non-returning valve inside that is usually used on troublesome hand pumps.
- **Easy-to-use**
The high pressure can be generated easily, as well as increased and decreased smoothly.
- **Extremely Low Leakage**
Patented screw press technology, replaces troublesome check valves (non-returning valve) used in most hand pumps which practically eliminates leakage.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

ORDERING INFORMATION

Model Number



Accessories included

- Mineral oil, 1 bottle (250 ml)*
- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (925-X-SET models only)

* When water media is not requested

SPECIFICATIONS

- **Media:** Oil or deionized water.
(Oil is default media liquid. Pump with water as media to be ordered as ADT925W. Pump stability is best when used with oil. Performance may decrease when used with water as the media.)
- **Reservoir capacity:** 200 ml (12.2 in³)
- **Pressure Range**
85% vacuum to 6,000 psi (400 bar) positive pressure.
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:** Height: 4.72" (120 mm)
Base: 9.84" (250 mm) x 5.51" (140 mm)
- **Weight:** 3.7 lb (1.7 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 18 ml (1.1 in³)
High pressure piston: 0.9 ml (0.05 in³)

Optional Accessories

Model number	Description
9201	Oil, Diethylhexyl Sebacate, 1 liter (1 quart)
9202	Oil, Mineral Oil, 1 liter (1 quart)
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs).
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs).
ADT100-HTK-8K	Hose test kit, 5 feet flexible hose, 8,000 psi, user selectable male (1/4NPT, 1/2NPT, 1/4BSP, 1/2BSP, M20) to user selectable female hand tight quick connector.
9901-925	Carrying Case for one 925 pump and two 681 gauges or 672 calibrators
ADT925-MK	Maintenance kit for Additel 925 pump

Look us up on www.additel.com or call today (1)714-998-6899

Application Note



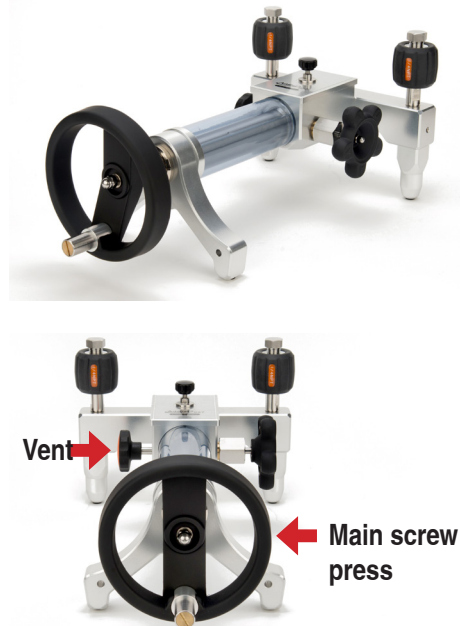
Considerations for Hydraulic High Pressure Calibrations

If you are doing high pressure, hydraulic calibrations there are a few things that you'll need to consider which will make your life a little easier and help you produce stable measurements. This application note focuses on considerations for pressure calibrations using a high pressure hydraulic pump to generate the pressure.

Getting Started

To produce stable and high pressure measurements using a hydraulic calibration pump, the gas within the calibration system needs to be removed. Hydraulic test pumps use various types of fluids to generate high pressures. Because gas is much more compressible than liquid, purging most if not all the gas out of the system will allow for maximum pressures to be generated. The following steps describe the procedure to purge the gas from an Additel test pump:

1. Ensure the pump, reference standard, and device under test (DUT) are securely connected to the calibration pump.
2. Close the vent valve and screw out the main screw press. You should see a vacuum being pulled on your reference and DUT (assuming the reference and the DUT are able to be used for vacuum measurement).
3. Open the vent valve, wait for the pressure to settle to zero, and screw in the main screw press. As you do this, you may see bubbles emerge in the medium reservoir which is a good indication that gas is being pushed out of the system.
4. Close the vent valve and repeat steps 2 and 3 one or two more times.
5. Close the vent valve and unscrew the main screw press half way out. Then open the vent valve to zero the measurement.
6. Now, you are ready to close the vent valve and generate pressure.



Stable Measurements

As pressures are generated to the desired test point it is common to initially observe a fairly rapid decrease in pressure. Initially, you may conclude that this is a pressure leak but what you are likely observing is called the adiabatic effect. This effect is defined as a gain or loss of heat within a system and its environment. When a gas is compressed under adiabatic conditions, its pressure increases and its temperature rises without the gain or loss of any heat. This happens when the screw press of a pump compresses the fluid volume, thus resulting in an increase in pressure but also an increase in the temperature. As the increase in pressure stops the temperature generated from the screw press dissipates. If the volume is held constant and the temperature decreases so also will the pressure decrease. So this initial decrease of pressure is in fact a result of the temperature settling from the adiabatic heating effect generated from the screw press of the pump.

Other sources of instability that also impact the pressure measurement are instabilities in room temperature and changes in volume. Because temperature is a factor of pressure as the entire pressure system changes temperature due to the room temperature changing the true pressure value will also change. The same can also be said of the pressure volume. With an increase or decrease of pressure volume the true pressure value will see a correlated change. Volume changes with pressure systems are usually not very noticeable except at high pressures. At high pressures, the materials where the pressurized volume is contained will slightly expand causing the volume to expand and the pressure will decrease. This is particularly evident when using flexible hoses at high pressures.

Conclusion

So we can't change the laws of physics—so what can be done? As pressures are generated, time must be given to allow for the adiabatic effects to settle. In other words, you need to let the measurement stabilize for a few minutes. As you allow this stabilization period to happen, you'll find the measurement stability of the pump to be very reliable for your calibration applications. Room temperature will also have an impact on the measurement and it is best if calibrations are performed in a controlled, stable environment. Lastly, careful consideration of hoses, manifolds, and tubing will help produce stable results at high pressures. Using metal tubing as opposed to flexible hoses will yield higher stability as metal is less likely to allow for the volume to expand when under high pressure.

Additel 927 Hydraulic Pressure Test Pump

- Generate 85% vacuum to 10,000 psi (700 bar) pressure
- Portable, only 7 lb
- Minimal maintenance
- Increase and decrease pressure smoothly
- Hand-tight quick connectors



OVERVIEW

The 927 Hydraulic Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 85% vacuum to 10,000 psi (700 bar). With the patented screw press technology, high pressures can be easily generated, as well as increased and decreased smoothly. With no check valve (non-returning valve), the 927 avoids the troublesome leakage issues that is usually experienced with most hand pumps and allows for minimal maintenance. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 927 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers in the field or laboratory.

FEATURES

- **Portable**
Only 7 lb
- **Durable and Minimal Maintenance**
Patented screw press technology, without non-returning valve inside that is usually used on troublesome hand pumps.
- **Easy-to-use**
The high pressure can be generated easily, as well as increased and decreased smoothly.
- **Extremely Low Leakage**
Patented screw press technology, replaces troublesome check valves (non-returning valve) used in most hand pumps which practically eliminates leakage.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

ORDERING INFORMATION

- **Model Number**



Model:
ADT927
ADT927W

Pressure port type:
N - 1/4NPT female
N2 - 1/2NPT female
B - 1/4BSP female
B2 - 1/2BSP female
M - M20X1.5 female

SET: Pump and carrying case included

- **Accessories included**

Mineral oil, 1 bottle (250 ml)*
O-ring: 20 pcs
Manual: 1 pc
Carrying case (927-X-SET models only)

* When water media is not requested

SPECIFICATIONS

- **Media:** Oil or deionized water.
(Oil is default media liquid. Pump with water as media to be ordered as 927W. Pump stability is best when used with oil. Performance may decrease when used with water as the media.)
- **Reservoir capacity:** 245 ml (15 in³)
- **Generated Pressure Range**
85% vacuum to 10,000 psi (700 bar) positive pressure.
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:** Height: 5.31" (135 mm)
Base: 11.42" (290 mm) x 7.80" (198 mm).
- **Weight:** 7 lb (3.2 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 19 ml (1.2 in³)
High pressure piston: 0.9 ml (0.05 in³)

- **Optional Accessories**

Model number	Description
9201	Oil, Diethylhexyl Sebacate, 1 liter (1 quart)
9202	Oil, Mineral Oil, 1 liter (1 quart)
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-15K	Hose test kit, 5 feet flexible hose, 15,000 psi, 1/4NPT male to 1/4NPT (1/8NPT, 1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) female hand-tight quick connector.
9904-927	Carrying Case for one 927 pump and two 681 gauges or 672 calibrators
ADT927-MK	Maintenance kit for Additel 927 pump



Additel 928 Hydraulic Pressure Test Pump

- Pressurize large-volume workload
- Generate to 15,000 psi (1,000 bar) pressure
- Portable only 8.6 lbs (3.9 kg)
- Increase and decrease pressure smoothly
- Hand-tight quick connectors



OVERVIEW

The Additel 928 Hydraulic Pressure Test Pump is a hand operated pressure pump designed to generate pressure to 15,000 psi (1,000 bar). This pump incorporates a dual-piston system which is ideal for filling large volume workload with the hand pump and providing smooth increase and decrease of pressure with the fine adjustment. The 928 Test Pump incorporates an isolation valve which isolates the calibration volume from the check valve associated with the hand pump. Because the check valve can often be a source of leaks and maintenance, the isolation valve provides more stable measurements and reduces potential maintenance of the pump. Two hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The Additel 928 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers in the field or laboratory.

FEATURES

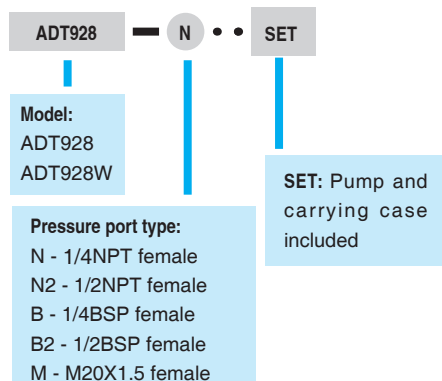
- **Hand pump to fill large volume systems**
- **Portable at 8.6 lbs (3.9 kg)**
- **Durable and minimal maintenance**
Isolation valve provides stable pressures while reducing maintenance on the hand pump check valve
- **Easy to use**
15,000 psi (1,000 bar) can be generated easily with the dual-piston system
- **Hand-tight quick connectors**
Allows easy connection and disconnection to the test pump without the need for PTFE tape or wrenches

SPECIFICATIONS

- **Media:** Mineral oil or deionized water.
(Oil is default media liquid. Pump with water as media to be ordered as 928W. Pump stability is best when used with oil. Performance may decrease when used with water as the media.)
- **Generated Pressure Range**
0 to 15,000 psi (1,000bar) gauge pressure
- **Material:** Ram/adapters: 304 SS
Body: 304 SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
Reservoir: UPVC
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:** Height: 6.38" (162 mm)
Base: 13.58" (345 mm) x 8.46" (215 mm)
- **Weight:** 8.6 lb (3.9 kg)
- **Warranty:** 1 year
- **Piston Volume:** Fine adjust piston: 0.9ml (0.05 in³)
- **Reservoir Volume:** 150 ml (9.15 in³)

ORDERING INFORMATION

Model Number



Accessories included

- Mineral oil, 1 bottle (250 ml)*
- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (928-X-SET models only)

* When water media is not requested

Optional Accessories

Model number	Description
9201	Oil, Diethylhexyl Sebacate, 1 liter (1 quart)
9202	Oil, Mineral oil, 1 liter (1 quart)
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT100-HTK-15K	Hose test kit, 5 feet flexible hose, 15,000 psi, 1/4NPT male to 1/4NPT (1/8NPT, 1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) female hand-tight quick connector.
9904-928	Carrying Case for one 928 pump and two pressure test gauges
ADT928-MK	Maintenance kit for Additel 928 pump
ADT100-928-HK	Hose Kit, External Reservoir Expansion Hose Kit for ADT928

Additel 936

Hydraulic High Pressure Calibration Pump

- Generate 85% vacuum to 15,000 psi (1,000 bar) pressure
- Minimal maintenance
- Increase and decrease pressure smoothly
- Three pressure ports
- Hand-tight quick connectors



OVERVIEW

The 936 Hydraulic High Pressure Test Pump is a hand operated pressure pump designed to generate pressure from 85% vacuum to 15,000 psi (1,000 bar). With the patented screw press technology, high pressures can be easily generated, as well as increased and decreased smoothly. A specially designed shut-off valve makes the pressure as stable as possible during calibration. With no check valve (non-returning valve), the 936 avoids the troublesome leakage issues that is usually experienced with hand pumps and allows for minimal maintenance. Three hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 936 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers in the laboratory.

FEATURES

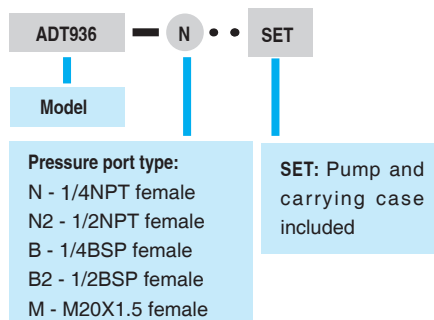
- **High Pressure**
Generates pressure up to 15,000 psi (1000 bar)
- **Durable and Minimal Maintenance**
Patented screw press technology, without non-returning valve inside that is usually used on troublesome hand pumps.
- **Easy-to-use**
High pressures can be generated easily, as well as increased and decreased smoothly.
- **Extremely Low Leakage**
Patented screw press technology replaces troublesome check valves (non-returning valve) in most hand pumps which practically eliminates leakage.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Oil
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Pressure Range**
85% vacuum to 15,000 psi (1,000 bar) positive.
- **Material**
Ram/adapters: SS
Body: SS/aluminum
Seals: Buna-N, PTFE, Copper Alloy, SS
- **Connection**
Hand-tight connectors for both test gauge and reference gauge(s).
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 9.1" (230 mm)
Base: 20.5" (520 mm) x 14.2" (360 mm)
- **Weight:** 35.2 lb (16 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 30 ml (1.8 in³)
High pressure piston: 2.5 ml (0.15 in³)

ORDERING INFORMATION

Model Number



Accessories included

- Mineral oil, 1 bottle (250 ml)
- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (936-X-SET models only)

Optional Accessories

Model number	Description
9201	Oil, Diethylhexyl Sebacate, 1 liter (1 quart)
9202	Oil, Mineral Oil, 1 liter (1 quart)
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
9908	Carrying case for 936, 937, 938 or 949.
ADT936-MK	Maintenance kit for Additel 936 pump

Additel 937

Hydraulic High Pressure Calibration Pump

- Generate 85% vacuum to 15,000 psi (1,000 bar) pressure
- Compatible to phosphoric acid ester fluid and Skydrol Oil
- Increase and decrease pressure smoothly
- Three pressure ports
- Hand-tight quick connectors



OVERVIEW

The 937 Hydraulic High Pressure Calibration Pump is a hand operated pressure pump designed for calibrating pressure measuring instruments with phosphoric acid ester fluid and Skydrol oil in the range from 85% vacuum to 15,000 psi (1000 bar). With the patented screw press technology, high pressures can be easily generated, increased and decreased smoothly. A specially designed shut-off valve makes the pressure as stable as possible during calibration. With no check valve (non-returning valve), the 937 avoids the troublesome leakage issues that is usually experienced with hand pumps and allows for minimal maintenance. Three hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 937 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers in the laboratory.

FEATURES

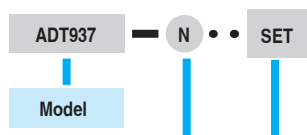
- **High Pressure**
Generates pressure up to 15,000 psi (1,000 bar)
- **Durable and Minimal Maintenance**
Patented screw press technology, with no check valve (non-returning valve) inside that is usually used on troublesome hand pumps causing leakage.
- **Easy-to-use**
High pressures can be generated easily, as well as increased and decreased smoothly.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Compatible to phosphoric acid ester fluid and Skydrol Oil (should not be used for mineral oil)
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Pressure Range**
85% vacuum to 15,000 psi (1,000 bar) positive.
- **Material:** Ram/adapters: SS
Body: SS, aluminum
Seals: EPDM, PTFE, Copper Alloy
- **Connection**
Hand-tight connectors for both test gauge and reference gauge(s).
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 9.1" (230 mm)
Base: 20.5" (520 mm) x 14.2" (360 mm)
- **Weight:** 35.2 lb (16 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 30 ml (1.8 in³)
High pressure piston: 2.5 ml (0.15 in³)

ORDERING INFORMATION

Model Number



Pressure port type:
N - 1/4NPT female
N2 - 1/2NPT female
B - 1/4BSP female
B2 - 1/2BSP female
M - M20X1.5 female

SET: Pump and carrying case included

Accessories included

O-ring: 20 pcs Manual: 1 pc
Carrying case (937-X-SET models only)

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
9908	Carrying case for 936, 937, 938 or 949.
ADT937-MK	Maintenance kit for Additel 937 pump

Additel 938

Hydraulic High Pressure Calibration Pump

- Generate 85% vacuum to 15,000 psi (1,000 bar) pressure
- Oil-free pressure instruments
- Minimal maintenance
- Easy-to-use
- Three pressure ports
- Hand-tight quick connectors



OVERVIEW

The 938 Hydraulic High Pressure Test Pump is specially designed for calibrating oil-free pressure measuring instruments in the range of 85% vacuum to 15,000 psi (1,000 bar). All parts used in the pump have been carefully cleaned to remove oil. The pump uses water as the media. With the patented screw press technology, high pressures can be easily generated, as well as increased and decreased smoothly. A specially designed shut-off valve makes the pressure as stable as possible during calibration. With no check valve (non-returning valve), the 938 avoids the troublesome leakage issues that is usually experienced with hand pumps and allows for minimal maintenance. Three hand-tight connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The 938 is an ideal comparison test pump for calibrating oil-free pressure measuring instruments such as test gauges, indicators or transducers in the laboratory.

FEATURES

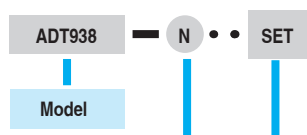
- **High Pressure**
Generates pressure up to 15,000 psi (1,000 bar)
- **Durable and Minimal Maintenance**
Patented screw press technology, without non-returning valve inside that is usually used on troublesome hand pumps.
- **Easy-to-use**
With the patented screw press technology, high pressures can be generated easily, as well as increased and decreased smoothly
- **Extremely Low Leakage**
Patented screw press technology replaces troublesome check valves (non-returning valve) in most hand pumps which practically eliminates leakage.
- **Hand-tight Quick Connectors**
Allows easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Deionized water
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Pressure Range**
85% vacuum to 15,000 psi (1,000 bar) positive pressure.
- **Material**
Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Connection**
Hand-tight connectors for both test gauge and reference gauge.
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions**
Height: 9.1" (230 mm)
Base: 20.5" (520 mm) x 14.2" (360 mm)
- **Weight:** 35.2 lb (16 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 30 ml (1.8 in³)
High pressure piston: 2.5 ml (0.15 in³)

ORDERING INFORMATION

Model Number



Pressure port type:
 N - 1/4NPT female
 N2 - 1/2NPT female
 B - 1/4BSP female
 B2 - 1/2BSP female
 M - M20X1.5 female

SET: Pump and carrying case included

Optional Accessories

Model number	Description
ADT102	Adapters and fittings, 1/4NPT male to various male and female connection (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/2NPT, 1/4BSP, 1/2BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
9908	Carrying case for 936, 937, 938 or 949.
ADT938-MK	Maintenance kit for Additel 938 pump

Accessories included

O-ring: 20 pcs Manual: 1 pc
 Carrying case (938-X-SET models only)



Additel 946

Hydraulic High Pressure Calibration Pump

- Pressureize large-volume workload
- Generate pressure to 15,000 psi (1,000 bar)
- Increase and decrease pressure smoothly
- Three pressure ports
- Hand-tight quick connectors



OVERVIEW

The new Additel 946 Hydraulic Pressure Test Pump is a benchtop pressure pump designed to generate pressure to 15,000 psi (1,000 bar). This pump incorporates a dual-piston system which is ideal for filling large volume workload with the hand pump and providing smooth increase and decrease of pressure with the high pressure, fine adjust screw press. The 946 test pump incorporates an isolation valve which isolates the calibration volume from the check valve associated with the hand pump. Because the check valve can often be a source of leaks and maintenance, the isolation valve provides more stable measurements and reduces potential maintenance of the pump. Three hand-tight quick connectors installed on the pump allow easy connecting and disconnecting to the test pump without the need for PTFE tape or wrenches. The Additel 946 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers.

FEATURES

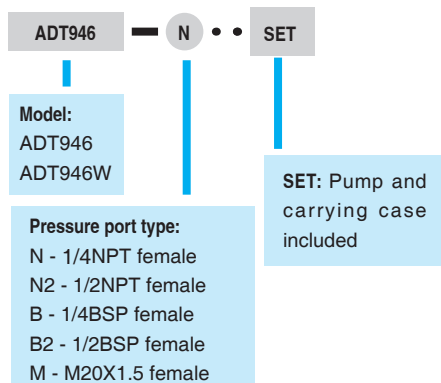
- **Hand pump to fill large volume systems**
- **Durable and Minimal Maintenance**
Isolation valve provides stable pressures while reducing maintenance on the hand pump check valve.
- **Easy-to-use**
15,000 psi (1,000 bar) can be generated easily with the dual-piston system.
- **Three hand-tight quick connectors**
Allows easy connection and disconnection to the test pump without the need for PTFE tape or wrenches.

SPECIFICATIONS

- **Media:** Mineral oil or deionized water. (Oil is default media liquid. Pump with water as media to be ordered as ADT946W. Pump stability is best when used with oil. Performance may decrease when used with water as the media.)
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Generated Pressure Range**
0 to 15,000 psi (1,000bar) gauge pressure
- **Material**
Ram/adapters: SS
Body: SS, aluminum, Copper
Seals: Buna-N
- **Connection**
Hand-tight connectors for both test gauge and reference gauge(s)
1/4NPT female, 1/2NPT female, 1/4BSP female, 1/2BSP female, or M20X1.5 female
- **Dimensions:** Height: 6.9" (175 mm)
Base: 17.9" (455 mm) x 15.0" (380 mm)
- **Weight:** 28.7 lb (13 kg).
- **Warranty:** 1 year
- **Piston volume:** Fine adjust piston: 1.5ml (0.09 in³)

ORDERING INFORMATION

Model Number



Accessories included

- Mineral oil, 1 bottle (250 ml)*
- O-ring: 20 pcs
- Manual: 1 pc
- Carrying case (946-X-SET models only)

* When water media is not requested

Optional Accessories

Model number	Description
9201	Oil, Diethylhexyl Sebacate, 1 liter (1 quart)
9202	Oil, Mineral oil, 1 liter (1 quart)
ADT102	Adapters and fittings, 1/4HP male to various male and female connectors (25 pcs). More information shown on page 80.
ADT103	Adapters and fittings, 1/4NPT (1/4BSP, or M20X1.5) male to various female hand-tight quick connectors (10 pcs). More information shown on page 81.
ADT-HTK	Hose test kit, 5 feet flexible hose, 15,000 psi, 1/4NPT male to 1/4NPT (1/8NPT, 1/2NPT, 1/4BSP, or M20X1.5) female hand-tight quick connector.
ADT946-MK	Maintenance kit for Additel 946 pump
ADT100-946-HK	Hose Kit, External Reservoir Expansion Hose Kit for ADT946
9910	Carrying case for Additel 946, Additel 959 or Additel 960

Additel 949

Hydraulic Ultra-high Pressure Test Pump

- Generate 85% vacuum to 40,000 psi (2,800 bar) pressure
- Minimal maintenance
- Easy-to-use
- Three pressure ports



OVERVIEW

The 949 Hydraulic Ultra-high Pressure Test Pump is a hand operated pressure pump designed to generate pressure up to 40,000 psi (2800 bar). With the patented screw press technology, high pressures can be easily generated, increased and decreased smoothly. A specially designed shut-off valve makes the pressure as stable as possible during calibration. With no non-returning valve, the 949 avoids the troublesome leakage issues that is usually experienced with hand pumps and allows for minimal maintenance. The 949 is an ideal comparison test pump for calibrating ultra-high pressure measuring instruments such as test gauges, indicators or transducers in the laboratory.

FEATURES

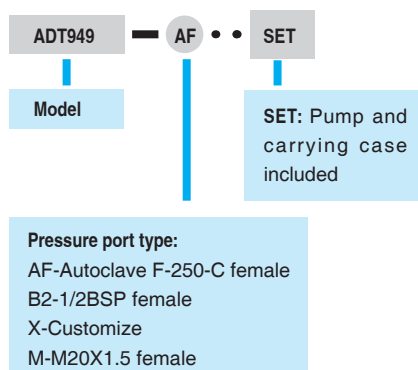
- **Generate Ultra-high Pressure**
Generate pressure up to 40,000 psi (2,800 bar)
- **Durable and Minimal Maintenance**
Patented screw press technology, without non-returning valve inside that is usually used on troublesome hand pumps.
- **Easy-to-use**
With the patented screw press technology, high pressures can be generated easily, as well as increased and decreased smoothly.
- **Extremely Low Leakage**
Patented screw press technology replaces troublesome, check valves (non-returning valve) found in most hand pumps which practically eliminates leakage.

SPECIFICATIONS

- **Media:** Diethylhexyl Sebacate
- **Pressure Range**
85% vacuum to 40,000psi (2,800bar) positive pressure.
- **Material**
Ram/adapters: SS
Body: SS, aluminum
Seals: Buna-N, PTFE, Copper Alloy
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Connection**
Test Gauge Connection: Positional Autoclave F-250-C, 9/16" - 18 UNF female
Reference Gauge Connection: Positional Autoclave F-250-C, 9/16" - 18 UNF female
1/2BSP female and M20X1.5 female connections are available upon request.
- **Dimensions:** Height: 9.1" (230 mm)
Base: 20.5" (520 mm) x 14.2" (360 mm)
- **Weight:** 35.2 lb (16 kg).
- **Warranty:** 1 year
- **Piston volume**
Low pressure piston: 30 ml (1.8 in³)
High pressure piston: 2.5 ml (0.15 in³)

ORDERING INFORMATION

Model Number



Accessories included

- Diethylhexyl Sebacate: 1 bottle (250 ml)
- Manual: 1 pc
- Carrying case (949-X-SET models only)

Optional Accessories

Model number	Description
9201	Diethylhexyl Sebacate, 1 liter (1 quart)
ADT104	Adapters and fittings, 1/4HP male to various male and female connectors (17 pcs). More information shown on page 82.
9908	Carrying case for 936, 937, 938 or 949.
ADT949-MK	Maintenance kit for Additel 949 pump

Additel 959

Hydraulic Ultra-high Pressure Test Pump



- Pressurize large-volume workload
- Generate pressure to 40,000 psi (2,800 bar)
- Increase and decrease pressure smoothly
- Three pressure ports



OVERVIEW

The new Additel 959 Hydraulic Pressure Test Pump is a benchtop pressure pump designed to generate pressure to 40,000 psi (2,800 bar). This pump incorporates a dual-piston system which is ideal for filling large volume workload with the hand pump and providing smooth increase and decrease of pressure with the high pressure, fine adjust screw press. The 959 test pump incorporates an isolation valve which isolates the calibration volume from the check valve associated with the hand pump. Because the check valve can often be a source of leaks and maintenance, the isolation valve provides more stable measurements and reduces potential maintenance of the pump. The Additel 959 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers.

FEATURES

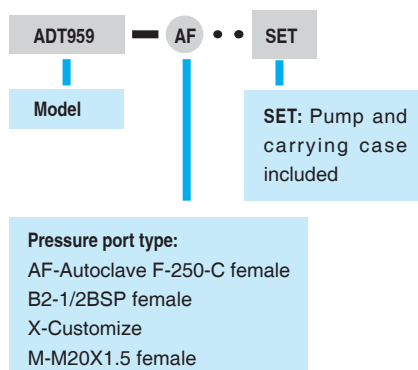
- **Generate Ultra-high Pressure**
Generate pressure up to 40,000 psi (2,800 bar)
- **Hand pump to fill large volume systems**
- **Durable and Minimal Maintenance**
Isolation valve provides stable pressures while reducing maintenance on the hand pump check valve
- **Easy-to-use**
40,000 psi (2,800 bar) can be generated easily with the dual-piston system

SPECIFICATIONS

- **Media:** Diethylhexyl Sebacate
- **Pressure Range**
0 to 40,000psi (2,800bar) gauge pressure.
- **Material**
Ram/adapters: SS
Body: SS, aluminum, Copper
Seals: Buna-N, PTFE, Copper Alloy, Aluminum Alloy
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Connection**
Test Gauge Connection: Autoclave F-250-C, 9/16" - 18 UNF female
Reference Gauge Connection: Autoclave F-250-C, 9/16" - 18 UNF female
1/2BSP female and M20X1.5 female connections are available upon request
- **Dimensions:** Height: 6.9" (175 mm)
Base: 17.9" (455 mm) x 15.0" (380 mm)
- **Weight:** 28.7 lb (13 kg).
- **Warranty:** 1 year
- **Piston volume**
Fine adjust piston: 1.5 ml (0.09 in³)

ORDERING INFORMATION

Model Number



Accessories included

Diethylhexyl Sebacate: 1 bottle (250 ml)
Manual: 1 pc
Carrying case (959-X-SET models only)

Optional Accessories

Model number	Description
9201	Diethylhexyl Sebacate, 1 liter (1 quart)
ADT104	Adapters and fittings, 1/4HP male to various male and female connectors (17 pcs). More information shown on page 82.
ADT959-MK	Maintenance kit for Additel 959 pump
ADT100-959-HK	Hose Kit, External Reservoir Expansion Hose Kit for ADT959
9910	Carrying case for Additel 946, Additel 959 or Additel 960

Additel 960

Hydraulic Ultra-high Pressure Test Pump

- Pressurize large-volume workload
- Generate pressure to 60,000 psi (4,200 bar)
- Increase and decrease pressure smoothly
- Three pressure ports



OVERVIEW

The new Additel 960 Hydraulic Pressure Test Pump is a benchtop pressure pump designed to generate pressure to 60,000 psi (4,200 bar). This pump incorporates a dual-piston system which is ideal for filling large volume workload with the hand pump and providing smooth increase and decrease of pressure with the high pressure, fine adjust screw press. The 960 test pump incorporates an isolation valve which isolates the calibration volume from the check valve associated with the hand pump. Because the check valve can often be a source of leaks and maintenance, the isolation valve provides more stable measurements and reduces potential maintenance of the pump. The Additel 960 is an ideal comparison test pump for calibrating pressure measuring instruments such as test gauges, indicators or transducers.

FEATURES

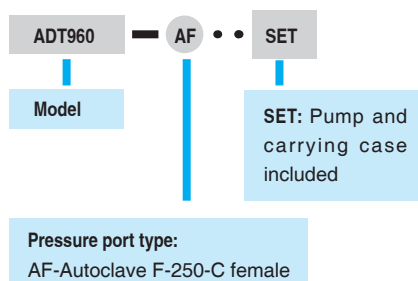
- **Generate Ultra-high Pressure**
Generate pressure up to 60,000 psi (4,200 bar)
- **Hand pump to fill large volume systems**
- **Durable and Minimal Maintenance**
Isolation valve provides stable pressures while reducing maintenance on the hand pump check valve
- **Easy-to-use**
60,000 psi (4,200 bar) can be generated easily with the dual-piston system

SPECIFICATIONS

- **Media:** Diethylhexyl Sebacate
- **Pressure Range**
0 to 60,000psi (4,200 bar) gauge pressure.
- **Material**
Ram/adapters: SS
Body: SS, aluminum, Copper
Seals: Buna-N, PTFE, Copper Alloy, Aluminum Alloy
- **Reservoir capacity:** 420 ml (25.6 in³)
- **Connection**
Test Gauge Connection: Autoclave F-250-C female
Reference Gauge Connection: Autoclave F-250-C female
- **Dimensions:** Height: 6.9" (175 mm)
Base: 17.9" (455 mm) x 15.0" (380 mm)
- **Weight:** 28.7 lb (13 kg).
- **Warranty:** 1 year
- **Piston volume**
Fine adjust piston: 1.5 ml (0.09 in³)

ORDERING INFORMATION

Model Number



Accessories included

- Diethylhexyl Sebacate: 1 bottle (250 ml)
- Manual: 1 pc
- Carrying case (960-X-SET models only)

Optional Accessories

Model number	Description
9201	Diethylhexyl Sebacate, 1 liter (1 quart)
ADT960-MK	Maintenance kit for Additel 960 pump
ADT100-960-HK	Hose Kit, External Reservoir Expansion Hose Kit for ADT960
9910	Carrying case for Additel 946, Additel 959 or Additel 960