

pressure

# JOFRA™ APC Series

## Advanced Pressure Calibrator



### Pressure range

APC010C	Vacuum to 10 psi / 0.7 bar
APC030C	Vacuum to 30 psi / 2 bar
APC200C	Vacuum to 200 psi / 15 bar
APC 500G	0 to 500 psi / 35 bar
APC01KG	0 to 1,000 psi / 70 bar
APC03KG	0 to 3,000 psi / 200 bar
APC05KG	0 to 5,000 psi / 350 bar
APC10KG	0 to 10,000 psi / 700 bar

### High accuracy

±0.04% of reading ±0.01% of full scale with no low range degradation in accuracy.

### Ideal for on-site use

Complete ready-to-use calibration systems in one carrying case or as individual indicators.

### External Pressure Modules

More than 60 different pressure modules, accuracy up to 0.01% - offers superior flexibility.

### True field calibrator

The APC is fully temperature compensated - same high accuracy in the lab and in the field.

### Save time - instant general view

Display both reference pressure and the device-under-test at the same time.

### Transmitter scaling

No need for complex calculations or a calculator - the APC calculates the % error of the device-under-test with user-defined scaling.

### Easy pressure switch test

Automatically records opening and closing point values on the display.

### Record min and max readings

Capture the min and max pressure readings for safety valve applications.

### Easy calibration of the unit

Serial interface for local calibration of the APC unit as well as local communication.

The JOFRA APC is an extremely accurate handheld pressure calibrator that offers several user-friendly features and superior performance. The APC is available as an indicator or in one of 6 test-ready systems that are complete and equipped to meet your pressure calibration needs. You can use the APC in applications from safety valve verification to pressure transmitter calibration. This remarkable calibrator features deadweight tester accuracy in a modern digital package.



## PRODUCT DESCRIPTION

The JOFRA APC calibrators are the latest in the new generation of AMETEK handheld pressure calibrators. This series was designed to meet high accuracy pressure calibration applications and to make your tasks easier. The APC offers features such as dual information display, 17 different pressure units, transmitter supply, scalable mA input for % error calculation, serial communications, and external pressure module capability. The accuracy of the APC calibrators is deadweight caliber throughout the range and is temperature compensated for operation in controlled or in process applications. This is a truly superior pressure calibrator.

The JOFRA APM series of pressure modules extends the application base for the APC calibrators by allowing for calibrations in ranges other than those of the indicator; and at a lower cost than purchasing another APC. The APM modules are also compatible with several other JOFRA calibrators.

You can perform a calibration locally without returning the APC unit to the manufacturer. All you need is an accurate pressure reference. If you do require factory calibration, the pump and indicator are independent and only the indicator needs to be returned.

**AMETEK®**  
CALIBRATION INSTRUMENTS

## JOFRA APC INDICATOR

### Clear dual line display

Large digits display the pressure, icons show current status and mode, and the smaller digits show device-under-test conditions.

### ON / OFF

Auto shut-off to extend battery life (user programmable).

### mA / %

Save time and effort in calculating the error between the APC and the device-under-test by entering the pressure range corresponding to 4-20mA. This gives immediate read-out of the error in %.

You can also read mA or % of 4-20mA in the display.

### SWITCH

Perform semi-automatic pressure switch tests. The APC records the "close" and "open" pressure values and calculates the hysteresis (deadband). You change the pressure and the APC does the rest.

### ZERO

Keep the high accuracy: ZERO the instrument before every test.

### MAX / MIN

Reads the highest and lowest pressure value since you last reset the APC. Monitor a safety valve or look for pressure spikes in the process.

### Pressure connections

1/8 in. NPT female  
200 psi / 15 bar and below.  
1/8 in. NPT male for 500 psi  
/ 35 bar and above.



### JOFRA APC in softcase

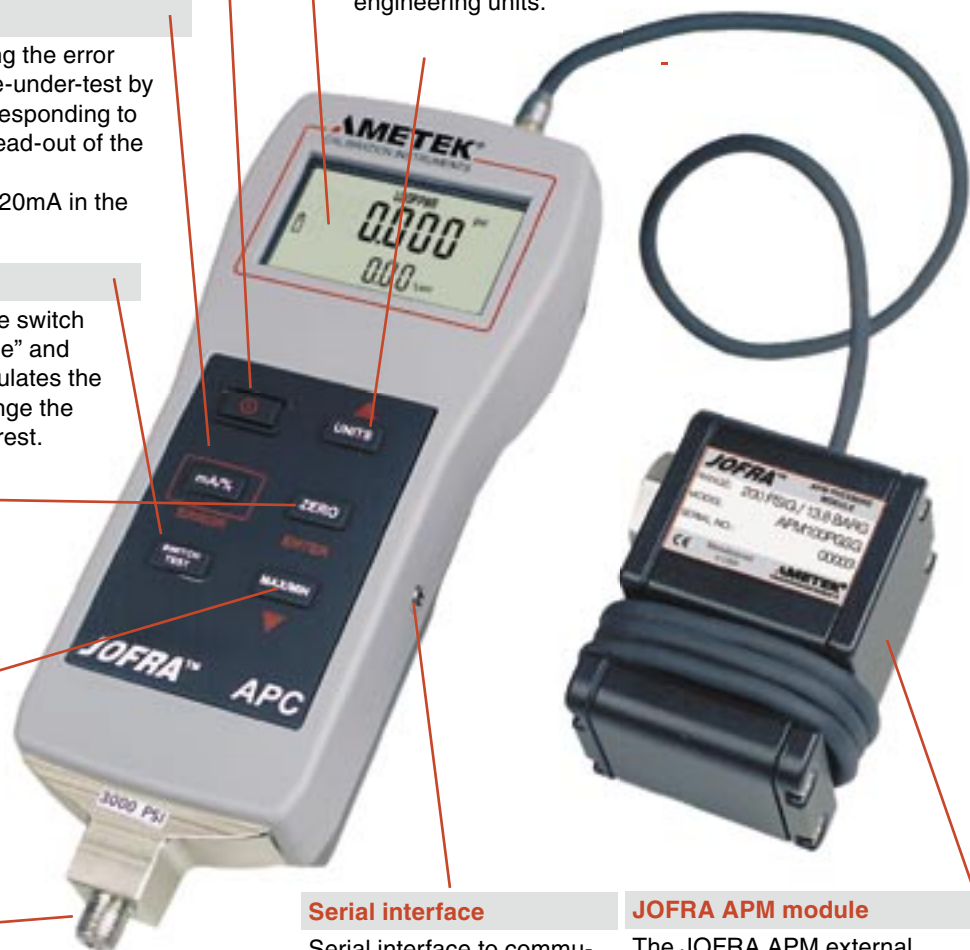
The indicator is available separately and all APC units are supplied in a handy softcase that allows for complete operation of the unit while in the case. The convenient internal storage pocket offers you the space to store test leads and other necessary accessories.

### Electrical connections

Inputs for pressure switch, transmitters (mA reading) including 24 VDC supply, and for external JOFRA APM.

### UNITS

Easy access to 17 different pressure engineering units.



### Serial interface

Serial interface to communicate with a PC (terminal). Also used during calibration of the unit.

### JOFRA APM module

The JOFRA APM external pressure modules extend the range of the APC. There are more than 60 models available with gauge, absolute, differential, and vacuum pressure references and in metric and imperial engineering units.

## APC INDICATOR SPECIFICATIONS

### Pressure range

bar: ..... vacuum to 0.7, 2, 15  
 psi: ..... vacuum to 10, 30, 200  
 bar: ..... 0 to 35, 70, 200, 350, 700  
 psi: ..... 0 to 500, 1,000, 3,000, 5,000, 10,000

### Engineering units (built-in)

User selectable ..... 17 units  
 (psi, inH<sub>2</sub>O@4°C, inH<sub>2</sub>O@20°C, inH<sub>2</sub>O@60°F, inHg@0°C, ftH<sub>2</sub>O@4°C,  
 ftH<sub>2</sub>O@20°C, ftH<sub>2</sub>O@60°F, bar, mbar, kPa, kg/cm<sup>2</sup>, cmH<sub>2</sub>O@4°C,  
 cmH<sub>2</sub>O@20°C, mH<sub>2</sub>O@4°C, mH<sub>2</sub>O@20°C, mmHg@0°C)

### Pressure accuracy

Pressure: ..... ±0.04% rdg ±0.01% F.S.  
 Full temperature compensation: ..... 0 to 50°C / 32 to 122°F  
 Vacuum: ..... ±0.05% F.S.<sup>1)</sup>  
 Full temperature compensation: ..... 10 to 45°C / 50 to 113°F  
 Including non-linearity, hysteresis, repeatability, and temperature effect.

1) Vacuum calibration specification applies to 10, 30, 200 psi / 0.7, 2, 15 bar ranges only. Other ranges indicate vacuum with an accuracy of ±0.25% F.S.

### Display

LCD: ..... Dual line plus icons  
 Display resolution: ..... 5 digits (see table on back page)  
 Display update: ..... twice per second

### Input / output

mA range: ..... 0 to 24 mA  
 mA accuracy: ..... ±0.015% rdg ±2 µA  
 Transmitter supply: ..... 24 VDC  
 Peak hold capture: ..... 50 milliseconds  
 Switch test input: ..... supply max. 9 V

### RS232 communication interface

Connector: ..... Stereo jack  
 Serial: ..... 0-5 V, 9600 baud, 8 data, no parity, 1 stop  
 Protocol: ..... ASCII command language

### Media compatibility

Non corrosive gasses and liquids.

### Pressure connection

Indicators 200 psi / 15 bar and below: ..... 1/8 in. NPT female  
 Indicators 500 psi / 35 bar and above: ..... 1/8 in. NPT male  
 Adapters to 1/4 in. NPT and BSP female are included as standard

### Pressure overload

Overload: ..... +50% F.S.  
 Overload alarm: ..... "OL" in display at +20% F.S.

### Power supply

Battery ..... 1 x 9 V Alkaline  
 Battery life ..... Minimum 20 hours  
 Battery life with APM module connected .... Minimum 10 hours  
 Low battery indicator ..... at 7 V

### Instrument dimensions

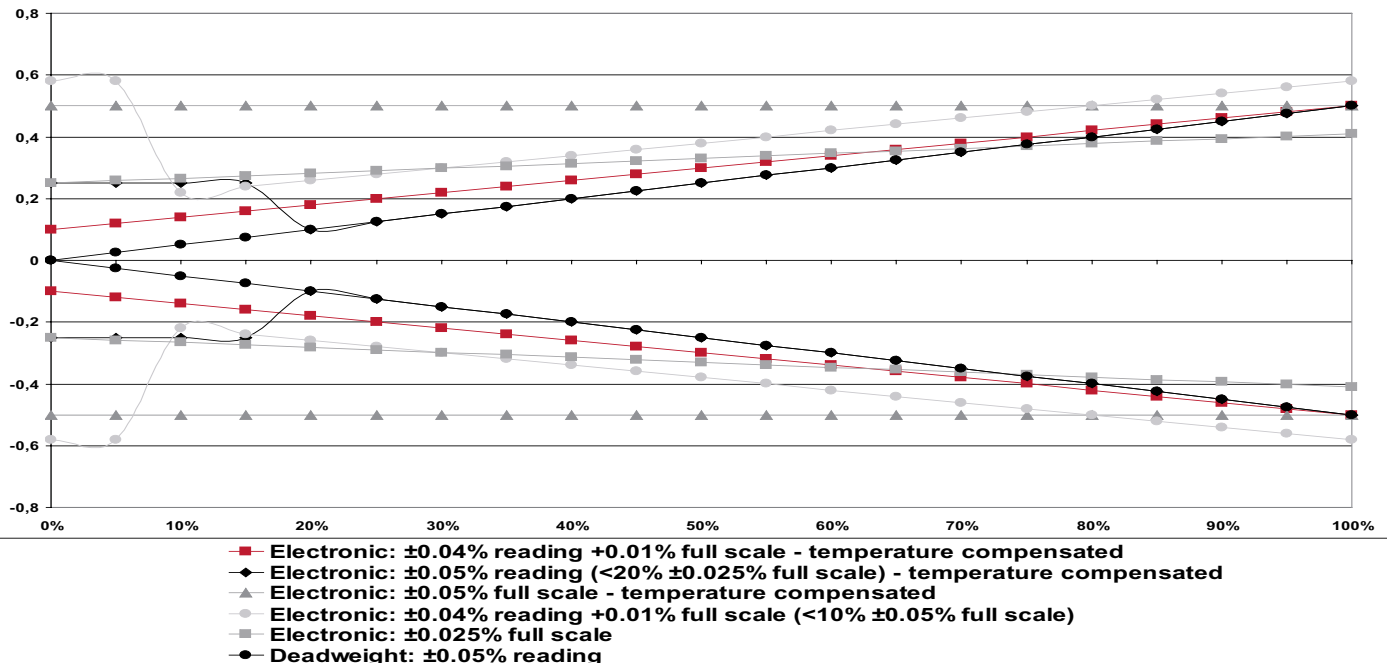
Indicator L x W x H: ..... 200 x 82 x 54 mm /  
 ..... 7.9 x 3.2 x 2.1 in  
 Indicator weight (including battery): ..... 470 g / 17 oz  
 Indicator L x W x H, shipping: ..... 333 x 888 x 444 mm /  
 ..... 45 x 567 x 45 in  
 Indicator weight, shipping: ..... 1.1 kg / 39 oz / 2.4 lb

### Miscellaneous

Conforming to CE regulations

### Accuracy performance comparison

Below is a graphical representation of a comparison of a comparison of pressure calibrator performance. You will note that the APC accuracy offers superior performance over the vast majority of calibrators available today and is comparable to the performance of a deadweight tester.



## JOFRA APC SYSTEM A

- 0 to 10 psi / 0.7 bar
- 0 to 30 psi / 2 bar
- 0 to 200 psi / 15 bar

This system includes the JOFRA APC calibrator together with one of the following pneumatic hand pumps: T-730 or T-740, depending on the chosen pressure range.

System A is an easy-to-use single hand operated calibration system. No need for a flat surface to operate the system - just hold it in your hand.

The System A comes in an aluminum carrying case with cutouts for fittings, hose, and the complete assembled calibration unit - no time is required to assemble the unit every time you need it. The calibrator (indicator) can at any time be used separately for other pressure test tasks.

A special quick connector between the pump and the indicator makes it possible to separate the system in seconds and to swivel the indicator for easy viewing.

The JOFRA APC delivery always includes a protective softcase for the indicator. All APC indicators used in System A are delivered calibrated in both pressure and vacuum. If a vacuum pump is required see below or APC System B.

### T-700 series hand pumps

This hand pump is used in the APC System A. 3 pump models are available, each covering a specific pressure range. The pump features a built-in vent valve, a vernier valve for fine adjustment, and dual pressure output. There is an easy connection between the pump and the calibrator.



Range, T-730: .....  
 0 to 2 bar / 0 to 30 psi  
 Range, T-740: ..... 0 to 15 bar / 0 to 200 psi  
 Range, T-750: ..... -0.850 to 0 bar / -25 to 0 inHg  
 Test medium: ..... Air  
 Wetted parts: ..... Aluminum, brass, stainless steel, nylon, Nylatron GS  
 Connections to test object: ..... 0.6 m / 24 in. hose with 1/4" BSP and NPT female terminations

Part No.	Description
T-730	Pump: 0 to 30 psi / 0 to 2 bar
T-740	Pump: 0 to 200 psi / 0 to 15 bar
T-750	Pump: -25 to 0 inHg / -0.850 to 0 bar
12-90136	Fitting for APM-S pressure module
11-90067	Fitting for APM-H pressure module

Teflon tape is suggested with NPT fittings



### Standard delivery:

#### APC calibrator (indicator):

- Traceable calibration certificate (NIST)
- With pressure and vacuum performance
- 9V battery
- Adapter to 1/4" NPT female
- Adapter to 1/4" BSP female
- Test leads: red and black
- Soft case and shoulder strap
- User manual

#### Also included with System A delivery:

- Hand pump T-730 for APC010C (10 psi / 0.7 bar)
- Hand pump T-730 for APC030C (30 psi / 2 bar)
- Hand pump T-740 for APC200C (200 psi / 15 bar) .....
- Hose 0.6 m / 24 in. with 1/4" BSP and NPT female connector
- Quick connector between pump and indicator
- 1 roll of teflon tape .....
- Aluminum carrying case
- Fitting to go from the quick connector on indicator to 1/4" BSP or NPT female

#### Shipping information

Weight ..... 5.5 kg / 12.13 lb  
 Size ..... 188 x 350 x 560 mm / 7.4 x 13.8 x 22 in

### Accessories

Part No.	Description
Recommended fitting set for the system - to interface your device-under-test with the test hose:	
65R191	Fitting set BSP female: 1x1/8" 1x3/8" 1x1/2" teflon tape and packings (60R191)
65R192	Fitting set NPT female: 1x1/8" 1x1/4" 1x3/8" 1x1/2" teflon tape and packings (60R191)
60R191	Set of rubber packings for 65R191 and 65R192
60I104	Roll of teflon tape
60R178	Fitting: From the quick connector to 1/4" BSP fem.
60R166	Fitting: From the quick connector to 1/4" NPT fem.
SPK-HPC-002	System quick connector including T-876
T-873	Replacement swivel fitting for the pumps
124109	Aluminum carrying case for APC system A
SPK-HHC-002	Soft carrying case for the APC indicator
104203	Test leads; 1 x black and 1 x red
123958	Serial communication cable for PC
SPK-APC-001	User manual for the APC series
T-746	Service kit for T-730 and T-740
T-747	Service kit for T-750 pump
11-90067	1/8 NPT male to 1/4 NPT female
T-870	1/8 NPT male to 1/4 BSP female

### Ordering information System A

Order No.	Description
<b>Pressure calibrator - 1st thru 3th char.</b>	
APC	APC pressure calibrator
<b>Indicator pressure range - 4th thru 7th char.</b>	
010C	Vacuum to 10 psi / 0.7 bar
030C	Vacuum to 30 psi / 2 bar
200C	Vacuum to 200 psi / 15 bar
<b>Base model number - 8th thru 10th char.</b>	
AXX	APC calibration System A
IND	APC indicator only
<b>Certificate - 11th char.</b>	
G	NIST traceable certificate (standard)
H	Accredited certificate
<b>Sample order number</b>	
APC030CAXXG	
JOFRA APC 30 psi / 2 bar pressure calibration system A T-730 hand pump and NIST traceable calibration certificate.	

**JOFRA APC SYSTEM B**

- -12 to 200 psi /  
-0.830 to 15 bar
- 0 to 500 psi / 35 bar

This system includes the dual function pneumatic hand pump. With this pump you can calibrate both vacuum and pressure applications. It takes just a few seconds to switch between vacuum and pressure, just push one button (valve) on the T-910 handpump.

The System B comes in a carrying case with cutouts for fittings, hose and the complete assembled calibration unit - no time required to assemble the unit every time.

The indicator and the pump are fitted with a special quick connector that makes it possible to separate the system in seconds without any tool. This quick connector also makes it possible to use the assembled system with the indicator twisted to any angle.



**T-910 hand pump**

The T-910 pump is an easy-to-use single hand operated pneumatic pump.

The T-910 pump features both vacuum and pressure generation up to 40 bar / 580 psi. One button (valve) makes it easy to switch from vacuum to pressure measurements.

Built-in release valve, vernier valve for fine adjustment and dual pressure output enable safe and simple operation.



**Pressure range** ..... -0.960 to 40 bar / -14 psi to 580 psi  
**Test medium** ..... Air  
**Wetted parts** ..... Anodized aluminum, nickel-plated brass, stainless steel, Nylon  
**Connections to test object:** ..... Hose 1 m / 40 in. with 1/4" BSP and NPT female terminations

Part No.	Description
T-910	Pump: -29 inHg to 580 psi / -0.960 to 40 bar
12-90136	Fitting for APM-S pressure module <sup>1)</sup>
11-90067	Fitting for APM-H pressure module <sup>1)</sup>

Teflon tape is suggested with NPT fittings

<sup>1)</sup> Use 1/4 NPT female x 3/8 BSP male adapter supplied with pump

**Standard delivery:**

**APC calibrator (indicator):**

- Traceable calibration certificate (NIST)
- With pressure and vacuum performance
- 9 V battery
- Adapter to 1/4 in. NPT female
- Adapter to 1/4 in. BSP female
- Test leads: red and black
- Soft carrying case
- User manual

**Also included with System B delivery:**

- Hand pump
- Hose 1 m / 40 in. with 1/4" BSP and NPT female connector
- Quick connector between pump and indicator
- 1 roll of teflon tape
- Aluminum carrying case
- Fitting to go from the quick connector on the indicator to 1/4 in. BSP or NPT female (when using the indicator as a gauge in the process)

**Shipping information**

Weight..... 5.5 kg / 12.13 lb  
 Size .....188 x 350 x 560 mm / 7.4 x 13.8 x 22 in

**Accessories**

Part No.	Description
Recommended fitting set 65R191 or 192 for the system - to interface your device-under-test with the test hose:	
65R191	Fitting set BSP female: 1x1/8" 1x3/8" 1x1/2" teflon tape and packings (60R191)
65R192	Fitting set NPT female: 1x1/8" 1x1/4" 1x3/8" 1x1/2" teflon tape and packings (60R191)
60R191	Set of rubber packings for 65R191 and 65R192
60I104	Roll of teflon tape
60R178	Fitting: From the quick connector to 1/4" BSP fem.
60R166	Fitting: From the quick connector to 1/4" NPT fem.
SPK-HPC-001	System quick connector (system B)
124110	Aluminum carrying case for APC system B
SPK-HHC-002	Soft carrying case for the APC indicator
104203	Test leads: 1 x black and 1 x red
123958	Serial communication cable for PC
SPK-APC-001	User manual for the APC series
75P012	Service kit for T-910 pump
SPK-HPC-003	System quick connector (system B 500 psi unit)
11-90067	1/8" NPT male to 1/4" NPT female
T-870	1/8" NPT male to 1/4" BSP female
11-90111	1/8" NPT female to 1/4" NPT female
11-90110	1/8" NPT female to 1/4" BSP female

**Ordering information APC System B**

Order No.	Description
APC	<b>Pressure calibrator - 1st thru 3th char.</b> APC pressure calibrator
200C	<b>Indicator pressure range - 4th thru 7th char.</b> Vacuum to 200 psi / 15 bar
500G	0-500 psi / 35 bar
BXX	<b>System - 8th thru 10th char.</b> APC calibration System B
IND	APC indicator only
G	<b>Certificate - 11th char.</b> NIST traceable certificate (standard)
H	Accredited certificate

**APC200CBXXG**

**Sample order number**

**JOFRA APC 200 psi / 15 bar pressure calibration system B and NIST traceable calibration certificate.**

## JOFRA APC SYSTEM C

- 0 to 500 psi / 35 bar
- 0 to 1,000 psi / 70 bar
- 0 to 3,000 psi / 200 bar
- 0 to 5,000 psi / 350 bar

This system consists of an APC calibrator together with a hydraulic, high pressure hand pump T-620 or T-620H, which features an oil reservoir to prime the system.



System C is an easy-to-use single hand operated calibration system. No need for a flat surface (table) to operate the system. The system includes release valve and vernier valve for fine adjustment to enable safe and simple operation of the pump.

The System C comes in an alu-carrying case with cutouts for fittings, hose, and the complete assembled calibration unit - no time adder to assemble the unit every time. Easy and fast connection between pump and calibrator makes it easy to use the pressure indicator separately for other pressure test tasks.

### AMETEK hydraulic hand pump with oil reservoir

This easy-to-use hand pump is specially designed for high pressure applications. The pump is used in the APC system C.

The pump has a 200 cl / 0.5 pint built-in oil reservoir, vent valve, and vernier valve for fine adjustment. The pump has a dual pressure output - one for the test object and one for the APC calibrator.



Range, T-620 ..... 0 to 3,000 psi / 200 bar  
 Range, T-620H ..... 0 to 5,000 psi / 350 bar  
 Test medium ..... Hydraulic oil  
 Wetted parts ..... Aluminum, brass, stainless steel, Lexan  
 Connection to test object: ..... Hose 0.5 m / 20 in.  
 with 1/4" BSP and NPT female terminations

#### Part No. Description

T-620 Pump: 0 to 3,000 psi / 200 bar  
 T-620H Pump: 0 to 5,000 psi / 350 bar

For use with System C:

11-90067 Fitting for APM-S pressure module <sup>1)</sup>  
 12-90135 Fitting for APM-H pressure module <sup>1)</sup>

Teflon tape is suggested with NPT fittings  
<sup>1)</sup> 1/8 NPT female swivel fitting on pump

For use with standard pump connections:

11-90067 Fitting for APM-S pressure module <sup>2)</sup>  
 12-90136 Fitting for APM-H pressure module <sup>2)</sup>

Teflon tape is suggested with NPT fittings  
<sup>2)</sup> 1/4 NPT female swivel fitting on pump

### Standard delivery:

#### APC calibrator (indicator):

- Traceable calibration certificate (NIST)
- 9 V battery
- Adapter to 1/4 in. NPT female
- Adapter to 1/4 in. BSP female
- Test leads; red and black
- Soft carrying case
- User manual

#### Also included with System C delivery:

- Hand pump T-620 or T-620H
- Hose 0.5 m / 20 in. with 1/4" BSP and NPT female connector
- 1 roll of teflon tape
- Aluminum carrying case

### Shipping information

Weight ..... 5.5 kg / 12.13 lb  
 Size ..... 188 x 350 x 560 mm / 7.4 x 13.8 x 22 in

### Accessories

Part No.	Description
65P175	1 m hose with 1/4" BSP female termination Max. pressure 5,000 psi / 350 bar
65P180	2 m hose with 1/4" BSP female termination Max. pressure 5,000 psi / 350 bar
T-656	Service kit for pump
124299	Carrying case for System C
104203	Test leads: red and black
123958	Serial communication cable for PC
T-878	Replacement swivel fitting for pump to 1/8" NPT female
11-90111	1/8" NPT female to 1/4" NPT female
11-90110	1/8" NPT female to 1/4" BSP female
601104	Teflon tape

### Ordering information System C

#### Order No. Description

<b>Pressure calibrator - 1st thru 3th char.</b>	
APC	APC pressure calibrator
<b>Indicator pressure range - 4th thru 7th char.</b>	
500G	0 to 500 psi / 35 bar
01KG	0 to 1,000 psi / 70 bar
03KG	0 to 3,000 psi / 200 bar
05KG	0 to 5,000 psi / 350 bar
<b>Base model number - 8th thru 10th char.</b>	
CXX	APC calibration System C
IND	APC indicator only
<b>Certificate - 11th char.</b>	
G	NIST traceable certificate (standard)
H	Accredited certificate
<b>APC03KGCXXG</b>	<b>Sample order number</b>
<b>JOFRA APC 3,000 psi / 200 bar pressure calibration system C hand pump for oil and NIST traceable calibration certificate.</b>	

## JOFRA APC SYSTEM D

- 0 to 500 psi / 35 bar
- 0 to 1,000 psi / 70 bar
- 0 to 3,000 psi / 200 bar
- 0 to 5,000 psi / 350 bar

This system consists of an APC calibrator together with a rugged, hydraulic, high pressure screw pump.



System D is an easy-to-use calibration system. Place the pump on a flat surface and turn the handle to generate pressure. You can adjust the indicator to fit the best viewing angle. The system includes a manifold for connection of the test device, a fine adjustment vernier valve (optional), and a reservoir for extra oil or water (optional).

The System D comes in an alu-carrying case with cutouts for fittings and the complete assembled calibration unit - no time adder to assemble the unit every time. Easy and fast connection between pump and calibrator makes it easy to use the pressure calibrator separately for other pressure test tasks.

### AMETEK screw pump

The AMETEK screw pump is designed for very easy generation of high pressure.

This pump is part of system D. The screw pump has a 4 output manifold. Fine adjustment, vernier valve, liquid reservoir, and fittings are optional.



The AMETEK screw pump may be delivered for 2 different test media: hydraulic oil or water.

Pressure range..... 0 to 5,000 psi / 350 bar  
 Test media.....Hydraulic oil, water  
 Wetted parts..... Aluminum, brass, stainless steel  
 Connections to test objects: ..... 4 x 1/4" BSP female

Part No.	Description
65-P016	Screw pump oil: 0 to 5000 psi / 350 bar
65-P017	Screw pump water: 0 to 5000 psi / 350 bar

For use with System D:

11-90109	Fitting for APM-S pressure module <sup>1)</sup>
12-90067	Fitting for APM-H pressure module <sup>1)</sup>
	Teflon tape is suggested with NPT fittings
	Bonded seal is suggested with BSP fittings
	<sup>1)</sup> 1/4 BSP banjo house fitting on pump

For use with standard pump connections:

11-90067	Fitting for APM-S pressure module <sup>2)</sup>
12-90136	Fitting for APM-H pressure module <sup>2)</sup>
	Teflon tape is suggested with NPT fittings
	Bonded seal is suggested with BSP fittings
	<sup>2)</sup> 1/4 BSP female connection on manifold

### Standard delivery:

#### APC calibrator (indicator):

- Traceable calibration certificate (NIST)
- 9 V battery
- Adapter to 1/4 in. NPT female
- Adapter to 1/4 in. BSP female
- Test leads: red and black
- Soft carrying case
- User manual

#### Also included with System D delivery:

- Screw pump for oil or water
- 10 x 1/4" bonded seals, Allen key 6 mm
- 2 x 1/4" NPT female adapters
- 1 roll of teflon tape
- Aluminum carrying case

#### Shipping information

Weight ..... 12 kg / 26.5 lb  
 Size ..... 230 x 440 x 750 mm / 9.1 x 17.3 x 29.5 in

### Accessories

Part No.	Description
65P175	1 m hose with 1/4" BSP female termination Max. pressure 5,000 psi /350 bar
65P180	2 m hose with 1/4" BSP female termination Max. pressure 5,000 psi / 350 bar
60I156	1.5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi /700 bar
60I157	5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi /700 bar
65N000	Extension tube, 120 mm
65-R975	Reservoir set including valve and bonded seals
60R135	Valve for reservoir
60P013	Vernier valve for fine adjustment
124301	Carrying case for System D
104203	Test leads: 1 x black and 1 x red
123958	Serial communication cable for PC
50-REP-615	Quick connector set (male + female) (max. 10,000 psi / 700 bar)
SPK-HPC-004	Complete banjo/instrument connecting set
60I104	Teflon tape
11-90111	1/8" NPT female to 1/4" NPT female
11-90110	1/8" NPT female to 1/4" BSP female
11-90109	1/4" BSP male to 1/4" NPT female

### Ordering information System D

#### Order No. Description

<b>Pressure calibrator - 1st thru 3th char.</b>	
APC	APC pressure calibrator
<b>Indicator pressure range - 4th thru 7th char.</b>	
500G	0 to 500 psi / 35 bar
01KG	0 to 1,000 psi / 70 bar
03KG	0 to 3,000 psi / 200 bar
05KG	0 to 5,000 psi / 350 bar
<b>Base model number - 8th thru 10th char.</b>	
DOX	APC calibration System D - oil
DWX	APC calibration System D - water
IND	APC indicator only
<b>Certificate - 11th char.</b>	
G	NIST traceable certificate (standard)
H	Accredited certificate

#### APC03KGDOXG

#### Sample order number

JOFRA APC 3,000 psi / 200 bar pressure calibration System D screw pump for oil and NIST traceable calibration certificate.

**JOFRA APC SYSTEM E**

- 0 to 1,000 psi / 70 bar
- 0 to 3,000 psi / 200 bar
- 0 to 5,000 psi / 350 bar
- 0 to 10,000 psi / 700 bar

This system consists of an APC calibrator together with a rugged, hydraulic, high pressure pump.



System E is an easy-to-use calibration system. The hydraulic pump makes it very easy to prime the system. You can adjust the indicator to fit the best viewing angle. The system includes a manifold for connection of two test devices and the fine adjustment vernier valve is standard.

The System E comes in an alu-carrying case with cutouts for fittings and the complete assembled calibration unit - no time adder to assemble the unit every time. Easy and fast connection between pump and calibrator makes it easy to use the pressure calibrator separately for other pressure test tasks.

**AMETEK hydraulic pump for System E**

The AMETEK hydraulic pump is designed for high pressure applications. The pump is used in the APC System E.



The pump has a 4 pressure output manifold. Fine adjustment vernier valve and fittings are optional.

Pressure range..... 0 to 10,000 psi / 700 bar  
 Test media.....oil  
 Wetted parts..... Aluminium, brass, stainless steel  
 Connections to test objects: ..... 2 x 1/4" BSP female

Part No.	Description
65-P014	Hydraulic pump for oil: 0 to 700 bar / 10,000 psi

For use with System E:

11-90109	Fitting for APM-S pressure module <sup>1)</sup>
12-90067	Fitting for APM-H pressure module <sup>1)</sup>
	Teflon tape is suggested with NPT fittings
	Bonded seal is suggested with BSP fittings
	<sup>1)</sup> 1/4 BSP banjo house fitting on pump

For use with standard pump connections:

11-90067	Fitting for APM-S pressure module <sup>2)</sup>
12-90136	Fitting for APM-H pressure module <sup>2)</sup>
	Teflon tape is suggested with NPT fittings
	Bonded seal is suggested with BSP fittings
	<sup>2)</sup> 1/4 BSP female connection on manifold

**Standard delivery:**

**APC calibrator (indicator):**

- Traceable calibration certificate (NIST)
- 9 V battery
- Adapter to 1/4 in. NPT female
- Adapter to 1/4 in. BSP female
- Test leads: red and black
- Soft carrying case
- User manual

**Also included with system D delivery:**

- Hydraulic pump
- 10 x 1/4" bonded seals, Allen key 6 mm
- 2 x 1/4" NPT female adapters
- 1 roll of teflon tape
- Aluminum carrying case

**Shipping information**

Weight ..... 13 kg /28.7 lb  
 Size .....230 x 440 x 750 mm / 9.1 x 17.3 x 29.5 in

**Accessories**

Part No.	Description
601156	1.5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi / 700 bar
601157	5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi / 700 bar
124303	Carrying case for System E
104203	Test leads: 1 x black and 1 x red
123958	Serial communication cable for PC
50-REP-615	Quick connector set (max. 10,000 psi/700 bar)
SPK-HPC-004	Complete banjo/instrument connecting set
601104	Teflon tape
11-90111	1/8" NPT female to 1/4" NPT female
11-90110	1/8" NPT female to 1/4" BSP female
11-90109	1/4" BSP male to 1/4" NPT female

**Ordering information System E**

Order No.	Description
APC	Pressure calibrator - 1st thru 3th char. APC pressure calibrator
	Indicator pressure range - 4th thru 7th char.
01KG	0 to 1,000 psi / 70 barg
03KG	0 to 3,000 psi / 200 barg
05KG	0 to 5,000 psi / 350 barg
10KG	0 to 10,000 psi / 700 barg
	Base model number - 8th thru 10th char.
EXX	APC calibration System E - oil
IND	APC indicator only
	Certificate - 11th char.
G	NIST traceable certificate (standard)
H	Accredited certificate
<b>APC03KGEXXG</b>	<b>Sample order number</b>
<b>JOFRA APC 3,000 psi / 200 bar pressure calibration system E hydraulic pump for oil and NIST traceable calibration certificate.</b>	

## JOFRA APC SYSTEM F

- 0 to 500 psi / 35 bar
- 0 to 1,000 psi / 70 bar
- 0 to 3,000 psi / 200 bar
- 0 to 5,000 psi / 350 bar
- 0 to 10,000 psi / 700 bar

System F is an easy-to-use calibration system. The hydraulic pump makes it very easy to prime the system. The pump contains 1.23 l / 75 in<sup>3</sup> of liquid. The system includes a manifold for connection of two test devices and the fine adjustment vernier valve is standard.



The System F comes in an alu-carrying case with cutouts for fittings, and the complete assembled calibration unit - no time adder to assemble the unit every time. Easy and fast connection between pump and calibrator makes it easy to use the pressure calibrator separately for other pressure test tasks.

### AMETEK hydraulic pump for System F

The type T pump is designed for high pressure applications up to 15,000 psi / 1,000 bar. The pump and system may be ordered with either oil or a water/alcohol mixture as the pressure medium. The pump is constructed of 300 series stainless steel and Monel allowing for the use of other hydraulic media. There are three available seal packages for the system: Buna-N, Viton®, and EPT<sup>2</sup>.



The Type T pump features a dual pressure output manifold, fine adjustment vernier valve, relief valve, and dual volume control for rapid pressure increase at lower pressures and easier pumping at higher pressures.

1) Customer must verify compatibility of seals and pump materials with pressure medium. Viton is a registered trademark.

**Pressure range:** .....0 to 15,000 psi / 1,000 bar  
**Test media:** .....Hydraulic oil, water, Skydrol  
**Wetted parts:**.....Stainless steel, Monel  
**Connections to test objects:**..... BSP fittings 1/4" 1/2" female; NPT fittings 1/4" or 1/2" female

Part No.	Description
T-1	Pump: 0 to 15,000 psi/1,000 bar water - seals: Buna N <sup>2)</sup>
T-1/VITON	Pump: 0 to 15,000 psi/1,000 bar water - seals: Viton
T-1/EPT	Pump: 0 to 15,000 psi/1,000 bar water - seals: EPT
T-1/OIL	Pump: 0 to 15,000 psi/1,000 bar oil - seals: Buna N <sup>2)</sup>
T-1/OIL/VITON	Pump: 0 to 15,000 psi/1,000 bar oil - seals: Viton
T-1/OIL/EPT	Pump: 0 to 15,000 psi/1,000 bar oil - seals: EPT
12-90136	Fitting for APM-S pressure module
11-90067	Fitting for APM-H pressure module
T-134	Additional 1/4 NPT female adapter for manifold

2) Standard

### Standard delivery:

- APC calibrator (indicator):**
- Traceable calibration certificate (NIST)
  - 9 V battery
  - Adapter to 1/4 in. NPT female
  - Adapter to 1/4 in. BSP female
  - Adapter 9/16-18 male to 1/8 NPT female
  - Test leads: red and black
  - Soft carrying case
  - User manual

### Also included with system F delivery:

- Hydraulic pump
- 2 x 1/4" bonded seals, Allen key 6 mm
- 2 x 1/4" NPT female adapters
- 1 roll of teflon tape
- Aluminum carrying case

### Shipping information

Weight ..... 18 kg / 39.7 lb  
 Size .....230 x 440 x 750 mm / 9.1 x 17.3 x 29.5 in

### Accessories

Part No.	Description
601156	1.5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi / 700 bar
601157	5 m hose with 1/4" BSP female termination Max. pressure 10,000 psi / 700 bar
124304	Carrying case for system F
104203	Test leads: 1 x black and 1 x red
123958	Serial communication cable for PC
11-90111	1/8" NPT female to 1/4" NPT female
11-90110	1/8" NPT female to 1/4" BSP female
T-863	9/16-18 male to 1/8 NPT female

### Ordering information System F

Order No.	Description
APC	<b>Pressure calibrator - 1st thru 3th char.</b> APC pressure calibrator
500G	<b>Indicator pressure range - 4th thru 7th char.</b> 0 to 500 psi / 35 bar
01KG	0 to 1,000 psi / 70 bar
03KG	0 to 3,000 psi / 200 bar
05KG	0 to 5,000 psi / 350 bar
10KG	0 to 10,000 psi / 700 bar
FWB	<b>Base model number - 8th thru 10th char.</b> APC cal. System F - water - seals: Buna N
FWV	APC cal. System F - water - seals: Viton
FWE	APC cal. System F - water - seals: EPT
FOB	APC cal. System F - oil - seals: Buna N
FOV	APC cal. System F - oil - seals: Viton
FOE	APC cal. System F - oil - seals: EPT
IND	APC indicator only
G	<b>Certificate - 11th char.</b> NIST traceable certificate (standard)
H	Accredited certificate
APC10KGFOEG	<b>Sample order number</b>

**JOFRA APC 10,000 psi / 700 bar pressure calibration system F. Hydraulic pump for oil and NIST traceable calibration certificate.**

## JOFRA APM S MODULES



The JOFRA APM S series are industrial pressure modules with good accuracies. The modules are designed so that the cable is integrated into the module housing, and the overall profile allows for easy storage of multiple modules.

Resolution: .....5 digits (20 to 100 ppm depending on range)  
 Dimensions: ..... 60 x 45 x 75 mm / 2.4 x 1.8 x 3 in.  
 Weight: ..... 350 g / 0.77 lb.  
 Cable length: ..... 60 cm / 2 ft.  
 Pressure connections: ..... 1/4 in. NPT female  
 Conversion adapter to: ..... 1/4 in. BSP female  
 Electrical connection: ..... Lemo, 5-pole, male  
 Calibration certificate: ..... NIST traceable  
 Warm up: ..... 10 minutes to rated accuracy  
 Reading rate: ..... 50 per second  
 Display rate ASC300 and AMC900: ..... 2 per second  
 Compliance - CE standards: ..... EN 50081-1, EN 50082-1  
 EN 50081-2, EN 50082-2

Range	Type	psi	bar	Pressure port <sup>*2</sup>	Reference port <sup>*2</sup>	Over-pressure <sup>*3</sup>	Burst pressure <sup>*4</sup>	Reference accuracy <sup>*5</sup>	12 month accuracy <sup>*6</sup>	Part number
1 psi <sup>*1</sup>	Gauge	1.0000	0.0689	DRY	DRY	x 5	x 10	0.15%	0.30%	APM001PNSG
5 psi <sup>*1</sup>	Gauge	5.0000	0.3447	DRY	DRY	x 5	x 10	0.05%	0.10%	APM005PNSG
15 psi <sup>*1</sup>	Gauge	15.000	1.0342	DRY	N/A	x 4	x 6	0.025%	0.05%	APM015PNSG
1 psi	Gauge	1.0000	0.0689	316L SS	DRY	x 4	x 6	0.075%	0.15%	APM001PGSG
5 psi	Gauge	5.0000	0.3449	316L SS	DRY	x 2	x 3	0.025%	0.05%	APM005PGSG
15 psi	Gauge	15.000	1.0342	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM015PGSG
30 psi	Gauge	30.000	2.0684	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM030PGSG
100 psi	Gauge	100.00	6.8948	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM100PGSG
200 psi	Gauge	200.00	13.790	316L SS	N/A	x 2.5	x 3.7	0.025%	0.05%	APM200PGSG
300 psi	Gauge	300.00	20.684	316L SS	N/A	x 1.6	x 2.5	0.025%	0.05%	APM300PGSG
500 psi	Gauge	500.00	34.486	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM500PGSG
1000 psi	Gauge	1000.0	68.948	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM100KPGSG
2000 psi	Gauge	2000.0	137.90	316L SS	N/A	x 2.5	x 3.7	0.025%	0.05%	APM02KPGSG
3000 psi	Gauge	3000.0	206.84	316L SS	N/A	x 1.6	x 2.5	0.025%	0.05%	APM03KPGSG
5000 psi	Gauge	5000.0	344.76	316L SS	N/A	x 1.5	x 2	0.025%	0.05%	APM05KPGSG
10000 psi	Gauge	10000	689.48	316L SS	N/A	x 1.2	x 2	0.025%	0.05%	APM10KPGSG
±15 psi	Combination	±15.000	±1.0342	316L SS	N/A	x 2	x 3	0.035%	0.07%	APM015PCSG
-15 to 200 psi	Combination	-015.00 +200.00	-1.0342 +13.790	316L SS	N/A	x 2.5	x 3	0.025%	0.05%	APM200PCSG
5 psi	Differential	5.0000	0.3449	316L SS	DRY	x 2	x 3	0.035%	0.07%	APM005PDSG
100 psi	Differential	100.00	6.8948	316L SS	DRY	x 2	x 3	0.025%	0.05%	APM100PDSG
5 psi	Absolute	5.0000	0.3448	316L SS	N/A	x 6	x 9	0.035%	0.07%	APM005PASG
15 psi	Absolute	15.000	1.0342	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM015PASG
30 psi	Absolute	30.000	2.0684	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM030PASG
1 bar	Gauge	14.503	1.0000	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM001BGSG
4 bar	Gauge	58.012	4.0000	316L SS	N/A	x 1.2	x 2.5	0.025%	0.05%	APM004BGSG
6 bar	Gauge	87.018	6.0000	316L SS	N/A	x 2.3	x 3.5	0.025%	0.05%	APM006BGSG
10 bar	Gauge	145.03	10.000	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM010BGSG
16 bar	Gauge	232.05	16.000	316L SS	N/A	x 2.1	x 3.2	0.025%	0.05%	APM016BGSG
21 bar	Gauge	304.56	21.000	316L SS	N/A	x 1.6	x 2.4	0.025%	0.05%	APM021BGSG
25 bar	Gauge	362.58	25.000	316L SS	N/A	x 2.7	x 4.1	0.025%	0.05%	APM025BGSG
40 bar	Gauge	580.12	40.000	316L SS	N/A	x 1.7	x 2.5	0.025%	0.05%	APM040BGSG
60 bar	Gauge	870.18	60.000	316L SS	N/A	x 2.2	x 3.4	0.025%	0.05%	APM060BGSG
100 bar	Gauge	1450.3	100.00	316L SS	N/A	x 3.4	x 5	0.025%	0.05%	APM100BGSG
160 bar	Gauge	2320.5	160.00	316L SS	N/A	x 2.1	x 3.2	0.025%	0.05%	APM160BGSG
200 bar	Gauge	2900.6	200.00	316L SS	N/A	x 1.7	x 2.5	0.025%	0.05%	APM200BGSG
250 bar	Gauge	3625.8	250.00	316L SS	N/A	x 2	x 2.7	0.025%	0.05%	APM250BGSG
400 bar	Gauge	5801.2	400.00	316L SS	N/A	x 1.3	x 1.7	0.025%	0.05%	APM400BGSG
600 bar	Gauge	8701.8	600.00	316L SS	N/A	x 1.4	x 2.2	0.025%	0.05%	APM600BGSG
700 bar	Gauge	10152	700.00	316L SS	N/A	x 1.2	x 2	0.025%	0.05%	APM700BGSG
±1 bar	Combination	±14.503	±1.0000	316L SS	N/A	x 2	x 3	0.035%	0.07%	APM001BCSG
-1 bar	Vacuum	-14.503	-1.0000	316L SS	DRY	2 bar	3 bar	0.035%	0.07%	APM001BVSG
7 bar	Absolute	101.52	7.0000	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM007BASG
7 kPa	Gauge	1.0152	0.0700	316L SS	DRY	x 4	x 6	0.10%	0.20%	APM007KGSG
35 kPa	Gauge	5.0761	0.3500	316L SS	DRY	x 2	x 3	0.035%	0.07%	APM035KGSG
70 kPa	Gauge	10.152	0.7000	316L SS	N/A	x 2	x 3	0.035%	0.07%	APM070KGSG
200 kPa	Gauge	29.006	2.0000	316L SS	N/A	x 2.1	x 3.1	0.025%	0.05%	APM200KGSG
350 kPa	Gauge	50.761	3.5000	316L SS	N/A	x 2	x 3	0.025%	0.05%	APM350KGSG
-29 inHg	Vacuum	-14.243	-1.0342	316L SS	DRY	60 inHg	90 inHg	0.035%	0.07%	APM029HVSG
10 inH2O <sup>*1</sup>	Gauge	0.3612	0.0249	DRY	DRY	x 5	x 10	0.20%	0.30%	APM010WGSG

## JOFRA APM H MODULES



The JOFRA APM H series are high accuracy laboratory units: 0.01% of F.S. The outstanding performance makes these modules perfect for use as an electronic pressure reference at the top of your calibration hierarchy. These modules are easy to work with and easy to transport.

Resolution: .....6 digits (2 to 10 ppm depending on range)  
 Dimensions: .....99 x 55 x 55 mm / 3.9 x 2.18 x 2.18 in.  
 Weight: ..... 450 g / 1 lb.  
 Pressure connections: ..... 7/16-20 SAE female  
 Conversion adapter to:..... 1/8 in. NPT and BSP male  
 Electrical connection:.....9 pole D-sub, male  
 Communication cable: ..... module to ASC300/AMC900/APC  
 Cable length:..... 60 cm / 2 ft.  
 Calibration certificate: ..... NIST traceable  
 Warm up:..... 10 minutes to rated accuracy  
 Reading rate:..... 50 per second  
 Display rate ASC300 and AMC900: ..... 2 per second  
 Compliance - CE standards:..... EN 50081-1, EN 50082-1  
 EN 50081-2, EN 50082-2

Range	Type	psi	bar	Pressure port*2	Reference port*2	Over-pressure	Repeatability*7	6 month Accuracy*8	Part number
15 psi*9	Gauge	15.0000	1.03427	DRY	DRY	x 1.5	0.003%	0.010%	APM015PGHG
50 psi	Gauge	50.0000	3.44756	DRY	DRY	x 1.5	0.003%	0.010%	APM050PGHG
100 psi	Gauge	100.0000	6.89512	DRY	DRY	x 1.5	0.003%	0.010%	APM100PGHG
500 psi	Gauge	500.000	34.4756	DRY	DRY	x 1.5	0.003%	0.010%	APM500PGHG
1000 psi	Gauge	1000.00	68.9513	DRY	DRY	x 1.5	0.003%	0.010%	APM01KPGHG
15 psi*9	Absolute	15.0000	1.03427	DRY	N/A	x 1.5	0.003%	0.010%	APM015PAHG
50 psi	Absolute	50.0000	3.44756	DRY	N/A	x 1.5	0.003%	0.010%	APM050PAHG
100 psi	Absolute	100.000	6.89512	DRY	N/A	x 1.5	0.003%	0.010%	APM100PAHG
500 psi	Absolute	500.000	34.4756	DRY	N/A	x 1.5	0.003%	0.010%	APM500PAHG
1000 psi	Absolute	1000.00	68.9513	DRY	N/A	x 1.5	0.003%	0.010%	APM01KPAHG
3000 psi	Absolute	3000.00	206.854	DRY	N/A	x 1.25	0.003%	0.010%	APM03KPAHG

- Note \*1** Non isolated transducer - dry air or non-corrosive gas compatible media only
- Note \*2** Media compatibility on pressure or reference port side of the module - DRY indicates dry air or non-corrosive gas as compatible media. 316L SS indicates media compatible with type 316 stainless steel
- Note \*3** Applying steady pressure up to the specified overpressure will not destroy or change performance of the module
- Note \*4** Applying burst pressure (short pressure spikes) above the specified limit can destroy the module
- Note \*5** Reference accuracy is expressed as % F.S. and includes only linearity, hysteresis, and repeatability at laboratory conditions.
- Note \*6** 12 month accuracy - expressed as % F.S. Includes linearity, repeatability, hysteresis, and temperature compensation 0 to 50°C / 32 to 122°F.
- Note \*7** The closeness of agreement between independent test results obtained under laboratory conditions.
- Note \*8** 6 month accuracy - expressed as % F.S. Includes linearity, repeatability, hysteresis, and temperature compensation 15 to 45°C / 59 to 113°F.
- Note \*9** All ranges less than 30 psi / 2 bar specify physical orientation of use.

## APM ORDER NUMBER STRUCTURE

The part number for the APM pressure module series consists of 10 characters:

### PRODUCT FAMILY

APM - Advanced Pressure Module

### PRESSURE RANGE

#### ENGINEERING UNIT

- P-psi
- B-bar
- K-KPa
- W-inH<sub>2</sub>O
- H-inHg

#### PRESSURE REFERENCE

- G - Gauge
- N - Gauge (Non-isolated transducer)
- A - Absolute
- D - Differential
- V - Vacuum
- C - Combined vacuum and pressure

#### ACCURACY FAMILY

- S - Standard industrial accuracy
- H - High laboratory accuracy

#### TRACEABILITY

- G - NIST traceable calibration certificate
- H - Accredited calibration certificate

**APM 015P GSG**

## APM ACCESSORIES

Number	Description
SPK-APM-001	APM H communication cable to JOFRA APC, ASC300 and AMC900
SPK-APM-002	Communication kit for PC Pressure port fitting:
12-90135	APM H to 1/8 in male NPT
T-786	APM S to 1/4 in female BSP
60R115	APM S to 1/4 in male BSP

For connection to various pumps, please see the individual pump descriptions.

## APC INDICATOR PRESSURE RANGES

This table shows the resolutions that can be obtained by the APC indicators throughout all engineering units

Resolution	APC010C		APC030C		APC200C		APC500G
	Vacuum to 10 psi	Vacuum to 0.7 bar	Vacuum to 30 psi	Vacuum to 2 bar	Vacuum to 200 psi	Vacuum to 15 bar	0 to 500 psi 0 to 35 bar
<b>Imperial ranges</b>							
psi	-10.0000	10.0000	-12.000	30.000	-12.00	200.00	500.00
inH <sub>2</sub> O@4°C	-276.81	276.81	-332.17	830.42	-332.2	5536.1	13840
inH <sub>2</sub> O@20°C	-277.30	277.30	-332.76	831.89	-332.8	5546.0	13865
inH <sub>2</sub> O@60°F	-277.08	277.08	-332.49	831.23	-332.5	5541.5	13854
inHg@0°C	-20.360	20.360	-24.432	61.081	-24.43	407.20	1018,0
ftH <sub>2</sub> O@4°C	-23.067	23.067	-27.681	69.202	-27.68	461.35	1153,4
ftH <sub>2</sub> O@20°C	-23.108	23.108	-27.730	69.324	-27.73	462.16	1155,4
ftH <sub>2</sub> O@60°C	-23.090	23.090	-27.708	69.269	-27.71	461.79	1154,5
<b>Metric ranges</b>							
bar	-0.7000	0.7000	-0.8300	2.0000	-0.830	15.000	35.000
mbar	-700.00	700.00	-830.0	2000.0	-830	15000	35000
kPa	-70.000	70.000	-83.00	200.00	-83.0	1500.0	3500.0
kg/cm <sup>2</sup>	-0.7138	0.7138	-0.8464	2.0394	-0.846	15.296	35.690
cmH <sub>2</sub> O@4°C	-713.82	713.82	-846.4	2039.5	-846	15296	35691
cmH <sub>2</sub> O@20°C	-715.09	715.09	-847.9	2043.1	-848	15323	35754
mH <sub>2</sub> O@4°C	-7.1382	7.1382	-8.464	20.395	-8.46	152.96	356.91
mH <sub>2</sub> O@20°C	-7.1509	7.1509	-8.479	20.431	-8.48	153.23	357.54
mmHg@0°C	-525.04	525.04	-622.6	1500.1	-623	11251	26252

Resolution	APC01KG	APC03KG	APC05KG	APC10KG
	0 to 1,000 psi 0 to 70 bar	0 to 3,000 psi 0 to 200 bar	0 to 5,000 psi 0 to 350 bar	0 to 10,000 psi 0 to 700 bar
<b>Imperial ranges</b>				
psi	1000.00	3000.0	5000.0	10000
inH <sub>2</sub> O@4°C	27681	83042	138403	276807
inH <sub>2</sub> O@20°C	27730	83189	138649	277298
inH <sub>2</sub> O@60°F	27708	83123	138538	277076
inHg@0°C	2036.0	6108.1	10180	20360
ftH <sub>2</sub> O@4°C	2306.7	6920.2	11534	23067
ftH <sub>2</sub> O@20°C	2310.8	6932.4	11554	23108
ftH <sub>2</sub> O@60°C	2309.0	6929.9	11545	23090
<b>Metric ranges</b>				
bar	70.000	200.00	350.00	700.00
mbar	70000	200000	350000	700000
kg/cm <sup>2</sup>	7000.0	20000	35000	70000
cmH <sub>2</sub> O@4°C	71.380	203.94	356.90	713.80
cmH <sub>2</sub> O@20°C	71382	203949	356911	713821
mH <sub>2</sub> O@4°C	71509	204311	357544	715087
mH <sub>2</sub> O@20°C	713.82	2039.5	3569.1	7138.2
mmHg@0°C	715.09	2043.1	3575.4	7150.9
ftH <sub>2</sub> O@60°F	52504	150013	262522	525045

temperature  
software  
pressure  
signal



### AMETEK

#### Calibration Instruments

offers a complete range of calibration equipment for pressure, temperature, and signal - including software.

#### Temperature standards

Portable precision thermometer. Dry-block calibrators: 4 series, more than 20 models - featuring speed, portability, accuracy, and advanced documenting functions.

#### Primary pressure standards

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