

pressure

JOFRA™

Specification Sheet
SS-CP-2180-US

NEW SYSTEM A + B PUMPS

Model CPC Compact Pressure Calibrator

Pressure range

CPC010C	0.7 bar / 10 psi
CPC030C	2 bar / 30 psi
CPC200C	15 bar / 200 psi

Ideal for on-site use

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

High flexibility

The calibration system can easily be disassembled with the calibrator being used separately for pressure monitoring tasks

Save time - instant general view

The display shows reference pressure and transmitter loop current from the device-under-test at the same time

Transmitter loop

Measure the transmitter loop current up to 24 mA (125%) and the pressure at the same time

Easy pressure switch test

Automatically records opening and closing point values on the display

Record min. and maximum readings

Use the CPC calibrator to capture the minimum and maximum pressure readings in safety valve applications

Documentation made easy

RS232 communication and JOFRACAL calibration software are included in the standard delivery

Complete marine program

Part of a complete program of marine approved temperature, pressure and signal calibrators; including temperature sensors

ISO 9001 Manufacturer

PRODUCT DESCRIPTION

JOFRA CPC series is a traceable, field instrument designed for easy and reliable check and calibration of pressure. Use the CPC series in process control applications such as verification or calibration of pressure gauges, transducers, transmitters, pressure switches and safety valves.



Features

The JOFRA CPC series is recognized by its high quality and carefully selected features that save time and make calibration tasks easy to perform; e.g. dual information display, 17 different pressure units, transmitter mA reading, min/max recording, peak reading, and semi-automatic pressure switch test finding the closing, opening and the hysteresis pressure (dead band).

Maintenance of the instrument is made easy. Recalibration of the unit can be performed locally with an accurate pressure reference: No need to send the unit back to the manufacturer for re-calibration. For all systems the pump and the calibrator are separate so replacement of the pump does not mean that you have to send the complete system for repair.

The JOFRA CPC can be delivered as an individual calibrator or as a complete calibration system ready for use in a carrying case, including pump, hose, connectors, battery, test leads, user manual, and traceable calibration certificate.

AMETEK®
CALIBRATION INSTRUMENTS

Clear dual line display

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

Electrical connections

The CPC calibrator have inputs for mA readings for pressure switches and transmitters.



ON / OFF

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

mA%

Switches the mA numeric display between mA and percentage of range.

Switch test

Turns on the switch test mode. Hold to clear previous test.

Pressure connections

1/8 in NPT female.



Units

Easy access to 17 different pressure engineering units. Press and hold while unit is powering up to change the power saver setting.

Zero

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

Serial interface

Serial interface to communicate with a PC (terminal). Also used if adjustment of the unit is necessary.

Max / Min

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

Dedicated switch test funktion

All CPC models have a time saving semi automatic pressure switch test. The instrument records the closing and opening pressure for the switch. The CPC can also be used to monitor a certain measurement point in the process and display the minimum and maximum value. This feature can be very helpfull when checking pressure spikes around valves.



ACCESSORIES

Complete aluminum carrying case

The CPC is available as an calibrator or in one of 2 test-ready systems that are complete and equipped to meet your pressure calibration needs.

The complete ready-to-use system is delivered in a practical aluminum carrying case.



Useful soft case

The CPC calibrator is supplied in a handy softcase designed for easy vertical operation during the calibration. The soft case have a pocket for the test leads and an opening in the top and bottom provide easy access to the termination block and the pressure module connector. A shoulder strap ensures convenient transportation when climbing ladders, etc. and the handy strap at the back makes it possible to hang the instrument on a pipe, ladder etc, while performing the calibration, test, or service task.



JOFRACAL CALIBRATION SOFTWARE

JOFRACAL calibration software ensures easy calibration of RTD's, thermocouples, transmitters, thermoswithes, pressure gauges and pressure switches. JOFRACAL can be used with JOFRA DPC-500, APC, CPC and IPI pressure calibrators, all JOFRA temperature calibrators, as well as JOFRA AMC910, ASC300 multi signal calibrator and ASM-800 signal multi scanner. When used with JOFRA ASM-800 signal multi scanner, JOFRACAL can perform a simultaneous semi automatic calibration on up to 24 pressure and/or temperature devices under test in any combination.

JOFRACAL software controls the complete calibration procedure, stores the results and provides a calibration audit trail through hard-copy certificates. All calibration data are stored for each sensor to monitor drift and optimise recalibration intervals. A scheduler feature allows planning of future calibrations.

Please find more information about JOFRACAL calibration software in specification sheet SS-CP-2510, which may be found at www.jofra.com

REQUIREMENTS JOFRACAL

Minimum hardware requirements:

- Intel® Pentium® II 1.4 GHz processor.
- 64MB RAM (128MB recommended)
- 80MB free disk space on hard disk (120MB recommended) prior to installation
- Standard VGA (800x600, 256 colours). 1024x768 recommended.
- CD-ROM drive for installation of program
- 1 or 2 free RS-232 serial ports, depending on configuration

Minimum software requirements:

- Microsoft Windows® 98, Microsoft Windows® NT 4.0, Microsoft Windows® 2000, Microsoft Windows® ME, Microsoft Windows® XP, Vista.
- System fonts: MS Sans Serif and Arial

FUNCTIONAL SPECIFICATIONS

Pressure range

bar vacuum to 0.7, 2, or 15bar
psi..... vacuum to 10, 30, or 200psi

Engineering units (built-in)

User selectable 17 units
(psi, bar, mbar, kg/cm², inH₂O @ 4°C, inH₂O @20°C, inH₂O @60°C,
mH₂O @4°C, mH₂O @20°C, cmH₂O@4°C, cmH₂O @20°C, ftH₂O @4°C,
ftH₂O @20°C, ftH₂O@60°C, inHg @0°C, mmHg @0°C, kPa)

Pressure accuracy

Accuracy positive pressure ±0.05% of F.S. ¹⁾
Accuracy vacuum..... ±0.1% F.S. ¹⁾
Temperature compensation
..... ±0.005% F.S. /°C outside 18 to 28°C
..... ±0.003% F.S. /°F outside 64 to 82°F

¹⁾ F.S. Full Scale is the numerical value of the positive pressure range. The accuracy includes non-linearity, hysteresis, repeatability and temperature effect 18 to 28°C / 64 to 82°F.
All above specifications are specified at 23±3°C / 73±6°F unless otherwise noticed.

Media compatibility

.....Non-corrosive gasses and liquids

Environmental

Operating temperature-10°C to 50°C / 14°F to 122°F
Storage temperature-20°C to 60°C / -4°F to 140°F

Display

Display.....Dual information LCD plus icon indicators
Display update Twice per second

Input / output

Min/Max Peak hold capture50 milliseconds
mA input0 to 24 mA accuracy ±0.015% of reading +2 µA
Switch test..... Supply max. 9 V

RS232 communication interface

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

Pressure connection

Connection1/8 in. NPT female
see delivery section for adapters

Pressure overload

Overload maximum pressure+50% F.S.
Overload "OL" in display activates at+20% F.S.

Power supply

Battery 1x 9 V Alkaline
Battery life Minimum 15 hours
Low battery indicator..... at 7 V

Instrument dimensions (L x W x H)

Calibrator..... 188 x 84 x 52 mm / 7.37 x 3.31 x 2.05 in
Indicator weight..... 400 g / 14.1 oz

Miscellaneous

CE conformity..... EN50082-1, 1992 and EN55022,
..... 1994 Class B
Safety CSA C22.2 No. 1010.1, 1992

Type approval certificate

The JOFRA CPC systems are type approved by Det Norske Veritas. Find the certificate at www.jofra.com
Approval, Certificate no..... A-10549



JOFRA CPC PRESSURE RANGES

This table shows the resolutions that can be obtained by the CPC calibrators throughout all engineering units

Resolution	CPC010C Vacuum to 10 psi Vacuum to 0.7 bar		CPC30C Vacuum to 30 psi Vacuum to 2 bar		CPC200C Vacuum to 200 psi Vacuum to 15 bar	
	Imperial ranges					
psi	-10.0000	10.0000	-12.000	30.000	-12.00	200.00
inH2O@4°C	-276.81	276.81	-332.17	830.42	-332.2	5536.1
inH2O@20°C	-277.30	277.30	-332.76	831.89	-332.8	5545.9
inH2O@60°F	-277.08	277.08	-332.50	831.24	-332.5	5541.6
ftH2O@4°C	-23.067	23.067	-27.681	69.202	-27.68	461.35
ftH2O@20°C	-23.108	23.108	-27.730	69.324	-27.73	462.16
ftH2O@60°C	-23.090	23.090	-27.708	69.270	-27.71	461.80
inHg@0°C	-20.360	20.360	-24.432	61.081	-24.43	407.21
Metric ranges						
bar	-0.7000	0.7000	-0.8300	2.0000	-0.8300	15.0000
mbar	-700.00	700.00	-830.0	2000.0	-830,0	15000,0
kPa	-70.000	70.000	-83.00	200.00	-83.00	1500.00
kg/cm2	-0.7138	0.7138	-0.8464	2.0394	-0.8464	15.2957
cmH2O@4°C	-713.82	713.82	-846.4	2039.5	-846,4	15296,2
cmH2O@20°C	-715.08	715.08	-847.9	2043.1	-847,9	15323,2
mH2O@4°C	-7.1382	7.1382	-8.464	20.395	-8.464	152.962
mH2O@20°C	-7.1508	7.1508	-8.479	20.431	-8.479	153.232
mmHg@0°C	-525.04	525.04	-622.6	1500.1	-622,6	11251,0



JOFRA CPC System A

- 0 to 2 bar (30 psi)
- 0 to 21 bar (300 psi)
- Vacuum to 0 bar (0 psi)



This system includes the JOFRA CPC calibrator together with one of the following pneumatic hand pumps: T-960 and T-970, 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 aluminium 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 can at any time be used separately for other pressure test tasks.

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

All JOFRA CPC calibrators used in System A are delivered calibrated in both pressure and vacuum.

T-960 and T-970 pumps for system A

Model T-960 pneumatic pressure pump features an extended range vernier adjustment for precisely controlling pump pressure and comfortable pistol grip handle.

Model T-970 pneumatic pressure pump is similar to the T-960, but generate pressure up to 40 bar (580 psi).

Pressure range, T-960 0 to 2 bar / 0 to 30 psi
 Pressure range, T-970.....0 to 40 bar / 0 to 580 psi
 Type..... Pneumatic
 Test medium..... Air
 OperationScissor
 "O"-rings Buna-N
 Wetted parts..... Aluminium, brass, stainless,
steel, nylon, Nylatron GS
 Connections to test object 3/8" BSP female
with 1/4" BSP and NPT female terminations
 Size..... 21.6 x 12.1 x 6.2 cm / 8.5 x 4.8 x 2.4 in
 Weight 1.4 kg / 3.0 lb

Ordering

Part No. Description

T-960 Pump: 0 to 2 bar (30 psi)
 T-970 Pump: 0 to 40 bar (580 psi)

Included with System A delivery

- Standard delivery (see page 8)
- Pump T-960 for 0 to 2 bar (0 to 30 psi)
- Pump T-970 for 0 to 40 bar (0 to 580 psi)
- 3/8" BSP female with 1/4" BSP and NPT female terminations
- Quick connector between pump and calibrator
- 1 roll of Teflon tape
- Protective carrying case

Accessories

Part No. Description

75P014 Service kit for T-960 pump
 75P016 Service kit for T-970 pump
 T-733-2 Pressure hose for T-960/970, 0.6 meter std.
 T-733-3 Pressure hose for T-960/970, 0.5 meter
 T-733-4 Pressure hose for T-960/970, 1.0 meter
 T-733-5 Pressure hose for T-960/970, 2.0 meter
 T-733-6 Pressure hose for T-960/970, 5.0 meter
 65R191 Set of BSP female fittings, teflon tape, packings
 * Fitting size : 1x1/8", 1x3/8", 1x1/2"
 65R192 Set of NPT female fittings, teflon tape, packings
 * Fitting size : 1x1/8", 1x1/4", 1x3/8" 1x1/2"
 60R191 1 set of packing and seals for 65R191 and 65R192
 123958 RS232 cable with stereo Jack connector, 2m/6ft
 124717 1x 9 Volt rechargeable battery
 124718 Charger for rechargeable batteries - 115/230 VAC
 SPK-HPC-001 Quick connector set for CPC system A / B

Ordering information system A

Order No.	Description
CPC	CPC pressure calibrator
	Calibrator pressure range
010C	Vacuum to 0.7 bar (10 psi)
030C	Vacuum to 2 bar (30 psi)
200C	Vacuum to 15 bar (200 psi)
NONE	Pump system only (no calibrator)
	Base model number
AXX	CPC System A (pump T-960)
AHX	CPC System A (pump T-970)
	Certificate
G	NIST traceable certificate (standard)
H	Accredited certificate

CPC030CAXXG Sample order number

JOFRA CPC 2 bar (30 psi) calibrator in pressure System A with pneumatic pressure handpump and NIST traceable calibration certificate.

JOFRA CPC System B

- Vacuum to 15 bar (200 psi)

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-975 handpump.



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

The calibrator 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 calibrator twisted to any angle.

T-975 hand pump for system B

Model T-975 pneumatic pressure pump features both vacuum and pressure generation. A 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. The unit offers both metric and imperial threads on the reference connection and the hose.

Pressure range.....-0.91 to 40 bar / -27 inHg to 580 psi
 Type..... Pneumatic
 Test medium..... Air
 Operation Scissor
 "O"-rings Buna-N
 Wetted parts..... Anodized aluminium, nickel-plated brass,
 stainless steel, Nylon
 Connections to test object 3/8" BSP female
with 1/4" BSP and NPT female terminations
 Size..... 21.6 x 12.1 x 6.2 cm / 8.5 x 4.8 x 2.4 in
 Weight 1.4 kg / 3.0 lb

Ordering

Part No.	Description
T-975	Pump: -0.91 to 40 bar (-27 inHg to 580 psi)

Included with System B delivery

- Standard delivery (see page 8)
- Handpump T-975 for all ranges
- 3/8" BSP female with 1/4" BSP and NPT female terminations
- Quick connector between pump and calibrator
- 1 roll of Teflon tape
- Protective carrying case

Accessories

Part No.	Description
75P017	Service kit for T-975 pump
T-733-2	Pressure hose for T-975, 0.6 meter std.
T-733-3	Pressure hose for T-975, 0.5 meter
T-733-4	Pressure hose for T-975, 1.0 meter
T-733-5	Pressure hose for T-975, 2.0 meter
T-733-6	Pressure hose for T-975, 5.0 meter
65R191	Set of BSP female fittings, teflon tape, packings * Fitting size : 1x1/8", 1x3/8", 1x1/2"
65R192	Set of NPT female fittings, teflon tape, packings * Fitting size : 1x1/8", 1x1/4", 1x3/8" 1x1/2"
60R191	1 set of packing and seals for 65R191 and 65R192
123958	RS232 cable with stereo Jack connector, 2m/6ft
124717	1x 9 Volt rechargeable battery
124718	Charger for rechargeable batteries - 115/230 VAC
SPK-HPC-001	Quick connector set for CPC system A / B

Ordering information system B

Order No.	Description
CPC	Pressure calibrator CPC pressure calibrator
	Calibrator pressure range
200C	Vacuum to 15 bar (200 psi)
NONE	Pump system only (no calibrator)
	Base model number
BXX	CPC system B
	Certificate
G	NIST traceable certificate (standard)
H	Accredited certificate

CPC200CBXXG Sample order number

JOFRA CPC 15 bar (200 psi) calibrator in pressure System B kit with pneumatic combination handpump and NIST traceable calibration certificate.

ORDERING INFORMATION - CPC CALIBRATOR

Order No.	Description
CPC	Pressure calibrator CPC Pressure Calibrator
Calibrator pressure range	
010C	Vacuum to 0.7 bar (10 psi)
030C	Vacuum to 2 bar (30 psi)
200C	Vacuum to 15 bar (200 psi)
Base model number	
IND	CPC calibrator only with standard accessories for configuration
Certificate	
G	NIST traceable certificate (standard)
H	Accredited certificate (optional – on quotation basis)

CPC030CINDG **Sample order number**
 JOFRA CPC 2 bar (30 psi) calibrator with standard accessories and NIST traceable calibration certificate.

STANDARD DELIVERY

- CPC calibrator
- 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
- Connection cable for RS232
- JOFRACAL calibration software
- Soft case and shoulder strap
- User manual

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AMETEK Calibration Instruments
 is one of the world's leading manufacturers and developers of calibration instruments for temperature, pressure and process signals as well as for temperature sensors both from a commercial and a technological point of view.

JOFRA Temperature Instruments
 Portable precision thermometers. Dry-block and liquid bath calibrators: 4 series, with more than 25 models and temperature ranges from -90° to 1205°C / -130° to 2200°F. All featuring speed, portability, accuracy and advanced documenting functions with JOFRACAL calibration software.

JOFRA Pressure Instruments
 Convenient electronic systems ranging from -1 to 1000 bar (25 inHg to 14,500 psi) - multiple choices of pressure ranges, pumps and accuracies, fully temperature-compensated for problem-free and accurate field use.

JOFRA Signal Instruments
 Process signal measurement and simulation for easy control loop calibration and measurement tasks - from handheld field instruments to laboratory reference level bench top instruments.

JOFRA / JF Marine Instruments
 A complete range of calibration equipment for temperature, pressure and signal, approved for marine use.

FP Temperature Sensors
 A complete range of temperature sensors for industrial and marine use.

M&G Pressure Testers
 Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading.

M&G Pumps
 Pressure generators from small pneumatic "bicycle" style pumps to hydraulic pumps generating up to 1,000 bar (15,000 psi).

*...because calibration is
 a matter of confidence*

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