

pressure

**JOFRA™**

#### Pressure ranges

0 to 1,000 bar / 14,500 psi  
Also vacuum and absolute ranges

#### High accuracy

±0.025% F.S. for all pressure ranges

#### Ideal for on-site use

Calibration procedures may be pre-defined and used for calibrations on-site

#### Measuring

Measure pressure, voltage and current, and supplies 24VDC as source for transmitters

#### Pressure units

15 different pressure units available, one additional pressure unit can be defined

#### Selectable language user-interface

Choose between English, German, Italian, French and Spanish user-interface

#### Easy pressure switch test

Automatically records opening and closing point values on the display

#### External Reference sensors

5 different reference sensors of different pressure ranges used with the same DPC-500 calibrator

#### Documentation made easy

RS232 communication, USB interface and JOFRACAL calibration software makes documentation easy

ISO 9001 Manufacturer

Specification Sheet  
SS-CP-2182-US

**NEW SYSTEM A + B PUMPS**

Model DPC-500

## Documenting Pressure Calibrator

### PRODUCT DESCRIPTION

The DPC-500 is a very user-friendly, accurate and compact solution for pressure comparison calibrations. The electronic pressure calibrator DPC-500 is used for high precision calibration of pressure instruments, e.g. pressure gauges, pressure transmitter, digital manometer, pressure switches, overpressure protection valves, etc.



### Features

The JOFRA DPC-500 documenting pressure calibrator measures pressure, voltage and current and supplies 24 VDC as source for transmitters. Calibration procedures can be pre-defined and used for calibrations on site. The DPC-500 is featured with USB and RS232 interfaces and is powered by a Lithium-Ion battery (rechargeable without memory-effect).

The built-in reference sensor is changeable, whereby several pressure ranges can be covered with one DPC-500 unit. All standard pressure ranges between vacuum and 1000 bar (0-14,500 psi) are available as well as vacuum and absolute pressure ranges.

In "measuring" operation, the DPC-500 displays simultaneous:

- reference pressure
- output of unit under test
- deviation (in selected pressure unit)
- deviation (in % of full scale or of reading of unit under test)

This means, that it is very easy to check if the unit under test is within its specified accuracy class.

**AMETEK®**  
CALIBRATION INSTRUMENTS

### Display

Large illuminated display, lithium-ion battery powered. Icons show current status and mode, and the smaller digits show device-under-test conditions

### Setup - menu

Set-up menu for choosing measuring, calibration or switch-test operation mode. Selectable user-interface in 5 different languages

### Switch test

Perform semi-automatic pressure switch tests. Check and adjust switch point of pressure switches. Hysteresis is calculated and displayed in the screen

### Calibration

Pre-define calibration procedures and work with them. Upload calibration data to PC using JOFRACAL calibration software



### Enter

Confirms the numeric input

### Clear

Deletes the numeric input

### ON / OFF

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

### 1 step back

### Measuring

DPC-500 measure pressure and calibrate without documentation

### Pressure connections

Pressure ranges 0 bar to 1000 bar (4 psi to 14,500 psi), vacuum and absolute ranges

## JOFRACAL CALIBRATION SOFTWARE

JOFRACAL calibration software ensures easy calibration of RTD's, thermocouples, transmitters, thermoswitches, 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.

Using JOFRACAL together with the JOFRA DPC-500 makes it possible to transfer calibration data to and from the documenting pressure calibrator using it for offline calibration. Work orders created in JOFRACAL can be downloaded to the DPC-500, and results produced on the DPC-500, either from JOFRACAL work orders or from the DPC-500 itself, can be imported back into JOFRACAL and produced as a certificate.

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



Power supply 24 VDC for pressure transmitters (to be activated via menu)

Measuring Input (Sockets 4 mm female)  
Voltage

Measuring Input (Sockets 4 mm female)  
Current and Switch-test

Socket for battery charger (charging starts automatically when charger is connected)

Connection cable for DPC-J reference sensors

USB and RS232 interface for communication with a PC



## FUNCTIONAL SPECIFICATIONS

### Pressure range

The DPC-500 do all it's reference measurements via the DPC-J reference sensors. It is therefore always delivered with 1 user-specified DPC-J reference sensor from vacuum to 1000 bar F.S.

### Pressure accuracy

Pressure accuracy: .....  $\pm 0.025\%$  FSO \*)

\*) calibrated at +23°C, incl. linearity, hysteresis and repeatability

F.S. (full scale) is the numerical value of the positive pressure range. The accuracy includes non-linearity, hysteresis, repeatability and temperature effect 0 to 50°C / 32 to 122°F.

### Temperature compensation

Full temperature compensation ..... 0 to 50°C / 32 to 122°F

### Engineering units (built-in)

User selectable ..... 15 units  
(bar, mbar, hPa, psi, inHg, cmHg, MPa, kPa, Pa, mH2O, cmH2O, mmH2O, kg/cm 2, inH2O, mmHg and 1 user-defined)

### Resolution

.....adjustable, max. 6 digits +prefix +decimal point

### Input / output

Measurement voltage..... 0-10 V, 0-5 V, 0-1 V  
Resolution .....display x 0,1 mV, accuracy  $\pm 0.5$  mV  
Measurement current..... 0-20 mA, 4-20 mA  
Resolution ..... display x 1  $\mu$ A, accuracy  $\pm 1.6$   $\mu$ A  
Voltage supply..... 24 VDC min. 20 mA, max. 50 mA  
..... tolerance  $\pm 1$ V

### Pressure connection

..... 1/2" BSP male

### Operation conditions

0°C to 50°C ..... max. 80% r.h. non-cond.  
During battery charging..... 0 to 45°C

### Storage:

-20°C to 60°C ..... max. 80% r.h. non-condensing

### Graphic display

Size..... 44.7 x 44.7 mm  
Pixel..... 128 x 128p  
Display resolution ..... up to 6 digits, user selectable

### Storage capacity

..... 16 units under test, each 22 test points

### Power supply

Charging plug 9V/450 mA  $\pm 50$  mA with metal protection cap  
Battery ..... Lithium-Ion with intelligent charging electronics  
Battery charger ..... 230 VAC 50/60 Hz (other on request)  
Battery life (unplugged)..... 8 hours  
Low battery indicator..... icon on display  
Protocol ..... ASCII command language  
Media compatibility ..... All wetted parts are stainless steel

### Communication interface

USB ..... with metal protection cap  
RS232 ..... with metal protection cap  
Serial ..... 4800, 9600 or 11200 Baud, adjustable  
Connectors..... Binder type 464

### Measurement plugs

4 mm standard plugs for .. current measurement 0/4-20 mA  
..... voltage measurement 0-1/5/10 V, pressure switch  
Voltage supply..... 24 V / 50 mA

### Instrument dimensions

Calibrator W x H x D..... 12.5 x 21 x 8 cm  
Weight ..... appr. 1.1 kg

## ACCESSORIES

### Complete aluminium carrying case

The DPC-500 is available as an calibrator or in one of 6 test-ready systems that are complete and equipped to meet all pressure calibration needs.

The complete ready-to-use system is delivered in a practical aluminium carrying case with space for the DPC-500, up to 5 reference sensors, set of cables, battery charger, pump, fittings etc.





## DPC-J PRESSURE RANGES

### Absolute sensors (bar)

Pressure range	Type	Over pressure	Burst pressure	Part number
0 to 0,4	absolute	2	2,4	DPCJA104
0 to 0,6	absolute	4	4,8	DPCJA108
0 to 1	absolute	5	6	DPCJA112
0 to 1,6	absolute	10	12	DPCJA116
0 to 2,5	absolute	10	12	DPCJA120
0 to 4	absolute	17	20,5	DPCJA124
0 to 6	absolute	35	40	DPCJA128
0 to 10	absolute	35	42	DPCJA132
0 to 16	absolute	80	96	DPCJA136

### Compound sensors (bar)

Pressure range	Type	Over pressure	Burst pressure	Part number
-0,25 to 0,25	compound	2	2,4	DPCJC204
-0,4 to 0,4	compound	4	4,8	DPCJC208
-0,6 to 0,6	compound	10	12	DPCJC212
-1 to 1,5	compound	10	12	DPCJC216
-1 to 3	compound	17	20,5	DPCJC220
-1 to 5	compound	35	42	DPCJC224
-1 to 9	compound	35	42	DPCJC228
-1 to 15	compound	80	96	DPCJC232
-1 to 20	compound	80	96	DPCJC234
-1 to 24	compound	80	96	DPCJC236
-1 to 39	compound	80	96	DPCJC240

### Gauge sensors (bar)

Pressure range	Type	Over pressure	Burst pressure	Part number
0 to 0,25	gauge	1,6	2,4	DPCJG304
0 to 0,4	gauge	2	2,4	DPCJG308
0 to 0,6	gauge	4	4,8	DPCJG312
0 to 1	gauge	5	6	DPCJG316
0 to 1,6	gauge	10	12	DPCJG320
0 to 2,5	gauge	10	12	DPCJG324
0 to 4	gauge	17	20,5	DPCJG328
0 to 6	gauge	35	40	DPCJG332
0 to 10	gauge	35	42	DPCJG336
0 to 16	gauge	80	96	DPCJG340
0 to 20	gauge	80	96	DPCJG342
0 to 25	gauge	80	96	DPCJG344
0 to 40	gauge	80	96	DPCJG348
0 to 60	gauge	120	550	DPCJG352
0 to 100	gauge	200	800	DPCJG356
0 to 160	gauge	320	1000	DPCJG360
0 to 250	gauge	500	1200	DPCJG364
0 to 400	gauge	800	1700	DPCJG368
0 to 600	gauge	1200	2400	DPCJG372
0 to 1000	gauge	1500	3000	DPCJG376

### Vacuum sensors (bar)

Pressure range	Type	Over pressure	Burst pressure	Part number
-0,4 to 0	vacuum	2	2,4	DPCJV404
-0,6 to 0	vacuum	4	4,8	DPCJV408
-1 to 0	vacuum	5	6	DPCJV412

## DPC-J REFERENCE SENSORS

The JOFRA DPC-J series are high precision reference sensors with accuracies to  $\pm 0,025\%$  FS (0 to 50 °C including non-linearity, hystereses and repeatability). The DPC-J reference sensors are compatible with the DPC-500 calibrator. The units are available in a series of ranges, units, and pressure references, from vacuum to absolute pressure, offering a lot of opportunities to the need of any pressure calibration.

The reference sensors are engineered for in-plant, field, or laboratory use. They are ready-to-use with the DPC-500 pressure calibrator as the protocol allows for immediate recognition and use of the module once it is plugged into the calibrator. Digital signal compensation and build in microprocessor ensures minimal drift over time in the temperature range from 0 to 50 °C.

Up to 5 DPC-J sensors can be allocated to each JOFRA DPC-500. When combined with the DPC-500 calibrator and pump systems these reference sensors make for a powerful arsenal of calibration tools.

Weight: ..... 300 g  
Wetted parts..... stainless steel, welded



## DPC-J STANDARD DELIVERY

- DPC-J reference sensors
- Communication cable to DPC-500
- Traceable calibration certificate

## DPC-J ORDERING INFORMATION

Order No.	Description
DPCJ	Documenting Reference sensor
XXXX	<b>Reference sensor</b> Last four digits of DPC-J reference sensor part number
	Certificate
F	Traceable calibration certificate (standard)
H	Accredited calibration certificate

**DPCJC240F** **Sample order number**  
JOFRA DPC-J reference sensor -1 to 39 bar with standard accessories and traceable calibration certificate

## DPC-500 System A

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

This system includes the JOFRA DPC-500 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.



## 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  
 Operation .....Scissor  
 "O"-rings ..... Buna-N  
 Wetted parts ..... Aluminium, brass, stainless, steel, nylon, Nylatron GS  
 Connection to test object ..... Hose 0.6 m / 24 in 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 12)
- Hand pump T-960 or T-970
- 3/8" BSP female adapter with 1/4" BSP and NPT female terminations
- 0.6 m / 24 in hose with 1/4" BSP and NPT female terminations
- Quick connector between pump and calibrator
- 1 roll of Teflon tape
- Extension cable 2 m between DPC-500 and DPC-J reference sensor
- 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  
 126086 Cable for RS232, DPC-500  
 126087 Cable for USB, DPC-500  
 126100 Set of 5 pcs of O-rings for DPCJ sensor  
 126069 Connecting cable 2 meters for DPCJ and DPC-500  
 SPK-HPC-006 Quick connector set for DPC-500 sys. A/B

## Ordering information System A

Order No.	Description
DPC	DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
AXX	DPC-500 System A (pump T-960)
AHX	DPC-500 System A (pump T-970)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (the additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std.)
H	Accredited calibration certificate

## DPCS2AXXG320F Sample order number

JOFRA DPC-500 calibrator in pressure System A with pneumatic pressure handpump, with optional primary reference sensor 0 to 1,6 bar and one additional reference sensors both with traceable calibration certificate.

## DPC-500 System B

- Vacuum to 35 bar (500 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 hand-pump.

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  
Connection to test object ..... Hose 0.6 m / 24 in  
.....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 12)
- Hand pump T-975 for all ranges
- 3/8" BSP female adapter with 1/4" BSP and NPT female terminations
- 0.6 m / 24 in hose with 1/4" BSP and NPT female terminations
- 1 roll of Teflon tape
- Quick connector between pump and calibrator
- Extension cable 2 m between DPC-500 and DPC-J reference sensor
- 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
126086	Cable for RS232, DPC-500
126087	Cable for USB, DPC-500
126100	Set of 5 pcs of O-rings for DPCJ sensor
126069	Connecting cable 2 meters for DPCJ and DPC-500
SPK-HPC-006	Quick connector set for DPC-500 system A / B

## Ordering information System B

Order No.	Description
DPC	Pressure calibrator DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
BXX	DPC-500 System B (pump T-975)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std)
H	Accredited calibration certificate

### DPCS2BXXC236F Sample order number

JOFFRA DPC-500 calibrator in pressure System B kit with pneumatic combination handpump with optional primary reference sensor -1 to 24 bar and one additional reference sensors both with traceable calibration certificate.

## DPC-500 System C

- 0 to 200 bar (3,000 psi)
- 0 to 350 bar (5,000 psi)

This system consists of an DPC-500 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 aluminium carrying case with cutouts for fittings, hose, and the complete assembled calibration unit - no time added 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 handpump

This easy-to-use hand pump is specially designed for high pressure applications. The pump has a built-in 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 calibrator.

Pressure range, T-620 ..... 0 to 200 bar / 3,000 psi  
 Pressure range, T-620H..... 0 to 350 bar / 5,000 psi  
 Type.....Hydraulic  
 Test medium..... Oil  
 Reservoir capacity ..... 200 cl / 0.5 pint  
 Operation ..... Pistol-grip  
 "O"-rings..... Buna-N  
 Wetted parts.....Aluminum, brass, stainless steel, Lexan  
 Connection to test object ..... Hose 0.6 m / 24 in  
 .....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-620 Pump: 0 to 200 bar (3,000 psi)  
 T-620H Pump: 0 to (350 bar (5,000 psi)

## Included with System C delivery

- Standard delivery (see page 12)
- Hand pump T-620 or T-620H
- 0.6 m (24 in) hose with 1/4" NPT female and 1/4" BSP terminations
- 1 roll of teflon tape
- Extension cable 2 m between DPC-500 and DPC-J reference sensor
- Protective carrying case

## Accessories

T-656 Service kit for T-620 and T-620H pumps  
 T-649 Pressure hose for T-620/T-620H pumps  
 65P175 1 m hose with 1/4" BSP female termination  
 Max. pressure 350 bar (5,000 psi)  
 65P180 2 m hose with 1/4" BSP female termination  
 Max. pressure 350 bar (5,000 psi)  
 126086 Cable for RS232, DPC-500  
 126087 Cable for USB, DPC-500  
 126100 Set of 5 pcs of O-rings for DPCJ sensor  
 126069 Connecting cable 2 meters for DPCJ and DPC-500  
 MGAAA/GL Oil for T-620 & T-1 pump AAA OIL in 1-GALLON CAN  
 MGAAA/QT Oil for T-620 & T-1 pump AAA OIL in 1-QUART CAN

## Ordering information System C

Order No.	Description
DPC-500	DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
CXX	DPC-500 System C (pump T-620)
CHX	DPC-500 System C (pump T-620H)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std)
H	Accredited calibration certificate

## DPCS2CXXG360F Sample order number

JOFRA DPC-500 calibrator in pressure System C with hydraulic pressure handpump with optional primary reference sensor 0 to 160 bar and one additional reference sensors both with traceable calibration certificate.



## DPC-500 System D

- 0 to 350 bar (5,000 psi)

This system consists of an DPC-500 calibrator 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 calibrator 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 aluminium 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 screwpump

The 65-P016 and 65-P017 screwpumps are designed for very easy generation of high pressure. The screw-pumps has a 4 connection manifold. Fine adjustment, vernier valve, liquid reservoir, and fittings are optional. The AMETEK screwpump may be delivered for 2 different test media: hydraulic oil or water.

Pressure range..... 350 bar / 0 to 5,000 psi  
Type.....Hydraulic  
Test media.....Hydraulic oil, water  
Operation ..... Screw pump  
"O"-rings ..... Buna-N  
Wetted parts.....Aluminum, brass, stainless steel  
Connections to test objects..... 4 x 1/4" BSP female  
Size..... 36.6 x 19.5 x 10.5 cm / 14.4 x 7.7 x 4.1 in  
Weight ..... 3.7 kg / 8.2 lb

## Ordering

### Part No. Description

65-P016 Screw pump oil: 0 to 350 bar (5000 psi) **1)**  
65-P017 Screw pump water: 0 to 350 bar (5000 psi) **1)**

**1)** 25 ml (0.85 oz) reservoir

## Included with System D delivery

- Standard delivery (see page 12)
- Screw pump 65-P016 for hydraulic oil or 65-P017 for water
- 1 roll of Teflon tape
- 10 bonded seals
- 6 mm Allen key
- Protective carrying case

## Accessories

### Part No. Description

60P013 Vernier valve fine adjustment for 65-P016/017  
60P016 Packing set for screw pump oil part no. 65-P016  
60P017 Packing set for screw pump water part no. 65-P017  
65-R975 Reservoir set with seals, valve and bonded seal  
60R135 Valve for oil reservoir  
65P175 1 m. Pressure hose, (Max. 350 bar / 5,000 psi) \*  
65P180 2 m. Pressure hose, (Max. 350 bar / 5,000 psi) \*  
60I156 1.5 m. Pressure hose, (Max. 700 bar/10,000 psi) \*  
60I157 5 m., Pressure hose, (Max. 700 bar / 10,000 psi) \*  
65N000 Extension tube, 120 mm (Max. 350 bar / 5,000 psi) \*  
\* 1/4" BSP female to 1/4" BSP male  
126086 Cable for RS232, DPC-500  
126087 Cable for USB, DPC-500  
126100 Set of 5 pcs of O-rings for DPCJ sensor  
126069 Connecting cable 2 meters for DPCJ and DPC-500  
50-REP 615 Quick connector set, female 1/4" BSP to 1/4" BSP

## Ordering information System D

Order No.	Description
DPC-500	Pressure calibrator DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
DOX	DPC-500 System D (pump 65-P016)
DWX	DPC-500 System D (pump 65-P017)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std)
H	Accredited calibration certificate

## DPCS2DOXG364F Sample order number

JOFRA DPC-500 calibrator in pressure System D with hydraulic oil screw pump with optional primary reference sensor 0 to 250 bar and one additional reference sensors both with traceable calibration certificate.

## DPC-500 System E

- 0 to 700 bar (10,000 psi)

This system consists of an DPC-500 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 calibrator 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 aluminium 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.



## Included with System E delivery

- Standard delivery (see page 12)
- Hydraulic pump 65-P014 for hydraulic oil
- 1 roll of Teflon tape
- 10 bonded seals
- 6 mm Allen key
- Protective carrying case
- Vernier valve for fine adjustment

## Accessories

Part No.	Description
60P013	Vernier valve for fine adjustment
60P014	Packing set for Jack pump part no. 65-P014
60I156	1.5 m. Pressure hose, (Max. 700 bar/10,000 psi)*
60I157	5 m., Pressure hose, (Max. 700 bar / 10,000 psi) *
	* 1/4" BSP female to 1/4" BSP male
126086	Cable for RS232, DPC-500
126087	Cable for USB, DPC-500
126100	Set of 5 pcs of O-rings for DPCJ sensor
126069	Connecting cable 2 meters for DPCJ and DPC-500
50-REP 615	Quick connector set, female 1/4" BSP to 1/4" BSP

## AMETEK high pressure hydraulic oil pump

The 65-P014 hydraulic pump is designed for high pressure applications. The pump has a 4 connection output manifold. Fine adjustment vernier valve and fittings are optional.

Pressure range.....	0 to 700 bar / 10,000 psi
Type.....	Hydraulic
Test media.....	Oil
Operation .....	Jack pump
"O"-rings .....	Buna-N
Wetted parts.....	Aluminum, brass, stainless steel
Connections to test objects.....	4 x 1/4" BSP female
Size.....	36.5 x 20.0 x 14.2 cm / 14.4 x 7.9 x 5.6 in
Weight .....	5.3 kg / 11.6 lbs

## Ordering

### Part No. Description

65-P014 Hydraulic pump for oil: 0 to 700 bar (10,000 psi) 1)

1) 450 ml (15.22 oz) reservoir

## Ordering information System E

Order No.	Description
DPC-500	DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
EXX	DPC-500 System E (pump 65-P014)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std)
H	Accredited calibration certificate

## DPCS2EXXG372F Sample order number

JOFFRA DPC-500 calibrator in pressure System E with high pressure pump for hydraulic oil with optional primary reference sensor 0 to 600 bar and one additional reference sensors both with traceable calibration certificate.

## DPC-500 System F

- 0 to 1,000 bar (14,500 psi)

System F is an easy-to-use calibration system. The hydraulic pump makes it very easy to prime the system. The pump contains 75 in<sup>3</sup> / 1.23 l 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 a aluminium carrying case with cutouts for fittings. Easy and fast connection between pump and calibrator makes it easy to use the pressure calibrator separately for other pressure test tasks.

## AMETEK Type T hydraulic oil or water pump

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>1)</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.

Pressure range.....0 to 1,000 bar / 15,000 psi  
Type.....Hydraulic  
Test media.....Hydraulic oil, water  
Reservoir capacity .....1.23 l / 75 in<sup>3</sup>  
Operation ..... Jack pump  
"O"-rings.....Buna-N (standard) or EPT / Viton (optional)  
Wetted part.....Stainless steel, Monel  
Connections to test objects.....1/4" and 1/2" BSP  
..... terminations; 1/4" and 1/2" PT female terminations  
.....79.4x22.9x50.8 cm / 31.3x9x20 in  
Weight .....9.1 kg / 20 lbs

## Ordering

Part No.	Description	Seals
T-1	0 to 1,000 bar (15,000 psi) water - Buna N <sup>2)</sup>	
T-1/VITON	0 to 1,000 bar (15,000 psi) water - Viton <sup>3)</sup>	
T-1/EPT	0 to 1,000 bar (15,000 psi) water - EPT <sup>4)</sup>	
T-1/OIL	0 to 1,000 bar (15,000 psi) oil - Buna N <sup>2)</sup>	
T-1/OIL/VITON	0 to 1,000 bar (15,000 psi) oil - Viton <sup>3)</sup>	
T-1/OIL/EPT	0 to 1,000 bar (15,000 psi) oil - EPT <sup>4)</sup>	

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

<sup>2)</sup> Buna N are the standard "O" ring material for the hydraulic testers. They are used with water/alcohol or non corrosive oils.

<sup>3)</sup> Viton "O" ring material is used for all corrosive oils other than Skydrol.

<sup>4)</sup> EPT "O" ring material is specifically for Skydrol Oil used for hydraulic systems in airplanes, it is very corrosive.

## Included with System F delivery

- Standard delivery (see page 12)
- Type T Hydraulic pump
- Allen key 6 mm
- 1 roll of teflon tape
- Protective carrying case

## Accessories

Part No.	Description
T-250	Service kit for T pump with Buna N O-rings
T-559	Service kit for T pump with VITON N O-rings
T-326	Service kit for T pump with EPT N O-rings
60I156	1.5 m. Pressure hose, (Max. 700 bar/10,000 psi)*
60I157	5 m., Pressure hose, (Max. 700 bar / 10,000 psi) * * 1/4" BSP female to 1/4" BSP male
126086	Cable for RS232, DPC-500
126087	Cable for USB, DPC-500
126100	Set of 5 pcs of O-rings for DPCJ sensor
126069	Connecting cable 2 m. for DPCJ and DPC-500
MGAAA/GL	Oil for T-620 & T-1 pump AAA OIL in 1-GALLON CAN
MGAAA/QT	Oil for T-620 & T-1 pump AAA OIL in 1- QUART CAN

## Ordering information System F

Order No.	Description
DPC-500	DPC-500 pressure calibrator
<b>Total number of reference sensors</b>	
SX	S1/S2/S3/S4/S5 (S2 = Two sensors)
NONE	Pump system only (no calibrator)
<b>System</b>	
FWB	DPC-500 System F (pump T-1)
FWV	DPC-500 System F (pump T-1/VITON)
FWE	DPC-500 System F (pump T-1/EPT)
FOB	DPC-500 System F (pump T-1/OIL)
FOV	DPC-500 System F (pump T-1/OIL/VITON)
FOE	DPC-500 System F (pump T-1/OIL/EPT)
<b>Primary reference sensor to be mounted on the system at delivery</b>	
XXXX	Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
<b>Certificate</b>	
F	Traceable calibration certificate (std)
H	Accredited calibration certificate

## DPCS2FOEG376F Sample order number

JOFRA DPC-500 calibrator in pressure System F with Type T pump for oil, with optional primary reference sensor 0 to 1,000 bar and one additional reference sensors both with traceable calibration certificate.

## ORDERING INFORMATION - DPC-500 CALIBRATOR

Order No.	Description
DPC	Pressure calibrator DPC-500 Pressure Calibrator
SX	<b>Total number of reference sensors</b> S1/S2/S3/S4/S5 (S2 = Two sensors)
IND	<b>Base model number</b> DPC-500 calibrator with standard accessories
XXXX	<b>Primary reference sensor to be mounted on the system at delivery</b> Last four digits of DPC-J reference sensor part number found at page 5 (additional reference sensors should be stated separately at the order)
F H	<b>Certification</b> Traceable calibration certificate (std.) Accredited calibration certificate

### DPCS2INDC240A136F Sample order number

JOFRA DPC-500 with standard accessories, optional primary reference sensor -1 to 39 bar and one additional reference sensor 0 to 16 bar both with traceable calibration certificate.

## STANDARD DELIVERY

- DPC-500 calibrator
- Traceable calibration certificate
- User manual
- Battery charger
- Test leads: red and black
- Connection cable for RS232
- JOFRACAL calibration software
- DPC-CAL Windows software
- 1 x DPC-J reference sensor (user specified)



**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.

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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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