

Crystal X pressure X JOFRA X calibration

M&G)K

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# Ready-to Use Calibration Solutions

## **Pump Systems Designed for Your Specific Requirements**

A METEK offers a variety of solutions for pressure generation and measurement. Our line of products for pressure generation includes everything from small pneumatic hand pumps to a precision, hydraulic pressure comparator capable of generating up to 15 000 psi/1000 bar/100 MPa.

All of our pumps may be ordered as part of a Pump System, complete with a Crystal Reference Indicator and delivered in a sturdy carrying case with custom insert.

### Key Features & Options

- Easy to use fine adjustments.
- ► CPF<sup>◆</sup> Fittings and Hoses.
- ▶ Oil or water compatible.
- ► Wide pressure ranges.

U.S. Patent No. 8,794,677





## Pump Systems Overview

Pump									Case Options
System	Part Number	Pressure Range	Pneumatic	Hydraulic	Hand Pump	Bench Top	Included Pump	Aluminum	Waterproof (Pelican Case)
System A	AXX	0 to 30psi /2 bar			-		T-960-CPF		■ pr)
System A	AHX	0 to 580 psi /40 bar	-		-		T-970-CPF		
	BXX	-25 inHg to 30 psi /-0.85 to 2 bar			-		T-965-CPF		■ or)
System B	внх	-27 inHg to 580 psi /-0.91 to 40 bar			-		T-975-CPF		
System C	СХХ	0 to 3000 psi /200 bar		■ (Oil)	-		T-620-CPF	•	■ Dr)
System C	СНХ	0 to 5000 psi/350 bar		(Oil)	-		T-620H-CPF		
System D	DOX	0 to 5000 psi/350 bar		(Oil)			P-018-CPF	•	
System	DWX	0 to 5000 psi/350 bar		(Water)				-	
System E	EOX	0 to 10 000 psi /700 bar		■ (Oil)			P014-CPF	•	
Sustan F	FOV	0 to 15 000 psi / 1000 bar		■ (Oil)		-	T-1-CPF	-	
System F	FWV	0 to 15 000 psi / 1000 bar		(Water)			A	-	
System G	GOX	0 to 15 000 psi / 1000 bar		(Oil)		•	GaugeCalHP		•
System G	GWX	0 to 15 000 psi /1000 bar		(Water)					•
System H	НОХ	-27 inHg to 580 psi /-0.91 to 40 bar					T-975-CPF — (and) —		-
System A	пол	0 to 5000 psi /350 bar		■ (Oil)			T-620H-CPF		•



# Systems A & B

## Pump Overview

-900 Series pneumatic pressure pumps feature an extended range fine adjust for precise control of pressure. A built-in relief valve and dual pressure output enable safe and simple operation. The T-965 and T-975 are available with a button valve, making them capable of switching easily from pressure to vacuum generation.

### Key Features

- ► Lightweight, compact design.
- ► Two outlet ports.
- Adjustable stroke.
- Generates up to 580 psi/40 bar and vacuum.

Learn more here ◀



T-975-CPF pneumatic pump

Pump				
System	Presure	Vacuum	Pressure Range	Pump
AXX			0 to 30psi/2 bar	T-960-CPF
BXX			-25 inHg to 30 psi /-0.85 to 2 bar	T-965-CPF
АНХ	•		0 to 580 psi /40 bar	T-970-CPF
ВНХ			-27 inHg to 580 psi /-0.91 to 40 bar	T-975-CPF





#### Parts Included with Pump Systems A and B

		Syste	m A	Syste	m B
Part Number	Description	AXX	AHX	BXX	BHX
5238	3/8" BSP Male to CPF Male Fitting				
5252	5/16-24 SAE Male to CPF Female Fitting				
MPF-1/4FPT	CPF Female to 1/4" NPT Female Fitting			-	
MPF-1/4BSPF	CPF Female to 1/4" BSP Female Fitting				
MPF-1/8MPT	1/8" MPT Fitting (for 30 Series Calibrator)	<b>(</b> 2)	<b>(</b> 2)	<b>(</b> 2)	<b>(</b> 2)
MPH-1	1 meter CPF Male Hose	-			
60R120	1/4" Bonded Seals	<b>(</b> 5)	<b>(</b> 5)	<b>(</b> 5)	<b>(</b> 5)
50-REP700	O-ring and Lock Clip	<b>(</b> 5)	<b>(</b> 5)	<b>(</b> 5)	<b>(</b> 5)
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)			-	
5249	Protective Vinyl Cap	<b>(</b> 4)	<b>(</b> 4)	<b>(</b> 4)	<b>(</b> 4)
601104	Pack Tape (1 roll)				
124004	Shoulder Strap				
124110	Aluminum Carrying Case (for nVision, HPC40 Series, and 30 Series)	-			
125254	Aluminum Carrying Case (for XP2i and m1)	-			
2888 *	Waterproof Carrying Case (for all gauges)				

#### **Carrying Case Options**

Pump Systems A and B are delivered with an Aluminum Carrying Case. \* Alternately, they may be ordered with a Waterproof Carrying Case by entering -W in the pump system ordering code. The Shoulder Strap and the Aluminum Carrying Case will be replaced by the Waterproof Carrying Case.



#### **Ordering a Pump System**

Any T-900 Series Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	Carrying Case
nVision NV-NONE	System A (T-960-CPF)AXX	Aluminum (omit)
30 Series <b>IS30-NONE</b>	System A (T-970-CPF)AHX	Waterproof W
HPC40 Series HPC40-NONE	System B (T-965-CPF)BXX	
XP2i XP2i-NONE	System B (T-975-CPF)BHX	
m1 M1-NONE		

#### **SAMPLE PART NUMBERS**

NV-NONE-AXX....... System A pump system (for nVision) with an aluminum carrying case.

M1-NONE-BXX-W.... System B pump system (for m1) with a waterproof carrying case.

1KPSIXP2i-AXX-W ... System A pump system in a waterproof carrying case, with an XP2i gauge (1000 psi).



# System C

## Pump Overview

-600 Series is a lightweight and portable hydraulic hand pump, specially designed for high pressure applications. A fine adjust allows precise control of pressure, while a vent valve provides quick and positive shut-off and pressure release. The pump is compatible with petroleum-based oils or hydraulic fluids.

#### Key Features

- ► Two outlet ports.
- ► Large reservoir.
- Easy-to-use fine adjust.
- Generates up to 5000 psi/350 bar.
  - Learn more here

### System Overview

Pump		
System	Pressure Range	Pump
схх	0 to 3000 psi/200 bar	T-620-CPF
СНХ	0 to 5000 psi /350 bar	T-620H-CPF





T-620H-CPF hydraulic pump

#### Parts Included with Pump System C

		Syste	em C
Part Number	Description	CXX	СНХ
MPF-1/4FPT	CPF Female to 1/4" NPT Female Fitting		
MPF-1/4BSPF	CPF Female to 1/4" BSP Female Fitting	-	
MPF-1/8MPT*	CPF Female to 1/8" NPT Male Fitting		•
MPM-PLUG	CPF Male Plug Fitting	-	
MPF-CAP	CPF Female Cap Fitting		
MPH-1	1 meter CPF Male Hose		
60R120	1/4" Bonded Seals	<b>(</b> 5)	<b>(</b> 5)
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	•	
5249	Protective Vinyl Cap	<b>(</b> 4)	<b>(</b> 4)
601104	Pack Tape (1 roll)	-	
124004	Shoulder Strap		
124299	Aluminum Carrying Case (for nVision and 30 Series)		
125255	Aluminum Carrying Case (for XP2i and m1)		
2888 **	Waterproof Carrying Case		

#### **Carrying Case Options**

Pump Systems C are delivered with an Aluminum Carrying Case. \*Alternately, they may be ordered with a Waterproof Carrying Case by entering -W in the pump system ordering code. The Shoulder Strap and the Aluminum Carrying Case will be replaced by the Waterproof Carrying Case.



\* When a Pump System C is ordered for a 30 Series Calibrator, two (2) additional MPF-1/8MPT fittings are included

#### Ordering a Pump System

Any T-600 Series Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	Carrying Case	SAMPLE PART NUMBERS
nVision NV-NONE	System C (T-620-CPF)CXX	Aluminum (omit)	NV-NONE-CXX System C pump system (for nVision) with an aluminum carrying case.
30 Series <b>IS30-NONE</b>	System C (T-620H-CPF)CHX	Waterproof W	M1-NONE-CHX-W System C pump system (for m1) with a waterproof carrying case.
HPC40 Series HPC40-NONE			<b>3KPSIXP2i-CXX-W</b> System C pump system in a waterproof carrying case, with an XP2i gauge (3000 psi).
XP2i XP2i-NONE			
m1 M1-NONE			



# System D

## Pump Overview

**P-018** hydraulic screw pumps produce pressure with superior control. The adjustable reference pressure port lets you set your reference gauge at the best viewing angle.

#### Key Features

- ▶ Generates 5000 psi/350 bar.
- Easy-to-use fine adjust.
- Adjustable reference port.
- Compatible with water or oil.

Learn more here ◀

Pump				
System	Pressure Range	Test Media	Media Specifics	Pump
DOX	0 to 5000 psi /350 bar	Hydraulic Oil	Rando HDZ32	P-018-CPF
DWX	0 to 5000 psi /350 bar	Water	Distilled Water	P-018-CPF





#### Parts Included with Pump System D

		System D
Part Number	Description	DOX and DWX
5253	CPF Male to Screw Pump Adapter	<b>(</b> 2)
5254	1/4" BSP Female to 1/4" BSP Female Fitting	
MPF-1/4FPT	CPF Female to 1/4" NPT Female Fitting	
MPF-1/4BSPF	CPF Female to 1/4" BSP Female Fitting	
MPF-1/8MPT	1/8" MPT Fitting (for 30 Series Calibrator)	<b>(</b> 2)
MPF-CAP	CPF Female Cap Fitting	-
SPK-HPC-004	1/4" BSP Male to 1/4" BSP Male Banjo Connector	
60R955	1/4" Male BSP Plugs	<b>(</b> 4)
60R120	1/4" Bonded Seals	<b>(</b> 5)
60P013	1/4" BSP Male Fine Adjust	
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	
5249	Protective Vinyl Cap	<b>(</b> 4)
601104	Pack Tape (1 roll)	
60R159	Allen Key	-
124004	Shoulder Strap	
124301	Aluminum Carrying Case	

#### **Carrying Case**

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Pump System D is delivered with an Aluminum Carrying Case.



#### Ordering a Pump System

Any P-Series Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	SAMPLE PART NUMBERS
nVision NV-NONE	System D (P-018-CPF) <b>-DOX</b>	NV-NONE-DOX System D pump system (for nVision) for use with oil.
30 Series IS30-NONE	System D (P-018-CPF) <b>- DWX</b>	IS30-NONE-DWX System D pump system (for 30 Series) for use with water.
HPC40 Series HPC40-NONE		5KPSIXP2i-DWX System D pump system for use with water, with an XP2i gauge (5000 psi).
XP2i XP2i-NONE		
m1 M1-NONE		



# System E

## Pump Overview

**Po14** hydraulic jack pumps are designed for high pressure oil applications. Its small size and light weight makes it a sensible, rugged and portable pressure generating solution.

### Key Features

- ► Generates 10000 psi/700 bar.
- Small, and light weight.
- Easy-to-use fine adjust.
- Four pressure output manifold.

Learn more here

Pump System	Pressure Range	Test Media	Media Specifics	Pump
EOX	0 to 10 000 psi /700 bar	Hydraulic Oil	Rando HDZ32	P014-CPF





#### Parts Included with Pump System E

		System E
Part Number	Description	EOX
5253	CPF Male to Screw Pump Adapter	<b>(</b> 2)
5254	1/4" BSP Female to 1/4" BSP Female Fitting	
MPF-1/4FPT	CPF Female to 1/4" NPT Female Fitting	
MPF-1/4BSPF	CPF Female to 1/4" BSP Female Fitting	
MPF-1/8MPT	1/8" MPT Fitting (for 30 Series Calibrator)	(2)
MPF-CAP	CPF Female Cap Fitting	
SPK-HPC-004	1/4" BSP Male to 1/4" BSP Male Banjo Connector	
60R955	1/4" Male BSP Plugs	<b>(</b> 4)
60R120	1/4" Bonded Seals	<b>(</b> 5)
60P013	1/4" BSP Male Fine Adjust	
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	
5249	Protective Vinyl Cap	<b>(</b> 4)
60 104	Pack Tape (1 roll)	
60R159	Allen Key	
124004	Shoulder Strap	
124303	Aluminum Carrying Case	

#### **Carrying Case**

Pump System E is delivered with an Aluminum Carrying Case.



#### Ordering a Pump System

Any P014 Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	SAMPLE PART NUMBERS
nVision NV-NONE	System E (P014-CPF)EOX	NV-NONE-EOX System E pump system (for nVision) for use with oil.
30 Series <b>IS30-NONE</b>		IS30-NONE-EOX System E pump system (for 30 Series) for use with oil.
HPC40 Series HPC40-NONE		5KPSIXP2i-E0X System E pump system for use with oil, with an XP2i gauge (5000 psi).
XP2i XP2i-NONE		
m1 M1-NONE		



## System F

## **Pump** Overview

Series is a high volume hydraulic comparator capable of producing pressure up to 15000 psi/1000 bar. This unit is ideal for testing and calibrating pressure gauges, relief valves, and pressure switches.

#### **Key** Features

- ▶ High and Low Volume Settings.
- ► Two outlet ports.
- ► Large fluid capacity.
- Fine Adjustment up to 3500 psi/240 bar.
- ► Compatible with water or oil.

### System Overview

Pump				
System	Pressure Range	Test Media	Media Specifics	Pump
FOV	0 to 15 000 psi / 1000 bar	Hydraulic Oil	Rando HDZ32	T-1-CPF
FWV	0 to 15 000 psi / 1000 bar	Water	Distilled Water	T-1-CPF

SENSORS, TEST & CALIBRATION



#### Parts Included with Pump System F

		System F
Part Number	Description	FOV and FWV
5255	CPF Male to 15/16-20 Male Adapter	<b>(</b> 2)
MPF15K-1/4FPT	CPF Female to 1/4" NPT Female Fitting	-
MPF-1/4BSPF	CPF to 1/4" BSP Female Fitting	
MPF-1/8MPT	1/8" MPT Fitting (for 30 Series Calibrator)	<b>(</b> 2)
60R120	1/4" Bonded Seals	<b>(</b> 5)
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	
5249	Protective Vinyl Cap	<b>(</b> 4)
601104	Pack Tape (1 roll)	
124004	Shoulder Strap	
124304	Aluminum Carrying Case	•

#### **Carrying Case**

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Pump System F is delivered with an Aluminum Carrying Case.



#### Ordering a Pump System

Any Type T Series Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	SAMPLE PART NUMBERS
nVision NV-NONE	System F (T-1-CPF)FOV	NV-NONE-FOV System F pump system (for nVision) for use with oil.
30 Series <b>IS30-NONE</b>	System F (T-1-CPF)FWV	IS30-NONE-FWV System F pump system (for 30 Series) for use with water.
HPC40 Series HPC40-NONE		15KPSIXP2i-FWV System F pump system for use with water, with an XP2i gauge (15 000 psi).
XP2i XP2i-NONE		
m1 M1-NONE		



## System G

## **Pump** Overview

**GaugeCaIHP** is a self-contained, precision hydraulic pressure comparator intended for the calibration of pressure gauges, transmitters, sensors, and safety valves rated up to 15 000 psi/1000 bar. You may fill the comparator with your choice of water or oil.

The GaugeCalHP is much faster than deadweight testers and most automated pressure controllers; and it's so quick and easy to use, it's ideal for calibrating those low cost gauges that are often overlooked for ISO9000 compliance.

Learn more here

Pump				
System	Pressure Range	Test Media	Media Specifics	Pump
GOX	0 to 15 000 psi / 1000 bar	Hydraulic Oil	Rando HDZ32	GaugeCalHP
GWX	0 to 15 000 psi / 1000 bar	Water	Distilled Water	GaugeCalHP



#### Parts Included with Pump System G

		System G
Part Number	Description	GOX and GWX
MPF15K-1/4FPT	CPF Female to 1/4" NPT Female Fitting	
MPF-1/4BSPF *	CPF Female to 1/4" BSP Female Fitting	-
MPF-1/8MPT*	1/8" MPT Fitting (for 30 Series Calibrator)	<b>(</b> 2)
MPF-CAP *	CPF Female Cap Fitting	<b>(</b> 2)
60R120	1/4" Bonded Seals	<b>(</b> 5)
5102	Fine Adjust (installed)	
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	-
5249	Protective Vinyl Cap	<b>(</b> 4)
601104	Pack Tape (1 roll)	-
5101	Rolling Waterproof Carrying Case	

#### **Carrying Case**

Pump System G is delivered with a rolling, Waterproof Carrying Case.



\* These fittings are rated to 10 000 psi/700 bar.

#### Ordering a Pump System

Any GaugeCalHP Pump System may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System
nVision NV-NONE	System G (GaugeCalHP–oil) <b>-GOX</b>
30 Series IS30-NONE	System G (GaugeCalHP–water) <b>- GWX</b>
HPC40 Series HPC40-NONE	
XP2i XP2i-NONE	
m1 <b>M1-NONE</b>	

#### ► SAMPLE PART NUMBERS

NV-NONE-GOX......System G pump system (for an nVision) for use with oil. IS30-NONE-GWX....System G pump system (for an nVision) for use with water. 15KPSIXP2i-GWX...System G pump system for use with water, with an XP2i gauge (15 000 psi).



# System H

## **Pumps** Overview

-900 Series pneumatic pressure pumps feature an extended range fine adjust for precise control of pressure and vacuum, while a vent valve provides quick and positive shut-off and pressure release. T-600 Series are lightweight, portable hydraulic handpumps, specially designed for high pressure applications.

#### Key Features

- ► Lightweight, compact design.
- ► Two outlet ports.
- ► Adjustable stroke.
- T-900 Series generates up to 580 psi/40 bar and vacuum.
- T-600 Series generates up to 5000 psi/350 bar.
  - Learn more here

T-620-CPF hydraulic pump and T-975-CPF pneumatic pump

Pump				
System	Presure	Vacuum	Pressure Range	Pump
нох			-27 inHg to 580 psi /-0.91 to 40 bar	T-975-CPF
			0 to 5000 psi/350 bar	T-620H-CPF





#### Parts Included with Pump Systems H

		System H
Part Number	Description	НОХ
5238	3/8" BSP Male to CPF Male Fitting	
5252	5/16-24 SAE Male to CPF Female Fitting	
MPF-1/4FPT	CPF Female to 1/4" NPT Female Fitting	<b>(</b> 2)
MPF-1/4BSPF	CPF Female to 1/4" BSP Female Fitting	<b>(</b> 2)
MPF-1/8MPT	1/8" MPT Fitting (for 30 Series Calibrator)	<b>(</b> 2)
MPM-PLUG	CPF Male Plug Fitting	
MPF-CAP	CPF Female Cap Fitting	
MPH-1	1 meter CPF Male Hose	<b>(</b> 2)
60R120	1/4" Bonded Seals	<b>(</b> 5)
50-REP700	O-ring and Lock Clip	<b>(</b> 5)
1351	Test Leads; Red & Black, including clips (for 30 Series and HPC40 Series)	
5249	Protective Vinyl Cap	<b>(</b> 4)
601104	Pack Tape (1 roll)	
124004	Shoulder Strap	
124110	Aluminum Carrying Case (for nVision and 30 Series)	
2888	Waterproof Carrying Case	

#### **Carrying Case**

Pump System H is delivered with a Waterproof Carrying Case.



#### Ordering a Pump System

Any Pump System H may be ordered with or without a reference indicator. The table below provides an explanation of the Pump System ordering scheme when ordering a system without an indicator. For details on ordering the Pump Systems with an indicator, see the indicator datasheet.

Reference Indicator	Pump System	Carrying Case	SAMPLE PART NUMBERS
nVision NV-NONE	System H (T-975-CPF and T-620H-CPF)HOX	WaterproofW	NV-NONE-HOX-W System H pump system (for nVision) with a waterproof carrying case.
30 Series IS30-NONE			M1-NONE-HOX-W System H pump system (for m1) with a waterproof carrying case.
HPC40 Series HPC40-NONE			5KPSIXP2i-H0X-W System H pump system in a waterproof carrying case, with an XP2i gauge (5000 psi).
XP2i XP2i-NONE			
m1 <b>M1-NONE</b>			





#### Dear Calibration Professional,

You're already familiar with the family of high quality AMETEK calibrators and pressure gauges. Perhaps you even own one.

The same relentless pursuit of perfection invested in our gauges; and that spurred the design of CPF the industry's safest test fitting line—also drives us to create top-quality pressure generation systems.

We know, just as you do, that the best calibrators are only as good as their support equipment.

Our pumps and Pump Systems deliver exactly what you need for field and lab calibration: reference indicators, fittings, hoses, and accessories, all packed inside sturdy and portable cases.

From rugged and effective pumps, to the best fittings and hoses, to time-saving software—we've thought of everything.

These are your tools for pressure calibration; the ones you use over and over, every day. Doesn't it make sense to buy the best?

Working for you,

The AMETEK Team

## **CrystalCalHP**

Everything You Need for Ultra-Fast, Error-Free Calibrations

10-point up and down calibrations in under 3 minutes. CrystalCalHP-PSI includes:

- **One** GaugeCalHP pressure comparator.
- **One** copy of FastCalXP calibration software, with footswitch.
- **Three** XP2i gauges with 0.1% of Reading accuracy.
- One Weatherproof carrying case.
- All the CPF fitting adapters you need.

Eliminates typing and guesswork automatically generates calibration reports.

Learn more here...





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