SUNSTAR商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高 科技企业,是专业高科技电子产品生产厂家,是具有10多年历史的专业电子元器件供应商,是中国最早和 最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一,是一家专业代理和分銷世界各大品牌IC 芯片和電子元器件的连锁经营綜合性国际公司。在香港、北京、深圳、上海、西安、成都等全国主要电子 市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商,已在全国范围内建成强大统一的供 货和代理分销网络。 我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工 控机/DOC/DOM电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA软件硬件、二极管、三极管、模 块等,是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。专业以现代信息产业 (计算机、通讯及传感器)三大支柱之一的传感器为主营业务,专业经营各类传感器的代理、销售生产、 网络信息、科技图书资料及配套产品设计、工程开发。我们的专业网站——中国传感器科技信息网(全球 传感器数据库)www.SENSOR-IC.COM 服务于全球高科技生产商及贸易商,为企业科技产品开发提供技 术交流平台。欢迎各厂商互通有无、交换信息、交换链接、发布寻求代理信息。欢迎国外高科技传感器、 <mark>变送器、执行器、自动控制产品厂商介绍产品到 中国,共同开拓市场。本</mark>网站是关于各种传感器-变送器-仪器仪表及工业自动化大型专业网站,深入到工业控制、系统工程计 测计量、自动化、安防报警、消费电 子等众多领域,把最新的传感器-变送器-仪器仪表买卖信息,最新技术供求,最新采购商,行业动态,发展方 向,最新的技术应用和市场资讯及时的传递给广大科技开发、科学研究、产品设计人员。本网站已成功为 石油、化工、电力、医药、生物、航空、航天、国防、能源、冶金、电子、工业、农业、交通、汽车、矿 山、煤炭、纺织、信息、通信、IT、安防、环保、印刷、科研、气象、仪器仪表等领域从事科学研究、产 品设计、开发、生产制造的科技人员、管理人员 、和采购人员提供满意服务。 我公司专业开发生产、代 理、经销、销售各种传感器、变送器、敏感元器件、开关、执行器、仪器仪表、自动化控制系统: 专门从 事设计、生产、销售各种传感器、变送器、各种测控仪表、热工仪表、现场控制器、计算机控制系统、数 据采集系统、各类环境监控系统、专用控制系统应用软件以及嵌入式系统开发及应用等工作。如热敏电阻、 压敏电阻、温度传感器、温度变送器、湿度传感器、 湿度变送器、气体传感器、 气体变送器、压力传感 器、 压力变送、称重传感器、物(液)位传感器、物(液)位变送器、流量传感器、 流量变送器、电流 (压)传感器、溶氧传感器、霍尔传感器 、图像传感器、超声波传感器、位移传感器、速度传感器、加速 度传感器、扭距传感器、红外传感器、紫外传感器、 火焰传感器、激光传感器、振动传感器、轴角传感器、 光电传感器、接近传感器、干簧管传感器、继电器传感器、微型电泵、磁敏(阻)传感器 、压力开关、接 近开关、光电开关、色标传感器、光纤传感器、齿轮测速传感器、 时间继电器、计数器、计米器、温控仪、 固态继电器、调压模块、电磁铁、电压表、电流表等特殊传感器 。 同时承接传感器应用电路、产品设计 和自动化工程项目。

欢迎索取免费详细资料、设计指南和光盘;产品凡多,未能尽录,欢迎来电查询。 更多产品请看本公司产品专用销售网站: 商斯达中国传感器科技信息网:http://www.sensor-ic.com/ 商斯达工控安防网:http://www.pc-ps.net/ 商斯达电子 元器件网:http://www.sunstare.com/ 商斯达微波光电产品网:http://www.icasic.com/ 商斯达消费电子产品网:http://www.junpinic.com/ 商斯达军工产品网:http://www.junpinic.com/ 商斯达实业科技产品网://www.sunstars.cn/传感器销售热线: 地址:深圳市福田区福华路福庆街鸿图大厦 1602 室 电话: 0755-83607652 83376489 83376549 83370250 83370251 82500323 传真: 0755-83376182 (0) 13902971329 MSN: SUNS8888@hotmail.com 邮编: 518033 E-mail:szss20@163.com QQ: 195847376 深圳赛格展销部: 深圳华强北路赛格电子市场 2583 号 电话: 0755-83665529 技术支持: 0755-83394033 13501568376



Portable documenting calibrator

MCX II

- Eliminates field calibration errors
- Reduces instrumentation maintenance costs
- Over 90 Input/Output ranges: Pressure, Temperature, Electrical and Frequency
- Interchangeable pressure modules -14.7 to 5000 psi
- HART[®] module for Smart transmitters
- Memory card for procedure and data transfer



Portable documenting calibrator

A CALIBRATION WORKSHOP IN A SINGLE INSTRUMENT

The Druck MCX II portable documenting calibrator is the most comprehensive field calibration tool available. It is the culmination of many years combined field experience with the Druck and Unomat series of portable pressure, temperature and electrical calibrators.

Designed for field use, this rugged, self-contained, battery powered package simulates and reads RTD's, thermocouples and resistance, as well as sourcing and reading milliamps, millivolts, volts and frequency. With interchangeable single and dual sensor pressure modules over 90 input and output ranges are available.

The MCX II saves time and money with the calibration, maintenance and commissioning of instrumentation for process plants, production lines, utility processing and distribution by:

- Reducing the burden imposed by quality systems such as ISO 9000.
- Reducing calibration, maintenance and commissioning time.
- Reducing documentation time and errors.
- Replacing several standard test instruments.
- Reducing test instrument calibration costs.
- Minimising down time and maximising efficient field usage.

For example, a typical thermocouple transmitter calibration can take one hour using a mV source, look-up tables and a milliammeter. In just five minutes the MCX II can make an automatic calibration and document the results while virtually eliminating human errors.

A PCMCIA memory card provides data storage and gives total flexibility to suit different working practices. By simply exchanging PCMCIA cards, the MCX II can remain permanently in the field and when compared to serial data transfer methods this can save one to two hours a day. With a single item to calibrate the cost of re-calibration is reduced and the inconvenience of down time is minimized.

HART[®] communicator for SMART transmitters

The HART® communicator allows digital field adjustment of smart transmitters. Typical adjustments to sensor and analogue trims can take up to 40 minutes using conventional test equipment and a hand held communicator. With a single MCX II this time can be reduced to less than 10 minutes, including a fully documented calibration.

High precision and multi-functional

Typical accuracy:	0.01% Rdg +/-0.003% FS for mA measurement		
	0.05% Rdg for pressure measurement,		
Input:	mA, mV, volts, T/C's, RTD's, pressure, ohms,		
	frequency and switch state.		
Output:	mA, mV, volts, T/C's, RTD's, ohms, and frequency.		
Pressure modules:	Interchangeable single and dual ranges from -14.7 to		
	5000 psi including gauge, absolute and differential.		
HART® communicator:	HART [®] digital communicator for SMART transmitters.		
C/J compensation:	Internal, external and manual.		
Loop Power:	Dual 24 Vdc.		
Temperature probe:	1/5 DIN accuracy P100 probe.		
Data storage:	1 Mbyte PCMCIA card.		
Data transfer:	PCMCIA card or RS 232 interface.		
PC software:	Linkpak-W and Intecal-W.		

Easy to use

The multi-lingual user interface is an easy to use Input/Output menu with dual parameter readout. The Input and Output connectors are standard 4mm gold plated sockets which are separated and clearly labelled. The rugged impact resistant enclosure is surrounded by a durable protective carry case which allows access to all the instrument features and provides convenient pockets for storing test leads and accessories. Whether the MCX II is horizontal or vertical the rotatable display provides the optimal viewing angle. On the bench, test leads and pressure modules connect to the front face. In the field, with the MCX II held vertically by the wide neck strap, the connections are made to the rear face. With safety a major design concern, these features reduce the possibility of dropping equipment as the operators hands are kept free.



Applications

MULTI-FUNCTION PORTABLE CALIBRATOR

The MCX II has been designed for ease of use while meeting a wide range of application needs including calibration, maintenance and commissioning. The dual parameter display shows the input and output values in large clear digits with all applicable information such as the units of measurement and range. Using the rotating display, the rear face electrical connectors and wide neck strap, the instrument can be safely worn around the neck or fastened to a suitable pipe or valve. This leaves the operators hands free at all times and prevents dangerous dropages.

Some of the capabilities include:

- Input/output mA
- Input/simulate 12 types of T/C
- Input/simulate 9 types of RTD
- Input/output frequency and pulses
- Simulate transmitter input and measure transmitter output
 Input/output mV/V
- Input/output mv/v
 Input/output resistance
- Measure pressure: -14.7 to 5000 psi
- Test switches: captures values on contact change
- Trim smart HART transmitters

Easy to operate

The easy to operate menu driven software enables the MCX II to be set-up very quickly. Simply scroll through the input and output menus to select the required parameters.

Operating and connection errors such as loop resistance mismatch and cold junction temperature sensor absence are reported.

The KEYSTROKING memory enables instant recall of previously stored user tests.



TEMPERATURE TRANSMITTER SIMULATION AND CALIBRATION



Direct connection of thermocouple compensation wires eliminates the need for special connectors. The cold junction temperature is continuously monitored and compensated for, even under the transient conditions experienced by a field calibrator. This is the most reliable and accurate cold junction compensation method found in a portable field calibrator.

In calibration mode the MCX II simulates the temperature signal to the transmitter and simultaneously measures the output. The display shows both the mV output and mA input scaled in °C or °F for easy comparison. The error between the two values is displayed as a percentage of a span or reading. The PASS/FAIL status is also displayed when running pre-defined procedures from the calibration software Linkpak-W or Intecal-W. For convenience, dual 24 Vdc loop power supplies are available.





Pressure and RTD calibration modes operate in a similar way. The connection of 2, 3 and 4 wire RTD's is detected automatically, a feature unique to Druck portable field calibrators.



CALIBRATION TO ISO 9000 AND SIMILAR APPROVALS

Linkpak-W and Intecal-W Calibration Software reduce the burden imposed by quality systems, saving both time and money. Documentation quality is improved by the elimination of data errors and the production of clear traceable calibration records.

An instrument database defines the calibration procedures and interval. Instruments can be batched into work orders representing, for example, the work for one technician in one day. These work orders are downloaded to the PCMCIA card for use with any MCX II available in the field. The calibration routines are performed automatically and the results are stored on the PCMCIA card. The card is then returned to the PC, independently of the MCX II, for the documentation to be completed.



Linkpak-W and Intecal-W have export facilities for moving data into other applications and databases. Many third party packages are now directly compatible with the MCX II and other Druck calibrators.

CALIBRATING SMART HART TRANSMITTERS



The HART digital communicator is compatible with a number of smart HART transmitters. Please contact your nearest sales office for an up to date list.



WE'VE GOT. HART HED COMMUNICATIONS FRO OCCI ABILITY

HART is a registered trademark of the HART Communications Foundation







MCX II PRESSURE MODULES

High Accuracy

Single or dual range pressure modules can be configured to provide over 400 combinations for gauge, absolute and differential pressure measurement. With typical accuracies better than 0.05% of reading ±0.01% F.S. these expand the MCX II capabilities even further. Modern pressure instrumentation can be easily maintained, even smart pressure transmitters when using the optional HART[®] communicator.

In pressure calibration mode the MCX II displays the applied pressure and also the corresponding mA output (converted into pressure for easy comparison). Additionally, the error between these values is also shown as a percentage of span or reading and when used with Linkpak-W or Intecal-W the PASS/FAIL status is also reported.

Interchangeability

The pressure modules fit directly onto the instrument front or rear casing suitable for benchtop or field operation and when not in use simply attach to the MCX II carry case.

Advanced Druck sensors and their performance characteristics are stored inside each compact pressure module, enabling convenient use on any MCX II without re-calibration.

When used with Linkpak-W or Intecal-W calibration procedures, any module range not conforming to the procedure is reported. For traceability, the serial numbers of both the pressure module and MCX II are recorded together with the calibration results.

PV411 (4 IN 1) PNEUMATIC AND HYDRAULIC HAND PUMP

Pressu	re range	Accuracy	Measurement resolution	Sensor P/N (Gauge)	Sensor P/N (Absolute)
-14.7 -	0 psi	±0.1% FS	0.00015 psi	#612	
0 -	5 psi	±0.0015 psi ± 1 digit	0.00005 psi	#611	#611A
0 -	20 psi	±0.05% rdg. ±0.01% fs.	0.0002 psi	#600	#600A
0 -	30 psi	±0.05% rdg. ±0.01% fs.	0.0003 psi	#601	#601A
0 -	50 psi	±0.05% rdg. ±0.01% fs.	0.001 psi	#620	#620A
0 -	100 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#602	#602A
0 -	150 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#603	#603A
0 -	200 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#621	#621A
0 -	300 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#607	#607A
0 -	500 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#622	#622A
0 -	600 psi	±0.05% rdg. ±0.01% fs.	0.01 psi	#604	#604A
0 -	1000 psi	±0.05% rdg. ±0.01% fs.	0.1 psi	#605	#605A
0 -	1750 psi	±0.05% rdg. ±0.01% fs.	0.1 psi	#606	
0 -	2000 psi	±0.05% rdg. ±0.01% fs.	0.1 psi	#623	
0 -	3000 psi	±0.05% rdg. ±0.01% fs.	0.1 psi	#624	
0 -	5000 psi	±0.05% rdg. ±0.01% fs.	0.1 psi	#625	



Pressure connection	P/N
1/8" NPTF 316L, Hastelloy and viton. Max. 10,000 psi	616

Ordering Information

MCX-PM (Pressure Module) includes; operating manual, calibration traceability certificate. A calibration report/certificate with data is optional.

Please state ordering code as follows: MCX - PM - Sensor1 - Sensor2 Note: Position 1 is lefthand side



The revolutionary PV 411 (4 In 1) multi-function pressure generator is a remarkable hand pump for generating vacuum, gas and hydraulic pressures. A single PV 411 replaces four conventional hand pumps and sets new standards of performance in each of the following disciplines:

 Vacuum:
 28.5 inH

 Low pressure (gas):
 in H₂O r

 Medium pressure (gas):
 600 psi

 Hign pressure (hydraulic):
 10,000 psi

28.5 inHg in H₂O range fine control 0 psi 0.000 psi

The PV 411 is the ideal pressure source for calibrations and tests using MCX II pressure modules. For more information please refer to the PV 411 data sheet.

Standard Specification

MEASUIDE

MEAGOINE				
Input	Range	1 Year Accuracy	Resolution	Remarks
MV	0 100 mV	0.004% + 0.004%	0.001	R – input > 20 M Ohm
(autoranging)	100 600 mV	0.005% + 0.005%	0.01	
V	06 V	0.009% + 0.003%	0.0001	R – input > 1 M Ohm
(autoranging)	660 V	0.009% + 0.003%	0.001	
mA	052 mA	0.010% + 0.003%	0.001	R – input > 2.5 Ohm fused
Ohms	0 400 Ohm	0.010% + 0.005%	0.01	at 0.9 mA excitation
(autoranging)	400 2000 Ohm	0.010% + 0.005%	0.1	at 0.9 mA excitation
Frequency	0 655 Hz	0.01 Hz	0.01	R – input > 300 k Ohm
(autoranging)	655 1310 Hz	0.1 Hz	0.1	R – input > 300 k Ohm
	1310 10,000 Hz	1 Hz	1	R – input > 300 k Ohm
Counts/minute	0 6 x10⁵	1 c/min.	1	R – input > 300 k Ohm
Counts/hour	0 107 –1	1 c/hour	1	R – input > 300 k Ohm
Totalizing counter	0 10 ⁸ - 1	infinite	1	R – input > 300 k Ohm

Accuracy (% of reading + % of range + 1 LSD)

SOURCE

Output	Range	1 Year Accuracy	Resolution	Remarks
MV	-10 100 mV	0.003% + 0.004%	0.001	R – output < 0.2 Ohm
V	0 12 V	0.004% + 0.002%	0.0001	R – output < 0.2 Ohm
MA	0 24 mA	0.012%	0.001	R – max 900 Ohm
Ohms	0 400 Ohm	0.005% + 0.008%	0.01	at 1 mA excitation
	0 2000 Ohm	0.010%	0.1	at 1 mA excitation
Pulse	0 10 ⁸ –1	infinite	1	0 24 V/ 34 mA max.
Frequency	0 100 Hz	0.01 Hz	0.01	0 24 V/ 34 mA max.
	0 10,000 Hz	1 Hz	1	0 24 V/ 34 mA max.
pulses/min	0 6000	1 p/min	1	0 24 V/ 34 mA max.
pulses/hour	0 99,999	36 p/hour	1	0 24 V/ 34 mA max.

Accuracy (% of reading + % of range + 1 LSD)

TEMPERATURE				
RTD	Range	1 Year Ac	curacy	Resolution
Pt1000 ① Pt500 ① Pt100 ① Pt50 ① Dt100 ② Ni100 ③ Ni120 ④ Cu10 ⑤	-200 400 °C -200 850 °C -200 850 °C -200 850 °C -200 850 °C -200 649 °C -60 250 °C -80 260 °C -200 260 °C	M easure 0.1 °C 0.1 °C 0.2 °C 0.15 °C 0.15 °C 0.15 °C 0.1 °C 1.0 °C	Source 0.1 °C 0.1 °C 0.2 °C 0.12 °C 0.12 °C 0.12 °C 0.1 °C 1.5 °C	0.1 °C 0.1 °C 0.3 °C 0.03 °C 0.03 °C 0.1 °C 0.1 °C 0.1 °C 0.3 °C

① = IEC 751, ② = JIS 1604-1989, ③ = DIN 43760, ④ = MINCO 7, ⑤ = MINCO 16-9

T/C	Range	1 Year Accuracy		Resolution	
			M easure	Source	
J	1	-210 1200 °C	0.1 °C	0.1 °C	0.1 °C
L	2	-200 900 °C	0.1 °C	0.1 °C	0.1 °C
К	٢	-270 1372 °C	0.1 °C	0.1 °C	0.1 °C
т	0	-270 400 °C	0.1 °C	0.1 °C	0.1 °C
U	2	-200 600 °C	0.1 °C	0.1 °C	0.1 °C
в	1	50 1820 °C	0.4 °C	0.4 °C	0.1 °C
R	1	-50 1769 °C	0.5 °C	0.5 °C	0.1 °C
S	0	-50 1769 °C	0.5 °C	0.5 °C	0.1 °C
Е	٢	-270 1000 °C	0.1 °C	0.1 °C	0.1 °C
N	0	-270 1300 °C	0.1 °C	0.1 °C	0.1 °C
С		0 2320 °C	0.2 °C	0.2 °C	0.1 °C
D		0 2495 °C	0.2 °C	0.2 °C	0.1 °C

①= IEC 584. ② = DIN 43710

Best case, Mid Range accuracies +1 LSD

Note: Internal cold junction compensation error +/- 0.2°C (± 0.4°F)

Druck

SPECIAL FEATURES

Temperature units °C or °F

Temperature scales

IPTS 68 or ITS 90 selectable

Pressure units 10 units

Step 10 programmable, 10%, 20%, 25%. Manual step or adjustable timer

Ramp

Fully programmable travel time (up/down and dwell)

Scaling

5 digits and sign on all electrical ranges

Temperature transmitter calibration Both input and output readings in temperature units Calibration feature extended for all output functions

Temperature transmitter simulation mA output reads in temperature units

Loop power Dual 24Vdc Loop power supplies

Signal converter Converts any input into any output, fully isolated

Keystroking Storage for 10 user defined test configurations

Switch test Display freezes on open and close action

Data storage 1 Mbyte of data storage - see option (A3)

Computer interface RS 232 and PCMCIA card - see option (A3)

PCMCIA station PCMCIA card type 1 or 2 - activated by option (A3)

Language English, French, German, Italian, Portuguese and Spanish

Power management Auto backlight OFF, battery low indicator

DISPLAY

Panel

2.6 in x 1.6 in Graphic LCD with backlight Readout Typically 5 readings/ second

ENVIRONMENTAL

Accuracies

Calibration reference

22°C +/- 1°C (72°F +/-2°F), R.H. 45% +/- 15%

Accuracies true for 17°C to 27°C (60°F to 80°F). Outside these limits add 0.0005%/°C (0.00025%°F) typically Reference for all electrical parameters only.

Temperature Operation: -10°C to 50°C (15°F to 120°F)

Humidity:

0 - 90% non condensing

Sealing Generally to NEMA 12 (IP53)

Conformity EN50081-1, EN50082-1, CE Marked

Physical 1.1 lb, 10.5 in x 6.3 in x 2.0/3.2 in

Power supply 6 x 1.5 V alkaline "C" cells 6 x 1.2 V Ni-Cad "C" cells

Options and related products

OPTIONS

(A1) Linkpak-W calibration software (P/N LPDPI)

Developed to help meet the growing demand on industry to comply with quality systems and calibration documentation. Test procedures are created in a Windows based application and devices due for calibration are reported and grouped into work orders for transfer to

the DPI 605. DPI 615, TRX-II and the MCX II. Calibration results, including files from the DPI 610, are uploaded to the PC via the RS 232 interface (or PCMCIA card) for analysis and to print calibration certificates.



Visit www.druckinc.com for Linkpak-W demonstration

(A2) Intecal-W calibration database software (P/N ICDPI)

Builds on the basic concept of Linkpak-W supporting both portable field calibrators and on-line workshop calibrators; manual data entry is also a key feature for recording data. Intecal-W is a simplified calibration management software which enables a high productivity of calibration scheduling/work and documentation. Device information, calibration procedures and results are stored in an

instrument database. Multiple databases can be created for organising client accounts, processes or areas. Extensive management features provided include a database search engine, time based calibration due queries and standard reports.



Visit www.druckinc.com for Intecal-W demonstration

Documenting release key (P/N 405-A014) (A3)

A PCMCIA card which adds full documenting capabilities to the MCX II with 1 Mbyte of memory for procedures and results. Each MCX II requires a key to work with PC based software. RS 232 cable provided.

- (B) Interchangeable pressure modules (P/N (refer to table)) Single or dual range pressure modules with sensor ranges from -14.7 to 5000 psi including gauge and absolute versions.
- HART® digital communicator (P/N 405-A003) (C) For full calibration and adjustment of HART transmitters without a separate digital communicator. It can also be retrofitted by the user.
- High accuracy temperature probe (P/N 191-A012) (D) A hand held PT100 1/5 DIN reference temperature probe for measuring ambient air temperatures during calibrations or at thermocouple remote cold junctions. Cable length 4.5 feet.

Battery charger/eliminator (P/N 191-A005 110V) (E) This 110V adapter can either power the MCX II from line voltage or recharge Ni-cad batteries (batteries not supplied). The MCX II can be recharged and operated simultaneously. Refer to factory for 220V



version

Druck Incorporated 4 Dunham Drive New Fairfield, CT 06812 Tel: (203)-746-0400 Fax: (203)-746-2494 E-Mail: usa.sales@druck.com Internet: www.druckinc.com



ACCESSORIES

Carrying case, test leads, user guide, hand book, batteries and calibration certificate of conformance supplied as standard (NIST calibration report with data is optional).

CALIBRATION STANDARDS

Calibrators manufactured by Druck are calibrated against precision calibration equipment traceable to National Institue of Standards and Technology (NIST).

RELATED PRODUCTS

Portable field calibrators Druck manufacture a wide range of portable pressure, temperature and electrical field calibrators. A selection of these are shown below.



Laboratory and workshop instruments

Druck also manufacture a wide range of pressure indicators and controllers. This includes Pressurements industrial deadweight testers and Ruska precision controllers and primary standard piston gauges.

Pressure transducers and transmitters

Druck instruments complement an extensive range of pressure transducers and transmitters, utilized in a variety of aerospace, automotive, depth level and process applications

Please refer to manufacturer for further information on related products.

ORDERING INFORMATION

Please state the following (where applicable):

- 1 Model number MCX II
- 2. Options, including part numbers. For MCX II pressure modules please
- refer to the ordering code tables and state the pressure range/s required. For options (A1) or (A2) please order option (A3) for each MCX II.
- Note: options should be ordered as separate line items.

Continuing development sometimes necessitates specification changes without notice.

Druck is an ISO 9001 registered company



Representative: