Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04 Курган
(3522)50-90-47 Липецк
(4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16 Петрозаводск
(8142)55-98-37 Псков (8112)59-10-37
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35

Тольятти (8482)63-91-07
Томск (3822)98-41-53 Тула
(4872)33-79-87 Тюмень
(3452)66-21-18 Ульяновск
(8422)24-23-59 Улан-Удэ
(3012)59-97-51 Уфа
(347)229-48-12 Хабаровск
(4212)92-98-04 Чебоксары
(8352)28-53-07 Челябинск
(351)202-03-61 Череповец
(8202)49-02-64 Чита
(3022)38-34-83 Якутск
(4112)23-90-97 Ярославль
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Racks and accessories

Renishaw's range of accessories enhances the basic system by offering additional utility.

MSR1

Manual storage rack for TP20 and TP200 stylus modules.

The MSR1 holds up to six pre-qualified stylus assemblies fitted to TP20 or TP200 probe modules. It simplifies manual module changing and thus aids measurement productivity.

MSR1 can be mounted on the CMM table or on a vertical surface.

Overall height (table mount version)	285 mm (11.22 in)
Depth (including wall bracket)	86 mm (3.39 in)
Width	236 mm (9.29 in)

MCR20

Module change rack enabling automated changing of TP20 stylus modules.

The MCR20 module changing rack is passive and can store up to six TP20 probe modules for automatic changing under measurement program control.

MCR20 is designed to securely hold the stored probe modules for automatic changing and to protect them from airborne contaminants.

Height	145 mm (5.71 in)
Depth	60 mm (2.36 in)
Width	200 mm (7.87 in)

TCR20

TCR20 is a compact probe module rack for use with PH20 that provides the capability for quick and repeatable tool changing and tip correction.

Based on the industry standard range of MCR20 rack systems, TCR20 securely stores modules for rapid automatic changing, protecting mating surfaces from any airborne contaminants within the working envelope of the machine.

TCR20 carries the full range of TP20 modules for use with a PH20 system and can accommodate a range of module and stylus combinations.

TCR20 features an integrated tip datum artefact in the centre of the rack assembly, reducing cycle time when measuring and performing the tip correct procedure.

Tip correction is key when the absolute highest level of accuracy is required for certain applications. It compensates for any residual variations after a tool change, maintaining a market leading level of accuracy from PH20.

Width	200 mm (7.87 in)
Depth	57 mm (2.24 in)
Base diameter	50 mm (1.97 in)

SCR200

Change rack for TP200 stylus modules.

The SCR200 provides automatic, high speed changing between up to six TP200 stylus modules and is powered by the separate probe interface PI 200-3, providing features to facilitate safe stylus changing.

The SCR200 is available in low force and standard force kits, where each kit comprises one SCR200 plus three stylus modules of the same force.

Height	190 mm (7.84 in)
Width	245 mm (9.65 in)

SCR600

Change rack for SP600 stylus modules.

The SCR600 is a passive stylus change rack and so it requires no electrical connections. It is protected from overtravel (in the probe entry direction) by a mechanism in the base which can be manually reset.

The SCR600 houses up to four SP600 stylus modules per rack and any number of racks can be used in a system.

Height	225 mm (8.86 in)
Width	235 mm (9.25 in)

SCP600

The SCP600 stylus change port mounts to the MRS for increased flexibility when using multiple probe changing options.

The SCP600 is part of a flexible modular rack system that enables the user to define the number of stylus changing ports required and the size and spacing of the overall rack system. The individual SCP600s are fitted to the MRS rail (available in 400 mm, 600 mm or 1000 mm) at appropriate and easily adjustable spacing to suit the stylus arrangement required for the application.

REVO change ports

RCP TC-2, RCP TC-3 and RCP2 provide flexible, automatic, high speed changing between the range of REVO® probes and stylus holders.

RCP TC-2

RCP TC-2 is a powered change port for use with the REVO probe range (RSP2 and RSP3-#). This port maintains the probe at its operating temperature, preserving the metrology performance of the system after a probe change.

RCP TC-3

RCP TC-3 is a powered rack port, with high-force magnets, for use with RSP3-6 and SFP2 probes.

RCP2 is a passive rack port for use with the RSH range of stylus holders as well as the SFS-# styli.

FCR25

Flexible change racks for automated changing of SP25M scanning and touch-trigger modules.

A range of module changing systems, each of which allows any of the SP25M system elements to be stored in each port.

- SM25 scanning modules
- TM25-20 TTP module adaptor
- SH25 scanning stylus holders
- TP20 modules

FCR25

Triple port unit suitable for fitment to the MRS modular rack system.

FCR25 port adaptor insert kit

PA25-SH and PA25-20 inserts to store SH25-# stylus holders or TP20 probe modules.

FCR25-L3

3-port stand-alone unit for smaller CMMs and optical CMMs.

FCR25-L6

6-port stand-alone unit for smaller CMMs and optical CMMs.

ACR1

An eight port, fully integrated CMM probe or extension bar exchange system.

Mounted within the CMMs working envelope, the ACR1 autochanger enables fast, automatic probe exchange without the need for requalification. The probe head docks one probe and picks up another using the highly repeatable autojoint.

Suitable for PH10M PLUS, PH10MQ PLUS motorised indexing heads, and the TP7M, SP600M and TP6A sensors.

Number of ports	8
Dimensions	460 mm × 100 mm × 81 mm (18.11 in × 3.94 in × 3.20 in)

Accessories

PHS-2 interface card

The PHS-2 head is controlled by the head interface card in the CMM controller. The card handles communications and conditions the signals between the head and the CMM controller. The PHS-2 interface card does not handle probing system signals.

Kinematic mount

A kinematic mount (KM1 or KM2) allows quick fixing of the head to the machine and a fast changeover to a PH10 PLUS system (utilising a PHA1 or PHA2).

KM1 features through-quill cabling.

KM2 allows for cabling to run outside the CMM quill.

ACR2 autochange rack

The ACR2 autochange system is an arm-changing system for the PHS-2 servo positioning head system. It allows probe extensions or probe adapter arms to be exchanged to suit the probing task required.

Arms are locked or unlocked from the head by motion of the machine itself. The head engages a rack port and the machine drives the port: up to unlock an arm, or down to lock it in position.

No power connections or signal connectors to the rack are necessary, making installation very simple.

The ACR2 is supplied as pairs of rack ports which are mounted onto a suitable fixture supplied by the OEM. The system is modular and any number of port pairs can be used anywhere on the CMM.

Extended warranty

For peace of mind a 3-year warranty is available for your new CMM products during the first 3 months from purchase. Contact your vendor.

PHS-2 motorised (servo type) probe head kits

PHS-2 head kit 1 (Including PHS-2 head, 6 x ACR2 ports, 2 x HAM, 2 x HA8, HE500, HE750)	A-5795-0817
PHS-2 head kit 2 (Including PHS-2 head, 2 x ACR2 ports, KM1, HAM, HA8, HE330, HE500)	A-5795-0819
PHS-2 head only	A-5795-0001

PHS-2 arm kits and accessories

PHS-2 arm kit 1 (2 x HAM, 2 x HA8, HE500, HE750)	A-5795-0816
PHS-2 arm kit 2 (HAM, HA8, HE330, HE500)	A-5795-0827
HE750 Extended arm PHS1 or PHS-2	A-5795-1060
HE500 Extended arm PHS1 or PHS-2	A-5795-1050
HE330 Extended arm PHS1 or PHS-2	A-5795-1040
HAM PHS multiwire adapter for PHS1 or PHS-2	A-5795-1010
HA8 PHS M8 adapter PHS1 or PHS-2	A-5795-1030
PHS extension bar box	A-2150-0191

ACR2 autochange rack Kits (for use with PHS1 or PHS-2)

ACR2 port pair for use with PHS1 or PHS-2	A-1383-0003

PHS-2 interface card

PHS1 or PHS-2 interface card	A-2150-0824

PHS-2 accessories

PHA3 – PH10MQ PLUS to KM1 quick change adaptor	A-2238-0751
KM1 – kinematic (through-quill cabling) for use with PHS1 / PHS2	A-2150-0831
KM2 – kinematic (around-quill cabling) for use with PHS1 / PHS2	A-2150-0832
PL104 – 30 m power cable	A-2150-0481
PL105 – 30 m comms cable	A-2150-0482
PL106 – 30 m probe cable	A-2150-0483
PL107 – 30 m overtravel cable	A-2150-0484

ACR3

The ACR3 provides a passive means to automatically exchange probes without the need for requalification.

ACR3 uses Renishaw's unique autojoint connector to attach probes and extensions to the PH10M PLUS and PH10MQ PLUS motorised indexing heads. It can support a range of sensors from Renishaw and other metrology suppliers.

Although the ACR3 is a four port unit, two can be linked together so that eight different probes or extensions can be stored in the rack - sufficient for any measurement task.

A passive mechanism locks and unlocks the autojoint for secure and fully automatic sensor changes. The motion of the CMM is used to drive the change process, meaning that no additional motors or control are required.

The ACR3 is part of Renishaw's MRS modular rack system, meaning that an ACR3 unit can be combined with an FCR25 module change rack for SP25M scanning probe, or with SCP600 stylus change ports for the SP600M scanning probe.

MAP stand

The MAP (manual autojoint probe) stand is a low cost storage rack capable of holding up to six autojoint mounted probes and extension bars.

The MAP stand can be mounted directly onto the table of a CMM (or any suitable surface) using the appropriate socket head bolt which is passed through the centre of the base.

Standard autochange rack legs (100 mm and 200 mm long) are compatible with this stand and can be stacked to accommodate longer probe extensions and styli.

A wall mounting bracket is available to enable the stand to be mounted on a cabinet, wall or any vertical surface.

MRS modular rack system

A flexible platform allows you to combine probe and stylus changing for optimum CMM functionality.

The MRS modular rack system provides a platform for Renishaw probe and stylus changing racks. It consists of a rail (400 mm, 600 mm or 1000 mm long) that holds the probe or stylus changers, and interconnecting legs of selectable lengths that allow clearance for long styli and extension bars.

The rail is compatible with the SCP600 and SCP80 (stylus change ports for SP600 and SP80 respectively), the ACR3 (autochange rack) and the FCR25 (stylus and module change rack for the SP25M).

MRS options

Rails

MRS rails are available in lengths of 400 mm, 600 mm or 1000 mm.

Legs

MRS legs are available in lengths of 62.5 mm and 125 mm.

Kits

The Renishaw modular rack system kit comprising the MRS rail and the necessary legs (4 × 125 mm) and fixing feet. Kits are available with a MRS in lengths of 400 mm, 600 mm or 1000 mm.

MRS2 modular rack system

The MRS2 modular rack system is a versatile probe and stylus changing solution for Renishaw sensors.

MRS2 is available in a variety of leg and rail lengths to allow it to be configured to various applications. In instances where CMM working volume is at a premium, or there is a need to carry large numbers of probes and styli, additional rails can be added to MRS2 to create multi-tier racks.

The rail is compatible with:

- SCP600 and SCP80 (stylus change ports for SP600 and SP80 respectively)
- ACR3 (autochange rack)
- FCR25 and FCR25 TC (stylus and module changing for SP25M and RPS3-# stylus holders)
- RCP2 (change port for RSP2 and RSP3-6 stylus holders)and RCP TC-2 (thermally controlled REVO change port for REVO probes)
- SFA and SFCP (for REVO surface finish probe)

One tier rack

Two tier rack

Three tier rack

MRS2 options

Rails

MRS2 rails are available in lengths of 400 mm, 600 mm or 1000 mm.

Legs

MRS2 legs are available in lengths of 200 mm, 400 mm, 600 mm and 800 mm.

Adjustment modules

Adjustment modules for use with the PH6M and MIH manual probe heads, and the PH10 PLUS family of motorised heads.

AM1

The AM1 adjustment module has been designed for use with the PH6M and MIH manual probe heads and PH10M PLUS motorised probe heads. It provides quick and accurate angular alignment of the motorised probe head with the CMMs axes and / or the autochange rack.

The quick release mechanism allows the head to be removed for storage and replaced without further alignment. Inbuilt overtravel protection decreases the risk of head damage.

AM2
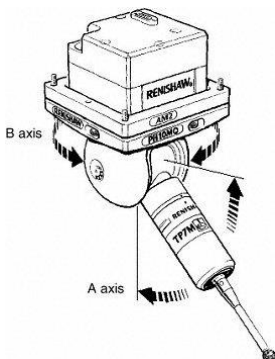
The AM2 adjustment module has been designed for use with PH10MQ PLUS.

The PH10MQ PLUS head is attached directly to the CMM quill via the AM2 adjustment module.

Autochange extension bars

A series of probe extensions placed between the probe and probe head to provide increased reach with minimal loss of accuracy.

Autojoint extension bars have the female part of the Renishaw autojoint at one end of the bar, and at the other end of the bar is the probe connection mount. The male part of the autojoint is found on probe heads and allows rapid manual or automatic extension bar changing.

Autojoint extension bars are suitable for use with the ACR1 and ACR3 probe changing racks for automatic exchange of multi-probe installations. They can be fully multi-wired (all 13 pins connected) or feature just 2 wires. The probe end of the bar can feature either a male autojoint, or an M8 thread.
PHS head adaptors have a different type of kinematic joint that allows the user to convert the PHS system to other probe types and include extension bars in the set-up.

Autojoint to autojoint extension bars

Extend the reach of autojointed probes using multiwired extension bars.

PEM extension bars are designed to be used with all multiwired probes (TP7M, SP25M and SP600M scanning probes and the OTP6M optical probe) as well as other touch-trigger probes using an adaptor.

Autojoint to M8 bush extension bars

Extension bars that can connect M8 thread probes to autojoint mounted probe heads.

The PAA range of extension bars allow standard 2-wire touch-trigger probes to be fitted to autojointed heads - for example, TP20 to PH10M PLUS or MIH.

There are three PAA extension bars available. The PAA1 is a 30 mm steel adaptor, the PAA2 and PAA3 are made of aluminium and have an overall effective length of 140 mm and 300 mm respectively.

PHS head adaptors

These head adaptors convert the PHS connector to a connection suitable for other probe sensors.

The HA-M allows multiwire probes to be used with PHS.

The HA-8 allows the use of Renishaw's M8 extensions, as an alternative to the bespoke PHS head extensions.

PHS head extensions

PHS head adaptors with integral extension bar to M8 thread, and autochangeable on ACR2.

These extension bars allow the reach of PHS to be extended by 330 mm, 500 mm or 750 mm (hence HE330, HE500, HE750). The head extensions can be bought individually or in kits.

Gram gauge

A gauge to adjust, reset and check probe trigger force settings on TP1, TP2 and TP6 touch-trigger probes.

Stylus force adjustment allows the spring rate in the probe to be optimised for the type of stylus that is being used. Heavier styli, for instance, require a higher spring rate to ensure that the probe does not trigger under inertial forces during normal machine movement.

Setting the optimum trigger force using the gram gauge maximises probe performance. The gram gauge can be used to set trigger force settings over a range from 4 grams to 35 grams.

M8 extension bars

Extension bars with M8 threads (one male, one female) at either end, enabling deep part access using a probe with an M8 mount.

PEL extension bars

A family of aluminium extension bars with M8 to M8 threads for use with 2-wire touch-trigger probes (such as TP20) to extend the reach of the CMM.

PEL1

50 mm

PEL2

100 mm

PEL3

200 mm

PEL4

300 mm

PEL kit

A selection of aluminium extension bars to use on any CMM with an M8 thread connector for 2-wire probes.

Three extension bars (PEL1, PEL2 and PEL3) presented in a mahogany box, a cost effective way to purchase a combination of lengths.

MCG systems

Machine checking gauge (MCG) for monitoring the volumetric measuring performance of your CMM.

Most CMM's are typically subjected to an annual service and re-calibration by the original equipment manufacturer (OEM) or independent calibration service. Testing is often carried out to a defined procedure laid down in a recognised standard such as ISO, ASME, or VDI / VDE. These tests require the use of fixed length ball-ended bars or step gauges and laser measurement systems (e.g.; Renishaw XL-80 laser). The measurement data can then be used to modify the CMM controller's electronic error map to restore it to within accuracy specifications. This well recognised procedure is essential but can be time consuming and costly.

Many end users want a simpler method of monitoring accuracy at regular intervals between these checks or after a collision. Using the Renishaw MCG, they are able to carry out a (typically) 10 - 20 minute interim verification of volumetric accuracy to ISO10360-2. The results give assurance that measurements taken on the CMM are accurate, or give conclusive proof that servicing or re-calibration work is needed. The process is quick and cost effective and a range of pillar heights and arm lengths mean that volumetric accuracy can be checked on both large and small CMMs.

The probe's stylus slots into the end of what is, in effect, a reference 'ball' bar. The probe carries the bar with it around a spherical path, and radial readings are taken at different positions. The range of these readings indicates the volumetric measuring performance of the CMM. Repetition of a sequence of readings checks the system for repeatability.

Volumetric measuring performance is the maximum error between any two points in any plane, over any distance within the full measuring volume.

Special calibrated stylus can be used with TP1, TP2, TP20, TP6A, with suitable adaptors.

MCG kits

| Gauge	Description	Machine suitability	Total gauge error	Arms size	Dimensions up to
MCG1	Small checking gauge kit	Up to 1 m³ (35.315 ft³)	±0.5 µm (±0.00002 in)	Up to 380 mm	X 537 Z 537
MCG2	Comprehensive checking gauge kit	1 m³ (35 ft³)	±0.5 µm (±0.00002 in)	Up to 685 mm	X 986 Z 986

PHS kinematic mounts

Two kinematic mounts for PHS servo heads allow quick fixing of the head to the machine and fast changeover to other heads (e.g. PH10T PLUS or PH10M PLUS).

KM1
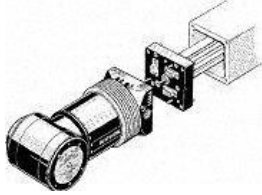
KM1 features through quill cabling.

KM2
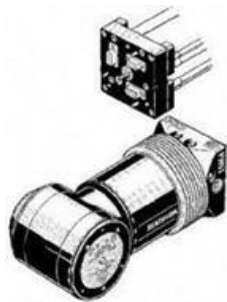
KM2 allows for cabling to run outside the CMM quill.

CMM cables

Interconnection cables for probes, heads and controllers.

Renishaw's range of cables provide reliable interconnection of probes, heads and controllers. Comprehensive information on the most commonly used Renishaw cables can be found on the CMM knowledgebase and in the CMM cable guide (H-1000-4053).

Further customised cable solutions are available for specific applications, please contact Renishaw for further details.