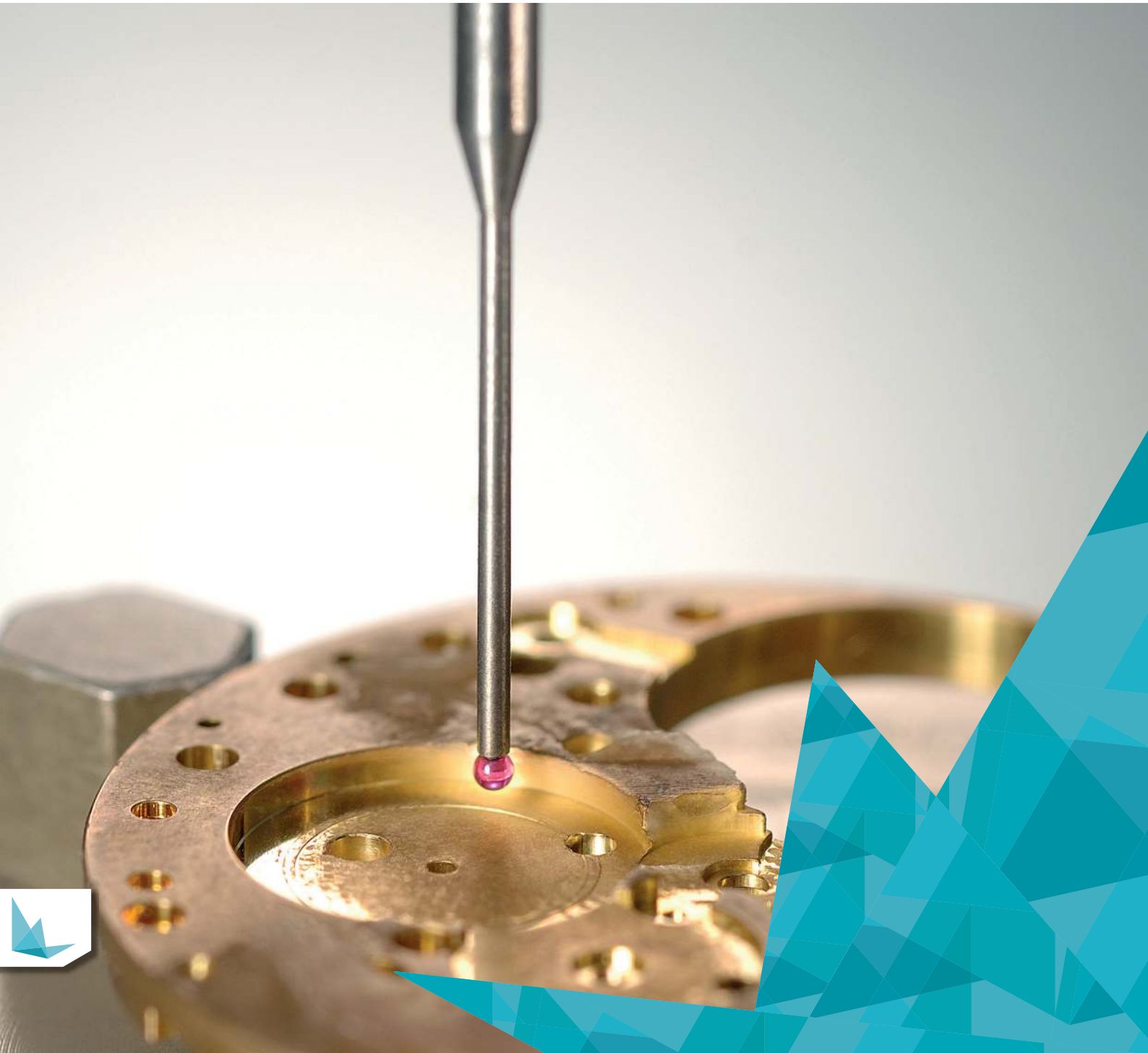


PROBES & SENSORS

FOR COORDINATE MEASURING MACHINES



HEXAGON METROLOGY BECOMES HEXAGON MANUFACTURING INTELLIGENCE

As a leading measurement equipment provider, Hexagon Metrology set out to offer complete quality assurance solutions, building an extensive portfolio of metrology equipment through a combination of innovation and acquisition.

In a move to reflect its growing expertise and solutions for integrated industrial manufacturing, global industry leader Hexagon Metrology has rebranded to become Hexagon Manufacturing Intelligence. The change also aligns the business more closely with Hexagon's overall strategy to offer software-centric information technology solutions that improve quality and productivity across entire industry workflows.

As a leading measurement equipment provider, Hexagon Metrology set out to offer complete quality assurance solutions, building an extensive portfolio of metrology equipment through a combination of innovation and acquisition. The company's investment in research and development has yielded technology revolutions that first moved measurement from the quality room to the point of production and then brought metrology data into the wider factory workflow. Recent acquisitions, including the CAD/CAM specialist Vero Software and statistical process control expert Q-DAS, have further expanded the business' offering into broader manufacturing technologies – prompting the decision to rebrand as Hexagon Manufacturing Intelligence.

As Hexagon Manufacturing Intelligence, we are ideally positioned to support these aspirations. We have moved beyond the isolated data capture of traditional metrology, enabling customers to analyse and leverage data for more informed decision making – sensing, thinking and acting, as we call it. We intend to focus our research on connecting these capabilities to offer customers a closed-loop manufacturing approach where quality drives productivity, as well as continuing to develop our core competencies in dimensional metrology.





BORN FROM EXPERIENCE

Hexagon Manufacturing Intelligence's comprehensive range of probes, probe heads, styli changers and accessories for Coordinate Measuring Machines (CMMs) represents the latest evolution in probing technology for coordinate measuring.










It includes a broad array of standard equipment precisely designed and built to achieve fast and accurate measurement. The Hexagon Manufacturing Intelligence Probing Systems enhances CMM performance and functionality, featuring:

- state of the art technology
- precise and reliable operation
- maximum application flexibility and outstanding usability
- quick and effective interchangeability
- extended modularity to configure optimised inspection systems to productivity requirements
- rugged, heavy-duty construction
- superior durability for operation in industrial environments

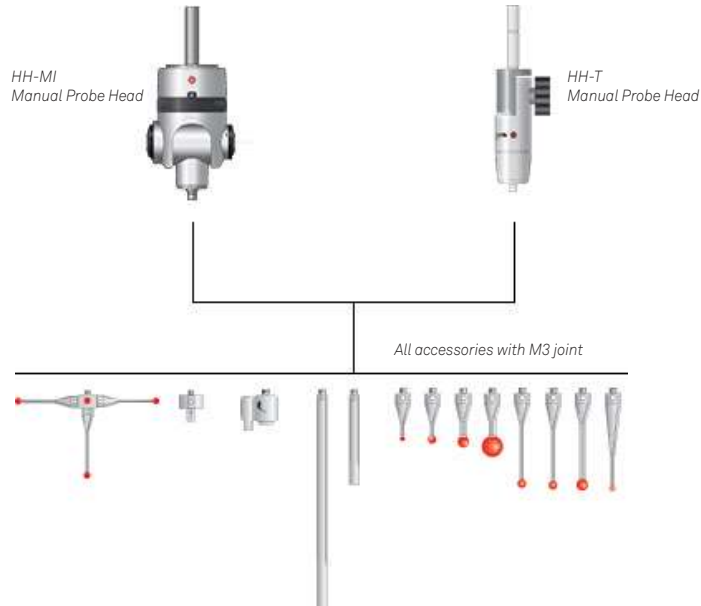
SENSORS FOR INDUSTRIAL METROLOGY

The Hexagon Manufacturing Intelligence Probing System line provides the performance, productivity and reliability that only the producer and supplier of the world's widest and most comprehensive range of CMMs can ensure. All key components are engineered, manufactured and assembled by Hexagon Manufacturing Intelligence and are designed to work together as an integrated product line for maximum application flexibility and enhanced CMM performance.

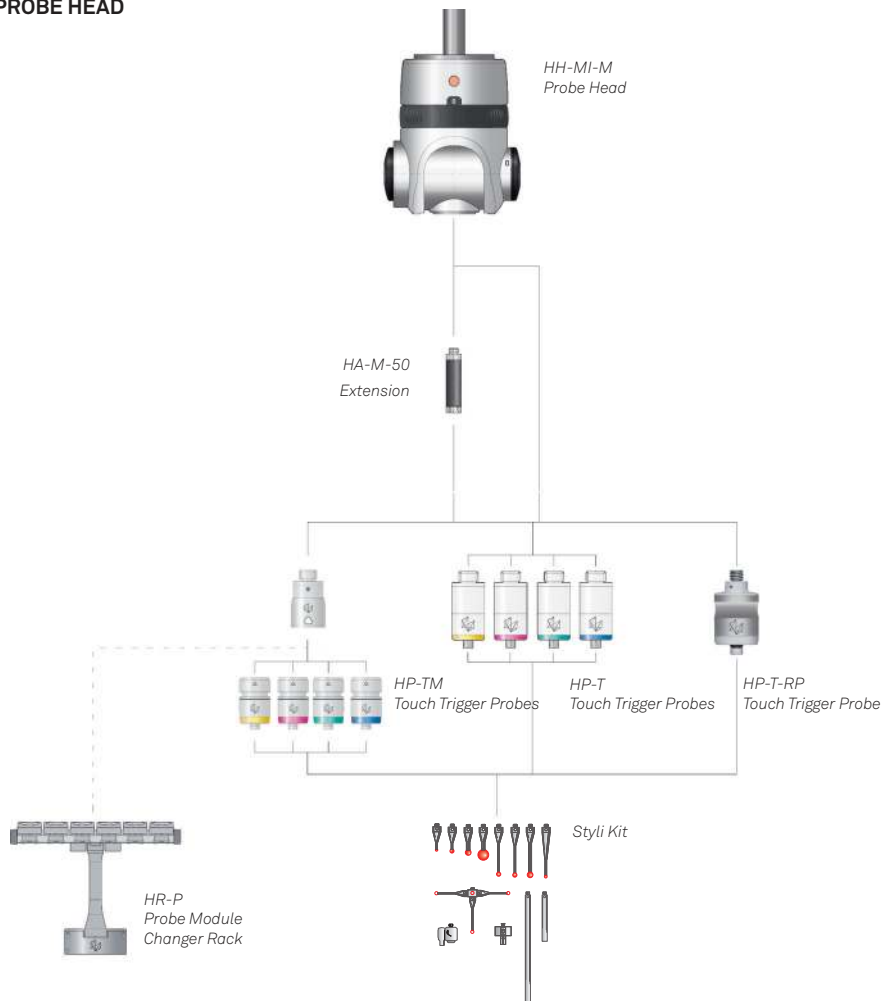
- PROBE HEADS
- TOUCH TRIGGER PROBES
- SCANNING PROBES
- NON-CONTACT SENSORS
- RACKS
- STYLI & ACCESSORIES

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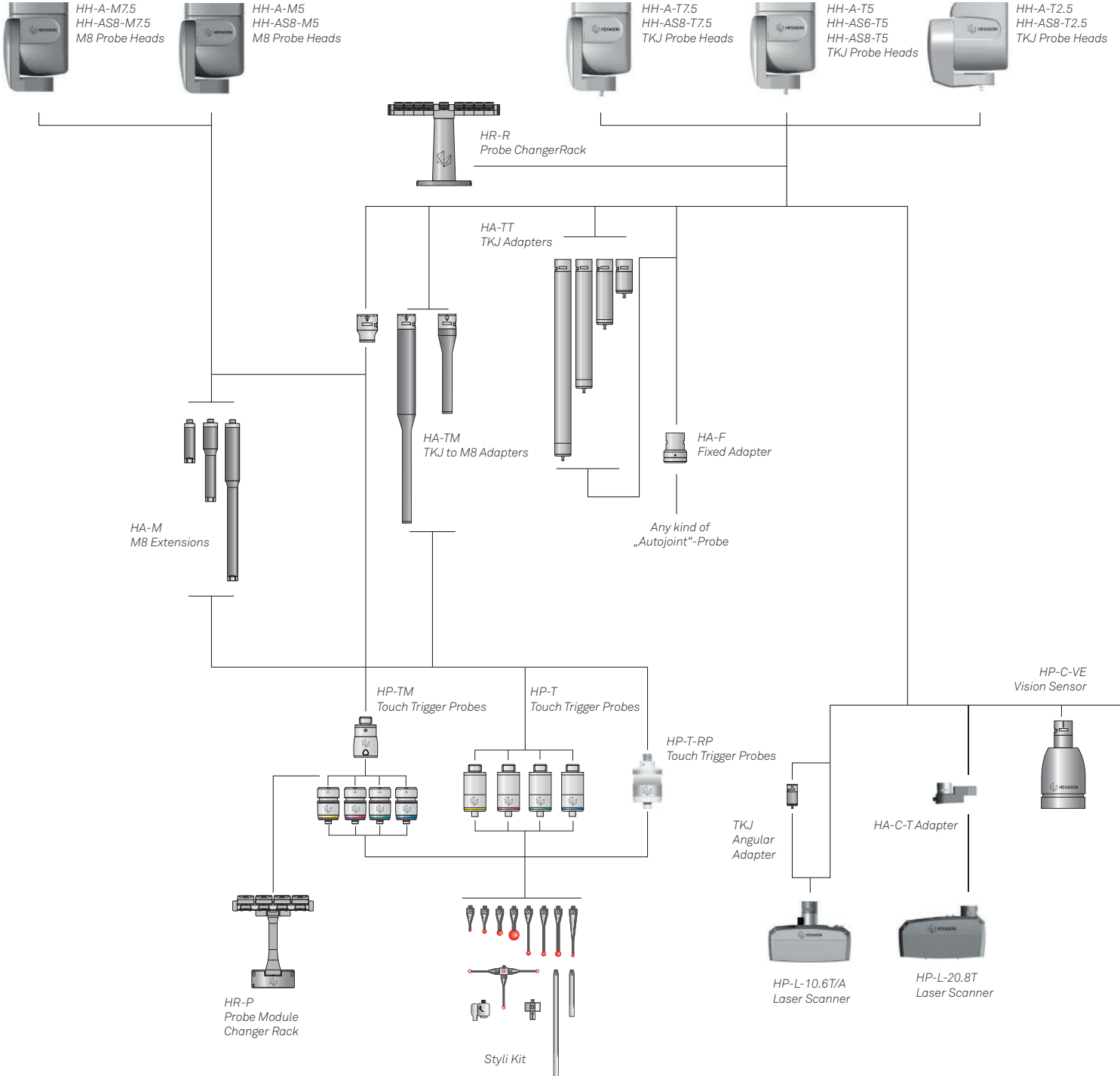
**HH-T | HH-MI
PROBE HEADS**

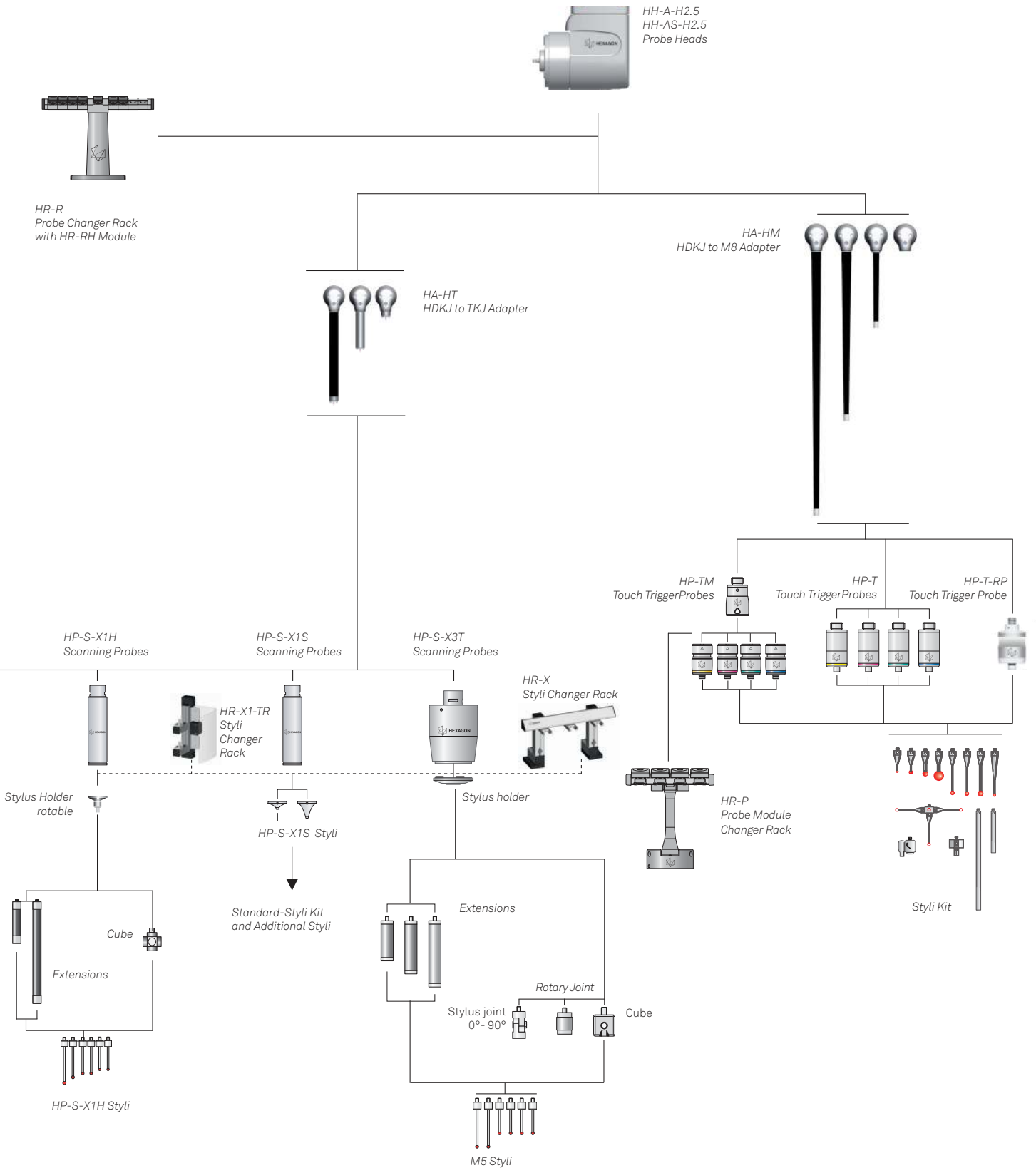


**HH-MI-M
PROBE HEAD**

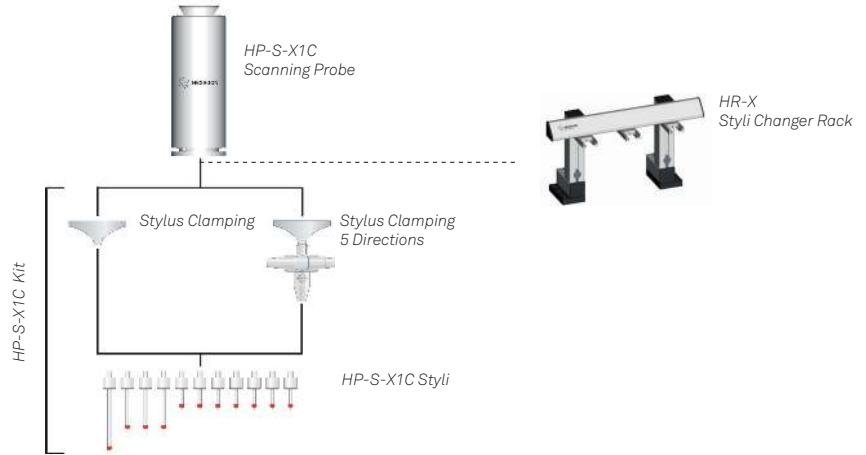


HH-A | HH-AS PROBE HEADS

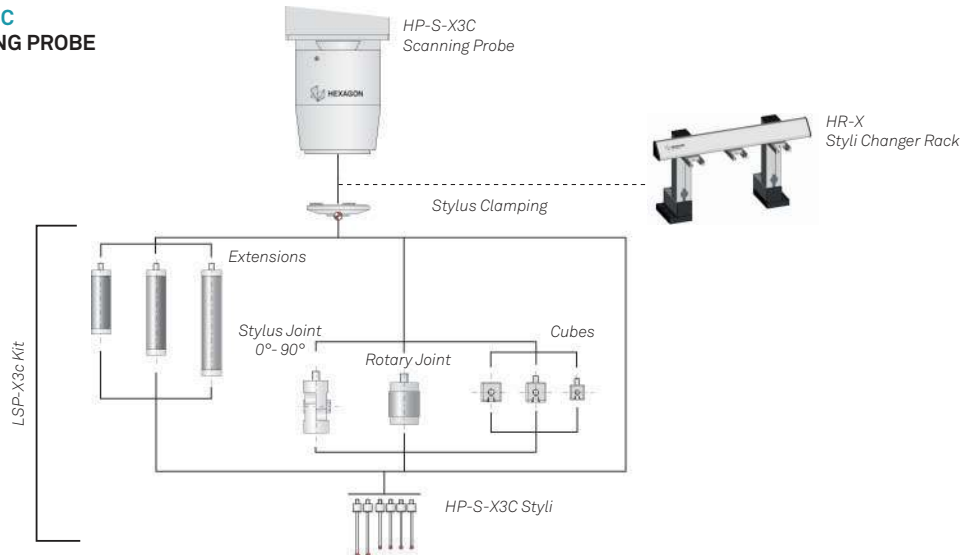




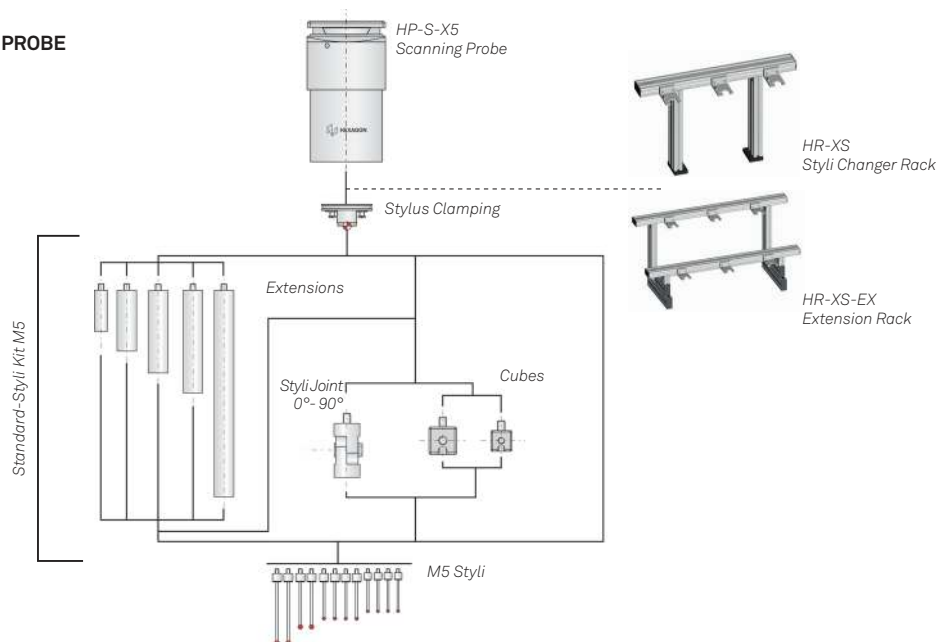
**HP-S-X1C
SCANNING PROBE**



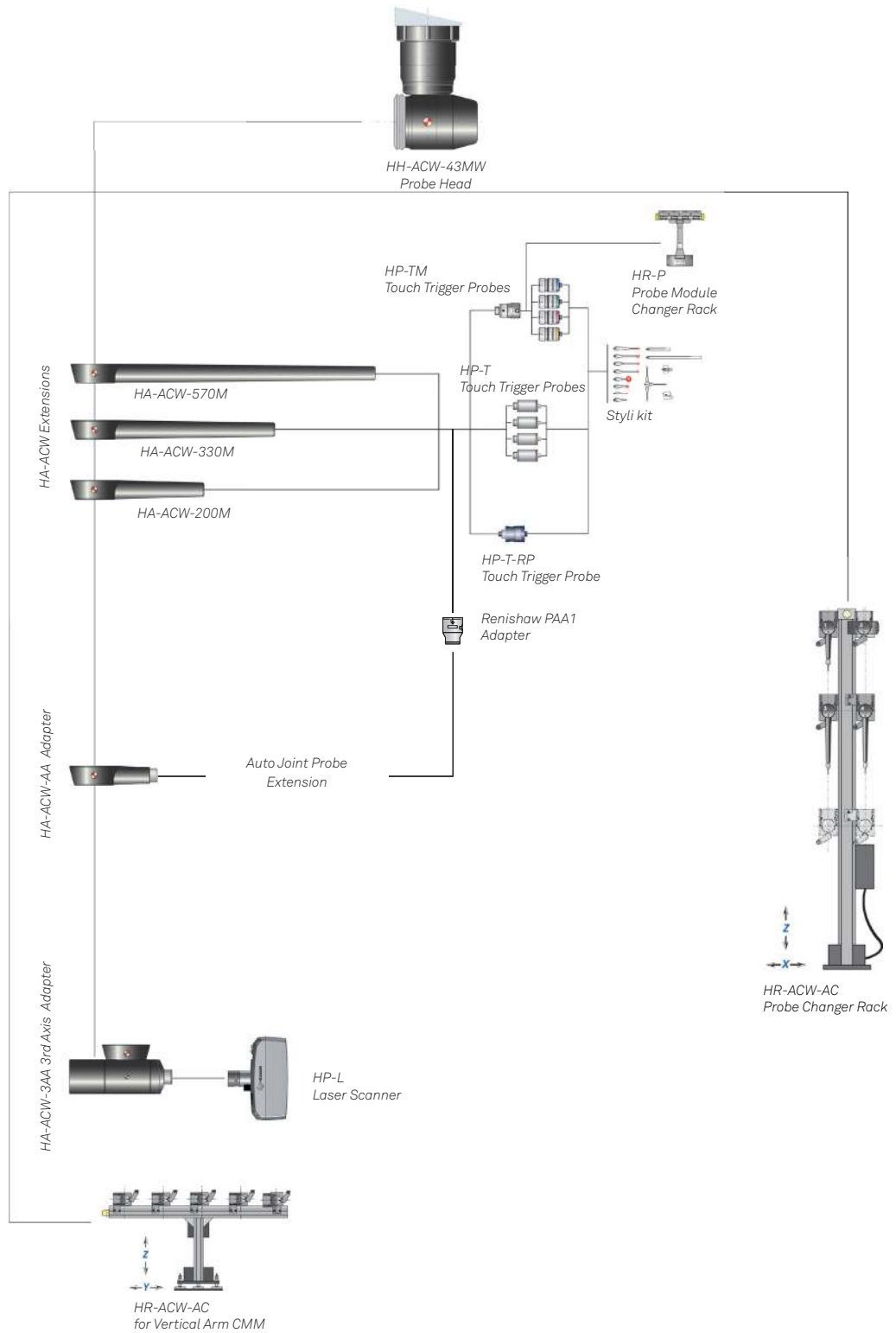
**HP-S-X3C
SCANNING PROBE**



**HP-S-X5
SCANNING PROBE**



HH-ACW-43MW
CONTINUOUS PROBE HEAD





MANUAL PROBE HEADS

AUTOMATIC PROBE HEADS

FIXED HEADS

Our vast array of sensor technologies provides a completely integrated system for measurement professionals. Built utilizing laser, tactile, optical and white light technologies, our sensors facilitate critical decision making. Trust our selection of precision sensors to meet your needs.

The position of the manual heads can be changed by hand. An automatic head can change its position by itself. The fixed heads are mounted on the CMM's and cannot change positions.



HH-T PROBE HEAD

The HH-T is a manually adjustable probe head that can be rotated into an infinite number of non-repeatable positions. The built in compact touch trigger probe can be manually adjusted to allow for a wide range of probe combinations. The HH-T is the ideal tool for small and entry level machines.

Article
HH-T (D5P - Ø 9.5 mm)

Part No.
03939020

Technical Characteristics	
HH-T	Probe repeatability 1D (2 Sigma)* 0.75 µm
	Adjustable trigger force 0.1 to 0.3 N
	Overtravel X/Y = +/- 20°, Z = + 6 mm
	Measuring directions ±X, ±Y, +Z

* test conditions Stylus Length 21mm, Force setting 0.12N Touch Speed 8mm/s





HH-MI MANUAL PROBE HEAD

The HH-MI is a manually indexable probe head featuring an integrated high precision touch trigger probe. The probe head is capable of indexing in 15° increments and can achieve 168 unique positions without the need for requalification. The head can be easily locked, unlocked and rotated with one hand. The built in touch trigger probe can be manually adjusted to allow for a wide range of probe combinations.

Article: HH-MI (D5P - Ø 9.5 mm) Part No.: 03939030

Technical Characteristics	
Angular rotation	A: 0° – 90°; B: +/- 180°
Increments	15°
Total number of positions	168
Position repeatability	1.5 µm
Probe repeatability 1D (2 Sigma)*	0.35 µm
Adjustable trigger force	0.1 to 0.3 N
Overtravel	X/Y = +/- 20°, Z = + 6 mm
Measuring directions	±X, ±Y, +Z
Axis clamping	Manual, by two buttons on the probe head

* test conditions Stylus Length 21mm, Force setting 0.12N Touch Speed 8mm/s



HH-MI-M MANUAL M8 PROBE HEAD

The HH-MI-M is a manually indexable probe head featuring a M8 threaded connection for the mounting of an external touch trigger probe. The probe head is capable of indexing in 15° increments and can achieve 168 unique positions without the need for requalification. The head can be easily locked, unlocked and rotated with one hand. The probe head can be combined with the HP-TM touch trigger probe and HR-P probe module changer rack to give the flexibility of an automatic stylus change without the need for requalification.

Article: HH-MI-M (D5P - Ø 9.5 mm) Part No.: 03939031

Technical Characteristics	
Angular rotation	A: 0° – 90°; B: +/- 180°
Increments	15°
Total number of positions	168
Position repeatability	1.5 µm
Extensions	M8/M8, max. Length 50 mm
Axis clamping	Manual, by two buttons on the probe head

The products on this page can also be purchased with a variety of cables and shanks; they can also be purchased with styli kits. Please see the tables on page 37 in this catalogue or consult your local Hexagon supplier.





HH-A-T7.5 TKJ 7.5° AUTOMATIC PROBE HEAD

The HH-A-T7.5 is a motorised indexable probe head featuring high speed operation & high rotational torque. The probe head is fitted with a Kinematic Joint (TKJ) which can be connected to a Multiwire to give multi sensor support. The TKJ can be changed either manually or automatically (with the HR-R probe changer rack) without the need for requalification. The probe head is capable of indexing in 7.5° increments and can achieve 720 unique positions.



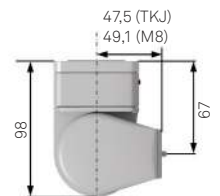
HH-A-M7.5 M8 7.5° AUTOMATIC PROBE HEAD

The HH-A-M7.5 is a motorised indexable probe head featuring high speed operation & high rotational torque. The probe head is fitted with a M8 threaded connector and is compatible with all M8 accessories and probes in this catalogue. The probe head can be combined with the HP-TM touch trigger probe and HR-P probe module changer rack to give the flexibility of an automatic stylus change without the need for requalification. The probe head is capable of indexing in 7.5° increments and can achieve 720 unique positions.



HH-AS8-T7.5 AUTOMATIC TKJ 7.5° PROBE HEAD

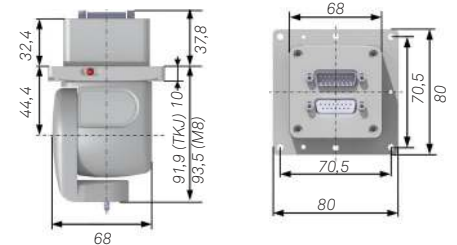
The HH-AS8-T7.5 is a ram mounted version of the HH-A-T7.5 detailed above. The HH-AS8-T7.5 can be fitted directly to any Hexagon Manufacturing Intelligence measuring machine that is fitted with an 80mm ram.



HH-AS8-M7.5 AUTOMATIC M8 7.5° PROBE HEAD

The HH-AS8-M7.5 is a ram mounted version of the HH-A-M7.5 detailed above. The HH-AS8-M7.5 can be fitted directly to any Hexagon Manufacturing Intelligence measuring machine that is fitted with an 80mm ram.

Article	Part No.
HH-A-T7.5	03939360
HH-A-M7.5	03939361
HH-AS8-T7.5 (TKJ / 80 mm ram)	03939362
HH-AS8-M7.5 (M8 thread / 80 mm ram)	03939363



The products on this page can also be purchased with a variety of cables and shanks; they can also be purchased with styli kits. Please see the tables on pages 36 and 37 in this catalogue or consult your local Hexagon supplier.

Technical Characteristics	HH-AS8T7.5	HH-AS8-M7.5	HH-A-T7.5	HH-A-M7.5
	TKJ 7.5° 80mm	M8 7.5° 80mm	TKJ 7.5°	M8 7.5°
Indexing Angle	7.5°			
A axis	+105° to 0°			
B axis	+/- 180°			
Total number of Positions	720			
Rotations speed	90° in 2 s			
Positioning Repeatability	<0.5 µm at 100mm from the centre of A Axis rotation			
Max recommended drive torque	0.6 Nm			
Maximum Extension Length	300mm			
Weight	900 g		800 g	
Extension	Max. Length 300 mm			
Head mounting	Direct to Ram		Shank/Flange to suit CMM	
Probe mounting	TKJ (Multiwire)	M8 Thread (2 wires)	TKJ (Multiwire)	M8 Thread (2 wires)
Head controller	HH-C-V2.0 / HH-CA-V2.0 (with HR-R probe changer rack)			

Automatic 7.5° Probe Heads



HH-A-T5 AUTOMATIC TKJ PROBE HEAD

The HH-A-T5 is a motorised indexable probe head featuring high speed operation & high rotational torque. The probe head is fitted with a Kinematic Joint (TKJ) which can be connected to a Multiwire to give multi sensor support. The TKJ can be changed either manually or automatically (with the HR-R probe changer rack) without the need for requalification. The probe is capable of indexing in 5° increments and can achieve 3024 unique positions.

HH-A-M5 AUTOMATIC M8 PROBE HEAD

The HH-A-M5 is a motorised indexable probe head featuring high speed operation & high rotational torque. The probe head is fitted with a M8 threaded connector and is compatible with all M8 accessories and probes in this catalogue. The probe head can be combined with the HP-TM touch trigger probe and HR-P probe module changer rack to give the flexibility of an automatic stylus change without the need for requalification. The probe head is capable of indexing in 5° increments and can achieve 3024 unique positions.



HH-AS-T5 AUTOMATIC TKJ PROBE HEAD

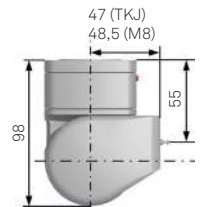
The HH-AS-T5 is a ram mounted version of the HH-A-T5 detailed above.

The HH-AS-T5 can be fitted directly to any Hexagon Manufacturing Intelligence measuring machine that is fitted with an 80mm ram or any Hexagon measuring machine fitted with a 65mm ram.

HH-AS-M5 AUTOMATIC M8 PROBE HEAD

The HH-AS-M5 is a ram mounted version of the HH-A-M5 detailed above.

The HH-AS-T5 can be fitted directly to any Hexagon measuring machine that is fitted with an 80mm ram or any Hexagon measuring machine fitted with a 65mm ram.



Article	Part No.
HH-A-T5	03939450
HH-A-M5	03939400
HH-AS6-T5 (TKJ / 65 mm ram)	03939260
HH-AS8-T5 (TKJ / 80 mm ram)	03939270
HH-AS6-M5 (M8 thread / 65 mm ram)	03939280
HH-AS8-M5 (M8 thread / 80 mm ram)	03939290

The products on this page can also be purchased with a variety of cables and shanks; they can also be purchased with styli kits. Please see the tables on pages 36 and 37 in this catalogue or consult your local Hexagon supplier.

Technical Characteristics	HH-AS6-T5	HH-AS6-M5	HH-AS8-T5	HH-AS8-M5	HH-A-T5	HH-A-M5	
	TKJ 5°	M8 5°	TKJ 5°	M8 5°	M8 5°	M8 5°	
Indexing Angle						5°	
A axis						+ 90° to - 115°	
B axis						+/- 180°	
Total number of Positions						3024	
Rotations speed						90° in 2 s	
Positioning Repeatability						<0.5 µm at 100mm from the centre of A Axis rotation	
Max recommended drive torque						0.6 Nm	
Maximum Extension Length						300mm	
Weight	880 g		900g		780 g		
Head mounting	Direct to Ram 65 mm		Direct to Ram 80 mm		Shank/Flange to suit CMM		
Probe mounting	TKJ (Multiwire)	M8 Thread (2 wires)	TKJ (Multiwire)	M8 Thread (2 wires)	TKJ (Multiwire)	M8 Thread (2 wires)	
Head controller	HH-C-V2.0 / HH-CA-V2.0 (with HR-R probe changer rack)						

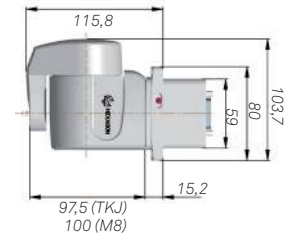
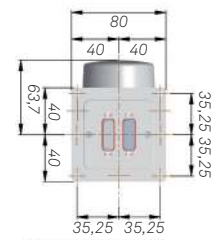
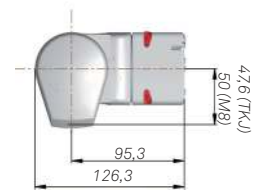
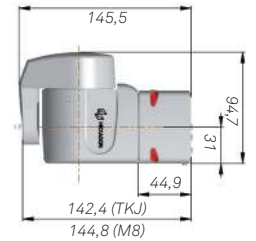
Automatic 5° Probe Heads



HH-A-T2.5 AUTOMATIC TKJ PROBE HEAD

The HH-A-T2.5 is a motorised probe head in the Hexagon Manufacturing Intelligence Sensor line; the probe head features a number of new innovations including an *embedded controller*, *capacitive crash protection* and positioning is achieved by use of a *Hirth Gear*. The HH-A-T2.5 also benefits from a completely redesigned drive system; it features a large number of indexable positions and very high rotational torque. The probe head is fitted with a kinematic joint (TKJ) which can be connected to a Multiwire to give multi sensor support.

The TKJ can be changed either manually or automatically (with the HR-R probe changer rack) without the need for requalification. The probe head is capable of indexing in 2.5° increments and can achieve 12,240 unique positions.



HH-AS8-T2.5 AUTOMATIC TKJ PROBE HEAD

The HH-AS8-T2.5 is a ram mounted version of the HH-A-T2.5 detailed above.

The HH-AS8-T2.5 can be fitted to any Hexagon Manufacturing Intelligence measuring machine that is fitted with an 80mm ram.

Article

HH-A-T2.5 (TKJ)

HH-AS8-T2.5 (TKJ / 80 mm ram)

Part No.

03939420

03939422

The products on this page can be purchased with a variety of cables and shanks. Please see the "Probe head cabling and shank configuration" section of this catalogue or consult your local Hexagon supplier

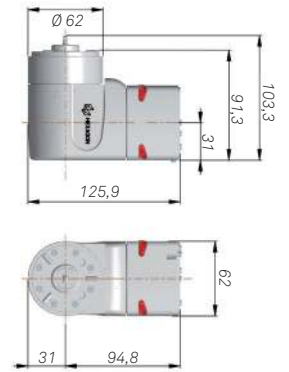
Technical Characteristics	HH-A-T2.5 TKJ 2.5°	HH-AS8-T2.5 TKJ 2.5°
Indexing Angle	2.5°	
A axis	+/- 105°	
B axis	+/- 180°	
Total number of Positions	12.240	
Rotations speed	90° in 2.5 s	
Positioning Repeatability	<0.5 µm at 100mm from the center of A Axis rotation	
Max recommended drive torque	1.4 Nm	
Maximum Extension Length	450mm	
Weight	1600 g	1650 g
Head mounting	Shank/Flange to suit CMM	Direct to Ram 80mm
Probe mounting	TKJ (Multiwire)	
Head controller	HH-C-V2.0 / HH-CA-V2.0 (with HR-R probe changer rack)	



HH-A-H2.5 AUTOMATIC HDKJ PROBE HEAD

The HH-A-H2.5 is the latest motorised probe head in the Hexagon Manufacturing Intelligence Sensor line; the head features a number of new innovations including an *embedded controller*, *capacitive crash protection* and positioning is achieved by use of a *Hirth Gear*. The HH-A-T2.5 also benefits from a completely redesigned drive system; it features a large number of indexable positions and extremely high rotational torque. The probe head is fitted with the all new *Heavy Duty Kinematic Joint* (HDKJ) which can carry extension of up to 750 mm and can also be connected to a Multiwire to give multi sensor support. Laser scanner and scanning probes can be supported further from the axis of rotation than with conventional heads due to the combination of extreme rotational torque and the HDKJ adapter.

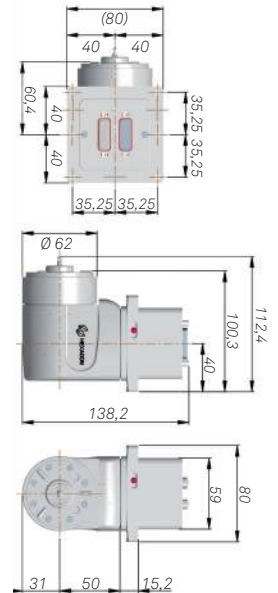
The HDKJ can be changed either manually without the need for requalification or automatically with the HR-R probe changer rack fitted with the optional HR-RH Heavy Duty Module. The probe head is capable of indexing in 2.5° increments and can achieve 20,736 unique positions.



HH-AS8-H2.5 AUTOMATIC HDKJ PROBE HEAD

The HH-AS8-H2.5 is a ram mounted version of the HH-A-H2.5 detailed above.

The HH-AS8-H2.5 can be fitted to any Hexagon Manufacturing Intelligence measuring machine that is fitted with an 80mm ram.



Article	Part No.
HH-A-H2.5	03939430
HH-AS8-H2.5 (80 mm ram)	03939431

The products on this page can be purchased with a variety of cables and shanks. Please see the "Probe head cabling and shank configuration" section of this catalogue or consult your local Hexagon supplier

Technical Characteristics	HH-A-H2.5 HDKJ 2.5°	HH-AS8-H2.5 HDKJ 2.5°
Indexing Angle	2.5	
A axis	+/- 180°	
B axis	+/- 180°	
Total number of Positions	20.736	
Rotations Speed	90° in 2.5s	
Positioning Repeatability	<0.5 µm at 100mm from the center of A Axis rotation	
Max recommended drive torque	1.7 Nm	
Maximum Extension Length	750 mm	
Weight	1550 g	1600 g
Head Mounting	Shank / Flange to suit CMM	Direct to Ram 80mm
Head controller	HH-C-V2.0 / HH-CA-V2.0 (with HR-R probe changer rack)	

Automatic 2.5 HDKJ Probe Heads



HH-ACW-43MW CONTINUOUS PROBE HEAD

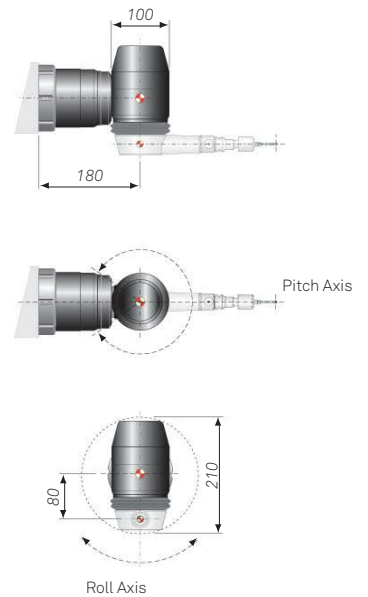
The HH-ACW-43MW multi-axis continuous probe head allows the fast and accurate orientation of probes in any probing direction in space. The continuous positioning of rotary axes (virtually unliwithed angular positions), along with the possibility to handle standard extensions with total length up to 600 mm from the centre of rotation allows full access to the part to be measured. The exclusive probe changer rack allows the automatic change of extensions and adapters thus ensuring ideal flexibility. Through the HH-ACW-MW43 multi-wire adapter, the HH-ACW-43MW continuous wrist is compatible with the most popular probes and styli/probe changer racks allowing point to point and scanning measurements.

For the continuous wrist, the HH-ACW-3AA 3rd axis adapter is available for the correct application of non-contact sensors.

Article
HH-ACW-43MW

Part No.
G30481300

Technical Characteristics			
	Description	Roll Axis	Pitch Axis
HH-ACW-43MW	Useful angular stroke	± 180°	± 170°
	Rotation speed	1 rad/s	
	Acceleration	10 rad/s ²	
	Acceleration	0.14 arc ^{ll}	
	Positioning repeatability	1 x 10 ⁻⁵ rad	
	Weight	3.5 kg	
	Max. tool weight	1.5 kg	
	Max. applied torque	2 Nm	
	Adapters	HA-ACW-AA HA-ACW-3AA	
	Extensions	E200-mw, E330-mw, E570-mw HP-T-RP, HP-T, HP-TM	
Probes	Compatible with other sensors on the market		
Changer racks	HR-ACW-AC, HR-P		










Hexagon Manufacturing Intelligence helps industrial manufacturers develop the disruptive technologies of today and the life-changing products of tomorrow. As a leading metrology and manufacturing solution specialist, our expertise in sensing, thinking and acting – the collection, analysis and active use of measurement data – gives our customers the confidence to increase production speed and accelerate productivity while enhancing product quality.

Through a network of local service centres, production facilities and commercial operations across five continents, we are shaping smart change in manufacturing to build a world where quality drives productivity. For more information, visit HexagonMI.com.

Hexagon Manufacturing Intelligence is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity across geospatial and industrial enterprise applications.

-  COORDINATE MEASURING MACHINES
-  3D LASER SCANNING
-  SENSORS
-  PORTABLE MEASURING ARMS
-  SERVICES
-  LASER TRACKERS & STATIONS
-  MULTISENSOR & OPTICAL SYSTEMS
-  WHITE LIGHT SCANNERS
-  METROLOGY SOFTWARE SOLUTIONS
-  CAD / CAM
-  STATISTICAL PROCESS CONTROL
-  AUTOMATED APPLICATIONS
-  MICROMETERS, CALIPERS AND GAUGES