

MP3 – 360° Inductive Transmission System

Probe Orientation Allows Simpler and Faster Probe Cycles

Inductive transmission is **THE** industry standard for machines with probe systems and automatic tool changers.

The ability to transmit probe signals at any probe orientation gives additional flexibility.

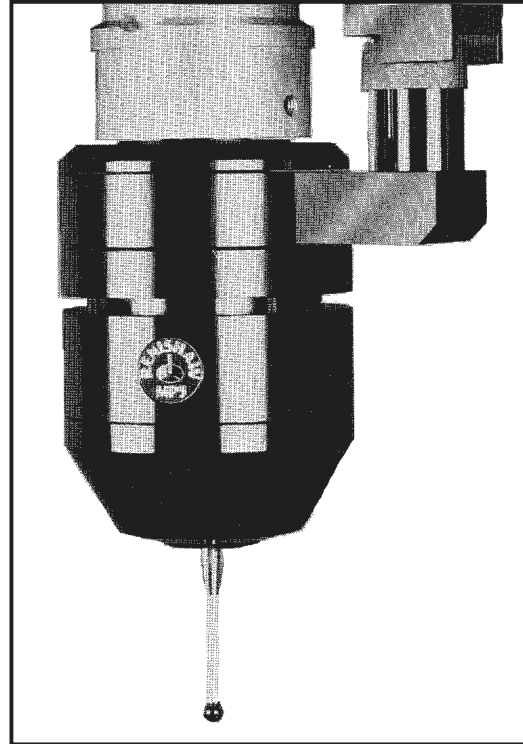
Special Benefits

- Probe calibration is now fully automated.
- Simpler procedures reduce probing time.
- Spindle modules can be added to coolant inducers to fit in with the latest tooling standards

All other inductive transmission features are retained.

Miniature modules transmit control signals and power across a small air gap between the machine and probe.

- **Cost effective**
- **Maintenance free**
 - No batteries required.
- **Effective reliable failsafe design**
- **Interference free**
 - No risk of cross talk between machines.



- **Simple programming**
 - No need for switch ON or OFF signal.
- **Modular range**
 - A small number of components can be configured to a variety of shapes.

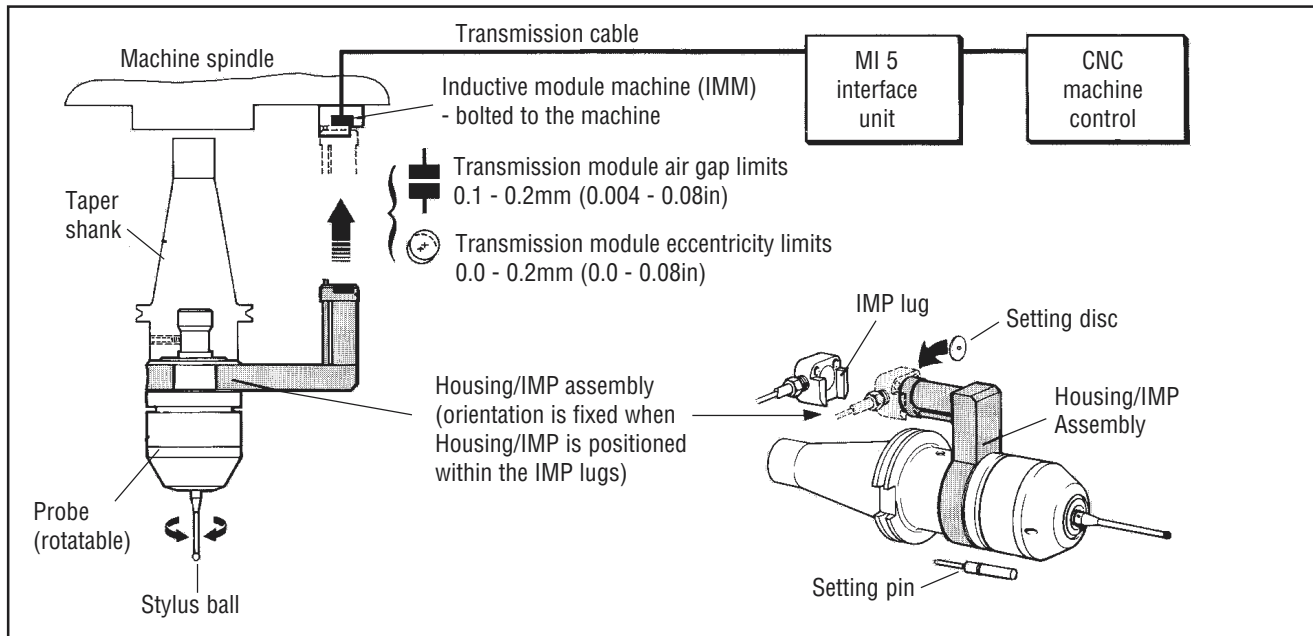
Advanced Concept

Inductive transmission arms are compatible with the increasingly popular next generation tooling, where tools with coolant inducer arms and anti-rotation arms are commonly available.

The System

Incorporating the MkIV Inductive Transmission System.

Previous Renishaw Inductive Transmission Systems are not compatible with the MkIV System.



Method of Operation

The probe is stored in the tool magazine and is transferred to the machine spindle prior to the gauging cycle. As the taper shank enters the machine spindle, a spring pin at the end of the IMP arm is depressed on contact with the IMM. This action releases a probe lock.

The probe is now free to rotate to any spindle orientation while the IMP arm is held by lugs protruding from the IMM.

Probe rotation can be used for automatically determining the spindle centre line position, automatic datuming cycles and component centering operations.

Automatic Locking

The machine spindle always stops in one position for tool change. The Housing/IMP arm locking mechanism lines up with this position, to ensure the arm is locked when the probe is removed from the machine spindle.

Rotational Speed Direction

Clockwise or anti-clockwise at 100 rev/min. The unit is designed to withstand accidental "spin up" at higher speeds.

Sealing

The system is sealed against chip and coolant ingress.

Tool Change Positioning Error

The system can accommodate a tool change positioning error of $\pm 1^\circ$ when inserting the probe into the machine spindle. If the tool change positioning error exceeds $\pm 1^\circ$, please consult Renishaw before ordering equipment.

Power Supply

The transmission cable, carries probe signals and the power supply from the interface unit to the IMM. The supply voltage is 16.5 – 18.5V. Maximum ripple is 3V peak to peak.

Specification

Probe – MP3

Probe/taper shank – Secured by two M6 x 1 grub screws located in taper shank

Housing/IMP and IMM – Dedicated units for 360° inductive transmission system

Compatible Taper Shanks

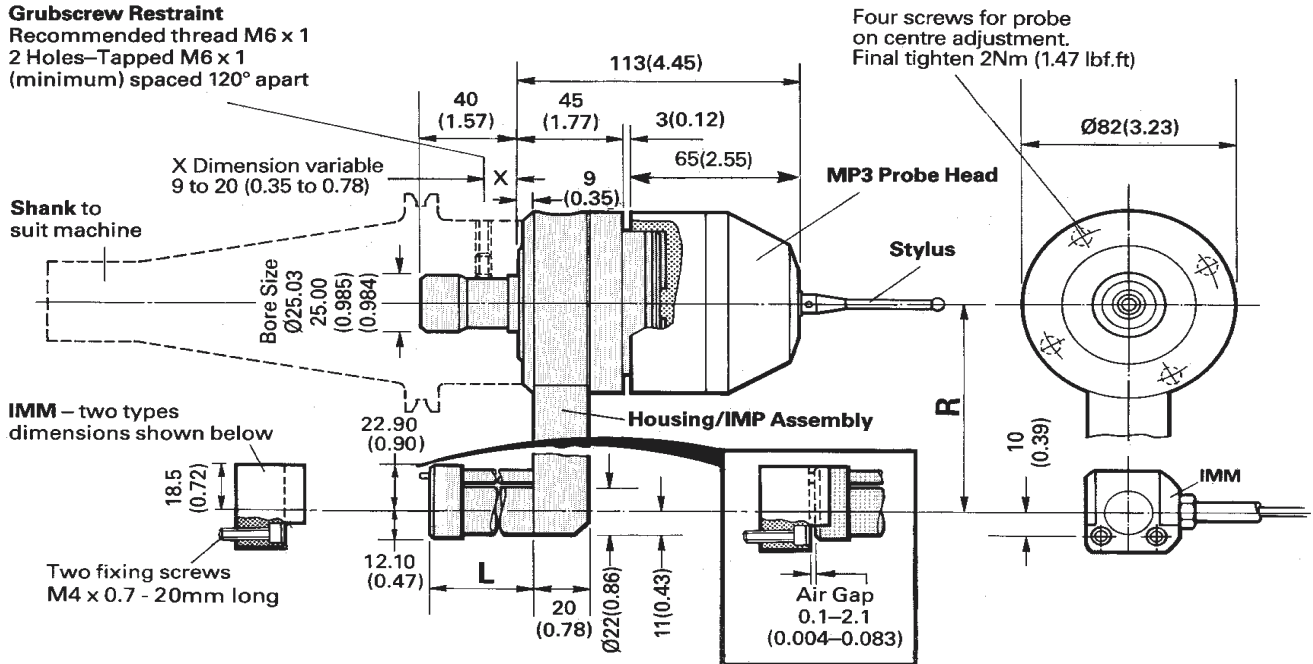
Standard	Size
ANSI B5.50	– 45, 50, – –
JIS B6101	40, 45, 50, 55, –
VDI 2814	40, 45, 50, – –
CATERPILLAR V-FLANGE	40, 45, 50, – 60
DIN 2080	– 45, 50, – 60
JMBTA MAS 403	40, 45, 50, 55, 60
ISO 297	– 45, 50, 55, 60

Installation

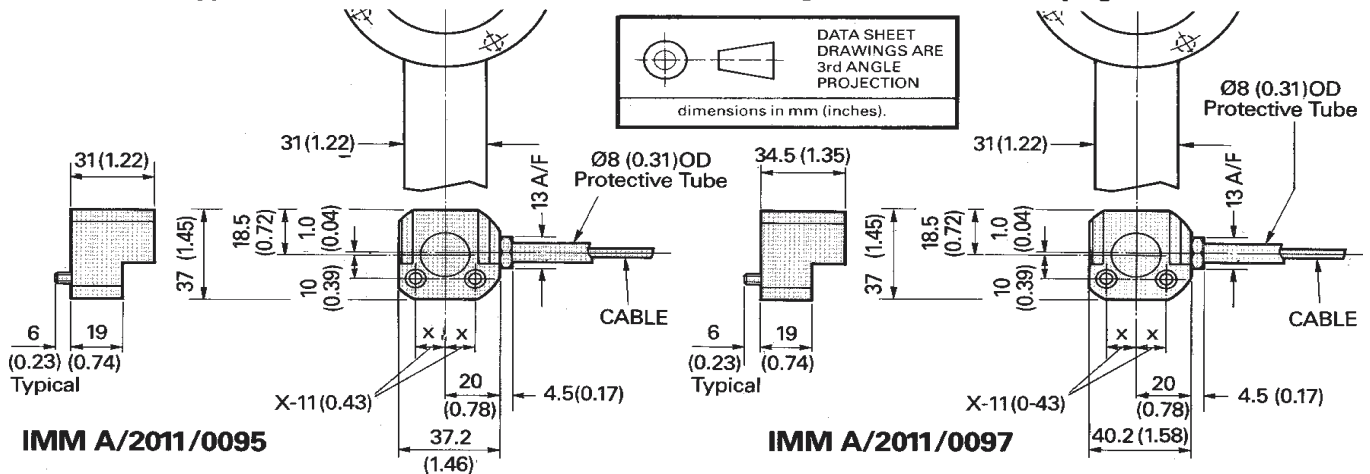
Housing/IMP - L and R dimensions are selected to suit application, lengths are available in increments of 5mm (0.19in).

Grubscrew Restraint

Recommended thread M6 x 1
2 Holes—Tapped M6 x 1
(minimum) spaced 120° apart



IMM - Two types are available, selection information is given on the back page.



IMM A/2011/0095

IMM with Cable

1. Fixing screws are M4 x 0.7
2. The module is housed in a stainless steel body.
3. Cable is connected to the machine control via a Renishaw interface unit or junction box and Renishaw interface unit.
4. All output cables are Ø4.3mm x 5m (0.17in x 16.4ft) long. Four core screened cable, each core 7 strands, 0.2mm dia. insulated.

Cable colours – Red, Green, Blue and Yellow – (Yellow not connected). Overall screen to be connected to O.V. terminal at MI5 interface unit.

IMM A/2011/0097

5. Cable extensions are available 5.5, 10.5, 20.5 and 25.5m (18.0, 34.4, 67.2 and 83.6ft) long. Connection is via 180° in line DIN socket plug. Maximum permitted length 100m (328ft).

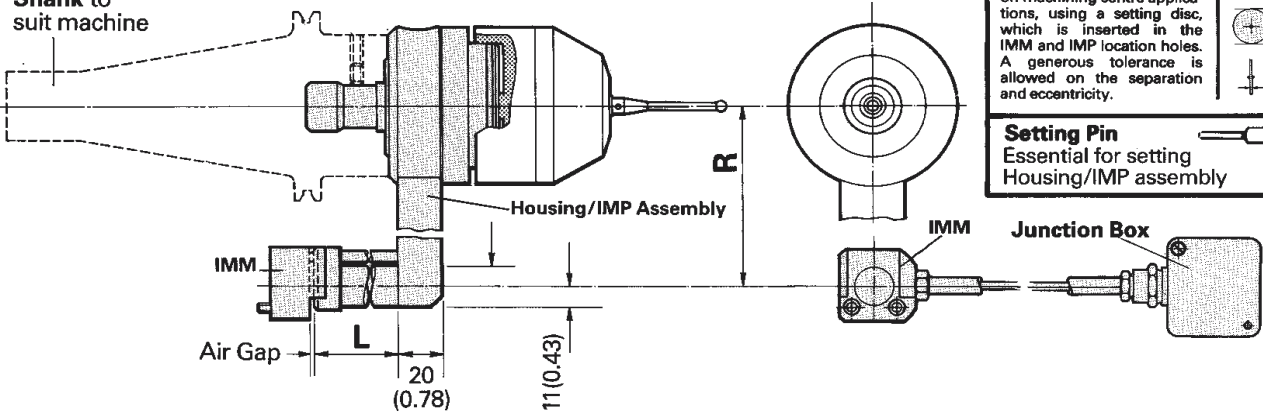
Ø8 Protective Tube for Cable

6. Protective tube is essential to prevent damage from chips and coolant ingress.
7. Copper coated protective tube is to be supplied by customer.
8. If the protective tube requires bending, complete bending before passing the output cable through tube.
9. Full sealing is ensured at the IMM joint, by the conical compression fitting.

Parts List – Housing/IMP and IMM for Machining Centre Installations.

Please quote the Part No. when ordering equipment. Where the Part No. is not given (Housing/IMP) please consult Renishaw.

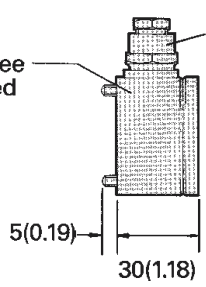
Shank to suit machine



Setting Disc
 Part No. M/2028/3917
 The air gap may be checked on machining centre applications, using a setting disc, which is inserted in the IMM and IMP location holes. A generous tolerance is allowed on the separation and eccentricity.

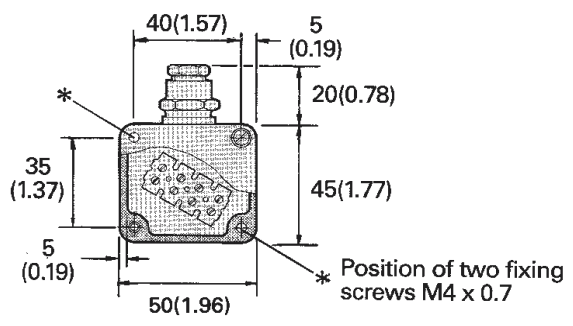
Setting Pin
 Essential for setting Housing/IMP assembly

Junction Box
 Cable outlet is made through any one of three unused perimeter faced



13 A F Compression fitting to suit 8(0.31) OD steel tube conduit.

Note: Drawing is cut away, the box is supplied fully sealed



Housing/IMP Assembly – IMP assemblies are available in a range of sizes. Dimension L extends in increments of 5mm (0.19in) from 20 to 90mm (0.78 to 3.54in). Dimension R extends in increments of 5mm (0.19in) from 70 to 155mm (2.75 to 6.10in).

DATA SHEET DRAWINGS ARE 3rd ANGLE PROJECTION
 dimensions in mm (inches).

Type	Part No	Description
IMP	—	Please select L and R values for your installation, and then consult Renishaw for the Part No.

Setting Pin and Setting Disc

Type	Part No	Description
—	A/2011/0079	Setting Pin
—	A/2028/3917	Setting Disc

IMM – Two IMM'S are available.
 A/2011/0095 is used with Housing/IMP assemblies with R dimensions of 70 to 85 mm (2.75 to 3.34in)
 A/2011/0097 is used with Housing/IMP assemblies with R dimensions of 90 to 155 mm (3.54 to 6.10in)

Type	Part No	Description
IMM	A/2011/0095	IMM Assembly with cable Ø4.3mm x 5m long (Ø0.17in x 16.4ft long) and fixing screws.
IMM	A/2011/0097	IMM Assembly with cable Ø4.3mm x 5m long (Ø0.17in x 16.4ft long) and fixing screws.
—	P/SC01/0420	Fixing Screw M4 x 0.7-20mm long – two required

Junction Box

Type	Part No	Description
—	A/2028/7303	Junction Box with fixing screws
—	P/SC01/0410	Fixing Screw M4 x 0.7-10mm long – two required