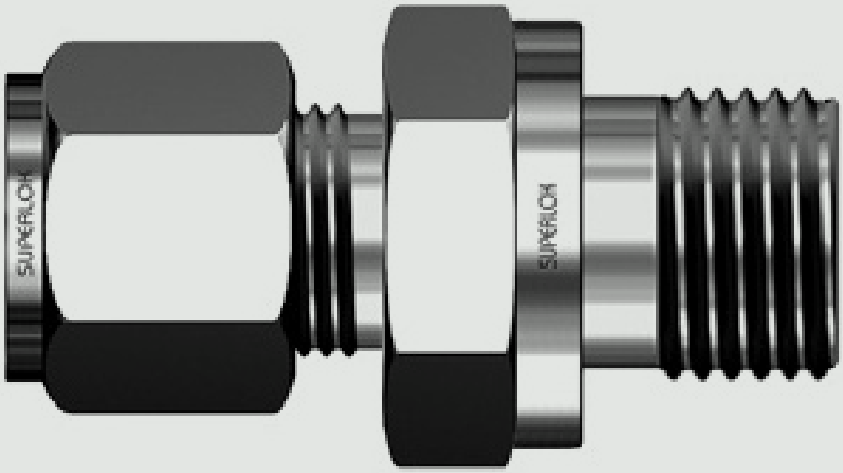
THREAD IDENTIFICATION

NPT, BSPP or BSPT? How to identify the port

A replacement transmitter has a female port marked only “1/2”. The instrument tube is 12 mm. Three male connectors look plausible on the bench. Which detail settles the choice?

Tubing Supply AS | 23 November 2026



BMT SUPERLOK

SMC-GM

Male connector for a metal gasket

SMC-GM series, R38, p. 19.

PITCH AT NOMINAL 1/2 IN.

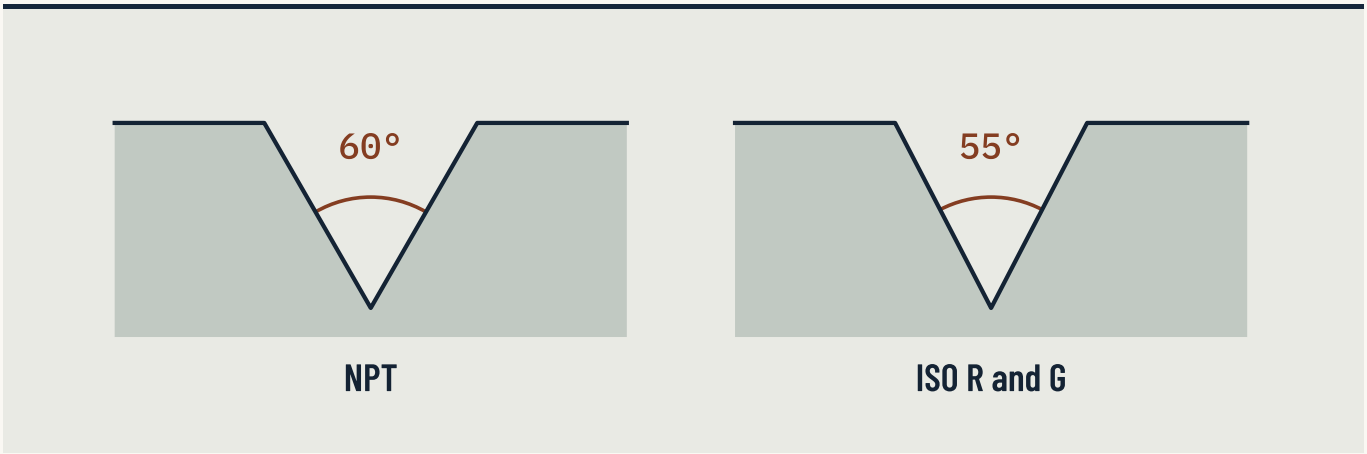
14 TPI

NPT, BSPT and BSPP all have 14 threads per inch at this size. A pitch gauge alone cannot separate them. Identify the thread form and the sealing interface on the port drawing before choosing the connector.

THREAD FORM AND SEALING

The pitch gauge gives the same answer

NPT is tapered and has a 60° included thread angle. ISO 7-1 uses a 55° form. Its tapered male thread is designated R. The corresponding female thread may be tapered (Rc) or parallel (Rp). The separate ISO 228 G thread is parallel and the joint seals at a feature outside the threads.



Included flank angles only. Tubing Supply schematic. The sketch shows the flanks only.

At 1/4 in., NPT has 18 threads per inch and BSP has 19. At 1/2 in. both have 14. Use pitch together with taper and the port drawing. BMT's GM suffix identifies this specific metal-gasket design. Other G 1/2 ends can use different sealing faces. An identical G marking on two parts gives you thread dimensions only.

Three BMT connectors for the same 12 mm tube

Male connector	Port to identify	Sealing feature
SMC-12M-8N	1/2 in. female NPT	Tapered threads
SMC-12M-8R	ISO 7-1 Rp or Rc female	On the mating R/Rp or R/Rc threads
SMC-12M-8GM	G 1/2 port for metal gasket	Specified metal gasket

BMT catalogue, pp. 17–19

FIELD IDENTIFICATION

What settles an unclear “1/2 BSP” marking?

The caliper reading suggests a parallel female port. A parallel female thread may be an ISO 7 Rp port that mates with an R male thread. It may also be an ISO 228 G port with its own sealing geometry. Both Rp and G female threads may be parallel. An Rp ½ port is intended for an R ½ male thread. For a G ½ port, identify the seat or gasket face on the port drawing. A pitch gauge cannot resolve this distinction.

Read the port drawing

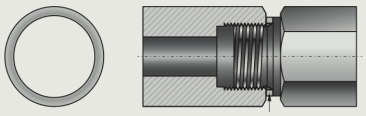
Look for the complete designation, thread gender and a section through the sealing surface. A flat spotface or a cone is a clue. Match it to the end drawing and its specified gasket or seal.

Keep the two ends separate

Record the tube end as “12 mm OD”. Record the port as, for example, “G 1/2 female, flat face for the specified metal gasket”. Then compare shoulder clearance and the gasket seating area with the connector drawing.

Can I identify the port by trying a spare fitting?

Several forms can start by hand. On isolated equipment, use the drawing and suitable identification gauges. If records and measurements disagree, obtain the port specification before assembly.



Where the seal sits

On BMT’s IPG design the metal gasket sits at the face of the port. Match both mating faces to the selected end. BMT, p. 7.

Technical references

BMT SUPERLOK · R38, pp. 6–7, 17–19
ISO 7-1 · Sealing on the threads
ISO 228-1 · Parallel G threads
ASME B1.20.1 · Inch pipe threads
Swagelok · Thread pitch tables, MS-13-77, pp. 23, 36

View the SMC-12M-8GM connector