

Original MINIMESS® test points

The benchmark for test couplings

MINIMESS® test points serve as system access points for analyses and tests in fluid circuits, and can be used to make a leak-tight connection under pressure. This makes it possible to connect sensors or pressure gauges or draw samples as necessary without any downtimes. Moreover, the test points can be used to fill, vent, and empty systems.

Original MINIMESS® test points

- | Are an integral part of measuring and testing equipment
- | Can be used to make leak-tight connections under pressure
- | Open and close automatically when a hose or sensor is connected / disconnected
- | Save time and money by making diagnostics and maintenance faster, improving machine availability as a result
- | Save money by ensuring that expensive sensors do not have to be permanently installed for servicing purposes
- | Conform to ISO 15171-2 (MINIMESS® 1620)
- | Have a four-fold safety factor in regard to bursting
- | Are certified with 1,000,000 pressure pulses at 1.3 times the operating pressure
- | Can also be used at low temperatures
- | Are highly resistant to corrosion (salt spray test longer than 1,000 hours)
- | Are suitable, without restrictions, for HL, HLP, HVLP hydraulic fluids in conformity with DIN 51524

The **original MINIMESS® 1620 p/T test point** is a multipurpose test point that can be used to simultaneously measure pressure and temperature at a single measuring point. As a result, the number of required measuring points can be reduced by up to 50%.

The temperature is measured directly in the flowing fluid, resulting in extremely short response times.

For information on compatible **HySense®** p/T combo sensors, please refer to page 144.

Test point	Screw cap thread	Nominal diameter	Max. operating pressure ¹	Material selection	Seal materials
MINIMESS® 1620	M16x2	DN2	630 bar	1.0718 free cutting steel 1.4571 stainless steel	NBR (Perbunan) FKM (Viton)
MINIMESS® 1620 p/T	M16x2	DN2	630 bar		
MINIMESS® 1615	M16x1,5	DN2	630 bar		
MINIMESS® 1215	Buttress thread 12	DN2	630 bar		
MINIMESS® 1604	Buttress thread 16	DN4	400 bar		

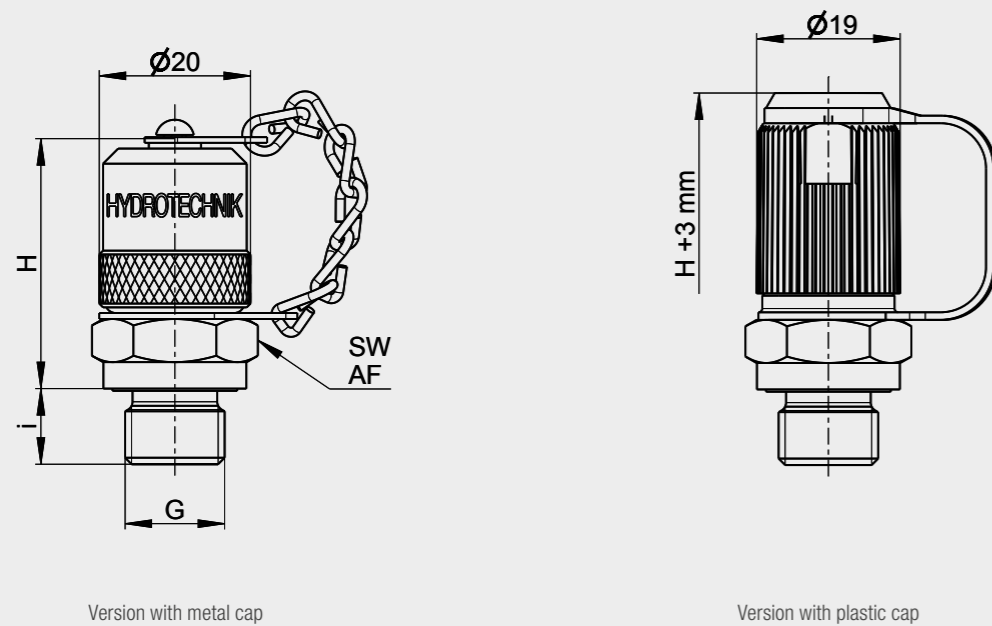
Additional materials and seal materials available upon request.

¹ Depends on the size of the stud end.

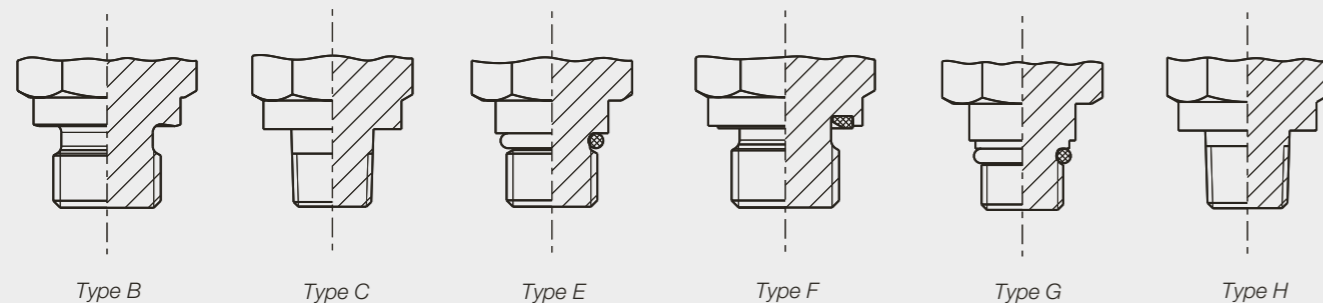


Original MINIMESS® 1620 test point

The **MINIMESS®** 1620 test point with an M16 x 2 thread is the top seller among test couplings and is used for most standard applications. It can be used with operating pressures of up to 630 bar and is available in a wide variety of versions with various international threads and seal types.



Seal types



Thread	Seal type ¹	Technical specifications					Material: 1.0718 free cutting steel	Material: 1.4571 Stainless steel
		M ² Nm	p _n ³ bar	H mm	i mm	AF mm	Part No. with metal cap & NBR seals	Part No. with metal cap & FKM seals
Metric ISO thread								
M10 x 1	E	20	630	37.5	9.5	17	2103-01-94.00N	–
M10 x 1	F	20	400	37.6	8	17	2103-01-12.00N	2703-01-12.10
M10 x 1	G	15	630	37.5	8.5	17	2103-01-33.00N	2703-01-33.10
M12 x 1.5	B	45	630	36	10	17	2103-01-48.00N	–
M12 x 1.5	E	35	630	35.1	11	17	2103-01-95.00N	–
M12 x 1.5	F	45	630	36	10	17	2103-01-13.00N	2703-01-13.10
M14 x 1.5	B	60	630	36	10	19	2103-01-49.00N	–
M14 x 1.5	E	45	630	35.5	11	19	2103-01-96.00N	–
M14 x 1.5	F	60	630	36	10	19	2103-01-14.00N	2703-01-14.10
M16 x 1.5	F	80	630	36	10	22	2103-01-15.00N	–
Whitworth thread								
ISO 228-G 1/8	F	20	400	38	8	17	2103-01-17.00N	2703-01-17.10
ISO 228-G 1/4	B	60	630	36	10	19	2103-01-51.00N	2703-01-51.10
ISO 228-G 1/4	F	60	630	36	10	19	2103-01-18.00N	2703-01-18.10
ISO 228-G 3/8	F	90	630	36	10	22	2103-01-16.00N	2703-01-16.10
UNF thread								
7/16-20 UNF	E	20	630	37	11	17	2103-01-B5.00N	2703-01-B5.10
9/16-18 UNF	E	35	630	36	12	17	2103-01-B6.00N	2703-01-B6.10
Tapered thread								
ISO 7/I-R 1/8	C	–	400	33	13	17	2103-01-40.00N	–
ISO 7/I-R 1/4	C	–	630	33	13	17	2103-01-41.00N	2703-01-41.10
NPTF thread								
1/8 NPTF	H	–	400	33	9.5	17	2103-01-46.00N	–
1/4 NPTF	H	–	630	33	16.5	17	2103-01-47.00N	2703-01-47.10
Options								
Part No. with FKM seals							XXXX-XX-XX.10N	–
Part No. with plastic cap							XXXX-30-XX.XXN	XXXX-30-XX.XX
Operating temperature ranges: With NBR seals: -25 °C ... 100 °C / With FKM seals: -20 °C ... 200 °C / With plastic cap: Max. 100 °C								
Additional versions, materials, and seal materials available upon request.								

¹ For detailed specifications regarding the seal types, please refer to pages 62 – 64

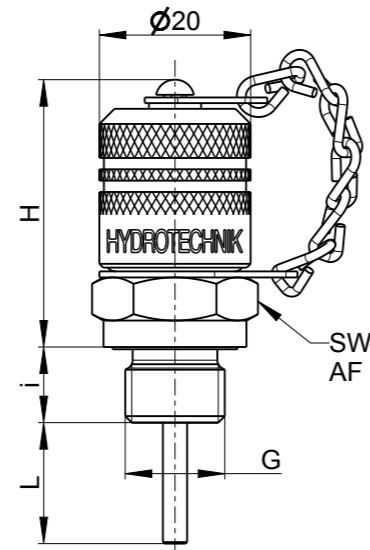
² M = Tightening torque for stud end in conformity with the applicable standards. It is the user's own responsibility to determine the appropriate installation torque for their specific installation situation.

³ p_n = Maximum operating pressure

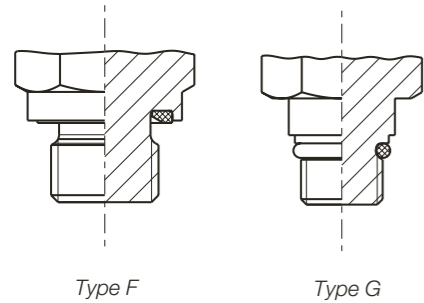
Original MINIMESS® 1620 p/T test point

The **MINIMESS®** 1620 p/T test point can be used to simultaneously measure pressure and temperature with only one single test coupling by using a p/T multipurpose sensor. This results in fewer measuring points and sensors being required.

The p/T test point can be used with operating pressures of up to 630 bar.

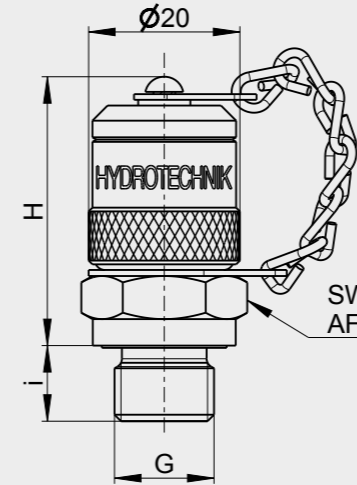


Seal types

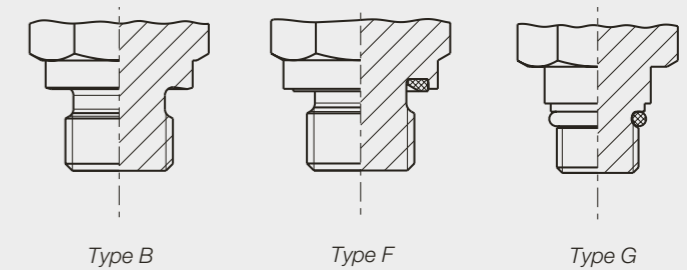


Original MINIMESS® 1615 test point

The **MINIMESS®** 1615 test point was developed primarily for military applications and has an alternative M16 x 1.5 coupling thread available. It can be used with operating pressures of up to 630 bar and is available with various threads.



Seal types



Thread	Seal type ¹	Technical specifications						Material: 1.0718 free cutting steel	Material: 1.4571 Stainless steel
		M ² Nm	p _n ³ bar	H mm	i mm	L mm	AF mm	Part No. with metal cap & NBR seals	Part No. with metal cap & FKM seals
G									
Metric ISO thread									
M10 x 1	G	15	630	38	8.5	16	17	2149-04-19.13N	2749-04-19.53
Whitworth thread									
ISO 228-G 1/4	F	60	630	36.5	10	16	19	2149-04-15.13N	2749-04-15.53
Options									
Part No. with FKM seals								XXXX-XX-XX.53N	–
Part No. with EPDM seals								XXXX-XX-XX.43N	–
Operating temperature ranges: With NBR seals: -25 °C ... 100 °C / With FKM seals: -20 °C ... 200 °C / With EPDM seal: -40 °C ... 125 °C									
Additional versions, materials, and seal materials available upon request.									

¹ For detailed specifications regarding the seal types, please refer to pages 62 – 64

² M = Tightening torque for stud end in conformity with the applicable standards. It is the user's own responsibility to determine the appropriate installation torque for their specific installation situation.

³ p_n = Maximum operating pressure

Thread	Seal type ¹	Technical specifications					Material: 1.0718 free cutting steel	Material: 1.4571 Stainless steel
		M ² Nm	p _n ³ bar	H mm	i mm	AF mm	Part No. with metal cap & NBR seals	Part No. with metal cap & FKM seals
G								
Metric ISO thread								
M10 x 1	G	15	630	37.5	8.5	17	2102-01-33.00N	2702-01-33.10
M12 x 1.5	F	45	630	36	10	17	2102-01-13.00N	2702-01-13.10
M14 x 1.5	B	60	630	36	10	19	2102-01-49.00N	–
M14 x 1.5	F	60	630	36	10	19	2102-01-14.00N	2702-01-14.10
Whitworth thread								
ISO 228-G 1/8	F	20	400	38	8	17	2102-01-17.00N	–
ISO 228-G 1/4	B	60	630	36	10	19	2102-01-51.00N	–
ISO 228-G 1/4	F	60	630	36	10	19	2102-01-18.00N	2702-01-18.10
Options								
Part No. with FKM seals							XXXX-XX-XX.10N	–
Operating temperature ranges: With NBR seals: -25 °C ... 100 °C / With FKM seals: -20 °C ... 200 °C								
Additional versions, materials, and seal materials available upon request.								

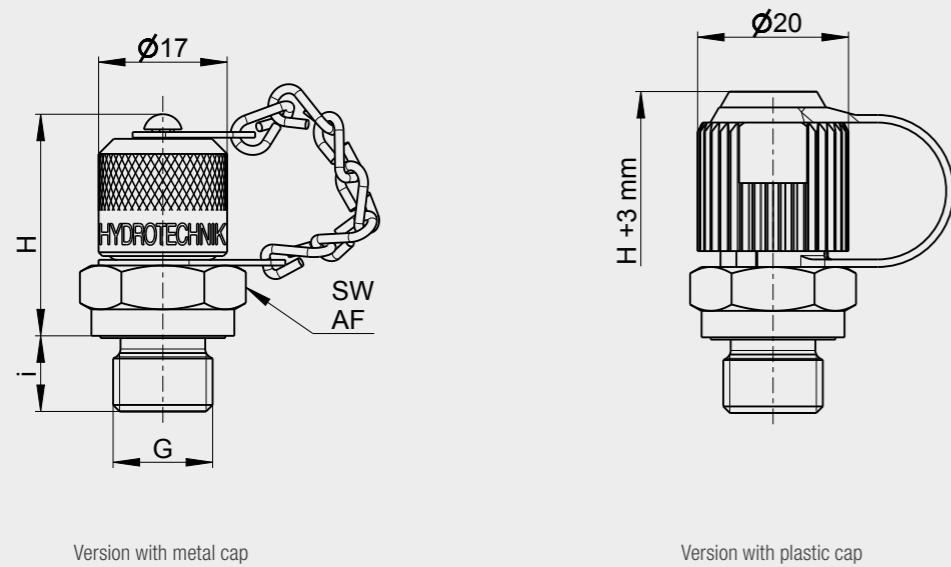
¹ For detailed specifications regarding the seal types, please refer to pages 62 – 64

² M = Tightening torque for stud end in conformity with the applicable standards. It is the user's own responsibility to determine the appropriate installation torque for their specific installation situation.

³ p_n = Maximum operating pressure

Original MINIMESS® 1215 test point

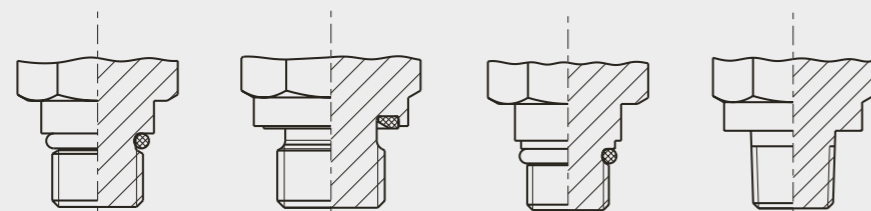
The **MINIMESS®** 1215 test point is characterized by a small coupling thread, resulting in a very compact design. It was originally developed as an alternative test point for metrological applications in places where space is tight. The test point can be used with operating pressures of up to 630 bar and is available with various international threads and seal types.



Version with metal cap

Version with plastic cap

Seal types



Type E

Type F

Type G

Type H

Thread	Seal type ¹	Technical specifications					Material: 1.0718 free cutting steel	Material: 1.4571 Stainless steel
		M ² Nm	p _n ³ bar	H mm	i mm	AF mm	Part No. with metal cap & NBR seals	Part No. with metal cap & FKM seals
Metric ISO thread								
M10 x 1	G	15	630	30	8.5	14	2101-06-33.00N	2701-06-33.10
M12 x 1.5	E	35	630	29	11	17	2101-06-76.00N	–
M12 x 1.5	F	45	630	29	10	17	2101-06-13.00N	–
M14 x 1.5	E	45	630	29	11	19	2101-06-96.00N	–
M14 x 1.5	F	60	630	29	10	19	2101-06-14.00N	–
Whitworth thread								
ISO 228-G 1/8	F	20	400	30	8	14	2101-06-17.00N	2701-06-17.10
ISO 228-G 1/4	F	60	630	29	10	19	2101-06-18.00N	2701-06-18.10
UNF thread								
7/16-20 UNF	E	20	630	29	11	17	2103-06-B5.00N	2701-06-B5.10
9/16-18 UNF	E	35	630	28	12	17	2103-06-B6.00N	–
Tapered thread								
1/8 NPTF	H	–	400	26	12	14	2101-06-46.00N	2701-06-46.10
1/4 NPTF	H	–	630	26	15	14	2101-06-47.00N	2701-06-47.10
Options								
Part No. with FKM seals							XXXX-XX-XX.10N	–
Part No. with plastic cap							XXXX-01-XX.XXN	XXXX-01-XX.XX
Operating temperature ranges: With NBR seals: -25 °C ... 100 °C / With FKM seals: -20 °C ... 200 °C / With plastic cap: Max. 100 °C								
Additional versions, materials, and seal materials available upon request.								

¹ For detailed specifications regarding the seal types, please refer to pages 62 – 64

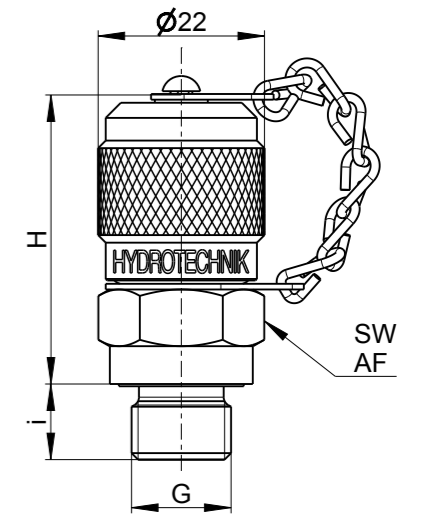
² M = Tightening torque for stud end in conformity with the applicable standards. It is the user's own responsibility to determine the appropriate installation torque for their specific installation situation.

³ p_n = Maximum operating pressure

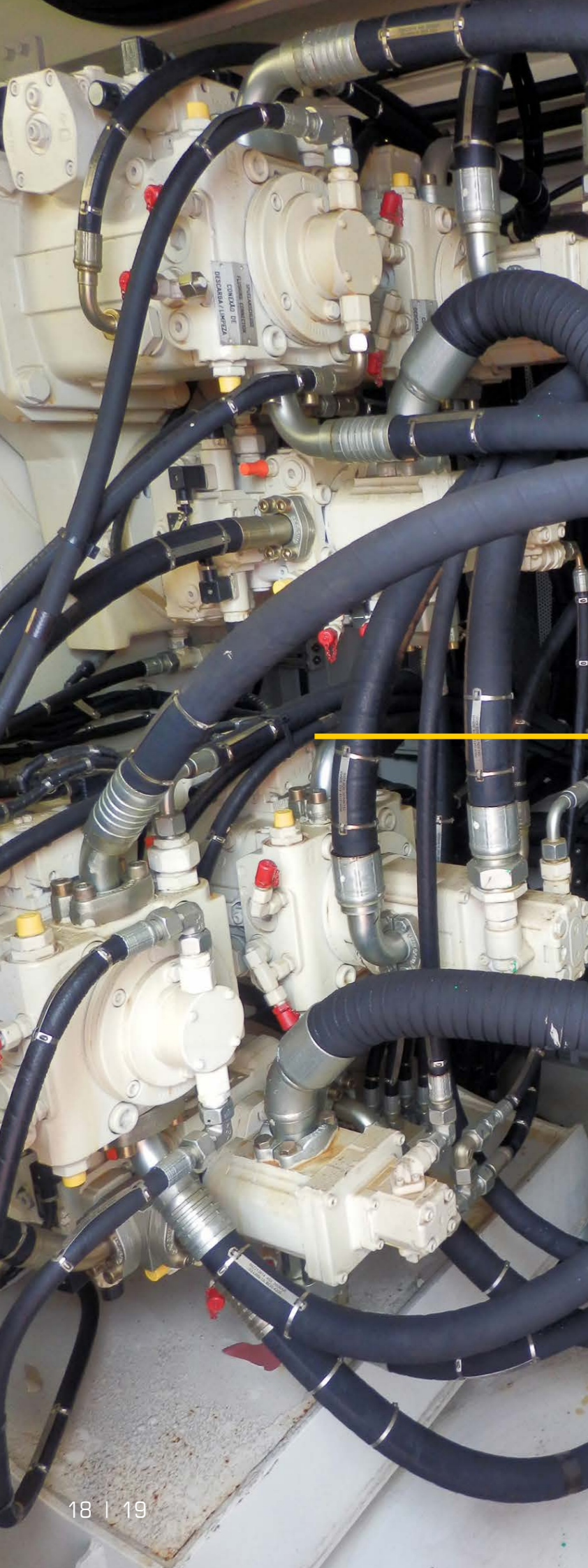
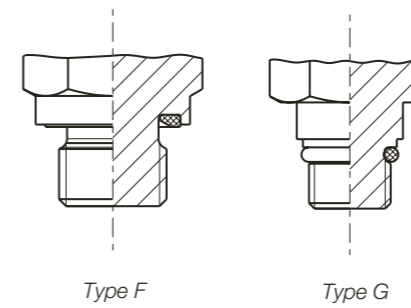
Original MINIMESS® 1604 test point

The **MINIMESS®** 1604 test point is particularly suitable for quickly filling or emptying systems as a result of its nominal diameter of DN4.

The test point can be used with operating pressures of up to 400 bar and is available with various threads.



Seal types



Thread	Seal type ¹	Technical specifications					Material: 1.0718 free cutting steel	Material: 1.4571 Stainless steel
		M ² Nm	p _n ³ bar	H mm	i mm	AF mm	Part No. with metal cap & NBR seals	Part No. with metal cap & FKM seals
Metric ISO thread								
M10 x 1	G	15	400	43	8.5	17	2106-01-33.00N	–
M12 x 1.5	F	45	400	40	10	17	2106-01-13.00N	–
M14 x 1.5	F	60	400	40	10	19	2106-01-14.00N	–
Whitworth thread								
ISO 228-G 1/4	F	60	400	40	10	19	2106-01-18.00N	2706-01-18.10
Options								
Part No. with FKM seals							XXXX-XX-XX.10N	–
Operating temperature ranges: With NBR seals: -25 °C ... 100 °C / With FKM seals: -20 °C ... 200 °C								
Additional versions, materials, and seal materials available upon request.								

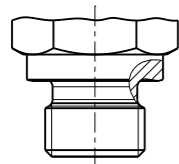
¹ For detailed specifications regarding the seal types, please refer to pages 62 – 64

² M = Tightening torque for stud end in conformity with the applicable standards. It is the user's own responsibility to determine the appropriate installation torque for their specific installation situation.

³ p_n = Maximum operating pressure

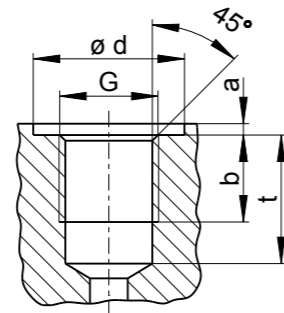
Seal types and recommended threaded ports for MINIMESS® test points and gas charging valves

Hydrotechnik type B
ISO 9974-3, ISO 1179-4



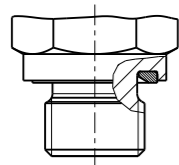
Seal achieved with sealing edge

ISO 9974-1, ISO 1179-1



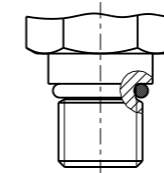
G	d	a	b	t
M10 x 1	15.0	1.0	8.0	13.0
M12 x 1.5	18.0	1.5	12.0	18.5
M14 x 1.5	20.0	1.5	12.0	18.5
M16 x 1.5	22.0	1.5	12.0	18.5
ISO 228-G 1/8	15.0	1.0	8.0	13.0
ISO 228-G 1/4	20.0	1.5	12.0	18.5
ISO 228-G 3/8	23.0	2.0	12.0	18.5
ISO 228-G 1/2	27.0	2.5	14.0	22.0

Hydrotechnik type F
ISO 9974-2, ISO 1179-2



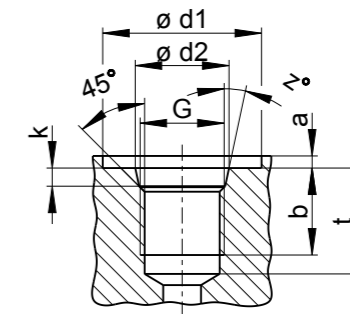
Seal achieved with ED seal

Hydrotechnik type E
ISO 6149-2, ISO 11926-2, SAE J514



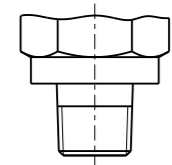
Seal achieved with O-ring

ISO 6149-1, ISO 11926-1, SAE 14026-1



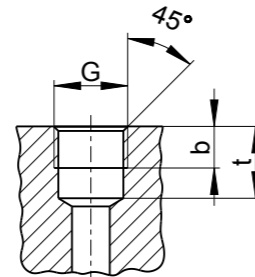
G	d ₁	d ₂	b	k	t	a	z
M10 x 1	19.0	11.1	10.0	1.6	11.5	1.0	12.0
M12 x 1.5	19.0	13.8	11.5	2.4	14.0	1.5	15.0
M14 x 1.5	21.0	15.8	11.5	2.4	14.0	1.5	15.0
M16 x 1.5	24.0	17.8	13.0	2.4	15.5	1.5	15.0
7/16-20 UNF	21.0	12.4	11.5	2.4	14.0	1.6	12.0
1/2-20 UNF	23.0	14.0	11.5	2.4	14.0	1.6	12.0
9/16-18 UNF	25.0	15.6	12.7	2.5	15.5	1.6	12.0
3/4-16 UNF	30.0	20.6	14.3	2.5	17.5	2.4	15.0

Hydrotechnik type C
ISO 3852-2 type C



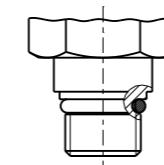
Seal achieved with suitable sealant

ISO 3852-2 type Z



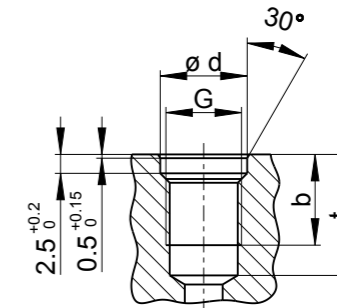
G	b	t
ISO7-1 – R1/8	5.5	9.5
ISO7-1 – R1/4	8.5	13.5

Hydrotechnik type G
HTS 0221



Seal achieved with O-ring

Hydrotechnik in-house standard - HTS 0221

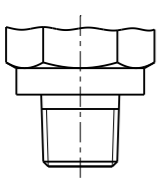


G	d	b	t
M8 x 1	9.5	9.0	13.0
M10 x 1	11.5	9.0	13.0

Seal types and recommended threaded ports for MINIMESS® test points and gas charging valves

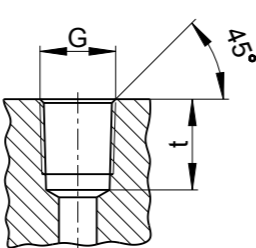
Pressure loss curves for MINIMESS® hoses and hose lines

Hydrotechnik type H
ANSI/ASME B1.20.2 type H

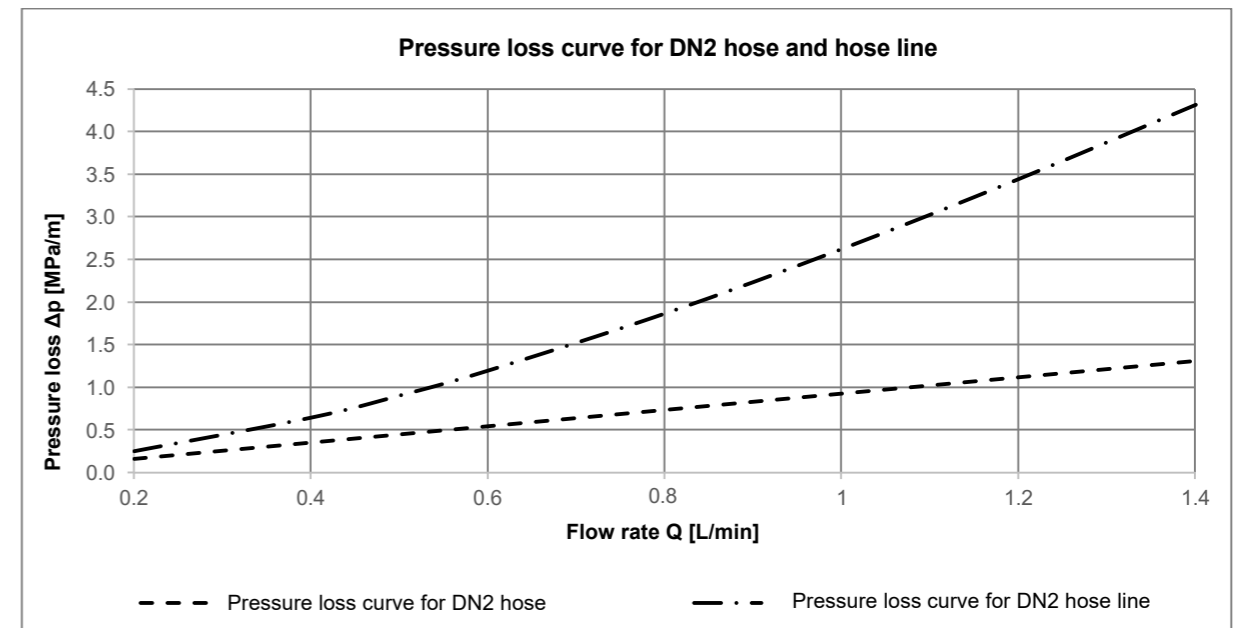


Self-sealing thread

ANSI / ASME B1.20.2 type H

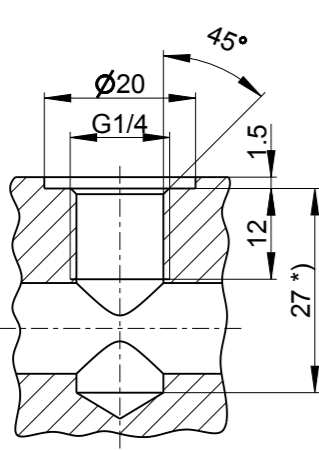


G	t
1/8 NPTF	12.0
1/4 NPTF	17.5



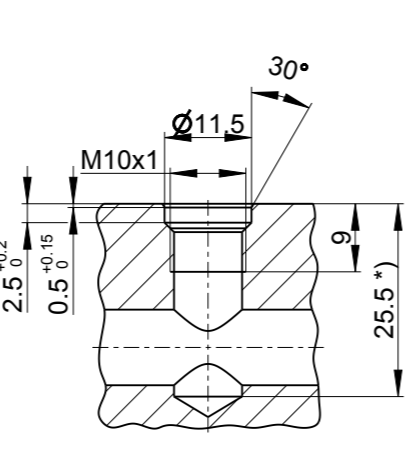
Recommended threaded ports for MINIMESS® p/T test points

Hydrotechnik type F

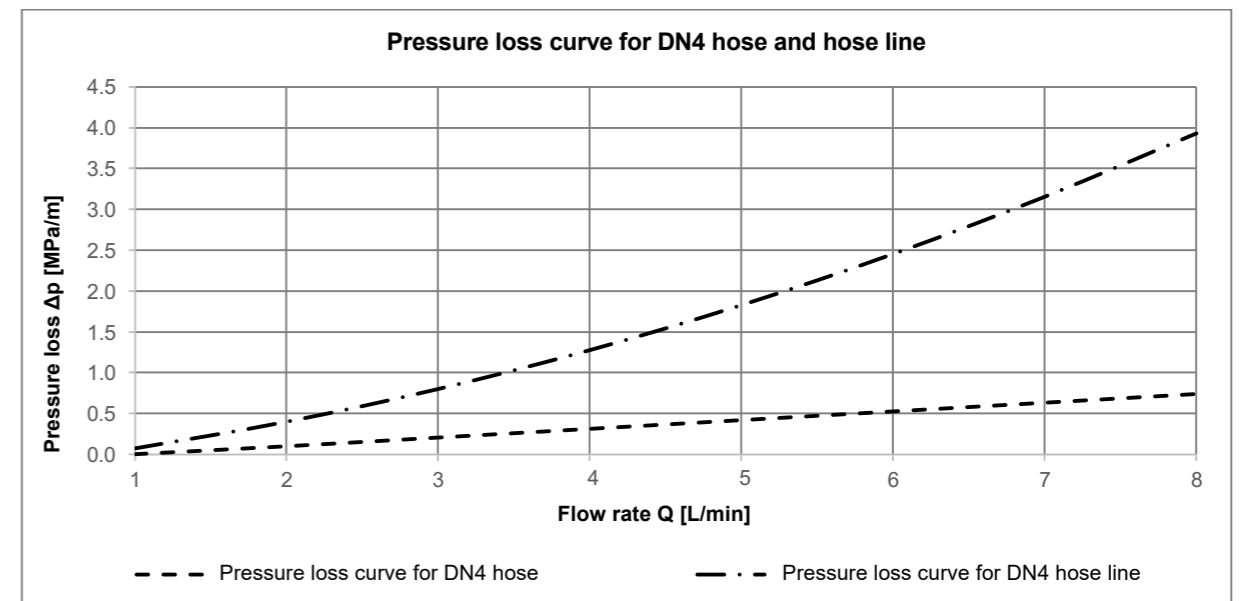


*) Recommended minimum drilled depth

Hydrotechnik type G



*) Recommended minimum drilled depth



In both diagrams, curve 1 shows the pressure loss of the hose without fittings. Meanwhile, curve 2 shows the pressure loss of the hose line with MINIMESS® fittings on both ends. The oil viscosity is 30 mm²·s⁻¹ in both.