MINIMESS©

The original and still the market leader

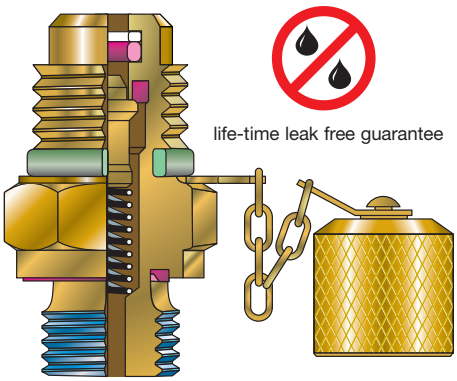
Minimess pressure test points offer the most advanced sealing system available with working pressures up to 630 bar. A life-time leak free guarantee and suitability with almost any gas and fluid makes Minimess the most versatile test point available.

Applications include

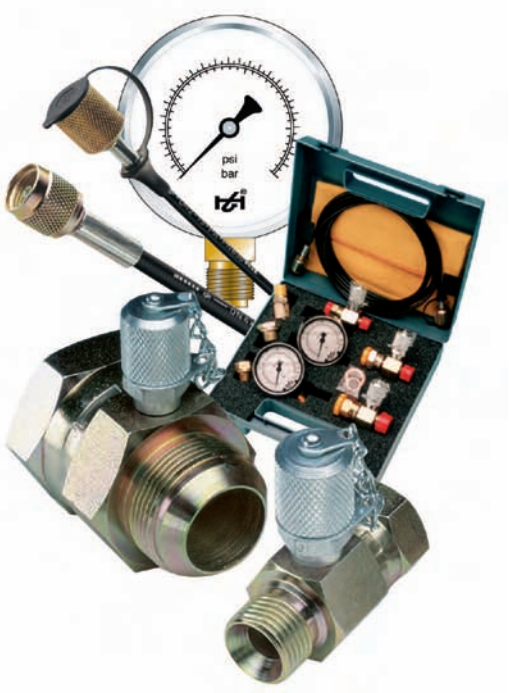
- Hydraulic Testing Points
- Bleeding Points
- Gas Testing
- Oil Sampling Points
- Gas Charging Valves

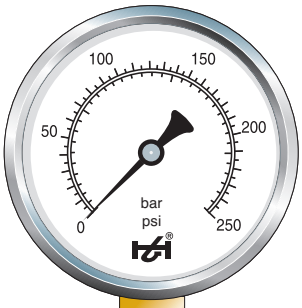
When installed in system components; eg. valves, manifold blocks etc or in-line Minimess test points provide the ideal way to obtain random pressure and temperature checks during servicing or fault finding. Test hoses and gauges can then be connected or disconnected under full system pressure without media loss or dirt ingress.

One Product
Many Applications



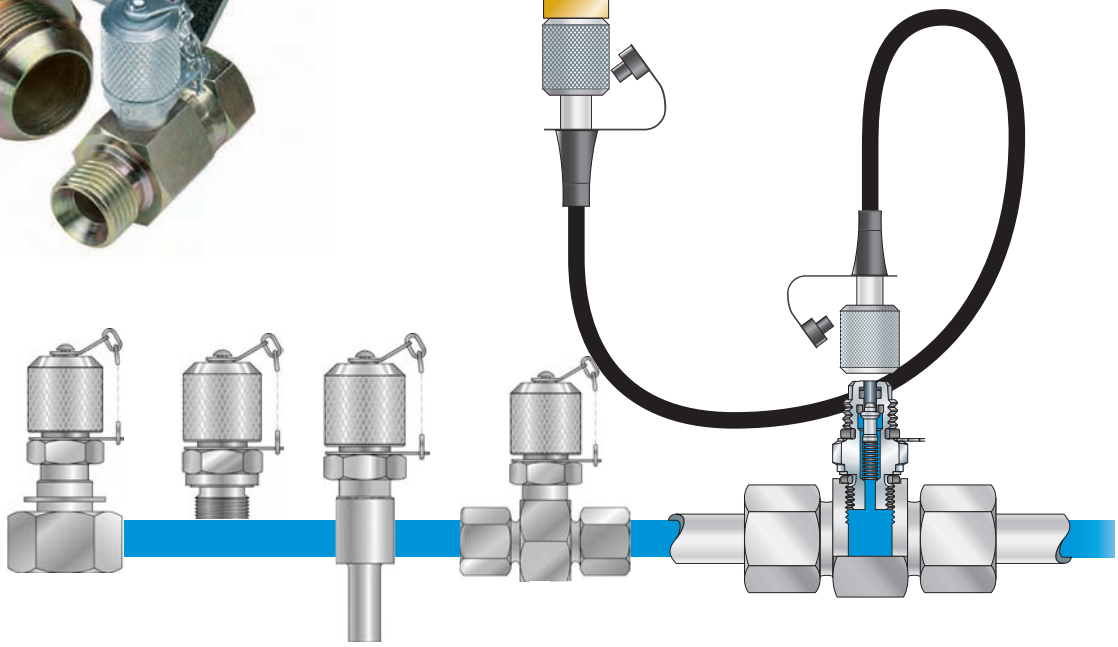
life-time leak free guarantee





DVGW

Approved for domestic gas installations



1620

M16x2 Minimess pressure test points

Screw-cap thread	Nominal Bore	Max Pressure	Material	Sealing material
M 16 x 2	DN 2	630 Bar	Free-cutting steel 1.0718	NBR (Perbunan)
M 16 x 2	DN 2	630 Bar	Stainless steel 1.4571	FKM (Viton)

p/T 1620

M16x2 Minimess pressure and temperature test points

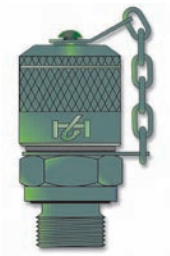
Screw-cap thread	Nominal Bore	Max Pressure	Material	Sealing material
M 16 x 2	DN 2	630 Bar	Free-cutting steel 1.0718	NBR (Perbunan)
M 16 x 2	DN 2	630 Bar	Stainless steel 1.4571	FKM (Viton)

1215

M12x1.5 Minimess pressure test points

Screw-cap thread	Nominal Bore	Max Pressure	Material	Sealing material
Fixing thread 12	DN 2	630 Bar	Free-cutting steel 1.0718	NBR (Perbunan)
Fixing thread 12	DN 2	630 Bar	Stainless steel 1.4571	FKM (Viton)

1615



M16x1.5 Minimess pressure test points

Screw-cap thread	Nominal Bore	Max Pressure	Material	Sealing material
M 16 x 1.5	DN 2	630 Bar	Free-cutting steel 1.0718	NBR (Perbunan)
M 16 x 1.5	DN 2	630 Bar	Stainless steel 1.4571	FKM (Viton)

1604

M16 style larger bore (4mm) Minimess pressure test points

Screw-cap thread	Nominal Bore	Max Pressure	Material	Sealing material
Fixing thread 16	DN 4	400 Bar	Free-cutting steel 1.0718	NBR (Perbunan)
Fixing thread 16	DN 4	400 Bar	Free-cutting steel 1.0718	FKM (Viton)

Max. working pressure 63 Mpa (630 bar) according to ISO 15171-2

Material
Coupling body and metal cap made of steel 1.0718
Note: Unless stated otherwise, all products shown in this catalogue are made of free-cutting steel 1.0718

Sealing ■
Internal primary and secondary sealing as well as sealing for screw-in threads are made of NBR (Perbunan). Option in FKM (Viton).

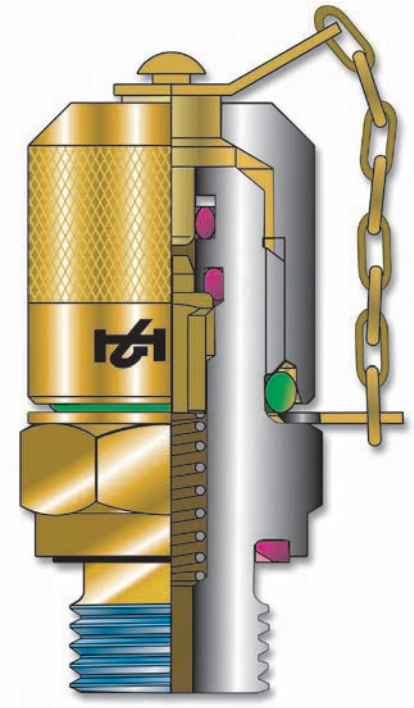
Vibration ■
NBR (Perbunan) and/or FKM (Viton) O-ring to prevent cap loosening due to vibration.

Screw-in thread ■
Large range of threads are available.

Media application
Suitable for hydraulic- and other oils on mineral oil basis

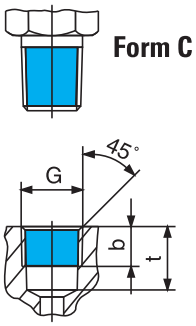
Temperature ranges at applications with metal cap (standard)

Sealing made of NBR (Perbunan):	-25°C to +100°C, for a short time, can be also used up to +120°C
Sealing made of FKM (Viton) as option:	-20°C to +200°C
Application with plastic cap (option) and for both sealing materials:	-20°C to +100°C



Thread form data

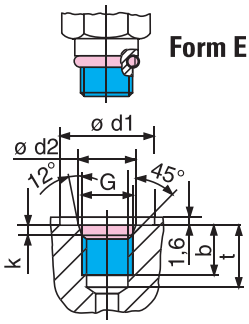
Form C



Thread port according to DIN 3852 part 1 and part 2, form Z (sealed with suitable sealant)

G	b	t
ISO 7 / I - R1/8	5.5	9.5
ISO 7 / I - R1/4	8.5	13.5

Form E



Thread port according to SAEJ 514 (UNF) or according to ISO 6149-1 (sealed with O-ring)

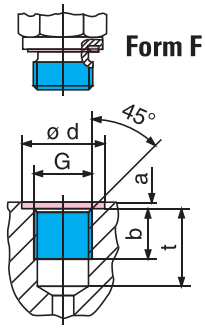
SAE J 514 (UNF)

G	d_1	d_2	b	k	t	a	z°
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

ISO 6149-1

G	d_1	d_2	b	k	t	a	z°
M 10 x 1	19.0	11.1	10.0	1.6	11.5	1.0	12.0
M 12 x 1.5	19.0	13.8	11.5	2.4	14.0	1.5	15.0
M 14 x 1.5	21.0	15.8	11.5	2.4	14.0	1.5	15.0
M 16 x 1.5	24.0	17.8	13.0	2.4	15.5	1.5	15.0

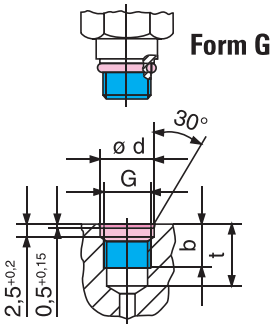
Form F



Thread Port up to Ø d according to DIN 3852 part 1 and part 2, from X (sealed with flat seal)

G	d	a	b	t
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
M 12 x 1.5	18.0	1.5	12.0	18.5
M 14 x 1.5	20.0	1.5	12.0	18.5
M 16 x 1.5	22.0	1.5	12.0	18.5

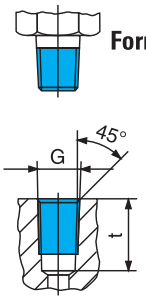
Form G



Thread Port according to HYDROTECHNIK standard N901-01-14 (sealed with O-ring)

G	d	b	t
M 8 x 1	9.5	9.0	13.0
M 10 x 1	11.5	9.0	13.0

Form H



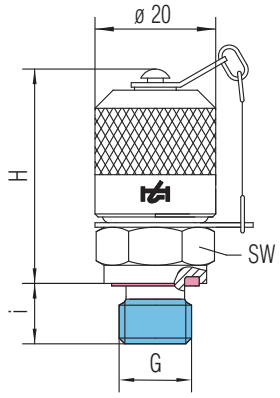
Thread Port according to ANSI/ASME B 1.20.1-1983 (self sealing thread)

G	t
1/8 NPTF	12.0
1/4 NPTF	17.5
1/2 NPTF	22.9

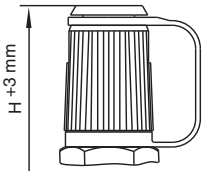
Test points – M16 x 2 thread

MINIMESS® 1620 or 'Test 20' is the most commonly used test point across all industries. The wide range of choice in materials and threads make this the most commonly used test point.

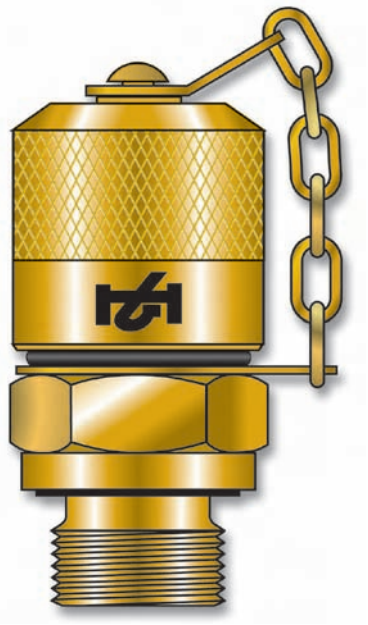
Lifetime leak-free guarantee

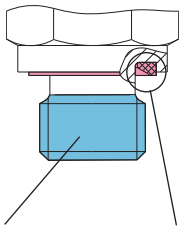


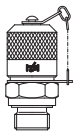
Metal cap with anti vibration O-ring

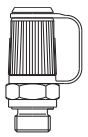


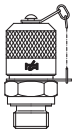
Plastic cap – Vibration Proof











Thread *G*	Seal type *A*	Torque *Nm*	p max *Bar*	H *mm*	i *mm*	SW *mm*	Free cutting steel 1.0718 Part number *with NBR – sealing*	Free cutting steel 1.0718 Part number *with NBR – sealing*	Stainless steel 1.4571 Part number *with FKM – sealing*
M 8 x 1*	Form G	6	250	41	8.5	17	2103-01-32.00	2103-30-32.00	on request
M 10 x 1	Form G	12	630	37.5	8.5	17	2103-01-33.00	2103-30-33.00	2703-01-33.10
M 12 x 1.5	Form F	30	630	36	10	17	2103-01-13.00	2103-30-13.00	on request
M 14 x 1.5	Form F	40	630	36	10	19	2103-01-14.00	2103-30-14.00	2703-01-14.10
M 16 x 1.5	Form F	60	630	36	10	22	2103-01-15.00	2103-30-15.00	on request
M 14 x 1.5	Form E*	45	630	35.5	11	19	2103-01-96.00	2103-30-96.00	on request
ISO 228-G ⅛	Form F	18	400	38	8	17	2103-01-17.00	2103-30-17.00	2703-01-17.10
ISO 228-G ¼	Form F	40	630	36	10	19	2103-01-18.00	2103-30-18.00	2703-01-18.10
ISO 228-G ⅜	Form F	60	630	36	10	22	2103-01-16.00	2103-30-16.00	on request
⅛ NPTF	Form H	–	400	33	9.5	17	2103-01-46.00	2103-30-46.00	on request
¼ NPTF	Form H	–	630	33	16.5	17	2103-01-47.00	2103-30-47.00	2703-01-47.10
7/16-20 UNF	Form E	20	630	37	9	17	2103-01-21.00	2103-30-21.00	on request
9/16-18 UNF	Form E	35	630	36	10	19	2103-01-53.00	2103-30-53.00	on request
ISO 7/I-R ⅛	Form C	–	400	33	13	17	2103-01-40.00	2103-30-40.00	on request
ISO 7/I-R ¼	Form C	–	630	33	13	17	2103-01-41.00	2103-30-41.00	on request

* M8x1 – Please do not use for new machinery design.

** Form E – ISO 6149-2.

Option

For sealing in FKM (Viton) Exchange end digits from 00 to 10 — **10**

Other materials, designs, sealing and screw-in threads on request.

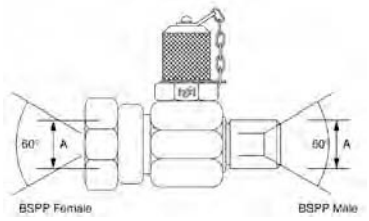
We reserve the right to carry out technical modifications.

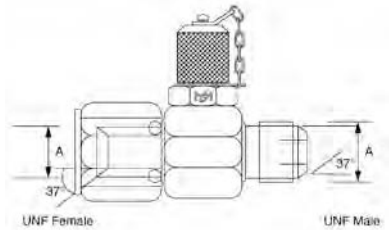
BSP/JIC/ORFS in-line tee adaptors

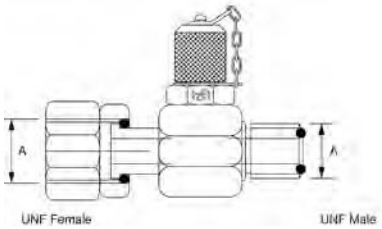
In-line SNA **MINIMESS®** pressure test point adaptors are a simple and easy method of adding test points into a system.

Suitable for OEM build or retro – fitting to existing systems SNAs fit between hose joints or manifold and hose.

Special configurations are available for OEM applications. Call for details.







BSP Format

Description	A	Thread	Part number
Male/Female BSPP 1620	1/4"	BSPP	SNA01
Male/Female BSPP 1620	3/8"	BSPP	SNA02
Male/Female BSPP 1620	1/2"	BSPP	SNA03
Male/Female BSPP 1620	3/4"	BSPP	SNA04
Male/Female BSPP 1620	5/8"	BSPP	SNA05
Male/Female BSPP 1620	1"	BSPP	SNA06
Male/Female BSPP 1620	1 1/4"	BSPP	SNA07
Male/Female BSPP 1620	1 1/2"	BSPP	SNA08

JIC Format

Male/Female JIC 1620	7/16"–20 UNF	SNA55
Male/Female JIC 1620	1/2"–20 UNF	SNA56
Male/Female JIC 1620	9/16"–18 UNF	SNA57
Male/Female JIC 1620	3/4"–16 UNF	SNA58
Male/Female JIC 1620	7/8"–14 UNF	SNA59
Male/Female JIC 1620	1.1/16"–12 UNF	SNA60
Male/Female JIC 1620	1.5/16"–12 UNF	SNA61
Male/Female JIC 1620	1.5/8"–12 UNF	SNA62
Male/Female JIC 1620	1.7/8"–12 UNF	SNA63

ORFS Format

Male/Female ORFS 1620	9/16"–18 UNF	SNA70
Male/Female ORFS 1620	11/16"–16 UNF	SNA71
Male/Female ORFS 1620	13/16"–16 UNF	SNA72
Male/Female ORFS 1620	1"–14 UNF	SNA73
Male/Female ORFS 1620	1.3/16–12 UNF	SNA74
Male/Female ORFS 1620	1.7/16–12 UNF	SNA75

Metric DKO, Tee Adaptors

For solder-free screw-in pipe connections according to DIN 2353; free-cutting steel 1.0718; sealing NBR

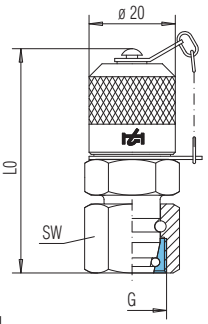


Fig. 1

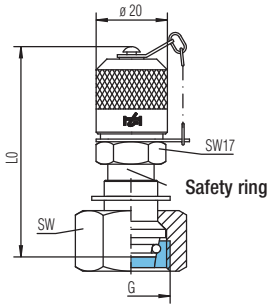
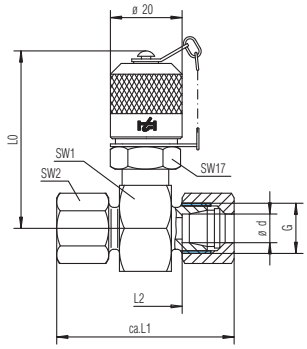
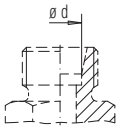
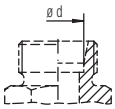


Fig. 2



Tee adapter c/w cutting rings with union nuts.
Test Points incorporated.





DKO - measuring connection with 24° sealing cone and Test Points incorporated.
Elastic Perbunban O-ring at the sealing cone.

DKO Female							Metric Tee					
Series *Ø d*	**p max** *Bar*	**Thread** *G*	**Fig.**	**LO** *mm*	**SW** *mm*	**Part number**	**L_1** *mm*	**L_2** *mm*	**L_0** *mm*	**SW_1** *mm*	**SW_2** *mm*	**Part number**
L 6	315	M 12 x 1.5	1	52	14	2103-93-06.00	50.5	20.5	49.5	24	14	2103-11-06.00
L 8	315	M 14 x 1.5	1	52	17	2103-93-08.00	50.5	205	49.5	24	17	2103-11-08.00
L 10	315	M 16 x 1.5	1	52	19	2103-93-10.00	52.5	22.5	49.5	24	19	2103-11-10.00
L 12	315	M 18 x 1.5	1	52	22	2103-93-12.00	52.5	22.5	49.5	24	22	2103-11-12.00
L 15	315	M 22 x 1.5	1	52	27	2103-93-15.00	54.5	24.5	52.5	30	27	2103-11-15.00
L 18	315	M 26 x 1.5	1	52	32	2103-93-18.00	56.5	23.5	53.5	32	32	2103-11-18.00
L 22	160	M 30 x 2	2	60	36	2103-40-22.00	60.5	27.5	55.5	36	36	2103-11-22.00
L 28	160	M 36 x 2	2	61	41	2103-40-28.00	60.5	27.5	58	41	41	2103-11-28.00
L 35	160	M 45 x 2	2	63	50	2103-40-35.00	68.5	25.5	60.5	46	50	2103-11-35.00
L 42	160	M 52 x 2	2	63	60	2103-40-42.00	70.5	24.5	65	55	60	2103-11-42.00
S 6	630	M 14 x 1.5	1	52	17	2103-94-06.00	54.5	24.5	49.5	24	17	2103-12-06.00
S 8	630	M 16 x 1.5	1	52	19	2103-94-08.00	54.5	24.5	49.5	24	19	2103-12-08.00
S 10	630	M 18 x 1.5	1	52	22	2103-94-10.00	56.5	23.5	49.5	24	22	2103-12-10.00
S 12	630	M 20 x 1.5	1	52	24	2103-94-12.00	56.5	23.5	49.5	24	24	2103-12-12.00
S 14	630	M 22 x 1.5	2	63	27	2103-41-14.00	62.5	26.5	51	27	27	2103-12-14.00
S 16	400	M 24 x 1.5	1	52	30	2103-94-16.00	62.5	25.6	52.5	30	30	2103-12-16.00
S 20	400	M 30 x 2	2	63	36	2103-41-20.00	68.5	25.5	52.5	36	36	2103-12-20.00
S 25	400	M 36 x 2	2	64.5	46	2103-41-25.00	74.5	26.5	58	41	46	2103-12-25.00
S 30	400	M 42 x 2	2	66	50	2103-41-30.00	80.5	27.5	60.5	46	50	2103-12-30.00
S 38	315	M 52 x 2	2	69	60	2103-41-38.00	91	29	65	55	60	2103-12-38.00

Options

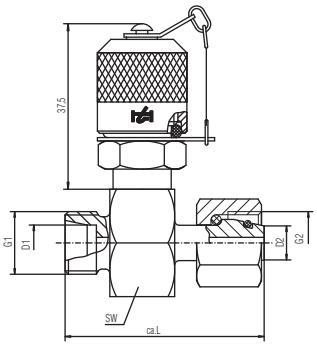
All sealing made of Viton with metal cap (when ordering, exchange end digits from 00 to 10) — **10**

With mounted plastic cap (when ordering, exchange end digits from 00 to 90) — **90**

All sealing made of Viton with plastic cap (when ordering, exchange end digits from 00 to 95) — **95**

Metric DKO 1620 Male/Female Tee Adaptors

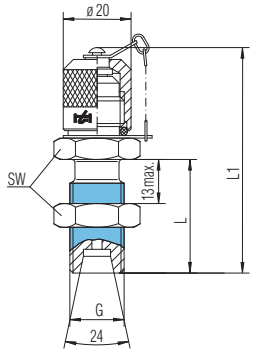
For solder free screw-in pipe connections according to DIN 2353



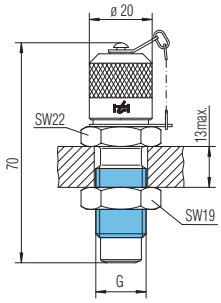
Series	p max *Bar*	G1 *mm*	D1 *mm*	G2 *mm*	D2 *mm*	SW *mm*	L *mm*	Part number
L 6	315	M 12 x 1.5	6	M 12 x 1.5	6	24	44.5	2103-KL-06.00
L 8	315	M 14 x 1.5	8	M 14 x 1.5	8	24	44.5	2103-KL-08.00
L 10	315	M 16 x 1.5	10	M 16 x 1.5	10	24	47.5	2103-KL-10.00
L 12	315	M 18 x 1.5	12	M 18 x 1.5	12	24	48.5	2103-KL-12.00
L 15	315	M 22 x 1.5	15	M 22 x 1.5	15	30	51.5	2103-KL-15.00
L 18	315	M 26 x 1.5	18	M 26 x 1.5	18	32	55.5	2103-KL-18.00
L 22	160	M 30 x 2	22	M 30 x 2	22	36	58.5	2103-KL-22.00
L 28	160	M 36 x 2	28	M 36 x 2	28	41	59	2103-KL-28.00
L 35	160	M 45 x 2	35	M 45 x 2	35	46	68	2103-KL-35.00
L 42	160	M 52 x 2	42	M 52 x 2	42	55	68	2103-KL-42.00
S 6	630	M 14 x 1.5	6	M 14 x 1.5	6	24	46.5	2103-KS-06.00
S 8	630	M 16 x 1.5	8	M 16 x 1.5	8	24	48.5	2103-KS-08.00
S 10	630	M 18 x 1.5	10	M 18 x 1.5	10	24	49.5	2103-KS-10.00
S 12	630	M 20 x 1.5	12	M 20 x 1.5	12	24	50	2103-KS-12.00
S 14	630	M 22 x 1.5	14	M 22 x 1.5	14	27	53.5	2103-KS-14.00
S 16	400	M 24 x 1.5	16	M 24 x 1.5	16	30	56.5	2103-KS-16.00
S 20	400	M 30 x 2	20	M 30 x 2	20	36	64.5	2103-KS-20.00
S 25	400	M 36 x 2	25	M 36 x 2	25	41	66	2103-KS-25.00

Bulkhead Adaptors

For solder free screw-in pipe connections according to DIN 2353, to MINIMESS® - 1620 Test Points, NBR sealing



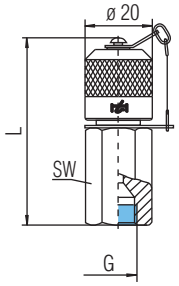
Thread *G*	p max *Bar*	Connection	L *mm*	L1 *mm*	SW *mm*	Part number
M 12 x 1.5	315	L6	34	67	17	2103-04-22.00
M 14 x 1.5	315	L8	34	67	19	2103-04-23.00
M 16 x 1.5	315	L10	33.5	66.5	22	2103-04-18.00
M 14 x 1.5	630	S6	36	69	19	2103-04-24.00
M 16 x 1.5	630	S8	33.5	66.5	22	2103-04-25.00
M 18 x 1.5	630	S10	37	70	24	2103-04-26.00



Thread *G*	p max *Bar*	Connection	Part number
M 16 x 2	630	Both sides for MINIMESS® 1620 (M 16 x 2)	2103-04-16.00

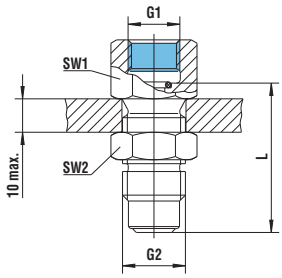
Standpipe adaptor 37° – edged screwing SAE J514

NBR sealing



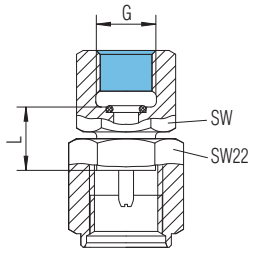
Thread *G*	p max *Bar*	Pipe Ø *mm*	Pipe Ø *inches*	L *mm*	SW *mm*	Part number
7/16-20 UNF	600	6	¼	55	17	2103-85-21.00
½ -20 UNF	420	8	5/16	56.5	17	2103-85-22.00
9/16-18 UNF	315	10	⅜	57.5	19	2103-85-23.00
¾- 16 UNF	315	12	½	60.5	22	2103-85-24.00

Pressure gauge connection for bulkhead fitting



Internal thread *G1*	p max *Bar*	Connection *G2*	L *mm*	SW *mm*	Note	Part number
ISO 228-G ¼	630	1620 / M 16 x 2	38	19	Without return valve	2103-05-11.00
ISO 228-G ½	630	1620 / M 16 x 2	42.5	27	Without return valve	2103-05-12.00
1/4 NPT	630	1620 / M 16 x 2	–	19	Without return valve	2103-05-23.00

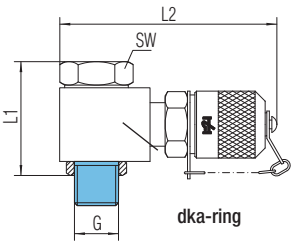
Pressure gauge – direct connection



Internal thread *G1*	p max *Bar*	L *mm*	SW *mm*	Part number
ISO 228-G ¼	630	14.5	19	2103-07-11.62
ISO 228-G ½	630	17	27	2103-07-12.62
1/4 NPT	630	–	19	2103-07-23.62

90° Swivel screw connection

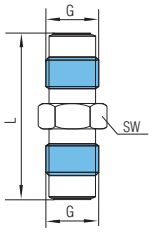
NBR sealing



Internal thread *G1*	p max *Bar*	L1 *mm*	L2 *mm*	SW *mm*	Part number
ISO 228-G ¼	630	34.5	64.5	19	2115-22-34.00

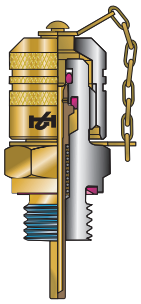
Sealing on screw-in thread (hollow screw) via dka-ring, on hexagon via Gi-ring (NBR).
Other options on request.

Hose adaptor

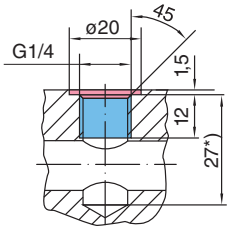


Internal thread *G1*	p max *Bar*	L1 *mm*	SW *mm*	Note	Part number
M 16 x 2	630	42	17	Without return valve	2146-01-00.00

For pressure and temperature measurement

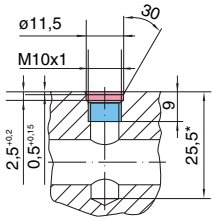


Form F



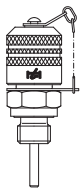
Thread forms only for p/T – screw coupling

Form G

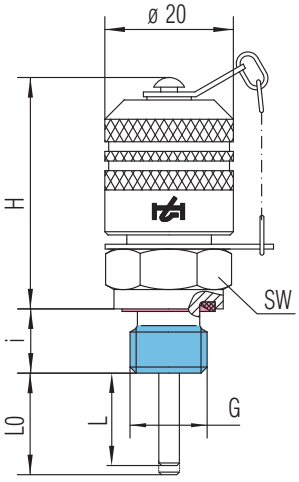


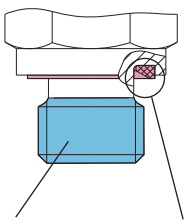
* = recommended min. depth of drill

Free cutting steel 1.0718



Metal cap





Thread *G*	Type of sealing *A*	Torque *Nm*	p max *Bar*	H *mm*	i *mm*	L_0 *mm*	L *mm*	SW *mm*	Part number *with NBR sealing*
ISO 228-G ¼	Form F	40	630	36.5	10	16	14.5	19	2149-04-15.13
M 10 x 1	Form G	12	630	38	8.5	16	14.5	17	2149-04-19.13

L0 = max. immersion depth in coupled state, L = not coupled state

Option

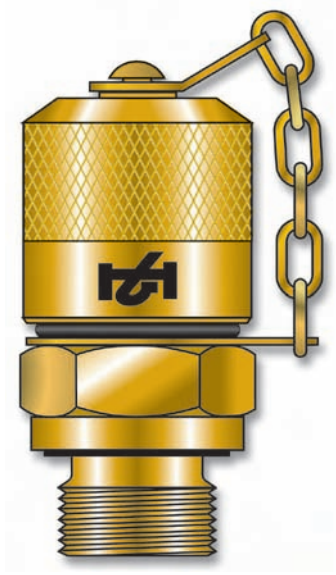
For FKM (Viton) – exchange end digits from 13 to 53 — **53**

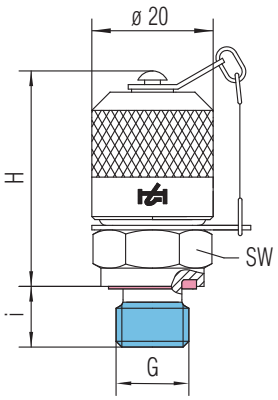
Other materials, further options, sealing and screw-in threads on request.
We reserve the right to carry out technical modifications.

Test points – M12 x 1.5

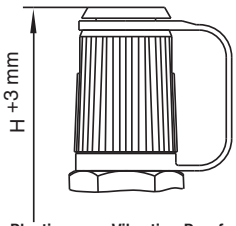
MINIMESS® 1215 or 'Test 15' is commonly used in the construction and gas industries. Small and compact in design with a 12mm threaded cap the 1215 test point is capable of a 630 bar working pressure. The 1215 is available in many materials including Steel, Stainless Steel and Brass.

Lifetime leak-free guarantee

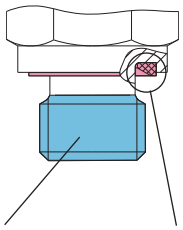


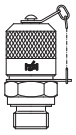
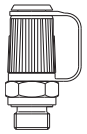
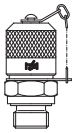


Metal cap with anti vibration O-ring



Plastic cap – Vibration Proof



							Free cutting steel 1.0718	Free cutting steel 1.0718	Stainless steel 1.4571
							 Metal cap	 Plastic cap	 Metal cap
Thread *G*	**Seal type** *A*	**Torque** *Nm*	**p max** *Bar*	**H** *mm*	**i** *mm*	**SW** *mm*	**Part number** *with NBR – sealing*	**Part number** *with NBR – sealing*	**Part number** *with FKM – sealing*
M 8 x 1*	Form G	6	250	30	8.5	14	2101-06-32.00	2101-01-32.00	on request
M 10 x 1	Form G	12	630	30	8.5	14	2101-06-33.00	2101-01-33.00	2701-06-33.10
M 12 x 1.5	Form F	30	630	29	10	17	2101-06-13.00	2101-01-13.00	on request
M 14 x 1.5	Form F	40	630	29	10	19	2101-06-14.00	2101-01-14.00	on request
ISO 228-G ⅛	Form F	18	400	30	8	14	2101-06-17.00	2101-01-17.00	on request
ISO 228-G ¼	Form F	40	630	29	10	19	2101-06-18.00	2101-01-18.00	2701-06-18.10
⅛ NPTF	Form H	–	400	26	12	14	2101-06-46.00	2101-01-46.00	on request
¼ NPTF	Form H	–	630	26	15	14	2101-06-47.00	2101-01-47.00	2701-06-47.10
7/16-20 UNF	Form E	20	630	29	9	17	2101-06-21.00	2101-01-21.00	on request
9/16-18 UNF	Form E	35	630	28	10	19	2101-06-53.00	2101-01-53.00	on request
ISO 7/l-R ⅛	Form C	–	400	26	12	14	2101-06-40.00	2101-01-40.00	on request

* M8x1 – Please do not use for new machinery design.
** Form E – ISO 6149-2.

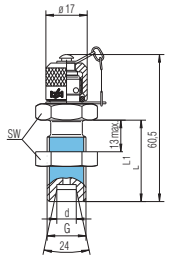
Option

For sealing in FKM (Viton) Exchange end digits from 00 to 10 — **10**

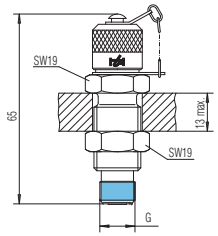
Other materials, designs, sealing and screw-in threads on request.
We reserve the right to carry out technical modifications.

Bulkhead Adaptors

For solder free screw-in pipe connections according to DIN 2353; execution free-cutting steel 1.0718; sealing NBR

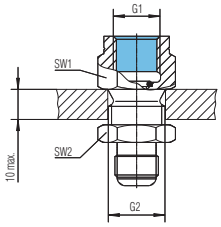


Thread *G*	p max *Bar*	Connection	L *mm*	L1 *mm*	SW *mm*	Part number
M 12 x 1.5	315	L 6	34	60.5	17	2101-04-22.90
M 14 x 1.5	315	L 8	34	60.5	19	2101-04-23.90
M 14 x 1.5	630	S 6	36	62.5	19	2101-04-24.90



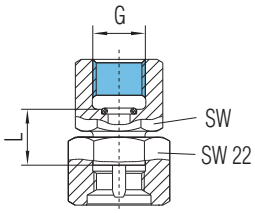
Thread *G*	p max *Bar*	Connection	Part number
Fixing thread 12	630	On both sides MINIMESS® - 1215 connection	2101-04-16.90

Pressure gauge connection for bulkhead fitting



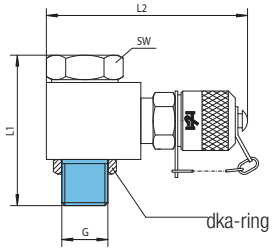
Internal thread *G1*	p max *Bar*	Connection *G2*	L *mm (approx)*	SW *mm*	Note	Part number
ISO 228-G 1/4	630	1215	31	19	Without return valve	2101-05-11.00
ISO 228-G 1/2	630	1215	38.5	27	Without return valve	2101-05-12.00
1/4 NPT	630	1215	–	22	Without return valve	2101-05-23.00

Pressure gauge – direct connection



Internal thread *G1*	p max *Bar*	L *mm*	SW *mm*	Part number
ISO 228-G ¼	630	14.5	19	2101-07-11.62
ISO 228-G ½	630	17	27	2101-07-12.62
¼ NPT	630	–	19	2101-07-23.62

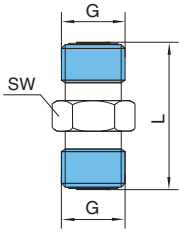
90° Swivel screw connection



Thread *G*	p max *Bar*	L1 *mm*	L2 *mm*	SW *mm*	Part number
ISO 228-G ¼	630	34.5	46	19	2115-22-14.00

Sealing on screw-in thread (hollow screw) via dka-ring, on hexagon via Gi-ring (NBR). Other options on request.

Hose adaptors



Thread *G*	p max *Bar*	L1 *mm*	SW *mm*	Note	Part number
ISO 228-G ¼	630	29	14	Without return valve	2146-20-00.20

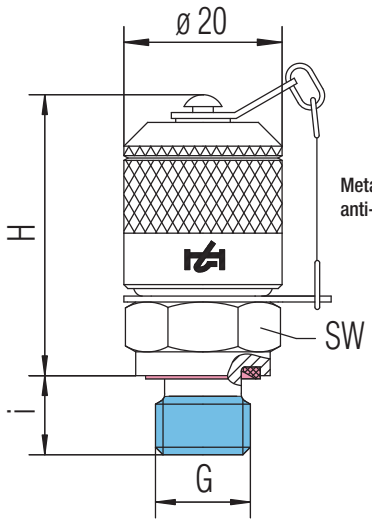
Other materials, further options, sealing and screw-in threads on request.

For more information and pricing requests please call (+31 (0) 594 696 131) or email: sales@eurotronbenelux.nl

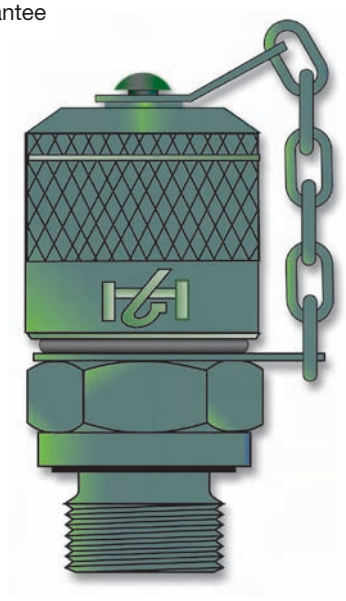
Test points – M16 x 1.5

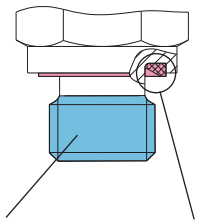
MINIMESS® 1615 or 'Test 15' coupling is used most commonly in the defence, gas and marine industries. The 1615 has a green finish and has an M16 connection thread. Materials available are steel, stainless steel or monel.

Lifetime leak-free guarantee

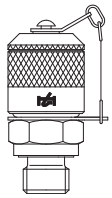


Metal cap with anti-vibration O-ring

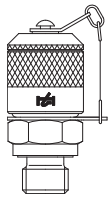




Free cutting steel 1.0718
Metal cap



Stainless steel 1.4571
Metal cap



Thread *G*	Type of sealing *A*	Torque *Nm*	p max *Bar*	H *mm*	i *mm*	SW *mm*	Part number *with NBR – sealing*	Part number *with FKM – sealing*
M 10 x 1	Form G	12	630	37.5	8.5	17	2102-01-33.00	2702-01-33.10
M 12 x 1.5	Form F	30	630	36	10	17	2102-01-13.00	on request
M 14 x 1.5	Form F	40	630	36	10	19	2102-01-14.00	on request
M 16 x 1.5	Form B	60	630	36	10	19	2102-01-50.00	on request
ISO 228-G ¼	Form F	40	630	36	10	19	2102-01-18.00	2702-01-18.10
¼ NPTF	Form H	–	630	33	16.5	17	2102-01-47.00	on request

Option

For FKM (Viton) exchange end digits from 00 to 10 → **10**

Specialised Options

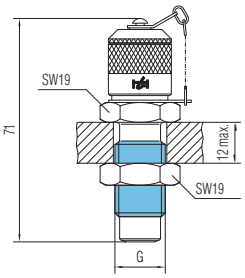
Thread *G*	Type of sealing *A*	p max *Bar*	H *mm*	L *mm*	SW *mm*	Execution all sealing made of Viton	Part number
M 14 x 1.5	Gi-ring	630	36	10	19	With anti-vibration O-ring, alternative housing length	2102-01-14.48
ISO 228-G ¼	Sealing edge	630	38	12	19	Low temperature -54°C to +110°C	2102-01-51.56
M 14 x 1.5	Gi-ring	630	36	10	19	With sintered bronze filter	2102-72-14.10

Other materials, further options, sealing and screw-in threads on request.

We reserve the right to carry out technical modifications.

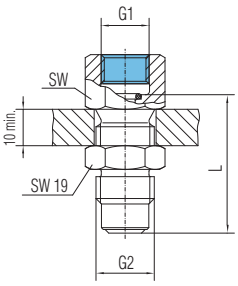
For more information and pricing requests please call (+31 (0) 594 696 131) or email: sales@eurotronbenelux.nl

Bulkhead Adaptors



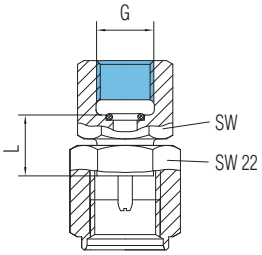
Thread (G) *G*	p max *Bar*	Connection	Part-Number
16 x 1.5	630	On both sides for series 1615	2102-04-01.00

Pressure gauge connection for bulkhead fitting



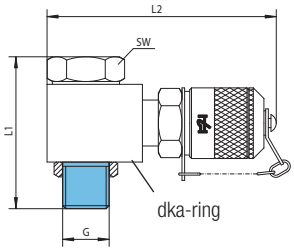
Internal thread *G*	p max *Bar*	Connection	L *mm*	SW *mm*	Note	Part number
ISO 228-G ¼	630	1615 / M 16 x 1.5	38	19	Without return valve	2102-05-11.00
ISO 228-G ½	630	1615 / M 16 x 1.5	42.5	27	Without return valve	2102-05-12.00

Pressure gauge – direct connection



Internal thread *G*	p max *Bar*	L *mm*	SW *mm*	Part number
ISO 228-G ¼	630	14.5	19	2102-07-11.62
ISO 228-G ½	630	17	27	2102-07-12.62
¼ NPT	630	–	19	2102-07-23.62

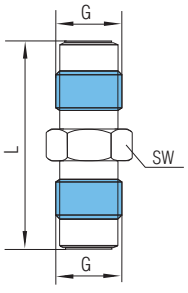
90° Swivel screw connection



Thread *G*	p max *Bar*	L_1 *mm*	L_2 *mm*	SW *mm*	Part number
ISO 228-G ¼	630	43	69.5	19	2115-22-24.00

Sealing on screw-in thread (hollow screw) via dka-ring, on hexagon via Gi-ring (NBR).
Other options on request.

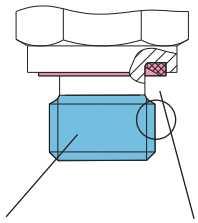
Hose Adaptors

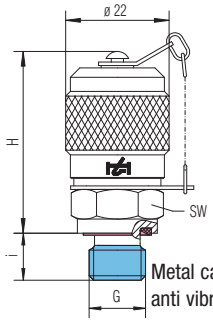


Thread *G*	p max *Bar*	L *mm*	SW *mm*	Note	Part number
M 16 x 1.5	630	42	17	Without return valve	2146-10-00.00

Other materials, further options, sealing and screw-in threads on request.

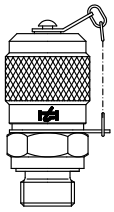
1604 Test points – M16 buttress thread



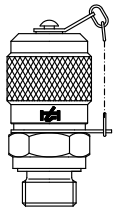


Metal cap with anti vibration O-ring

Free cutting steel 1.0718
Metal cap



Stainless steel 1.4571
Metal cap

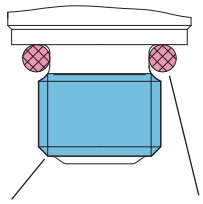


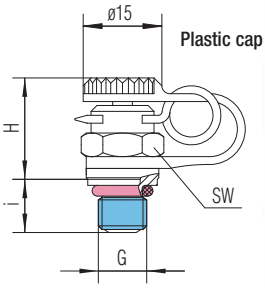
Thread *G*	Type of sealing *A*	Torque *Nm*	p max *Bar*	H *mm*	i *mm*	SW *mm*	Part number *with NBR – sealing*	Part number *with NBR – sealing*
M 10 x 1	Form G	12	400	43	8.5	17	2106-01-33.00	on request
M 14 x 1.5	Form F	40	400	40	10	19	2106-01-14.00	on request
ISO 228-G ¼	Form F	40	400	40	10	19	2106-01-18.00	2706-01-18.10

Option

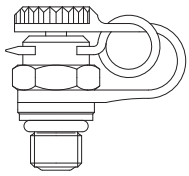
For FKM (Viton) exchange end digits from 00 to 10 — **10**

Plug-in test (steck) points – internal ball sealing

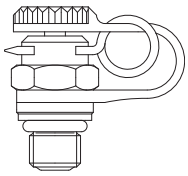




Free cutting steel 1.0718



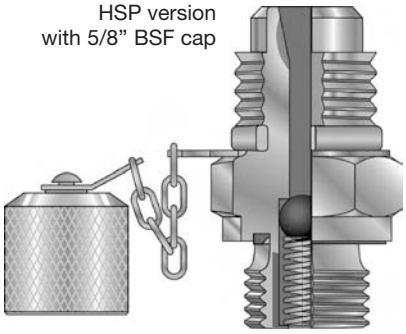
Stainless steel 1.4571



Thread *G*	Type of sealing *A*	Torque *Nm*	p max *Bar*	H *mm*	i *mm*	SW *mm*	Part number *with NBR – sealing*	Part number *with NBR – sealing*
M 8 x 1	Form G	6	400	17.5	8.5	12	2104-30-32.00	2704-30-32.10
M 10 x 1	Form G	12	400	17.5	8.5	12	2104-30-33.00	on request
ISO7/I-R ⅛	Suitable sealant	–	400	17.5	8.5	12	2104-30-40.00	on request
⅛ NPT	Suitable sealant	–	400	17.5	8.5	12	2104-30-43.00	on request

HSP style test points – 5/8” BSF

HSP version with 5/8” BSF cap



HSP Test Points

Size	Part number
⅛” BSP	2107-01-17.00
¼” BSP	2107-01-51.00

Gauge adaptors

HSP(F) to ¼” Gauge (F)	2107-07-01.62

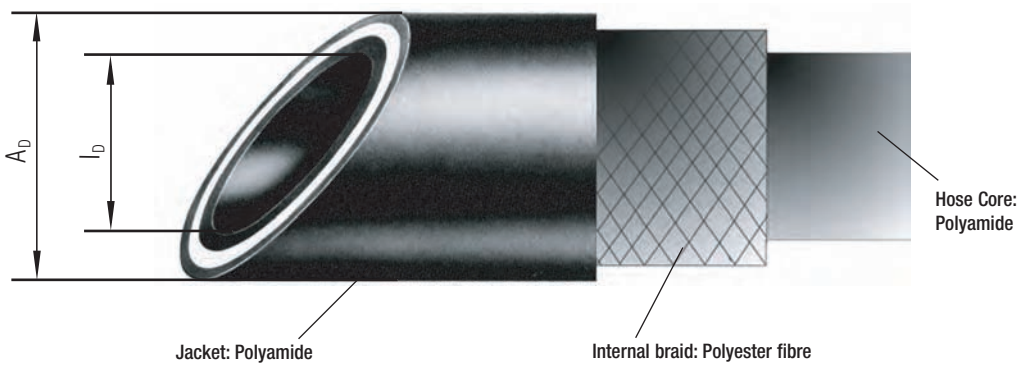
Changeover adaptor

HSP(F) to 1620(M)	HSPF/1620M

Technical data

DN2 and DN4 – 2mm and 4mm nominal bore

Hose structure



Width *Nominal*	Design	Application	p_n *Bar*	p_B *Bar*	I_d *mm*	A_d *mm*	r_{min}	Temperature range	Pressure utilisation factor
DN2	Standard 400	Perforated hose	400	1040	2	5	20 (below -20°C 30mm)	-20°C up to +100°C short time up to +120°C	0°C 122% 30°C 110% 50°C 100% 80°C 86% 100°C 77% 120°C 68%
DN2	Standard 630	Perforated hose	630	1950	2	5			
DN2	Low temperature	Perforated hose	630	1950	2	5		-54°C up to +100°C	Example for calculation: MINIMESS®-hose DN 2/630 Bar at 30°C pressure utilisation factor: 630 x 1.10 = 693 Bar
DN4	Standard 315	Perforated hose	315	810	4	8	40 (below -20°C 60)	-20°C up to +100°C short time up to +120°C	
DN4	Standard 450	Perforated hose	450	1500	4	8			

Reference of the specified data: 20°C – 3 K

p_n = operating pressure

p_B = bursting pressure

I_D = internal diameter

A_D = external diameter

r_{min} = Minimum bend radius of hose

Perforated hose = Jacket of hose is perforated for applications using gas

Definition for the tightness of a MINIMESS®- hose pipe

"Technically tight" describes systems, part systems and functional elements if the leakage rate amounts to < 0.00001 mbar l s-1.

Criteria for selection of hoses and fittings

1. Selection of the hose assembly for the maximum operating pressure (pN):
   When ordering a hose assembly, you have to pay attention to the operating pressures of the hose material and of the connection fitting. The lowest pressure determines the max. operating pressure of the complete hose assembly.
2. Selection of hose assembly for use with different media:
   Hose assemblies can be used with different media, as long as the end connections are suitable. To check the compatability for different media, please call us

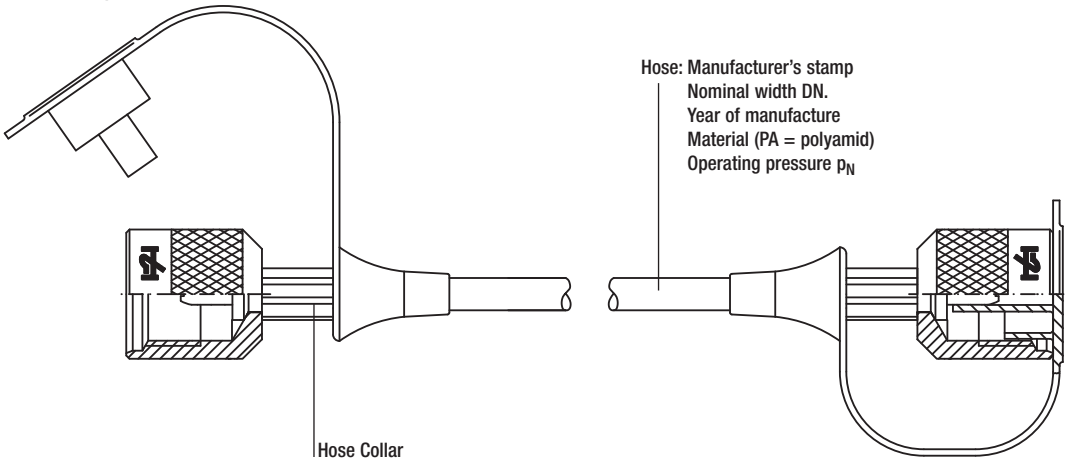
For more information and pricing requests please call (+31 (0) 594 696 131) or email: sales@eurotronbenelux.nl

Technical data

Fittings available with the following materials:

Free cutting steel 1.0718 galvanized and chromated, acid-resistant stainless steel 1.4571 (antimagnetic)

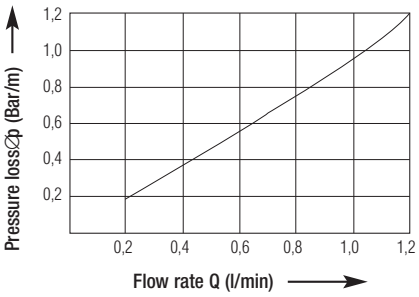
Hose assembly Identification



Safety note: The hose assemblies have to be protected from flames and sharp-edged, hot objects.

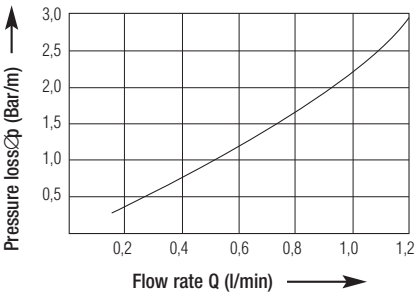
Pressure loss curve of DN 2 hose only

Pressure loss in Bar per metre of hose length without fittings,mineral oil: viscosity 30mm² s⁻¹



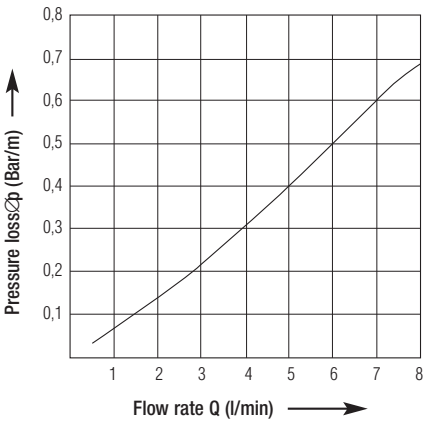
Pressure loss curve of DN 2 hose assemblies

Pressure loss in Bar through a hose assembly with a length of 1 m, with fittings and Test Points of series 1620 on both sides, mineral oil: viscosity 30mm² s⁻¹



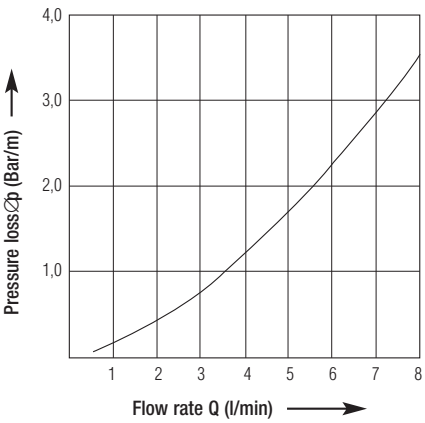
Pressure loss curve of DN 4 hoses

Pressure loss in Bar per metre of hose length without fittings, mineral oil: viscosity 30mm² s⁻¹



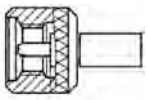
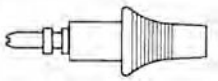
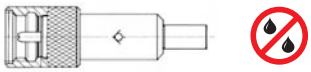
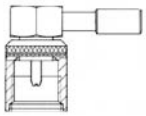
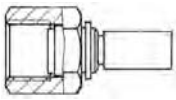
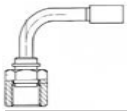
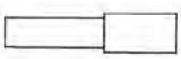
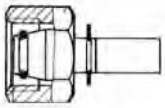
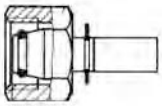
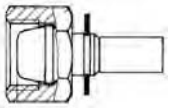
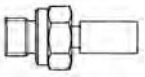
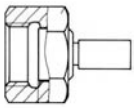
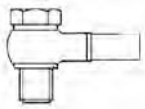
Pressure loss curve of DN 4 hose pipes

Pressure loss in Bar through a hose assembly with a length of 1m, with fittings and test points of series 1604 on both sides, mineral oil: viscosity 30mm2 s-1



We guarantee a very high quality level of our MINIMESS®-systems, as all components are manufactured very precisely and to tight tolerances. All parts in our MINIMESS®-system are easy and safe to use. We reserve the right to carry out technical modifications!

End fittings selection chart

Picture	Thread	Loose code	Hose code	DN2	DN4
	1215 test point	2119-02-00.00	AA	•	•
	1615 test point	2119-03-00.00	AB	•	•
	1620 test point	2119-04-00.00	AC	•	•
	1604 test point	2119-14-00.00	AD		•
	Steck plug-in test point	2119-21-00.00	AI	•	
	1215 leakproof	2119-02-04.00	AP	•	
	1615 leakproof	2119-03-04.00	AQ	•	
	1620 leakproof	2119-04-04.00	AR	•	
	1215 90 degree	2119-02-01.00	AJ	•	
	1615 90 degree	2119-03-01.00	AK	•	
	1620 90 degree	2119-04-01.00	AL	•	
	ISO228-G¼ gauge	5140-20-01.00	FA	•	•
	ISO228-G½ gauge	5140-20-02.00	FB	•	
	ISO228-G¼ gauge 90	5140-20-03.00	FC	•	
	ISO228-G½ gauge 90	5140-20-04.00	FD	•	
	4mm	5140-08-16.00	BA	•	
	6mm	5140-08-01.00	BB	•	•
	8mm	5140-08-11.00	BC	•	•
	¼"	5140-07-01.00	BD	•	
	DKO M12 x 1.5 (6L)	5140-06-03.00	CQ	•	•
	DKO M14 x 1.5 (8L)	5140-06-04.00	CR	•	•
	DKO M16 x 1.5 (10L)	5140-06-07.00	CS	•	•
	DKO M18 x 1.5 (12L)	5140-06-08.00	CT	•	•
	DKO M14 x 1.5 (6S)	5140-06-01.00	CU	•	•
	DKO M16 x 1.5 (8S)	5140-06-02.00	CV	•	•
	DKO M18 x 1.5 (10S)	5140-06-05.00	CW	•	•
	DKO M20 x 1.5 (12S)	5140-06-06.00	CX	•	•
	⅛ BSP 60 deg cone	5140-09-03.00	FF	•	
	¼ BSP 60 deg cone	5140-12-01.00	DI	•	
	ISO228-G⅛ male	5140-24-03.00	GA	•	
	7/16" UNF female	5140-09-09.00	MJ	•	
	9/16" UNF female	5140-27-01.00	BM	•	
	11/16" UNF female	5140-26-03.00	HC	•	
	To suit M10 x 1	5140-27-02.00	IB	•	

If you do not see the end fittings you require, please call us.

Hose assembly order chart

Make your own hoses for delivery next day from the ends shown to the left. Choose 400 or 630 bar hose, replace the XX end codes with the ones shown on the previous page. Lengths are designated in cm e.g 1300mm (130cm) code = 01.30

Hose ordering chart

X X X X XX - XX - XXXX

- Length (ie 01.00 = 100cm)
- Hose end code (see previous page)
- Hose end code (see previous page)
- 0 = Standard
  1 = Anti-buckle spring – left
  2 = Anti-buckle spring – right
  3 = Anti-buckle springs both ends
  4 = Protective aluminium cover sheath
- 0 = DN2(400bar)
  1 = DN2(630bar)
  5 = DN4(315bar)
  6 = DN4(420bar)
  For low temp DN2 option please call
- Hose end material
  1 = Standard (zinc plated steel DIN 1.0718)
  3 = Stainless steel (DIN 1.4104) *Please call for availability*
- S = Hose

DATA:	DN2	DN2	DN4	DN4
Operating pressure	400	630	315	420
Test pressure (bar)	630	930	490	675
Burst pressure (bar)	1040	1950	810	1500
Operating temperature	(-20C to +120C for brief periods)			
Available lengths	Any length ex-stock (up to 100 metres)			
Hose Structure				
Inner tube	Polyamide 11/12	Polyamide 11/12	" "	" "
Integral weave	Polyester yarn	Kevlar yarn	" "	" "
Outer tube	Polyamide 11/12	Polyamide 11/12	" "	" "

Ordering example

S113-AC-FA-00.63

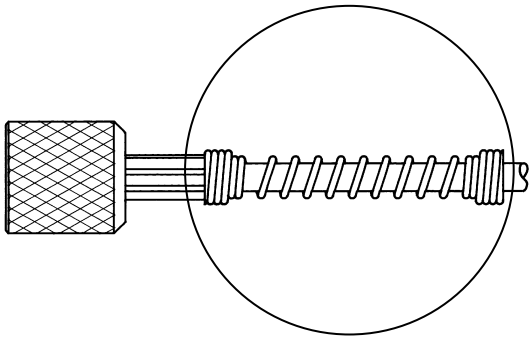
DN2 (630bar) hose assembly with 1620 female hose end to G¼" BSP female gauge hose end fitted with anti-buckle springs at each end, 630mm long.

We can assemble to any length and hose end configuration from stock

Accessories

Anti-buckle springs

Useful for preventing hoses kinking and protecting against tight radii.

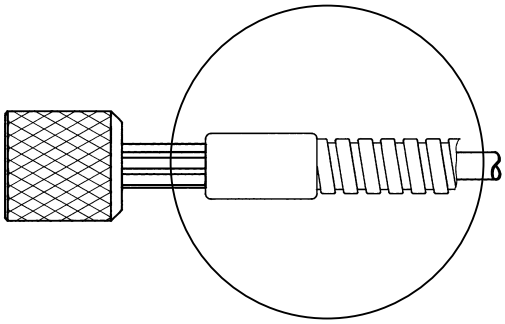


Hose options

Anti-buckle spring (see hose ordering chart on previous page)
Aluminium protective sleeve (see hose ordering chart on previous page)

Aluminium hose protection

Used along the entire length of a hose for protection against chafing



Stainless steel wire-braided Microbore hose

Hydrotechnik UK can now offer microbore hose with a stainless steel wire braid. With a large temperature range and rugged construction, this hose will stand up to the harshest of operating conditions. Suitable for most oils.

Specifications

Internal Dia	2mm
External Diameter	5mm
Max Working Pressure	450bar
Min Bend Radius	13mm
Temperature range	-70°C to +260°C (pressure dependant over 130°C)

Ordering Table

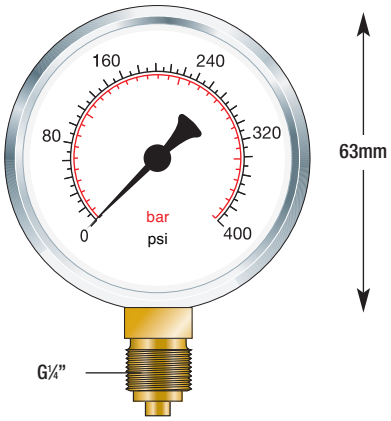
Part Number	*Length (mm)*
S190-XX-XX-00.20	200
S190-XX-XX-00.40	400
S190-XX-XX-00.63	630
S190-XX-XX-00.80	800
S190-XX-XX-01.00	1000
S190-XX-XX-01.50	1500
S190-XX-XX-02.00	2000
S190-XX-XX-02.50	2500
S190-XX-XX-03.00	3000
S190-XX-XX-04.00	4000
S190-XX-XX-05.00	5000

Replace XX with hose end code letters from page 20

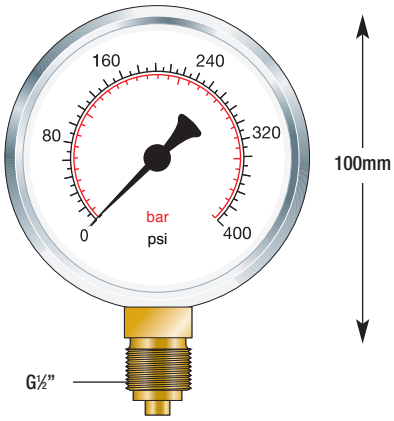
We can assemble to any length and hose end configuration from stock

Hydrotechnik supply and stock a large range of analogue pressure gauges. Manufactured in accordance with BS-EN837-1 specifications, all gauges are to ±1.6% accuracy. Stocked gauges are glycerine-filled as standard with stainless steel casing and brass connection/internals. Scaling is dual bar (in red – inner scale) and psi (in black – outer scale).

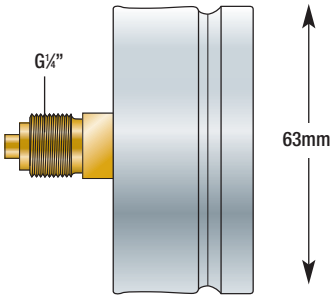
9801 series



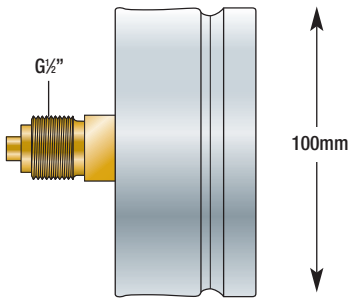
9803 series



9807 series



9808 series



Ordering example

9801-400-GC

Series
See illustrations above

9801
9803
9807
9808

Range code

code	*psi*	*bar*
60C	-15 to 60	-1 to 4
15	0 to 15	0 to 1
30	0 to 30	0 to 2
60	0 to 60	0 to 4
100	0 to 100	0 to 7
160	0 to 160	0 to 11
200	0 to 200	0 to 14
300	0 to 300	0 to 20
400	0 to 400	0 to 28
500	0 to 500	0 to 35
600	0 to 600	0 to 40
1000	0 to 1000	0 to 70
1500	0 to 1500	0 to 100
2000	0 to 2000	0 to 140
2500	0 to 2500	0 to 170
3000	0 to 3000	0 to 200
4000	0 to 4000	0 to 280
5000	0 to 5000	0 to 350
6000	0 to 6000	0 to 400
10000	0 to 10000	0 to 700

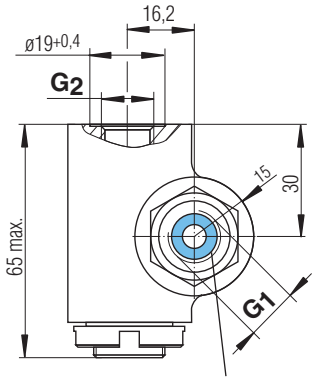
Accessories
If applicable

GC	Protective rubber gauge cuff for 9801 series only
FF	Front panel mounting three bolt fixing flange for 9807 and 9808 series only
RC	Rear fixing clamp for 9807and 9808 series only

Hydrotechnik also supply a full range of pressure gauges from **40mm to 150mm** and **all stainless steel gauges.** Please contact us for your requirements.

Pressure limiter valve

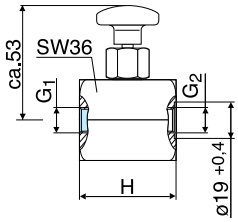
Used for protection of pressure gauges against overload



Pressure gauge connection
Working pressure max. 630 Bar

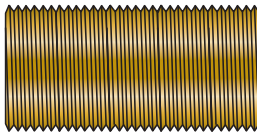
Adjustable pressure range *Bar*	Gauge connection *G1 according to DIN 16288*	Connection *G2 according to DIN 3852 Form X*	Part number
5 – 9	ISO 228-G ¼	ISO 228-G ¼	5110-01-20.00
1 – 25	ISO 228-G ¼	ISO 228-G ¼	5110-02-20.00
2.5 – 63	ISO 228-G ¼	ISO 228-G ¼	5110-03-20.00
63 – 100	ISO 228-G ¼	ISO 228-G ¼	5110-04-20.00
100 – 250	ISO 228-G ¼	ISO 228-G ¼	5110-05-20.00
250 – 600	ISO 228-G ¼	ISO 228-G ¼	5110-07-20.00
5 – 9	ISO 228-G ½	ISO 228-G ¼	5110-01-30.00
1 – 25	ISO 228-G ½	ISO 228-G ¼	5110-02-30.00
2.5 – 63	ISO 228-G ½	ISO 228-G ¼	5110-03-30.00
63 – 100	ISO 228-G ½	ISO 228-G ¼	5110-04-30.00
100 – 250	ISO 228-G ½	ISO 228-G ¼	5110-05-30.00
250 – 600	ISO 228-G ½	ISO 228-G ¼	5110-07-30.00

Restrictor valve



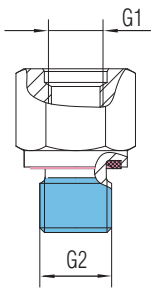
Thread *G1*	Thread *G2*	H *mm*	p max *Bar*	Description	Part number
ISO 228-G ¼	ISO 228-G ¼	53	630	Adjustable under pressure up to 150Bar in-line connection	5104-03-00.00
ISO 228-G ½	ISO 228-G ¼	58	630		5104-02-00.00

Damping cartridge (snubber)



Borehole: nozzle *ø*	Material	Application	Part number
0.5	2.0401	Choking element for dampening of fluidity vibrations	2100-24-01.00

Gauge thread reducing adaptor



Thread *G1*	Thread *G2*	Part number *Brass*
G ½"	G ⅜"	16GF-12GM
G ½"	G ¼"	16GF-08GM
G ⅜"	G ¼"	12GF-08GM

Other threaded adaptors available on request

Test kits made from a selection of items from the MINIMESS® 1620 series. Hydrotechnik sells standard BSP test kits with ¼", ⅜" and ½" adaptors, 2 gauges, microbore etc. **Alternatively, you can order a test kit to suit your application.** OEM enquiries are welcome for volume applications e.g. Service Engineers or as a recommended spare to purchase with a piece of equipment.

Low cost test kit:

- Ultra-competitively priced
- Ideal for OEM's
- Life time leak free guarantee
- Everything you need to get two pressure readings

Low cost test kit
Part number
3101-16-XX.LC

Replace XX with gauge codes on page 27

BSP Test Kit

- Still our most popular and best value kit
- In-line tees offer excellent versatility
- Break into the system quickly and simply with in-line tees

BSP test kit
Part number
3101-16-XX.50

Replace XX with gauge codes on page 27

For more information and pricing requests please call (+31 (0) 594 696 131) or email: sales@eurotronbenelux.nl

JCB style test kit

- Compatable with most JCB machines
- Connect and disconnect under full system pressure
- All the necessary in-line Tees, adaptors and fittings to get 2 x pressure readings from your JCB machine. (extra gauges on request)
- A must have kit for any Service Engineer working on JCB machinery

JCB Style test kit

Part number

3101-01-XX.JCB

Replace XX with gauge codes on page 27

Caterpillar style test kit

- Compatable with most Caterpillar machines
- Connect and disconnect under full system pressure
- All the necessary in-line tees, adaptors and fittings to get 2 x pressure readings from your Caterpillar machine. (extra gauges on request)
- A must have kit for any service engineer working on Caterpillar machinery

Caterpillar Style test kit

Part number

3101-20-XX.CAT

Replace XX with gauge codes on page 27

Universal test kit

- Will allow for pressure testing from any machine, no matter what style of test point is fitted
- Contains adaptors to 1215.1615.1620, HSP and Steck (Test10) formats
- Inter-changes with all competitor test point versions
- A must have for every mobile service engineer

Universal test kit
Part number
3101-16-XX.UTK

Replace XX with gauge codes below right

Oil sample kit

- Minimess Test points remain the best way to extract oil samples from the system
- Pre-paid sample bottle and report card supplied in kit
- All the necessary adaptors and hoses to take fluid samples provided
- Ask us about our Full Oil Analysis service

Oil sampling test kit
Part number
3101-16-00.OSK

See page 110 for more details on our fluid analysis service

Test kit	Order code
Low cost	3101 - 16 - XX.LC
BSP	3101 - 16 - XX.50
Universal	3101 - 16 - XX.UTK
JCB	3101 - 01 - XX.JCB
Caterpillar	3101 - 20 - XX.CAT

Replace X with:				
	0	= 0 – 10 bar	5	= 0 – 100 bar
	1	= 0 – 16 bar	6	= 0 – 160 bar
	2	= 0 – 25 bar	7	= 0 – 250 bar
	3	= 0 – 40 bar	8	= 0 – 400 bar
	4	= 0 – 60 bar	9	= 0 – 600 bar

The ideal low-cost solution to digital pressure testing. With display of pressure and pressure peaks, digital pressure gauges offer excellent accuracy and peak capture which a standard pressure gauge simply could not provide. Min/Maximum values displayed with each test.

- Great Accuracy
- Easy to read
- Rotate display
- Easy to use
- Peak min/max storage
- Low cost

Display:	7-segment LCD-display, 12.7mm high, 9,999 counts
Accuracy:	± 0.5% of F.S. Convertion rate: 5/sec
Measuring range:	0 to 60 bar or 0 to 600 bar
Overload limit:	60 bar = 2-fold, 600 bar = 1.1-fold
Pressure connection:	ISO 228-G ¼
Wetted parts:	Stainless steel 1.4571
Power supply	9 V monoblock battery, 5000 h
Protection type:	IP 65 accord. to EN 60529/IEC 529
Case:	Plastic
Weight:	0.4 kg

Digital pressure gauge

Pressure range *bar*	**Part number**
0–60	9801-99-00.60
0–250	9801-99-02.50
0–600	9801-99-06.00

Digital pressure gauge kits

Pressure range *bar*	**Part number**
0–60	3101-81-04.50
0–250	3101-81-07.50
0–600	3101-81-09.50

Kit contents
Digital gauge, case, microbore hose, six minimess test points of various sizes, transducer adaptor for test points.

For more information and pricing requests please call (+31 (0) 594 696 131) or email: sales@eurotronbenelux.nl