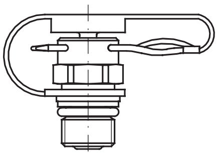
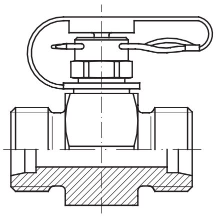
SensoControl®
Test Points
Diagnostic-
Test equipment
Industrial Products

Visual index

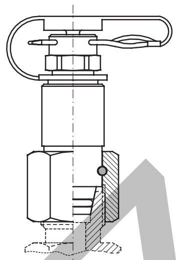
Series 1
Test point fitting with pin-lock



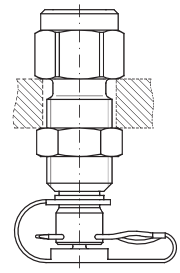
EMA1
p. Q4



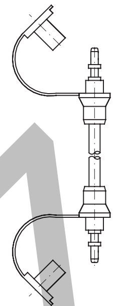
GMA1
p. Q5



VKA1
p. Q6

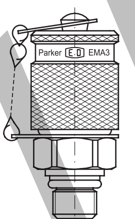


MAV … MA1
p. Q7

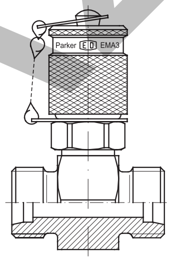


SMA1
p. Q7

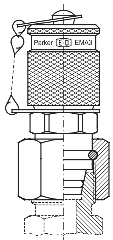
Series 3
Test point with threaded connection
M 16×2



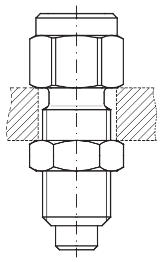
EMA3
p. Q8



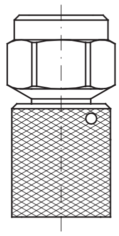
GMA3
p. Q9



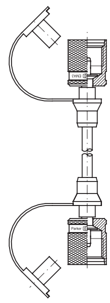
VKA3
p. Q10



MAV … MA3
p. Q11



MAVMD … MA3
p. Q11



SMA3
p. Q11

SensoControl®

Product range

Diagnostic/Industrial

p. Q12

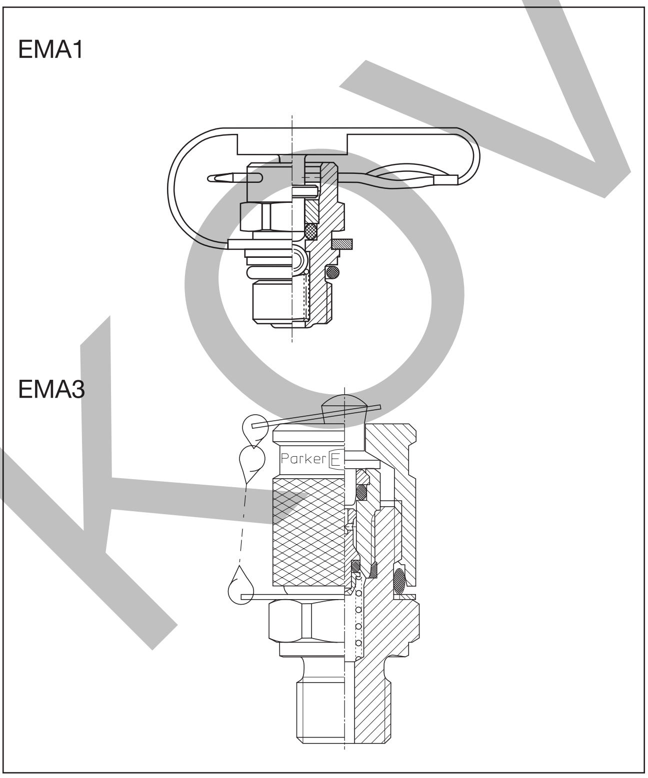
EMA1/EMA3-Test Point fitting

- For pressure monitoring and checking on high, low and negative pressure systems.
- For bleeding cylinders and hydraulic systems.
- For taking samples on high, low and negative pressure systems.

Advantages:
- Leakfree connection before valve is open
- Sturdy, safe constructions for small dimensions
- Easy handling
- Simple connection of measuring, control and switching devices
- Coupling under pressure up to 400 bar is possible with screw couplings
- Nominal pressures up to 630 bar
- Self locking metal guard cap, vibration resistant

Sealing system of the primary seal:
EMA1 by ball non-return valve.
EMA3 by cone seal with O-ring.
The new EMA3 sealing system guarantees minimum leakage rates.

The screw-on Cap (EMA3), and pin lock (EMA1) types both employ an O-ring seal as secondary sealing with the hose attached.



Differences between EMA1 and EMA3 types
a) sealing system (see previous section)
b) Test hose connection by plug-in coupling in EMA1
Test hose connection by threaded connection in EMA3
c) Working pressures (see section advantages)

Working pressure
- EMA3 types up to 630 bar
- EMA1 types up to 400 bar
- Max. working pressure 630 bar for GMA, VKA and EMA… the recommended working pressure of fitting manufacturer has to be applied
- Joining under pressure up to 400 bar max.
- The allowable nominal pressures of each Test-Point are shown on the product pages.

Materials and Temperatures:
- Steel
- Stainless Steel, material 1.4571
- Seals:
- FKM (Temperature range –20 to +200°C)
- EPDM Ethylene Propylene (for Break Fluid) (Temperature range –40 to +150°C)
- Internal seals are always FKM
- Hose:
Polyamide (Temperature range: –35°C … 100°C max.)
- Stainless Steel FKM only

Media:
- Suitable for hydraulic oils and other mineral oil based fluids (Please pay attention to the sealing materials used!)
- For use in conjunction with other liquid media please consult Parker

Standards
ISO15171-2

Perbunan = registered trademark of Bayer

EMA1 Test point fitting with pin-lock — Series 1

Male stud thread: BSP, metric

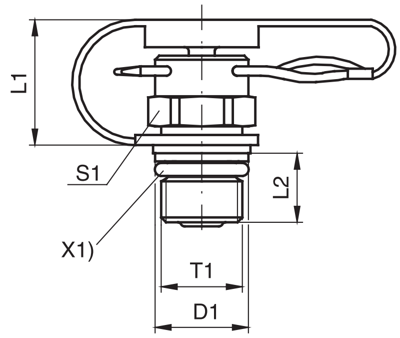


Fig. A

X1) O-ring
X2) Cutting face

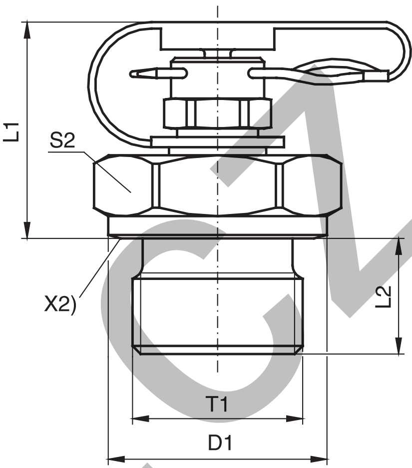


Fig. B

T1	D1	L1	L2	S1	S2	Fig.	Weight g/1 piece	Order code*	PN (bar)[1] CF	DF**
M 12×1.5	17.0	32.0	12.0		19	B	53	**EMA1/12X1.5**	400	4
M 14×1.5	19.0	32.0	12.0		19	B	56	**EMA1/14X1.5**	400	4
M 16×1.5	21.0	25.0	12.0		22	B	47	**EMA1/16X1.5**	400	4
G 1/8	14.0	32.5	8.0		17	B	41	**EMA1/1/8**	400	4
G 1/4	18.0	32.0	12.0		19	B	54	**EMA1/1/4**	400	4
G 3/8	22.0	27.5	12.0		22	B	55	**EMA1/3/8**	400	4
G 1/2	26.0	27.5	14.0		27	B	78	**EMA1/1/2**	400	4
M 08×1.0	9.5	17.5	8.4	12		A	16	**EMA1/8X1OR**	400	4
M 10×1.0	11.5	18.0	8.0	12		A	18	**EMA1/10X1OR**	400	4
M 10×1.0	14.0	32.5	8.0		17	B	42	**EMA1/10X1**	400	4

**DF = Design Factor

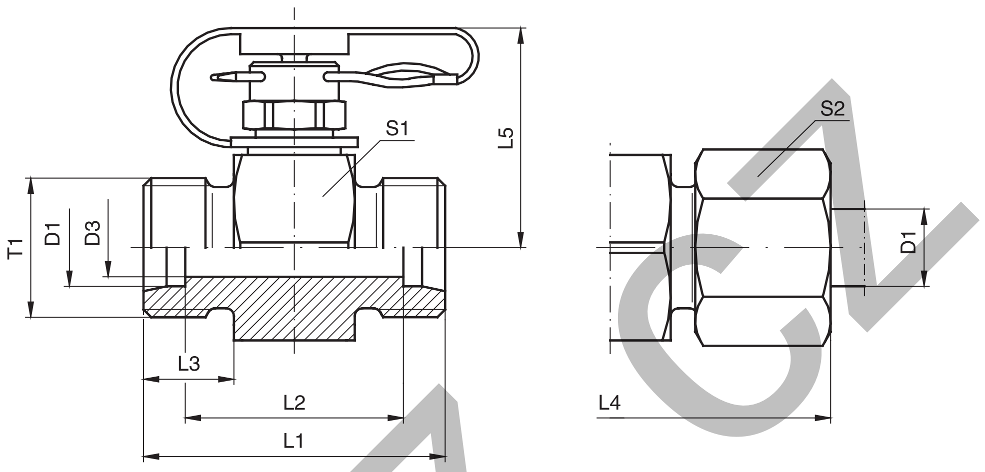
[1]) Pressure shown = item deliverable

$\frac{\text{PN (bar)}}{10} = \text{PN (MPa)}$

*Please add the **suffixes** below according to the material/surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	EMA1/12X1.5CF	NBR

GMA1 Straight test point fitting with pin-lock — Series 1



Series	D1	T1	D3	L1	L2	L3	L4	L5	S1	S2	Weight g/1 piece	Order code*	PN (bar)[1] CF	DF**
L[3])	06	M 12×1.5	4	35	21	10	51	29.0	24	14	73	**GMA1/06LOMD**	315	4
	08	M 14×1.5	6	35	21	10	51	29.0	24	17	75	**GMA1/08LOMD**	315	4
	10	M 16×1.5	7	37	23	11	53	29.0	24	19	80	**GMA1/10LOMD**	315	4
	12	M 18×1.5	8	37	23	11	53	30.5	24	22	96	**GMA1/12LOMD**	315	4
	15	M 22×1.5	11	39	25	12	55	32.0	30	27	121	**GMA1/15LOMD**	315	4
	18	M 26×1.5	14	39	24	12	57	33.0	32	32	139	**GMA1/18LOMD**	315	4
	22	M 30×2.0	18	43	28	14	61	35.0	36	36	171	**GMA1/22LOMD**	160	4
S[4])	06	M 14×1.5	4	39	25	12	55	29.0	24	17	82	**GMA1/06SOMD**	400	4
	08	M 16×1.5	5	39	25	12	55	29.0	24	19	88	**GMA1/08SOMD**	400	4
	10	M 18×1.5	7	39	24	12	57	29.0	24	22	90	**GMA1/10SOMD**	400	4
	12	M 20×1.5	7	39	24	12	57	29.0	24	24	96	**GMA1/12SOMD**	400	4
	14	M 22×1.5	10	43	27	14	63	30.5	27	27	121	**GMA1/14SOMD**	400	4
	16	M 24×1.5	11	43	26	14	63	32.0	30	30	138	**GMA1/16SOMD**	400	4
	20	M 30×2.0	15	47	26	16	69	35.0	36	36	222	**GMA1/20SOMD**	400	4

**DF = Design Factor

[1]) Pressure shown = item deliverable

[3]) L = light series; [4]) S = heavy series

$\frac{\text{PN (bar)}}{10} = \text{PN (MPa)}$

Delivery without nut and ring. Information on ordering complete fittings or alternative sealing materials see page I7.

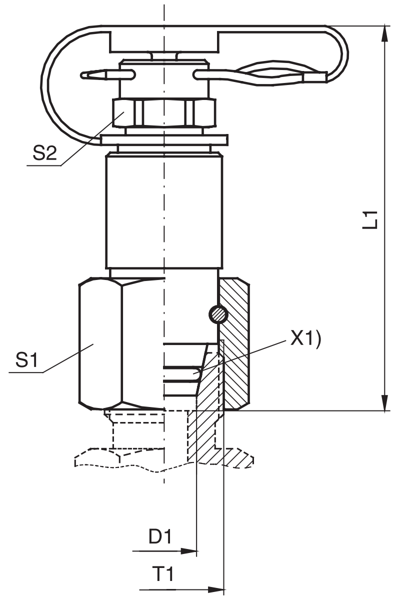
Q

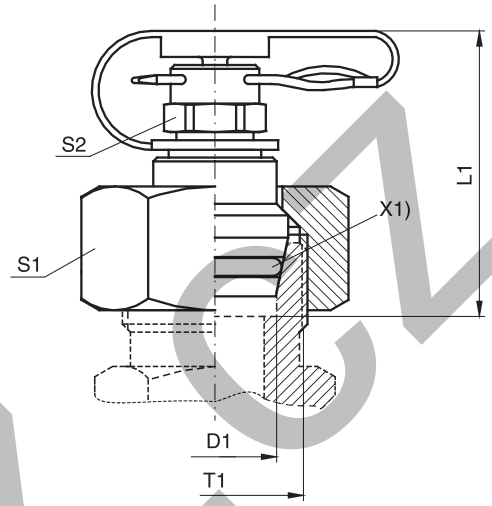
*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	GMA1/06LOMDCF	NBR

VKA1 Test point fitting with pin lock for cones — Series 1

With 24° cone swivel nut connection





X1) O-ring

Series	D1	T1	L1	S1	S2	Fig.	Weight g/1 piece	Order code*	PN (bar)1) CF	DF**
L[3])	06	M 12×1.5	48	14	12	A	44	**VKA1/06L**	315	4
	08	M 14×1.5	49	17	12	A	54	**VKA1/08L**	315	4
	10	M 16×1.5	50	19	12	A	68	**VKA1/10L**	315	4
	12	M 18×1.5	51	22	12	A	81	**VKA1/12L**	315	4
	15	M 22×1.5	39	27	12	B	82	**VKA1/15L**	315	4
	18	M 26×1.5	38	32	12	B	112	**VKA1/18L**	315	4
S[4])	06	M 14×1.5	48	17	12	A	51	**VKA1/06S**	400	4
	08	M 16×1.5	50	19	12	A	62	**VKA1/08S**	400	4
	10	M 18×1.5	50	22	12	A	78	**VKA1/10S**	400	4
	12	M 20×1.5	51	24	12	A	100	**VKA1/12S**	400	4
	14	M 22×1.5	39	27	12	B	88	**VKA1/14S**	400	4
	16	M 24×1.5	37	30	12	B	105	**VKA1/16S**	400	4
	20	M 30×2.0	44	36	12	B	174	**VKA1/20S**	400	4

**DF = Design Factor

[1]) Pressure shown = item deliverable

[3]) L = light series; [4]) S = heavy series

$\frac{\text{PN (bar)}}{10}$ = PN (MPa)

*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	VKA1/06LCF	NBR

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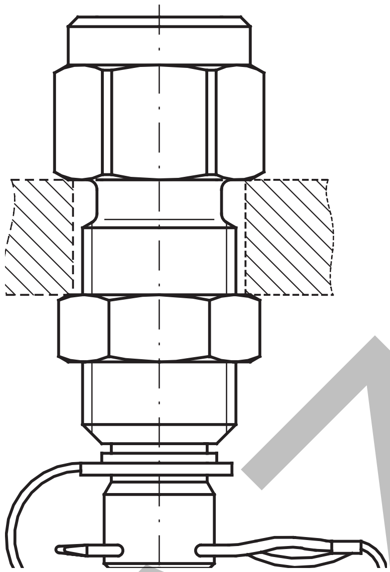
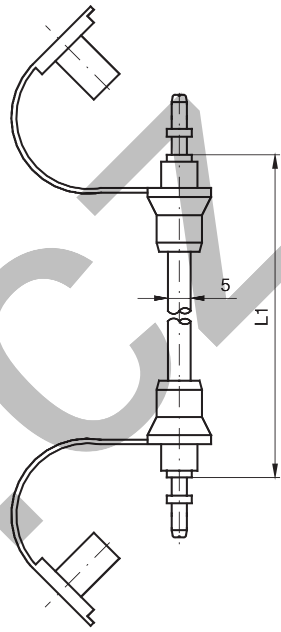
MAV-MA1 Test Point pressure gauge connector with pin-lock
SMA1 Test Point high pressure hose with pin-lock Series 1

Female thread: BSP
Sealing: sealing ring (DIN) EN 837-1



Pressure gauge connector: MAV-MA1



Test hose: SMA1

T1	L1	L2 max.	S1	S2	Weight g/1 piece	Order code*	PN (bar)1) CF	DF**
G 1/4	61.5	12	19	19	78	**MAV1/4MA1**	400	4.0
G 1/2	72.0	12	27	19	135	**MAV1/2MA1**	400	4.0
	400.0				21	**SMA1-400**	400	2.5
	630.0				26	**SMA1-630**	400	2.5
	800.0				26	**SMA1-800**	400	2.5
	1000.0				31	**SMA1-1000**	400	2.5
	1500.0				40	**SMA1-1500**	400	2.5
	2000.0				49	**SMA1-2000**	400	2.5
	2500.0				58	**SMA1-2500**	400	2.5
	3200.0				70	**SMA1-3200**	400	2.5
	4000.0				84	**SMA1-4000**	400	2.5

**DF = Design Factor

1) Pressure shown = item deliverable

$\frac{\text{PN (bar)}}{10}$ = PN (MPa)

*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	MAV1/4MA1CF	NBR

Note hoses with small diameter:
- Min. bending radius r = 20 mm
- Working temperature –20 °C up to 100 °C (short time to +120 °C)
- Hoses are to be protected from fire, from sharp-corners and hot objects.

For measuring with liquid pressure media please note:
Bleed before connecting tube! By capillary action discharge of the pressure medium is prevented widely.

Temperature factor of pressure rating:

up to	0 °C	122 %
for	30 °C	110 %
for	50 °C	100 %
for	80 °C	86 %
for	100 °C	77 %

Q

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EMA3 Test Point with threaded connection M 16×2 — Series 3

Male thread: BSP, metric

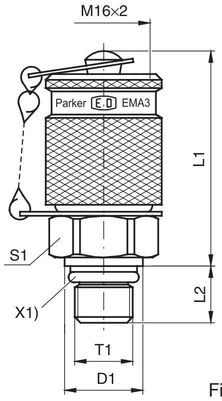


Fig. A

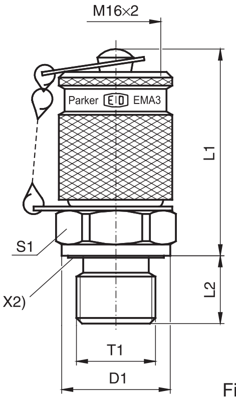


Fig. B

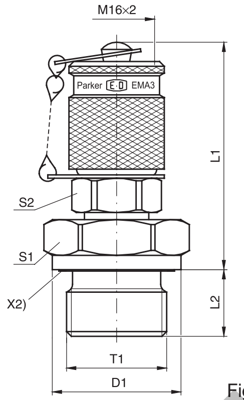
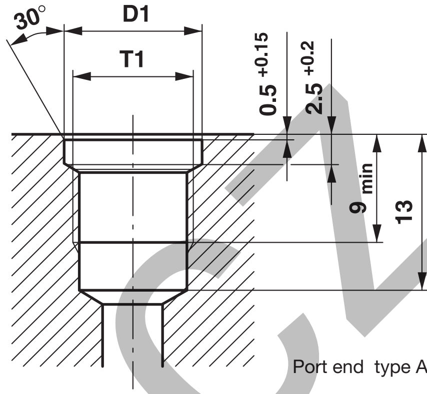
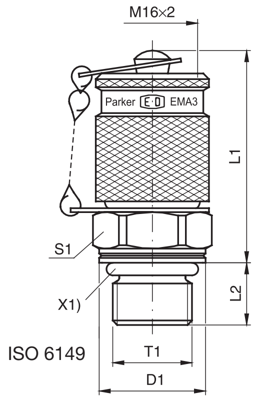


Fig. C



Port end type A



ISO 6149

Fig. F

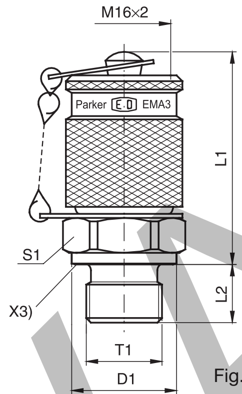


Fig. D

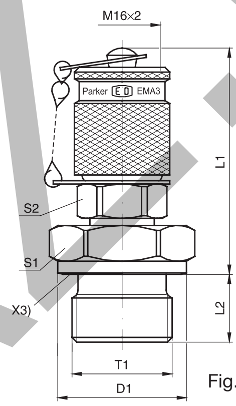


Fig. E

X1) O-ring
X2) Eolastic sealing
X3) Cutting face

T1	D1	L1	L2	S1	S2	Fig.	Weight g/1 piece	Order code*	PN (bar)[1] CF	PN (bar)[1] 71	DF** CF	DF** 71
M 08×1.0	9.5	38.5	7.5	17		A	66	**EMA3/8X1OR**	250		4.0	
M 10×1.0	11.5	37.0	7.5	17		A	70	**EMA3/10X1OR**	630	630	4.0	4
M 14×1.5	18.8	39.5	11.0	19		F	79	**EMA3/14X1.5ISO**	630	630	4.0	4
M 10×1.0	14.0	40.0	8.0	17		D	67	**EMA3/10X1**	400		4.0	
M 12×1.5	17.0	38.0	12.0	17		D	74	**EMA3/12X1.5**	400		4.0	
M 14×1.5	19.0	39.0	12.0	19		D	78	**EMA3/14X1.5**	400		4.0	
M 16×1.5	21.0	40.0	12.0	22		D	90	**EMA3/16X1.5**	400		4.0	
G 1/8	14.0	37.5	8.0	17		D	70	**EMA3/1/8**	400		4.0	
G 1/4	18.0	39.0	12.0	19		D	77	**EMA3/1/4**	400		4.0	
G 3/8	22.0	40.5	12.0	22		D	91	**EMA3/3/8**	400		4.0	
G 1/2	26.0	46.0	14.0	27	17	E	137	**EMA3/1/2**	400		3.4	
G 1/8	14.0	37.5	8.0	17		B	72	**EMA3/1/8ED**	400	400	4.0	4
G 1/4	19.0	39.0	12.0	19		B	76	**EMA3/1/4ED**	630	630	4.0	4
G 3/8	22.0	40.5	12.0	22		B	93	**EMA3/3/8ED**	630	630	4.0	4
M 10×1.0	14.0	40.0	8.0	17		B	71	**EMA3/10X1ED**	400	400	4.0	4
M 12×1.5	17.0	38.0	12.0	17		B	72	**EMA3/12X1.5ED**	630	630	4.0	4
M 14×1.5	19.0	39.0	12.0	19		B	77	**EMA3/14X1.5ED**	400	400	4.0	4
G 1/2	27.0	46.0	14.0	27	17	C	135	**EMA3/1/2ED**	400	400	4.0	4

**DF = Design Factor

[1]) Pressure shown = item deliverable

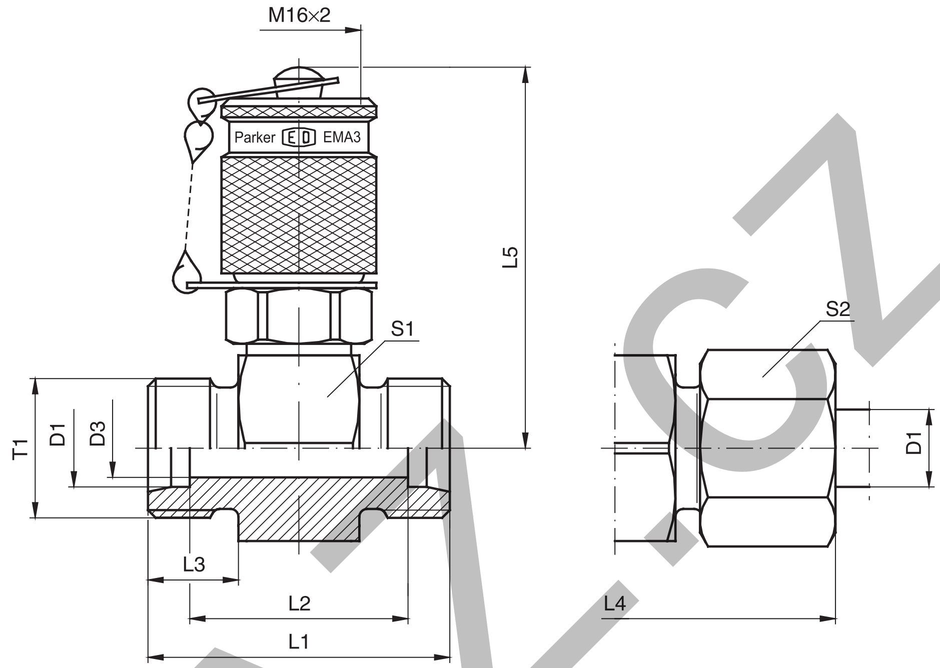
$$\frac{\text{PN (bar)}}{10} = \text{PN (MPa)}$$

*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	EMA3/10X10ORCF	NBR
Stainless Steel	71	EMA3/10X10OR71	VIT
Stainless Steel	316L	EMA3/1/4ED316L	NBR

Parker

GMA3 Straight Test Point with threaded connection M 16×2 — Series 3



Series	D1	T1	D3	L1	L2	L3	L4	L5	S1	S2	Weight g/1 piece	Order code*	PN (bar)[1] CF	PN (bar)[1] 71	DF** CF	DF** 71
L[3])	06	M 12×1.5	4	35	21	10	51	49.0	24	14	126	**GMA3/06LOMD**	315	315	4	4
	08	M 14×1.5	6	35	21	10	51	49.0	24	17	128	**GMA3/08LOMD**	315	315	4	4
	10	M 16×1.5	7	37	23	11	53	49.0	24	19	132	**GMA3/10LOMD**	315	315	4	4
	12	M 18×1.5	8	37	23	11	53	50.5	27	22	145	**GMA3/12LOMD**	315	315	4	4
	15	M 22×1.5	11	39	25	12	55	52.0	30	27	174	**GMA3/15LOMD**	315	315	4	4
	18	M 26×1.5	14	39	24	12	57	53.0	32	32	192	**GMA3/18LOMD**	315	315	4	4
	22	M 30×2.0	18	43	28	14	61	55.0	36	36	220	**GMA3/22LOMD**	160	160	4	4
	28	M 36×2.0	23	43	28	14	61	57.5	41	41	259	**GMA3/28LOMD**	160	160	4	4
	35	M 45×2.0	30	47	26	16	69	60.0	46	50	363	**GMA3/35LOMD**	160	160	4	4
	42	M 52×2.0	36	47	25	16	71	64.5	55	60	419	**GMA3/42LOMD**	160	160	4	4
S[4])	06	M 14×1.5	4	39	25	12	55	49.0	24	17	137	**GMA3/06SOMD**	630	630	4	4
	08	M 16×1.5	5	39	25	12	55	49.0	24	19	141	**GMA3/08SOMD**	630	630	4	4
	10	M 18×1.5	7	39	24	12	57	49.0	24	22	141	**GMA3/10SOMD**	630	630	4	4
	12	M 20×1.5	7	39	24	12	57	49.0	24	24	150	**GMA3/12SOMD**	630	630	4	4
	14	M 22×1.5	10	43	27	14	63	50.5	27	27	172	**GMA3/14SOMD**	630	630	4	4
	16	M 24×1.5	11	43	26	14	63	52.0	30	30	195	**GMA3/16SOMD**	400	400	4	4
	20	M 30×2.0	15	47	26	16	69	55.0	36	36	254	**GMA3/20SOMD**	400	400	4	4
	25	M 36×2.0	20	51	27	18	75	57.5	41	46	329	**GMA3/25SOMD**	400	400	4	4
	30	M 42×2.0	25	55	28	20	81	60.0	46	50	412	**GMA3/30SOMD**	400	400	4	4
	38	M 52×2.0	32	61	29	22	91	64.5	55	60	616	**GMA3/38SOMD**	315	315	4	4

**DF = Design Factor

[1]) Pressure shown = item deliverable

[3]) L = light series; [4]) S = heavy series

$\frac{\text{PN (bar)}}{10} = \text{PN (MPa)}$

Delivery without nut and ring.
Information on ordering complete fittings or alternative sealing materials see page I7.

*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	GMA3/06LOMDCF	NBR
Stainless Steel	71	GMA3/06LOMD71	VIT

VKA3 Test Point for cones with threaded connection M 16×2 Series 3

With 24° cone swivel nut connection

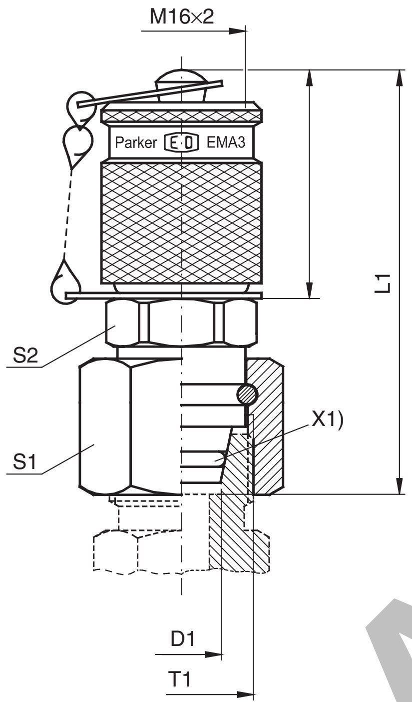


Fig. A

X1) O-ring

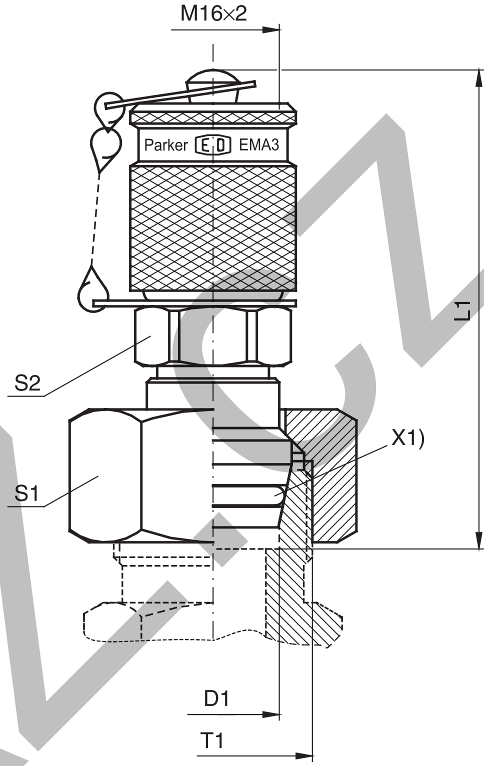


Fig. B

Series	D1	T1	L1	S1	S2	Fig.	Weight g/1 piece	Order code*	PN (bar)[1] CF	PN (bar)[1] 71	DF** CF	DF** 71
L[3])	06	M 12×1.5	55	14	17	A	82	**VKA3/06L**	315	315	4	4
	08	M 14×1.5	51	17	17	A	82	**VKA3/08L**	315	315	4	4
	10	M 16×1.5	53	19	17	A	93	**VKA3/10L**	315	315	4	4
	12	M 18×1.5	53	22	17	A	107	**VKA3/12L**	315	315	4	4
	15	M 22×1.5	59	27	17	B	133	**VKA3/15L**	315	315	4	4
	18	M 26×1.5	59	32	17	B	163	**VKA3/18L**	315	315	4	4
	22	M 30×2.0	60	36	17	B	205	**VKA3/22L**	160	160	4	4
	28	M 36×2.0	64	41	17	B	269	**VKA3/28L**	160	160	4	4
	35	M 45×2.0	71	50	17	B	411	**VKA3/35L**	160	160	4	4
	42	M 52×2.0	72	60	17	B	592	**VKA3/42L**	160	160	4	4
S[4])	06	M 14×1.5	50	17	17	A	81	**VKA3/06S**	630	630	4	4
	08	M 16×1.5	52	19	17	A	88	**VKA3/08S**	630	630	4	4
	10	M 18×1.5	53	22	17	A	99	**VKA3/10S**	630	630	4	4
	12	M 20×1.5	54	24	19	A	121	**VKA3/12S**	630	630	4	4
	14	M 22×1.5	59	27	17	B	136	**VKA3/14S**	630	630	4	4
	16	M 24×1.5	58	30	17	B	156	**VKA3/16S**	400	400	4	4
	20	M 30×2.0	65	36	17	B	223	**VKA3/20S**	400	400	4	4
	25	M 36×2.0	68	46	17	B	367	**VKA3/25S**	400	400	4	4
	30	M 42×2.0	74	50	17	B	444	**VKA3/30S**	400	400	4	4
	38	M 52×2.0	81	60	17	B	655	**VKA3/38S**	315	315	4	4

**DF = Design Factor

[1]) Pressure shown = item deliverable

[3]) L = light series; [4]) S = heavy series

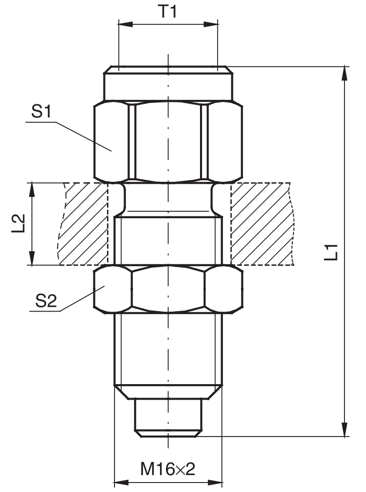
$\frac{\text{PN (bar)}}{10}$ = PN (MPa)

*Please add the **suffixes** below according to the material/ surface required.

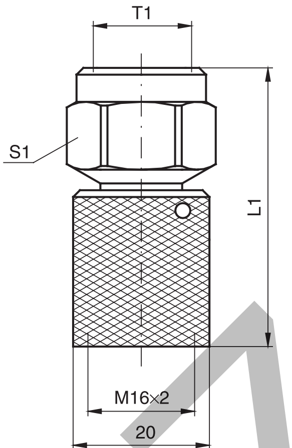
Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	VKA3/06LCF	NBR
Stainless Steel	71	VKA3/06L71	VIT

MAV…MA3 Test point pressure gauge connector with threaded connection M 16×2
MAVMD…MA3 Test point with threaded connection M 16×2
SMA3 Test point high pressure hose with threaded connection M 16×2 Series 3

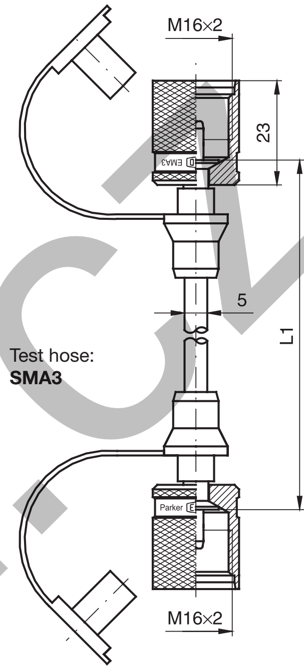
Female thread: BSP
Sealing: sealing ring (DIN) EN 837-1*



Pressure gauge connector:
MAV…MA3



Gauge-Direct-Connector:
MAVMD…MA3



Test hose:
SMA3

T1	L1	L2 max.	S1	S2	Weight g/1 piece	Order code*	PN (bar)1) CF	DF**
G 1/4	54.0	12	19	19	74	**MAV1/4MA3**	630	4.0
G 1/2	64.0	12	27	19	129	**MAV1/2MA3**	630	4.0
G 1/4	49.0		19		61	**MAVMD1/4MA3**	630	4.0
G 1/2	51.5		27		103	**MAVMD1/2MA3**	630	4.0
	200.0				73	**SMA3-200**	630	2.5
	300.0				74	**SMA3-300**	630	2.5
	400.0				74	**SMA3-400**	630	2.5
	630.0				79	**SMA3-630**	630	2.5
	800.0				83	**SMA3-800**	630	2.5
	1000.0				87	**SMA3-1000**	630	2.5
	1500.0				95	**SMA3-1500**	630	2.5
	2000.0				105	**SMA3-2000**	630	2.5
	2500.0				110	**SMA3-2500**	630	2.5
	3200.0				125	**SMA3-3200**	630	2.5
	4000.0				137	**SMA3-4000**	630	2.5

**DF = Design Factor

1) Pressure shown = item deliverable

$\frac{\text{PN (bar)}}{10}$ = PN (MPa)

*Please add the **suffixes** below according to the material/ surface required.

Order code suffixes			
Material	Suffix surface and material	Example	Standard sealing material (no additonal. suffix needed)
Steel	CF	MAV1/4MA3CF	NBR

*Sealing rings according to (DIN) EN 837-1 for steel design of copper, for stainless steel design of stainless steel.

Note hoses with small diameter:
- Min. bending radius r = 20 mm
- Working temperature –20 °C up to 100 °C (short time to +120 °C)
- Hoses are to be protected from fire, from sharp-corners and hot objects.

For measuring with liquid pressure media please note:
Bleed before connecting tube! By capillary action discharge of the pressure medium is prevented widely.

Temperature factor of pressure rating:

up to	0 °C	122 %
for	30 °C	110 %
for	50 °C	100 %
for	80 °C	86 %
for	100 °C	77 %