Test Points MCS™

The norm UNI EN 982 dated July 1997 about "Safety requirements for fluid power" applying to hydraulic systems contains at point 6 a chapter concerning how to check in respect of these requirements as well as of the safety measures.

In order to make pressure tests easier, it is necessary to install the "TEST POINTS" (also called check couplings) onto the hydraulic system. The MCS test points range represents a simple and inexpensive means to check pressure in hydraulic systems; they replace permanently mounted pressure gauges and shut-off valves, therefore reducing both initial and replacement costs due to gauges broken by system problems or to external causes. A further advantage given by MCS test points is to enable you to check pressure while the hydraulic system is working by means of precision gauges or electronic devices. Test points can be also used for obtaining hydraulic fluid samples from various points of the system while it is working as well as to bleed air in an easy and safe way. Test points, like all the hydraulic components, must meet an ISO specification.

In September 1998 the ISO/DIN 15171-2 norm was issued; it specifies the characteristics a test point M 16x2 must have for contact under pressure. The most important features given in the above mentioned norm are:
- Max. working pressure: 63mPa (630 bar)
- Min. burst pressure: 252 mPa (2520 bar)
- Impulse tests according to the norm ISO 8434-5

In order to meet the values indicated in the ISO/DIS 15171-2 norm, the test point must be conceived respecting an appropriate mechanical dimensioning:
In Fig. 1 and Fig. 2 constructive differences are pointed out between a standard and an MCS test point; they show that the standard test point construction (Fig. 1) having an M8x1 thread and a ball with Ø 4mm cannot guarantee the requirements given in the ISO norm from a mechanical point of view, because it can bear a burst pressure equal to 150 mPa (1500 bar). If this value is exceeded:

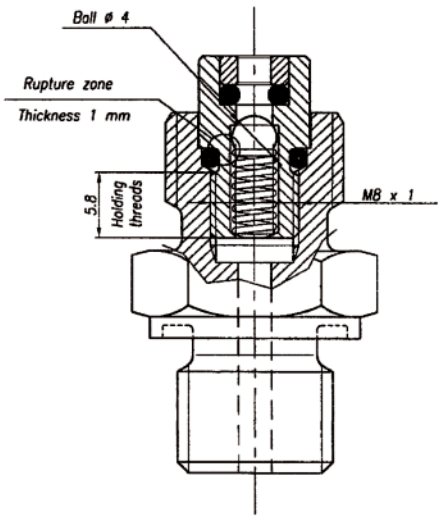
- the valve M 8x1 is thrown out because of the threads rupture:
- the valve breaks in the O-ring sealing zone because 1 mm thickness is too little.

MCS has been producing the test point mechanical construction shown in Fig. 2 for several years. It is evident that 2,5 mm thickness in the critical zone, an M 10x1 thread and an appropriate number of holding threads guarantee the respect of the requirements given in the ISO 15171-2 norm.

Burst pressure tests have successfully exceeded the norm values. The impulse test ISO 8434-5 has been stopped after one million cycles without any ruptures.

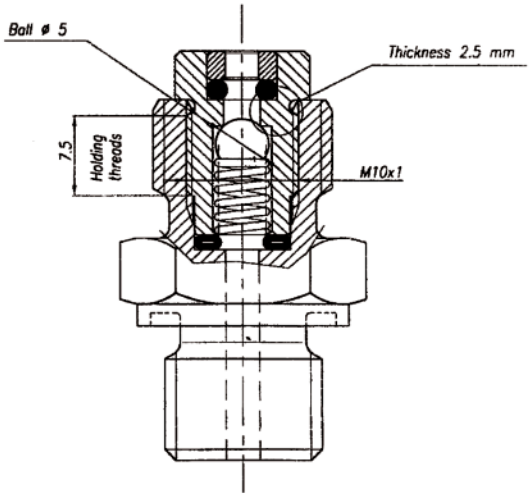
The care in the construction of the Ø 5 ball sealing zone, the selection of the suppliers, the accurate control of the components according to the ISO 9002 procedures which have been in force at MCS since December 1995 and the most advanced mounting and 100% testing technologies enable our customers to work with our MCS test points in total safety.

Standard test point



BURST PRESSURE = 1500 bar

"MCS" Test point



BURST PRESSURE = 2520 bar

Pressure Test Kits

Contains:
N.1 Plastic box > KP1
N.2 Glycerine-filled pressure gauges > D.63
N.1 Micro-hose > 6400-10.162-50.204-2000mm

750.KP1 (+ scale)

Order Code
750.KP1 + indicate the scale of the gauge.
Available Scales
0-6, 0-10, 0-25, 0-40, 0-60, 0-100, 0-160, 0-250, 0-400, 0-600
Dimensions
240 x 200 x 240mm

Contains:
N.1 Plastic box > KP2
N.2 Glycerine-filled pressure gauges > D.63
N.2 Test points > 620.01.204.21 1/4"
N.1 Micro-hose > 6400-10.162-10.162-2000mm
N.2 Pressure gauges connections > 620.08.204.00 1/4" BSP
N.1 Pressure gauge adaptor > 620.09.204.00 1/4" BSP
N.1 Reducer > 630.01.206.10 3/8" M8x1
N.1 Reducer > 630.01.208.20 1/2" M10x1
N.1 Test point > 620.01.008.01 M8x1
N.1 Test point > 620.01.010.01 M10x1

750.KP2 (+ scale)

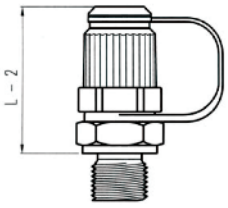
Order Code
750.KP2 + indicate the scale of the gauge.
Available Scales
0-6, 0-10, 0-25, 0-40, 0-60, 0-100, 0-160, 0-250, 0-400, 0-600
Dimensions
390 x 260 x 80mm

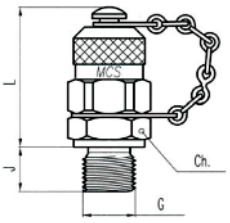
Test Points - Series 620

Application: Threaded Test Points (check coupling) according to ISO 15172-2 08/2000.
Working pressure 630 BAR Max. Burst pressure 2520 BAR
Fluids, hydraulic and mineral based oils (other media on request)
Temperature with steel cap - BUNA N seals -30°C to +120°C VITON seals -20°C to +200°C
Temperature with plastic cap -20°C to +100°C

Threaded Test Points (check coupling)
Available with five thread forms details of which are on the opposite page.

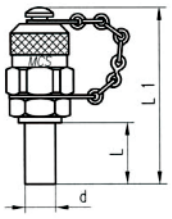
Thread	Sealing Type	BAR	L mm	Ch.mm	Part Number With Plastic Cap	Part Number With Metal Cap
M 10 x 1	**Form A**	**400**	**38**	**17**	**620.01.010.50**	**620.01.010.51**
ISO228 1/4	**Form A**	**400**	**38**	**19**	**620.01.204.50**	**620.01.204.51**
M 12 x 1.5	**Form B**	**400**	**38**	**17**	**620.01.012.10**	**620.01.012.11**
ISO228 1/8	**Form B**	**400**	**38**	**17**	**620.01.202.10**	**620.01.202.11**
ISO228 1/4	**Form B**	**400**	**38**	**19**	**620.01.204.10**	**620.01.204.11**
UNI 7707 M10 X 1	**Form C**	**400**	**38**	**17**	**620.01.010.30**	**620.01.010.31**
ISO 7/1 R 1/8	**Form C**	**400**	**36**	**17**	**620.01.202.30**	**620.01.202.31**
ISO 7/1 R 1/4	**Form C**	**630**	**36**	**17**	**620.01.204.30**	**620.01.204.31**
ISO 7/1 R 3/8	**Form C**	**630**	**36**	**22**	**620.01.206.30**	**620.01.206.31**
1/8" - 27 NPTF	**Form C**	**400**	**36**	**17**	**620.01.302.30**	**620.01.302.31**
1/4" - 18 NPTF	**Form C**	**630**	**36**	**17**	**620.01.304.30**	**620.01.304.31**
3/8" - 18 NPTF	**Form C**	**630**	**36**	**22**	**620.01.306.30**	**620.01.306.31**
M 10 x 1	**Form E**	**400**	**38**	**17**	**620.01.010.20**	**620.01.010.21**
M 12 x 1.5	**Form E**	**630**	**38**	**17**	**620.01.012.20**	**620.01.012.21**
M 14 x 1.5	**Form E**	**630**	**38**	**19**	**620.01.014.20**	**620.01.014.21**
M 16 x 1.5	**Form E**	**630**	**38**	**22**	**620.01.016.20**	**620.01.016.21**
ISO228 1/8	**Form E**	**400**	**38**	**17**	**620.01.202.20**	**620.01.202.21**
ISO228 1/4	**Form E**	**630**	**38**	**19**	**620.01.204.20**	**620.01.204.21**
ISO228 3/8	**Form E**	**630**	**38**	**22**	**620.01.206.20**	**620.01.206.21**
M8 x 1	**Form F**	**250**	**38**	**17**	**620.01.008.00**	**620.01.008.01**
M10 x 1	**Form F**	**630**	**38**	**17**	**620.01.010.00**	**620.01.010.01**
M14 x 1.5	**Form F**	**630**	**38**	**19**	**620.01.014.00**	**620.01.014.01**
7/16" - 20 UNF	**Form F**	**630**	**38**	**17**	**620.01.404.00**	**620.01.404.01**
1/2" - 20 UNF	**Form F**	**630**	**38**	**17**	**620.01.405.00**	**620.01.405.01**
9/16" - 18 UNF	**Form F**	**630**	**38**	**19**	**620.01.406.00**	**620.01.406.01**
3/4" - 16 UNF	**Form F**	**630**	**38**	**22**	**620.01.408.00**	**620.01.408.01**
JIS 2531 1/4	**Form F**	**630**	**38**	**19**	**620.01.204.00**	**620.01.204.01**
ISO228 1/4	**BS 5200**	**630**	**38**	**19**	**620.01.204.80**	**620.01.204.81**





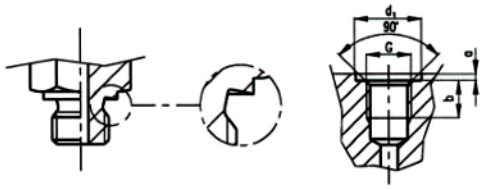
Test Point (check coupling) with stand pipe

	d mm	BAR	L mm	L1 mm	Part Number With Plastic Cap	Part Number With Metal Cap
	6	**630**	**20**	**57**	**620.03.006.50**	**620.03.006.51**
	8	**630**	**20**	**57**	**620.03.008.50**	**620.03.008.51**
	10	**630**	**20**	**57**	**620.03.010.50**	**620.03.010.51**
	12	**630**	**26**	**60**	**620.03.012.50**	**620.03.012.51**



Test Point Thread Forms - according to DIN, ISO, ANSI, BS and JIS

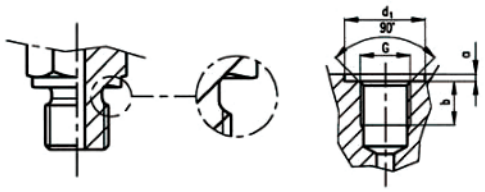
Form A
Sealing by metal ring



Form X
DIN 3852-1/2

G	a	b	d1	Nm
M10x1	1	8	20	-
ISO 228 G1/4"	1,5	12	25	-

Form B
Mechanical sealing



Form X DIN 3852-2 ISO 1179-1 ISO 9974-1

G	a	b	d1	Nm
M12x1,5	1,5	12	18	40
ISO 228 G1/8"	1	8	15,2	25
ISO 228 G1/4"	1,5	12	20	60

Form C
Sealing by thread

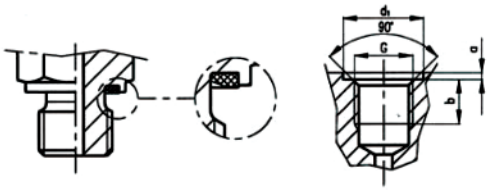
Form Z
DIN 3852-1/2

G	b	t
ISO 7/1 - R1/8"	5,5	9,5
ISO 7/1 - R1/4"	8,5	13,5
ISO 7/1 - R3/8"	8,5	13,5
M10x1	5,5	10,0

ANSI/ASME B 1.20.1

G	b	t
1/8" - 27 NPTF	-	11,6
1/4" - 18 NPTF	-	16,4
3/8" - 18 NPTF	-	17,4

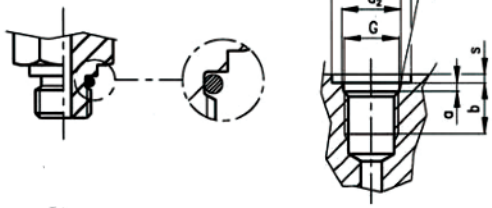
Form E
Sealing by fitting ring



Form X DIN 3852-2 ISO 1179-1 ISO 9974-1

G	a	b	d1	Nm
M10x1	1	8	15	20
M12x1,5	1,5	12	18	40
M14x1,5	1,5	12	20	55
M16x1,5	1,5	12	23	70
ISO 228 G1/8"	1	8	15,2	20
ISO 228 G1/4"	1,5	12	20	55
ISO 228 G3/8"	2	12	23	80

Form F
Sealing by O-ring



ISO 6149-1

G	a	b	d1	d2	s	z	Nm
M8x1	1,6	10	14	9,1	1	12°	10
M10x1	1,6	10	16	11,1	1	12°	20
M14x1,5	2,4	11,5	21	15,8	1,5	15°	45

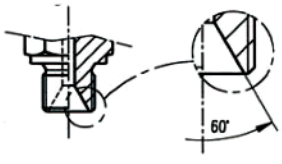
ISO 11926-1

7/16"-20 UNF	2,4	11,5	21	12,4	1,6	12°	20
1/2"-20 UNF	2,4	11,5	23	14	1,6	12°	25
9/16"-18 UNF	2,5	12,7	25	15,7	1,6	12°	35
3/4"-16 UNF	2,5	14,3	30	20,6	2,4	15°	70

JIS 2351

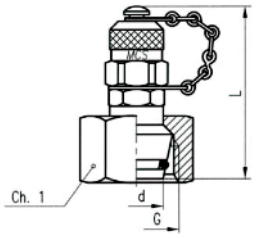
G 1/4"	2,5	12	/	15,6	/	15°	45

BS 5200
Mechanical sealing



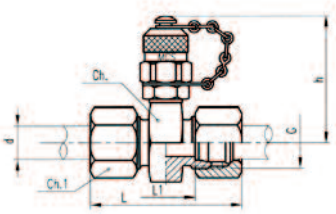
Test Points

Test Point (check coupling) with 24° sealing cone according to DN 3865



Check Coupling with 24° sealing cone					Part Number	Part Number
Thread	d mm	BAR	L mm	Ch.1 mm	With Plastic Cap	With Metal Cap
M 12 x 1.5	L 6	315	65	14	620.02.006.60	620.02.006.61
M 14 x 1.5	L 8	315	66.5	17	620.02.008.60	620.02.008.61
M 16 x 1.5	L 10	315	67	19	620.02.010.60	620.02.010.61
M 18 x 1.5	L 12	315	58	22	620.02.012.60	620.02.012.61
M 22 x 1.5	L 15	315	60	27	620.02.015.60	620.02.015.61
M 26 x 1.5	L 18	315	61	32	620.02.018.60	620.02.018.61
M 30 x 2	L 22	160	59.5	36	620.02.022.60	620.02.022.61
M 36 x 2	L 28	160	66	41	620.02.028.60	620.02.028.61
M 45 x 2	L 35	160	71.5	50	620.02.035.60	620.02.035.61
M 52 x 2	L 42	160	74.5	60	620.02.042.60	620.02.042.61
M 14 x 1.5	S 6	630	65	17	620.02.106.60	620.02.106.61
M 16 x 1.5	S 8	630	66.5	19	620.02.108.60	620.02.108.61
M 18 x 1.5	S 10	630	67	22	620.02.110.60	620.02.110.61
M 20 x 1.5	S 12	630	58	24	620.02.112.60	620.02.112.61
M 22 x 1.5	S 14	630	58.5	27	620.02.114.60	620.02.114.61
M 24 x 1.5	S 16	400	61.5	30	620.02.116.60	620.02.116.61
M 30 x 2	S 20	400	60.5	36	620.02.120.60	620.02.120.61
M 36 x 2	S 25	400	65.5	46	620.02.125.60	620.02.125.61
M 42 x 2	S 30	400	67.5	50	620.02.130.60	620.02.130.61
M 52 x 2	S 38	315	69.5	60	620.02.138.60	620.02.138.61

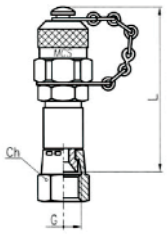
Test Point (check coupling)with straight tube connections, to DN 2353 L (light) or S (Heavy)



			L	L 1	Ch.	Ch.1	h	Part Number	Part Number
Thread	d mm	BAR	mm	mm	mm	mm	mm	With Plastic Cap	With Metal Cap
M 12 x 1.5	L 6	315	54	20	19	14	45.5	620.04.006.50	620.04.006.51
M 14 x 1.5	L 8	315	54	20	24	17	49	620.04.008.50	620.04.008.51
M 16 x 1.5	L 10	315	59	22	22	19	48	620.04.010.50	620.04.010.51
M 18 x 1.5	L 12	315	59	22	24	22	49	620.04.012.50	620.04.012.51
M 22 x 1.5	L 15	315	64	25	27	27	50.5	620.04.015.50	620.04.015.51
M 26 x 1.5	L 18	315	64	25	30	32	62	620.04.018.50	620.04.018.51
M 30 x 2	L 22	160	71	25	32	36	53	620.04.022.50	620.04.022.51
M 36 x 2	L 28	160	69	26	41	41	57.5	620.04.028.50	620.04.028.51
M 45 x 2	L 35	160	80	25	50	50	60	620.04.035.50	620.04.035.51
M 52 x 2	L 42	160	80	27	60	60	64.5	620.04.042.50	620.04.042.51
M 14 x 1.5	S 6	630	58	24	19	17	46.5	620.04.106.50	620.04.106.51
M 16 x 1.5	S 8	630	59	24	22	19	48	620.04.108.50	620.04.108.51
M 18 x 1.5	S 10	630	63	24	22	22	48	620.04.110.50	620.04.110.51
M 20 x 1.5	S 12	630	63	24	22	24	48	620.04.112.50	620.04.112.51
M 22 x 1.5	S 14	630	71	24	24	27	49	620.04.114.50	620.04.114.51
M 24 x 1.5	S 16	400	71	25.5	27	30	50.5	620.04.116.50	620.04.116.51
M 30 x 2	S 20	400	78	25.5	36	36	55	620.04.120.50	620.04.120.51
M 36 x 2	S 25	400	82	25.5	41	46	57.5	620.04.125.50	620.04.125.51
M 42 x 2	S 30	400	91	27	46	50	60	620.04.130.50	620.04.130.51
M52 x 2	S 38	315	100	29	55	60	64.5	620.04.138.50	620.04.138.51

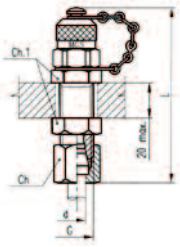
Test Points

Test Point (check coupling) with Female swivel JIC 37° according to ISO 8434-2/SAE J514



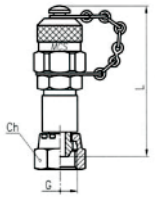
Thread	d mm	BAR	L mm	L1 mm	Part Number With Plastic Cap	Part Number With Metal Cap
7/16"-20 UNF	6	450	60	14	620.05.404.00	620.05.404.01
1/2"-20 UNF	8	420	61	17	620.05.405.00	620.05.405.01
9/16"-18 UNF	10	350	61	19	620.05.406.00	620.05.406.01
3/4"-16 UNF	12	350	54	22	620.05.408.00	620.05.408.01

Test Point (check coupling) bulkhead fitting, with metric connections to DIN 3861



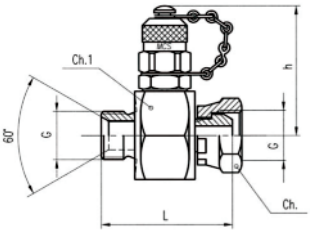
Thread	d mm	BAR	Ch. mm	Ch.1 mm	L mm	Part Number With Plastic Cap	Part Number With Metal Cap
M 16 X 1.5	8	630	19	22	82	620.06.108.50	620.06.108.51
M 18 X 1.5	10	630	22	24	84	620.06.110.50	620.06.110.51
Test Point (check coupling) bulkhead fitting, with JIC 37° connection (male)							
7/16"-20JIC37°	-	450	17	-	68	620.06.404.00	620.06.404.01

Test Point (check coupling) bulkhead fitting, with 1/4 BSP swivel to BS5200



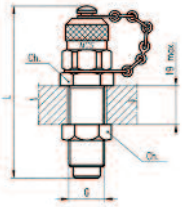
Thread	BAR	L mm	Ch. mm	Part Number With Plastic Cap	Part Number With Metal Cap
1/4" BSP	630	62	19	620.07.204.80	620.07.204.81

Test Point (check coupling) male/female 60° swivel connections to BS5200



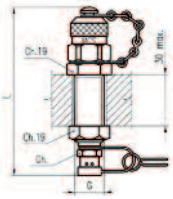
Thread	BAR	L mm	Ch. mm		Ch.1 mm		h mm		Part Number With Plastic Cap	Part Number With Metal Cap
1/4"	400	53	19	18	32	27	55	51.5	620.16.204.80	620.16.204.81
3/8"	400	60	22	24	32	27	55	51.5	620.16.206.80	620.16.206.81
1/2"	400	60	27		32	27	55	51.5	620.16.208.80	620.16.208.81
3/4"	400	68	32		32	32	55	54	620.16.212.80	620.16.212.81
1"	345	74	41		41	41	59.5		620.16.216.80	620.16.216.81

Test Point (check coupling) bulkhead fitting M 16 x 2 connection



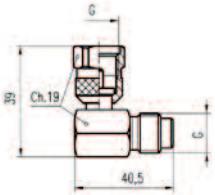
Bulkhead Check-coupling Threads	BAR	Ch. mm	L mm	Part Number With Plastic Cap	Part Number With Metal Cap
M 16 x 2	630	19	81	620.11.000.70	620.11.000.71

Test Point (check coupling) bulkhead fitting (plug-in connection)



Bulkhead Check-coupling (Plug-in connection) Threads	BAR	Ch. mm	L mm	Part Number With plastic dust Cap	Part Number With steel dust Cap
M 16 x 2	400	12	87	620.12.000.70	620.12.000.71

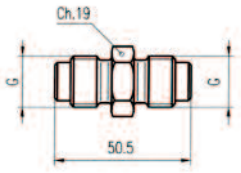
Test Point (check coupling) 90° elbow M 16 x 2 connections



90° Elbow connection Threads	BAR	Part Number
M 16 x 2	630	620.13.000.00

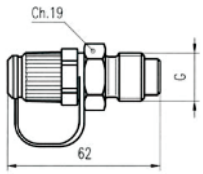
Test Points

Test Point (check coupling) junction adaptor free flow



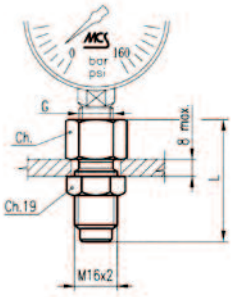
Threads	BAR	Part Number
M 16 x 2	**630**	**620.14.162.00**

Test Point (check coupling) junction adaptor with non return valve



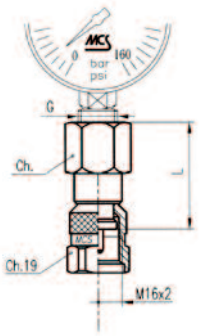
Threads	BAR	Part Number
M 16 x 2	**630**	**620.15.162.00**

Bulkhead pressure gauge connection



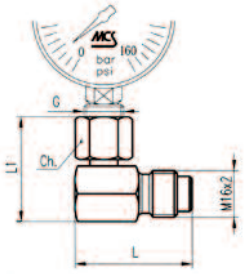
Threads	BAR	Ch. mm	L mm	Part Number With Plastic Cap	£	Part Number With Metal Cap	£
1/4″	**630**	**19**	**50**	**620.08.204.00**	7.25	**620.08.204.00.1**	7.25
1/2″	**630**	**27**	**58**	**620.08.208.00**	8.99	**620.08.208.00.1**	8.99
1/4″ NPTF	**630**	**19**	**50**	**620.08.304.00**	8.52	**620.08.304.00.1**	8.52
1/2″ NPTF	**630**	**27**	**58**	**620.08.308.00**	9.65	**620.08.308.00.1**	9.65

Pressure gauge Adaptor



Threads	BAR	Ch. mm	L mm	Part Number With Plastic Cap	Part Number With Metal Cap
1/4″	**630**	**19**	**34**	**620.09.204.00**	**620.09.204.00.1**
1/2″	**630**	**27**	**39**	**620.09.208.00**	**620.09.208.00.1**
1/4″ NPTF	**630**	**19**	**34**	**620.09.304.00**	**620.09.304.00.1**

900 pressure gauge swivel connection

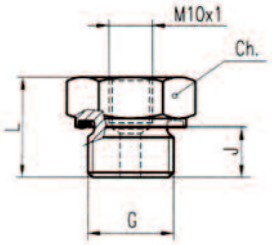


Threads	BAR	Ch. mm	L mm	L1 mm	Part Number With Plastic Cap	Part Number With Metal Cap
1/4″	**630**	**17**	**40**	**40**	**620.10.204.00**	**620.10.204.00.1**
1/2″	**630**	**27**	**40**	**42.7**	**620.10.208.00**	**620.10.208.00.1**

Accessories

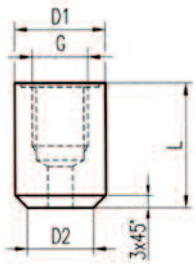
Reducer DIN 3852 Form B

Thread	Type	BAR	Ch. mm	L mm	J mm	Part Number
1/4″	**Form E**	**630**	**19**	**25**	**12**	**630.01.204.20**
3/8″	**Form E**	**630**	**22**	**25.5**	**15**	**630.01.206.20**
1/2″	**Form E**	**400**	**27**	**25**	**14**	**630.01.208.20**
3/4″	**Form E**	**400**	**32**	**27**	**16**	**630.01.212.20**
1″	**Form E**	**400**	**41**	**29**	**18**	**630.01.216.20**



Weld bosses

Part Number	Thread	D1 (mm)	D2 (mm)	L	J
630.02.204.00	**ISO228-G 1/4″**	**20**	**10**	**28**	**7**
630.02.008.00	**M 8 x 1**	**22**	**10**	**28**	**8**

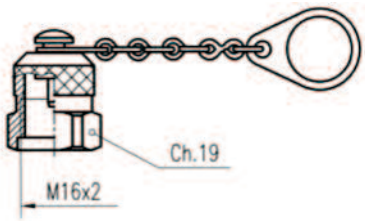


Plastic dust cap

Part Number
630.03.620.00

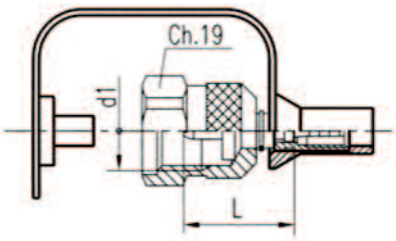
Steel dust cap

Part Number
630.03.620.01



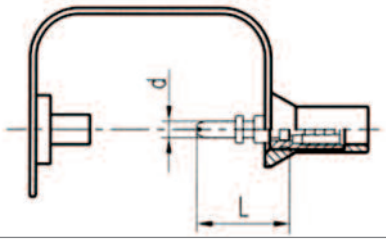
Dust cap (probe)

Part Number
800.02.000.02



Dust cap (probe)

Part Number
800.02.000.01



For technical advice contact the Prolasa sales office.

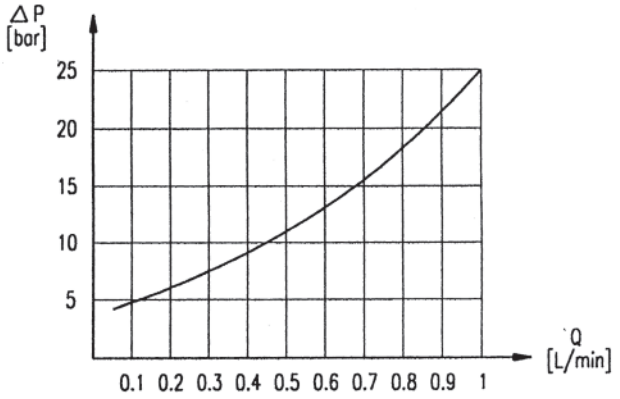
Hose Assemblies

MCS hose - Polyamid core tube
Kevlar braid - Polyamid jacket.

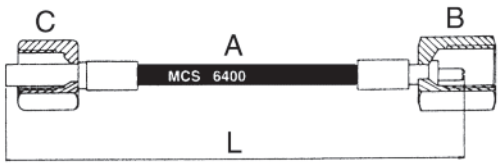
Type	d mm	d1 mm	P. max bar a)	P. max bar b)	r mm c)	Temperature
6400	2	5	630	1900	20	-40°C +100°C

PRESSURE DROP

in a 1-metre-long hose with
mineral oil with viscosity=35mm/sec²



How to order:



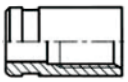
64 — 10.162 — 31.006 — 2000(mm)

A: **Hose Type**
B: **Connection**
C: **Connection**
L: **Length**

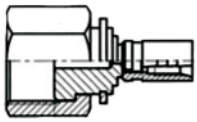
Other hoses available on request:
MCS 6500 - 4mm ø - 320 BAR
MCS 6700 - 4mm ø - 500 BAR

Hose Type 6400 (Test Point End Fittings)

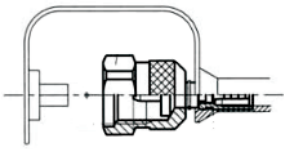
Ferrule	
Part Number	
800.00.002	
800.20.002	AISI 316



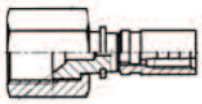
Female Swivel Coupling		
Part Number	Size	BAR
801.60.202	1/8	630
801.60.204	1/4	630
801.60.141	M14x1.5	630



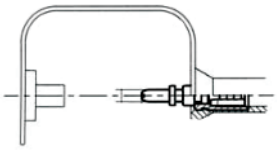
Nut Connection	
Part Number	
801.10.161	M 16x1.5
801.10.162	M 16x2
801.10.162*	A151316
801.12.651	12.65x1.5



JIC 37° Female Coupling		
Part Number	Size	BAR
801.60.404	7/16" - 20	630
801.60.405	1/2" - 20	630

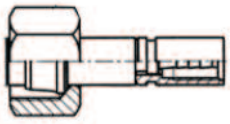


Plug Connection	
Part Number	BAR
801.20.000	400

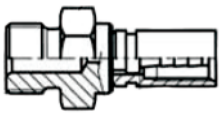


Banjo Coupling		
Part Number	Size	BAR
801.70.008	8mm	200
801.70.010	10mm	200
804.70.202	1/8	200

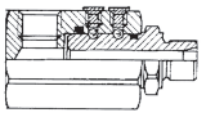
Standpipe	
Part Number	BAR
801.30.004	without Nut
801.30.006	without Nut
801.30.008	without Nut
801.31.006 M 12x1.5	315
801.32.006 M 14x1.5	630
801.31.008 M 14x1.5	315
801.32.008 M 16x1.5	630



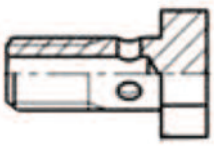
BSP Male		
Part Number	Size	BAR
801.80.202	1/8mm	400
801.80.204	1/4mm	630
NPTF Male		
Part Number	Size	
801.80.302	N 1/8-27	



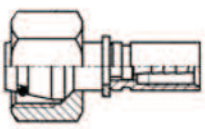
Standpipe 90°	
Part Number	BAR
801.35.004	without Nut
801.35.006	without Nut
801.35.008	without Nut
801.36.006 M 12x1.5	315
801.37.006 M 14x1.5	630
801.36.008 M 14x1.5	315
801.37.008 M 16x1.5	630



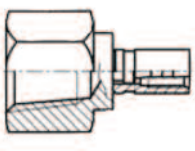
Screw		
Part Number	Size	Ch.
A38-08M	M 8x1	12
A38-10M	M 10x1	14
A39-A02	1/8	14
According to 7643		



24° Plug Connection	
Part Number	BAR
801.40.006 M 12x1.5	315
801.41.006 M 14x1.5	630
801.40.008 M 14x1.5	315
801.41.008 M 16x1.5	630
801.40.010 M 16x1.5	315
801.41.010 M 18x1.5	630



Pressure Gauge Coupling		
Part Number	Size	BAR
801.50.014	M 14x1	400
801.50.141	M 14x1.5	400
801.50.204	1/4	630
801.50.208	1/2	630
801.50.304	N 1/4 - 18	630



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