

# M16x2-ball design

## Application:

Spradow test couplings are applied for the monitoring and control of pressure as well as the ventilation.

The advantages of this system are – among other – connection at system pressure level, the easy connection to measurement control and switching devices, the leakproof connection and the integrated vibration security of the metal cap.

## Media:

Spradow test couplings have been developed for hydraulic oils and mineral oil based fluids.

(Please check compatibility of seal material.)

## Materials:

Metal parts: Steel, Stainless steel upon request

Seals: NBR (-20 °C to +100 °C)

FKM (-20 °C to +200 °C)

EPDM (-40 °C to +150 °C)

Hose: Polyamide (-35 °C to +100 °C); reinforcement: synthetic fibre

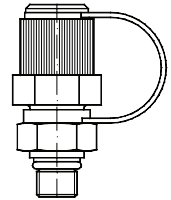
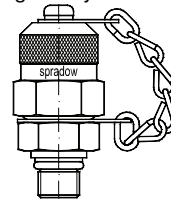
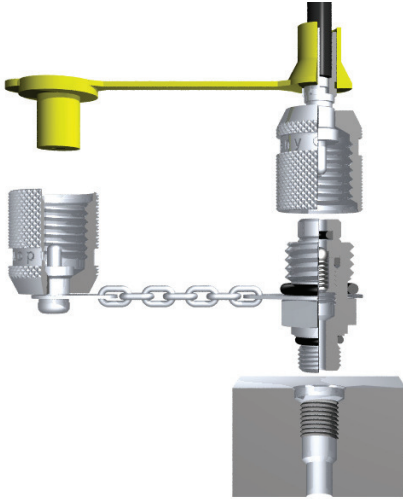
## Surface:

zinc nickel, transparent, CrVI-free.

## Pressure:

Max. working pressure of the test couplings - 630 bar, at 3-fold security.

For the union pieces (type DKO, BE and GE) please observe the instructions given by the corresponding producer.

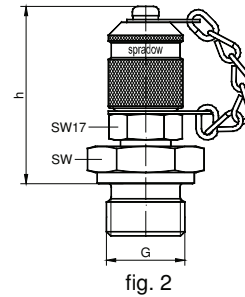
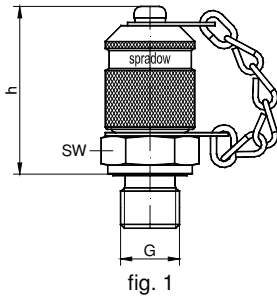


The complete Spradow hydraulic series M16x2 is also available with universal cap (type A) made of steel or plastic.

## port connection and seals

type 1				type 2					type 3					type 4			type 5									
G	∅D	t1	t2	G	∅D	a	t1	t2	G	∅D	a	t1	t2	G	t1	t2	G	∅D1	∅D	a	t1	t2				
M 8x1	9,5	11	14	M 8x1	13	1	8	10	M 10 x 1	15	1	8	10	1/8 NPT	6,9	11,6	5/16-24 UNF	17	9,1	1,9	10	12				
M 10x1	11,5	11	14	M 10 x 1	15	1	8	10	M 10x1,25	18	1,5	10	15	1/4 NPT	10	16,4	7/16-20 UNF	21	12,4	2,4	11,5	14				
				M 12 x 1,5	18	1,5	12	15	M 12 x 1,5	18	1,5	12	15	3/8 NPT	10,3	17,6	9/16-18 UNF	25	15,7	2,5	12,7	15,5				
				M 14 x 1,5	20	1,5	12	15	M 14 x 1,5	20	1,5	12	15													
				M 16 x 1,5	23	1,5	12	15	M 16 x 1,5	23	1,5	12	15	R 1/8 taper	5,5	9,5										
				M 18 x 1,5	25	2	12	15	M 18 x 1,5	25	2	12	15	R 1/4 taper	8,5	13,5										
				M 20 x 1,5	27	2	14	17	M 20 x 1,5	27	2	14	17													
				M 22 x 1,5	28	2,5	14	17	M 22 x 1,5	28	2,5	14	17													
				M 26 x 1,5	32	2,5	16	19	M 26 x 1,5	32	2,5	16	19													
				M 27 x 2	33	2,5	16	20	M 27 x 2	33	2,5	16	20													
				M 33 x 2	40	2,5	18	22	M 33 x 2	40	2,5	18	22													
				M 42 x 2	50	2,5	20	24	M 42 x 2	50	2,5	20	24													
				M 48 x 2	56	2,5	22	26	M 48 x 2	56	2,5	22	26													
				G 1/8	15	1	8	10,5	G 1/8	15	1	8	10,5													
				G 1/4	20	1,5	12	15,5	G 1/4	20	1,5	12	15,5													
				G 3/8	23	2	12	15,5	G 3/8	23	2	12	15,5													
				G 1/2	28	2,5	14	18,5	G 1/2	28	2,5	14	18,5													
				G 3/4	33	2,5	16	20	G 3/4	33	2,5	16	20													
				G 1	40	2,5	18	23	G 1	40	2,5	18	23													
				G 1 1/4	50	2,5	20	25	G 1 1/4	50	2,5	20	25													
				G 1 1/2	56	2,5	22	27	G 1 1/2	56	2,5	22	27													

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.



G	SW	h	fig.	sealing	part number (NBR)	part number (FKM)	VA
M8x1	17	37	1	o-ring type 1	1-906-20-21-600-CF	1-906-20-22-600-CF	
M8x1	17	37	1	metallic sealing type 2	1-906-20-30-600-CF	1-906-20-32-600-CF	
M10x1	17	37	1	o-ring type 1	1-906-22-21-600-CF	1-906-22-22-600-CF	☺
M10x1	17	37	1	metallic sealing type 2	1-906-22-30-600-CF	1-906-22-32-600-CF	
M10x1	17	37	1	soft sealing type 3	1-906-22-11-600-CF	1-906-22-12-600-CF	
M10x1,25	17	37	1	soft sealing type 3	1-906-49-11-600-CF	1-906-49-12-600-CF	
M12x1,5	17	37	1	metallic sealing type 2	1-906-23-30-600-CF	1-906-23-32-600-CF	
M12x1,5	17	37	1	soft sealing type 3	1-906-23-11-600-CF	1-906-23-12-600-CF	☺
M14x1,5	19	37	1	metallic sealing type 2	1-906-24-30-600-CF	1-906-24-32-600-CF	
M14x1,5	19	37	1	soft sealing type 3	1-906-24-11-600-CF	1-906-24-12-600-CF	☺
M16x1,5	22	37	1	metallic sealing type 2	1-906-25-30-600-CF	1-906-25-32-600-CF	
M16x1,5	22	37	1	soft sealing type 3	1-906-25-11-600-CF	1-906-25-12-600-CF	
M18x1,5	27	48	2	metallic sealing type 2	1-911-26-30-600-CF	1-911-26-32-600-CF	
M20x1,5	27	48	2	metallic sealing type 2	1-911-51-30-600-CF	1-911-51-32-600-CF	
M22x1,5	27	48	2	metallic sealing type 2	1-911-27-30-600-CF	1-911-27-32-600-CF	
M26x1,5	32	49	2	metallic sealing type 2	1-911-52-30-600-CF	1-911-52-32-600-CF	
M27x2	36	49	2	metallic sealing type 2	1-911-53-30-600-CF	1-911-53-32-600-CF	
M33x2	41	49	2	metallic sealing type 2	1-911-54-30-600-CF	1-911-54-32-600-CF	
M42x2	50	50	2	metallic sealing type 2	1-911-55-30-600-CF	1-911-55-32-600-CF	
M48x2	60	50	2	metallic sealing type 2	1-911-56-30-600-CF	1-911-56-32-600-CF	
G 1/8	17	37	1	metallic sealing type 2	1-906-28-30-600-CF	1-906-28-32-600-CF	
G 1/8	17	39	1	soft sealing type 3	1-906-28-11-600-CF	1-906-28-12-600-CF	☺
G 1/4	19	37	1	metallic sealing type 2	1-906-29-30-600-CF	1-906-29-32-600-CF	☺
G 1/4	19	37	1	soft sealing type 3	1-906-29-11-600-CF	1-906-29-12-600-CF	☺
G 3/8	22	37	1	soft sealing type 3	1-906-30-11-600-CF	1-906-30-12-600-CF	
G 1/2	27	48	2	metallic sealing type 2	1-911-31-30-600-CF	1-911-31-32-600-CF	
G 3/4	36	49	2	metallic sealing type 2	1-911-32-30-600-CF	1-911-32-32-600-CF	
G 1	41	49	2	metallic sealing type 2	1-911-57-30-600-CF	1-911-57-32-600-CF	
G 1 1/4	50	50	2	metallic sealing type 2	1-911-58-30-600-CF	1-911-58-32-600-CF	
G 1 1/2	60	50	2	metallic sealing type 2	1-911-59-30-600-CF	1-911-59-32-600-CF	
R 1/8 taper	17	35	1	thread type 4	1-906-33-00-600-CF	1-906-33-02-600-CF	☺
R 1/4 taper	17	35	1	thread type 4	1-906-34-00-600-CF	1-906-34-02-600-CF	☺
5/16-24 UNF	17	38	1	o-ring type 5	1-906-38-30-600-CF	1-906-38-32-600-CF	
7/16-20 UNF	17	38	1	o-ring type 5	1-906-39-30-600-CF	1-906-39-32-600-CF	
9/16-18 UNF	19	38	1	o-ring type 5	1-906-40-30-600-CF	1-906-40-32-600-CF	
1/8 NPT	17	36	1	thread type 4	1-906-43-00-600-CF	1-906-43-02-600-CF	☺
1/4 NPT	19	35	1	thread type 4	1-906-44-00-600-CF	1-906-44-02-600-CF	☺
3/8 NPT	19	36	1	thread type 4	1-906-45-00-600-CF	1-906-45-02-600-CF	
1/2 NPT	24	48	2	thread type 4	1-911-46-00-600-CF	1-911-46-02-600-CF	
metal cap type A (universal) with vibration security					1-9xx-xx-xx-590-CF	1-9xx-xx-x2-590-CF	
metal cap type B (round) <b>without vibration security</b>					1-9xx-xx-xx-020-CF	1-9xx-xx-x2-020-CF	
metal cap type A (universal) <b>without vibration security</b>					1-9xx-xx-xx-010-CF	1-9xx-xx-x2-010-CF	
plastic cap type A (universal) yellow <b>without vibration security</b>					1-9xx-xx-xx-100-CF	1-9xx-xx-x2-100-CF	

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.

## fitting with test coupling series: M16x2 – ball design

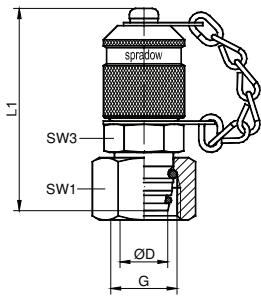


fig. 1

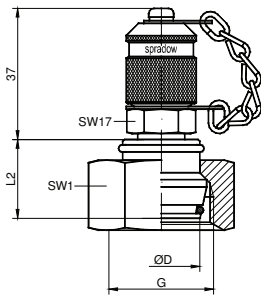


fig. 2

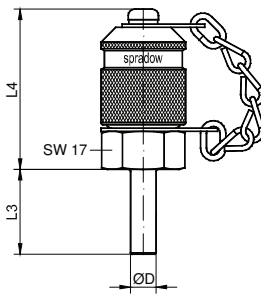


fig. 3

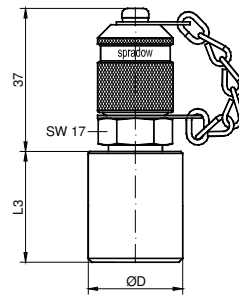
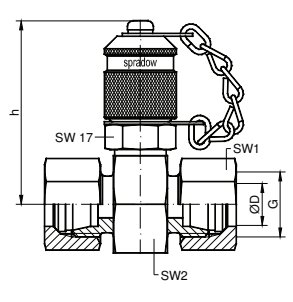


fig. 4



type GE

test coupling  
with straight coupling

type DKO

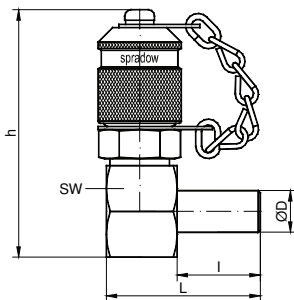
test coupling with 24° taper adapter

type BE

test coupling for compression ring fittings

type	PN	pipe øD	L1	L2	L3	L4	SW1	SW2	SW3	h	G	type DKO part number	fig.	type BE part number	Fig.	type GE part number
L	315	6	53	20	38	14	22	17	48	M12x1,5	1-908-00-20-600-CF	1	1-909-00-00-601-CF	3	1-910-00-00-600-CF	
		8	53	20	38	17	24	17	49	M14x1,5	1-908-02-20-600-CF	1	1-909-02-00-601-CF	3	1-910-02-00-600-CF	
		10	50	22	40	19	24	17	49	M16x1,5	1-908-04-20-600-CF	1	1-909-04-00-601-CF	3	1-910-04-00-600-CF	
		12	50	22	37	22	27	17	50,5	M18x1,5	1-908-06-20-600-CF	1	1-909-06-00-601-CF	3	1-910-06-00-600-CF	
		15	51	22	37	27	30	19	52	M22x1,5	1-908-09-20-600-CF	1	1-909-09-00-601-CF	3	1-910-09-00-600-CF	
		18	22	28	37	32	32	53	M26x1,5	1-908-11-00-600-CF	2	1-909-11-00-601-CF	4	1-910-11-00-600-CF		
		22	22	30	37	36	36	55	M30x2	1-908-13-00-600-CF	2	1-909-13-00-601-CF	4	1-910-13-00-600-CF		
		28	24	32	37	41	41	57,5	M36x2	1-908-15-00-600-CF	2	1-909-15-00-601-CF	4	1-910-15-00-600-CF		
L	160	35	27	42	37	50	46	60	M45x2	1-908-17-00-600-CF	2	1-909-17-00-601-CF	4	1-910-17-00-600-CF		
		42	28	45	37	60	55	64,5	M52x2	1-908-19-00-600-CF	2	1-909-19-00-601-CF	4	1-910-19-00-600-CF		
		6	54	20	38	17	24	17	49	M14x1,5	1-908-01-20-600-CF	1	1-909-00-00-601-CF	3	1-910-01-00-600-CF	
		8	51	20	38	19	24	17	49	M16x1,5	1-908-03-20-600-CF	1	1-909-02-00-601-CF	3	1-910-03-00-600-CF	
S	630	10	51	22	40	22	24	17	49	M18x1,5	1-908-05-20-600-CF	1	1-909-04-00-601-CF	3	1-910-05-00-600-CF	
		12	51	22	37	24	24	17	49	M20x1,5	1-908-07-20-600-CF	1	1-909-06-00-601-CF	3	1-910-07-00-600-CF	
		14	24	22	37	27	27	50,5	M22x1,5	1-908-08-00-600-CF	2	1-909-08-00-601-CF	3	1-910-08-00-600-CF		
		16	20	28	37	30	30	52	M24x1,5	1-908-10-00-600-CF	2	1-909-10-00-601-CF	3	1-910-10-00-600-CF		
		20	25	30	37	36	32	53	M30x2	1-908-12-00-600-CF	2	1-909-12-00-601-CF	4	1-910-12-00-600-CF		
		25	27	36	37	46	41	57,5	M36x2	1-908-14-00-600-CF	2	1-909-14-00-601-CF	4	1-910-14-00-600-CF		
		30	29	41	37	50	46	60	M42x2	1-908-16-00-600-CF	2	1-909-16-00-601-CF	4	1-910-16-00-600-CF		
		315	38	32	48	37	60	55	64,5	M52x2	1-908-18-00-600-CF	2	1-909-18-00-601-CF	4	1-910-18-00-600-CF	
										metal cap type A (universal) with vibration security	1-908-xx-x0-590-CF		1-909-xx-00-591-CF		1-910-xx-00-590-CF	
										metal cap type B (round) <b>without vibration security</b>	1-908-xx-x0-020-CF		1-909-xx-00-021-CF		1-910-xx-00-020-CF	
										metal cap type A (universal) <b>without vibration security</b>	1-908-xx-x0-010-CF		1-909-xx-00-011-CF		1-910-xx-00-010-CF	
										plastic cap type A (universal) yellow <b>without vibration security</b>	1-908-xx-x0-100-CF		1-909-xx-00-101-CF		1-910-xx-00-100-CF	
										design with sealings made of FKM	1-908-xx-x2-xxx-CF		1-909-xx-02-xxx-CF		1-910-xx-02-xxx-CF	

## 90° fitting type BE with test coupling series: M16x2 – ball design



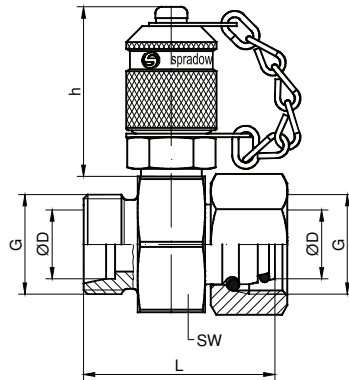
pipe øD	l	L	SW	h	part number (NBR)	part number (FKM)
8	20	37	22	59	1-980-03-60-080-CF	1-980-03-60-081-CF
10	20	37	22	59	1-980-05-60-120-CF	1-980-05-60-121-CF

metal cap type A (universal) with vibration security	1-980-xx-59-xxx-CF	1-980-xx-59-xxx-CF
metal cap type B (round) <b>without vibration security</b>	1-980-xx-02-xxx-CF	1-980-xx-02-xxx-CF
metal cap type A (universal) <b>without vibration security</b>	1-980-xx-01-xxx-CF	1-980-xx-01-xxx-CF
plastic cap type A (universal) yellow <b>without vibration security</b>	1-980-xx-10-xxx-CF	1-980-xx-10-xxx-CF

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.

# M16x2-ball design

test coupling with combination-fitting (GEDKO)  
series: M16x2 – ball design

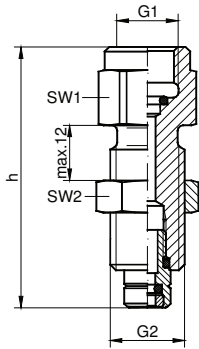


type	PN	tube ØD	G	L	h	SW		part number (NBR)	part number (FKM)
L	315	6	M12x1,5					upon request	upon request
		8	M14x1,5					upon request	upon request
		10	M16x1,5					upon request	upon request
		12	M18x1,5	41	37	27		1-910-26-00-601-CF	1-910-26-02-601-CF
		15	M22x1,5	43	37	30		1-910-29-00-601-CF	1-910-29-02-601-CF
	160	18	M26x1,5					upon request	upon request
		22	M30x2					upon request	upon request
		28	M36x2					upon request	upon request
		35	M45x2					upon request	upon request
		42	M52x2					upon request	upon request
S	630	6	M14x1,5					upon request	upon request
		8	M16x1,5					upon request	upon request
		10	M18x1,5					upon request	upon request
		12	M20x1,5					upon request	upon request
		14	M22x1,5					upon request	upon request
	400	16	M26x1,5					upon request	upon request
		20	M30x2					upon request	upon request
		25	M36x2					upon request	upon request
		30	M45x2					upon request	upon request
		315	38	M52x2					upon request
metal cap type A (universal) with vibration security							1-910-xx-xx-591-CF	1-910-xx-x2-591-CF	
metal cap type B (round) <b>without vibration security</b>							1-910-xx-xx-021-CF	1-910-xx-x2-021-CF	
metal cap type A (universal) <b>without vibration security</b>							1-910-xx-xx-011-CF	1-910-xx-x2-011-CF	
plastic cap type A (universal) yellow <b>without vibration security</b>							1-910-xx-xx-101-CF	1-910-xx-x2-101-CF	

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.

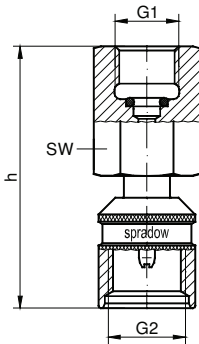
# M16x2-ball design

pressure gauge connector  
series: M16x2



G1	SW1	SW2	h	G2	sealing	part number (NBR)	part number (FKM)
G 1/4	19	19	57	M16x2	o-ring	1-918-29-01-240-CF	1-918-29-21-240-CF
G 1/2	27	24	67	M16x2	o-ring	1-918-31-01-240-CF	1-918-31-21-240-CF
1/4 NPT	19	19	58	M16x2	thread	1-918-44-00-240-CF	1-918-44-20-240-CF
1/2 NPT	27	24	67	M16x2	thread	1-918-46-00-240-CF	1-918-46-20-240-CF

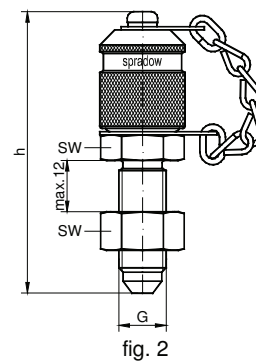
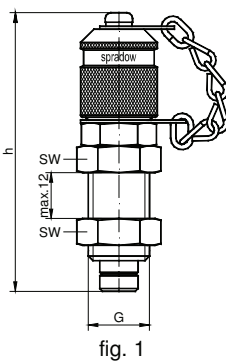
direct pressure gauge connector  
series: M16x2



G1	SW	h	G2	sealing	part number (NBR)	part number (FKM)
G 1/4	19	54	M16x2	o-ring	1-927-29-01-020-CF	1-927-29-21-020-CF
G 1/2	27	58	M16x2	o-ring	1-927-31-01-020-CF	1-927-31-21-020-CF
1/4 NPT	19	53	M16x2	thread	1-927-44-00-020-CF	1-927-44-20-020-CF
1/2 NPT	27	56	M16x2	thread	1-927-46-00-020-CF	1-927-46-20-020-CF

design with cap type A (universal)	1-927-xx-0x-010-CF	1-927-xx-2x-010-CF
design with cap type C (hexagon)	1-927-xx-0x-030-CF	1-927-xx-2x-030-CF

bulkhead coupling  
series: M16x2 – ball design



G	SW	h	fig.	part number (NBR)	part number (FKM)
M16x2	19	75	1	1-980-48-60-040-CF	1-980-48-60-041-CF
7/16-20 UNF	17	67	2	1-980-39-60-090-CF	1-980-39-60-091-CF
metal cap type A (universal) with vibration security				1-980-xx-59-xxx-CF	1-980-xx-59-xxx-CF
metal cap type B (round) <b>without vibration security</b>				1-980-xx-02-xxx-CF	1-980-xx-02-xxx-CF
metal cap type A (universal) <b>without vibration security</b>				1-980-xx-01-xxx-CF	1-980-xx-01-xxx-CF
plastic cap type A (universal) yellow <b>without vibration security</b>				1-980-xx-10-xxx-CF	1-980-xx-10-xxx-CF

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.

# M16x2-ball design

## high pressure hose series: M16x2

Max. working pressure:  
630 bar

series: M16x2

series: M16x2

series: M16x2

series: M16x2

series: M16x2

Test hose:  
Nominal bore 2 mm  
Min. bend radius:  
20 mm

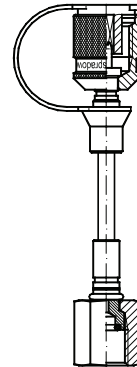
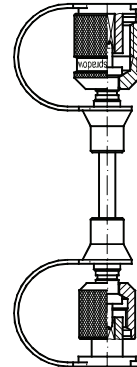
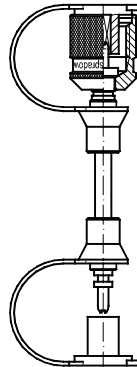
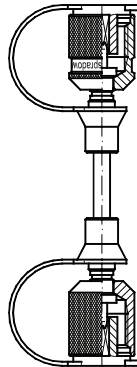
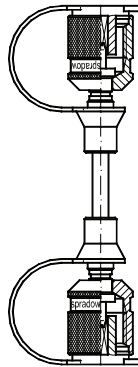
Pressure / t° factor:  
at 20°C 100%  
at 40°C 95%  
at 60°C 90%  
at 80°C 80%  
at 100°C 70%

### Hose construction

Hose core and cover:  
PA

Reinforcement:  
synthetic fibre

bursting pressure:  
1900 bar



series: M16x2

series: M16x1,5

series: plug-in

series: S12x1,5

pressure gauge  
connector G 1/4 <sup>2)</sup>

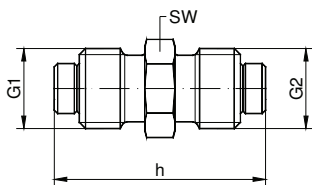
length L <sup>1)</sup> acc. DIN 20066	part number				
200	1-971-04-04-010-CF	1-971-04-10-010-CF	1-971-01-04-010-CF	1-971-04-12-010-CF	1-971-02-04-010-CF
400	1-971-04-04-040-CF	1-971-04-10-040-CF	1-971-01-04-040-CF	1-971-04-12-040-CF	1-971-02-04-040-CF
630	1-971-04-04-060-CF	1-971-04-10-060-CF	1-971-01-04-060-CF	1-971-04-12-060-CF	1-971-02-04-060-CF
800	1-971-04-04-080-CF	1-971-04-10-080-CF	1-971-01-04-080-CF	1-971-04-12-080-CF	1-971-02-04-080-CF
1000	1-971-04-04-090-CF	1-971-04-10-090-CF	1-971-01-04-090-CF	1-971-04-12-090-CF	1-971-02-04-090-CF
1500	1-971-04-04-100-CF	1-971-04-10-100-CF	1-971-01-04-100-CF	1-971-04-12-100-CF	1-971-02-04-100-CF
2000	1-971-04-04-110-CF	1-971-04-10-110-CF	1-971-01-04-110-CF	1-971-04-12-110-CF	1-971-02-04-110-CF
2500	1-971-04-04-120-CF	1-971-04-10-120-CF	1-971-01-04-120-CF	1-971-04-12-120-CF	1-971-02-04-120-CF
3200	1-971-04-04-130-CF	1-971-04-10-130-CF	1-971-01-04-130-CF	1-971-04-12-130-CF	1-971-02-04-130-CF
4000	1-971-04-04-140-CF	1-971-04-10-140-CF	1-971-01-04-140-CF	1-971-04-12-140-CF	1-971-02-04-140-CF

<sup>1)</sup> Other lengths on inquiry

Further connectors on page 33 f.

<sup>2)</sup> Connection thread G<sup>1</sup>/<sub>2</sub>,  
1/4 NPT and 1/2 NPT upon request.

## hose connector series: 16x2



without valve function (check valve)

G1	SW	h	G2	part number (NBR)	part number (FKM)
M16x2	17	42	M16x2	1-980-48-00-020-CF	-
M16x2	17	42	M16x1,5	1-980-48-00-030-CF	-

Other dimensions on request. We reserve the right to change the technical performance. All dimensions in mm.