

SERIES 40

GISMA

**STECKVERBINDER
GMBH**



**ELEKTRISCHE STECKVERBINDER FÜR
MEERES- UND MARINETECHNIK**

**HIGH PERFORMANCE UNDERWATER
ELECTRICAL FIBRE OPTIC CONNECTORS**



Leinestraße 25

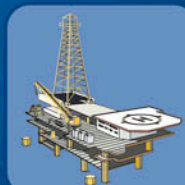
D-24539 Neumünster

Tel. +49 - 43 21 - 98 35 - 30

Fax +49 - 43 21 - 98 35 - 55

<http://www.gisma-connectors.de>

E-Mail: info@gisma-connectors.de



GISMA UNDERWATER CONNECTORS SERIES 40

CONTENTS	SEITE / PAGE
GENERAL	4
GENERAL ARRANGEMENT	5
DESIGN	6
MECHANICAL FEATURES	7
FIBRE OPTIC FEATURS	7
ELECTRICAL FEATURES	7
REFERENCE SYSTEM	8
REFERENCE SYSTEM CONTACTS	9
CONTACT LAYOUTS	9
SUGGESTIONS FOR MATING OF PLUGS	9
RECEPTACLES	10
CABLE CONNECTING RECEPTACLES	11
PLUGS	11
ENDBELLS	12
SEALING / PROTECTING CAPS	13
QUALITY SYSTEM CERTIFICATE DIN/ISO 9001	14

This catalogue supersedes all previous catalogues.

GISMA reserves the right to modify products because of technical improvements and development without prior notice. Dimensions are given for information purposes only and must be confirmed by GISMA.

This catalogue is available as pdf-file as well.

GENERAL

GISMA is today one of the leading manufacturers of high-performance electrical and fibre-optic underwater connectors.

GISMA's success is based on:

1. A quality management system meeting the requirements of DIN ISO 9001 with DNV (Det Norske Veritas) certificate.
2. Consistency in meeting the needs of the customer.
3. Short and absolutely reliable delivery times.
4. Diverse services ranging from advising individual customers to the delivery of fully-tested, terminated cable assemblies.

Special orders are carried out quickly and efficiently using GISMA's own computer-aided design department, tooling and ultramodern computer controlled machines for production. With more than 95% of GISMA's production carried out in house, maximum flexibility is assured.

GISMA connectors are used world-wide in submarines, the offshore and mining industries and for underwater research. GISMA offers an extensive family of standard connectors with contact numbers from 1 - 130, voltages up to 6,6 kV and current ratings up to 1,000 A in 30 different series.

All types of optical fibres, both single- and multi-mode, can be assembled with GISMA connectors.

Certificates of approval from well known test organisations such as TÜV (Technical Supervision Association), GL (German LLoyd), DNV (Det Norske Veritas) etc. are available at extra charge.

GISMA SERIES 40

The series 40 described in this catalogue is designed for underwater fibre optic operations down to 6.000 metres' depth.

0

Low insertion loss is attained by direct connection. GISMA Series 40 receptacles are available for direct fibre fitting or with a receptacle on the rear. GISMA carry out the fitting of the fibre on request. Receptacles can be supplied with pigtail.

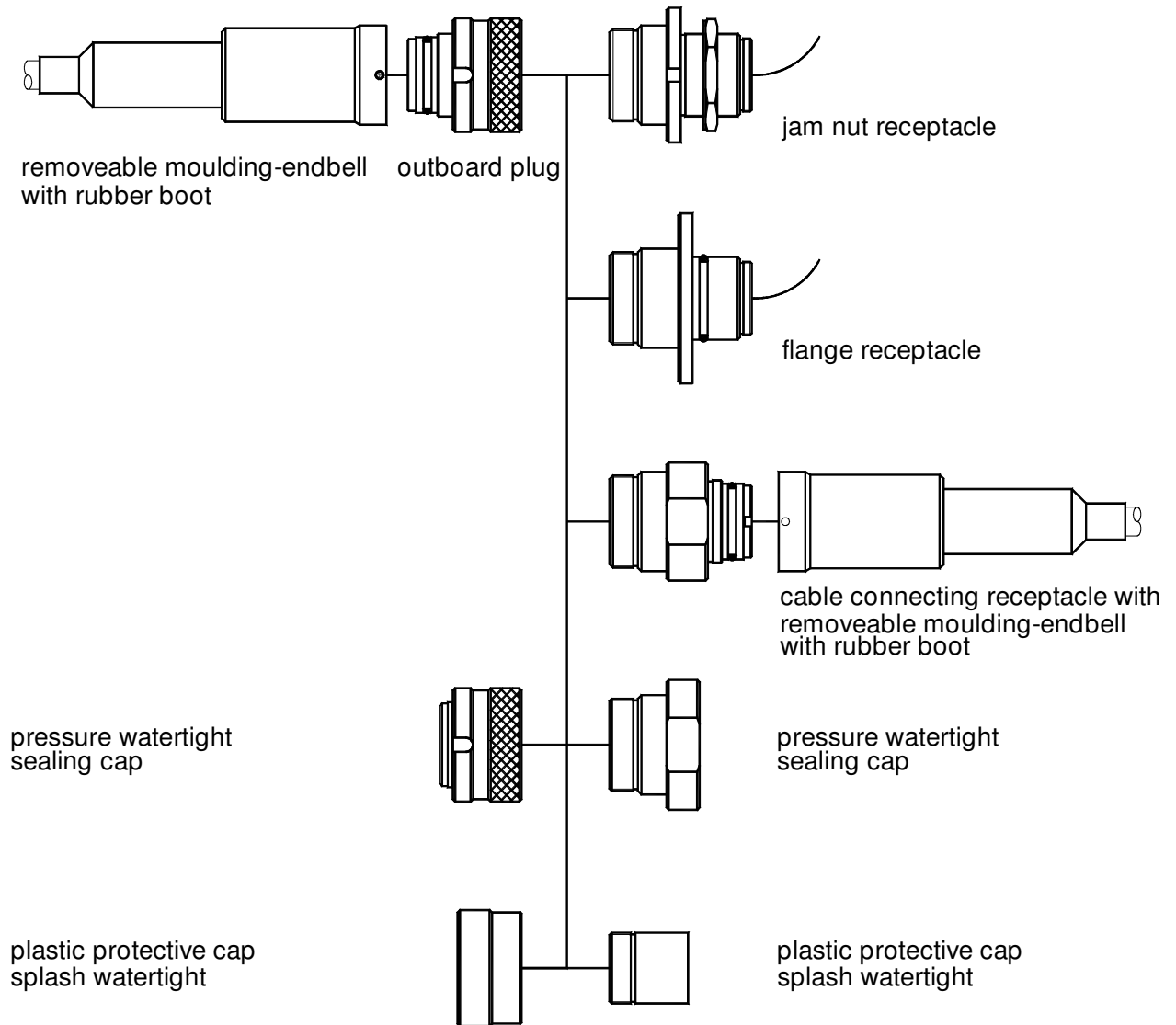
For fitting the fibre to the contact special tools are required. Fibre and electrical contacts can be replaced by the customer. Therefore fibre and electrical contacts are available as single pieces.

The endbells are removeable for maintenance.

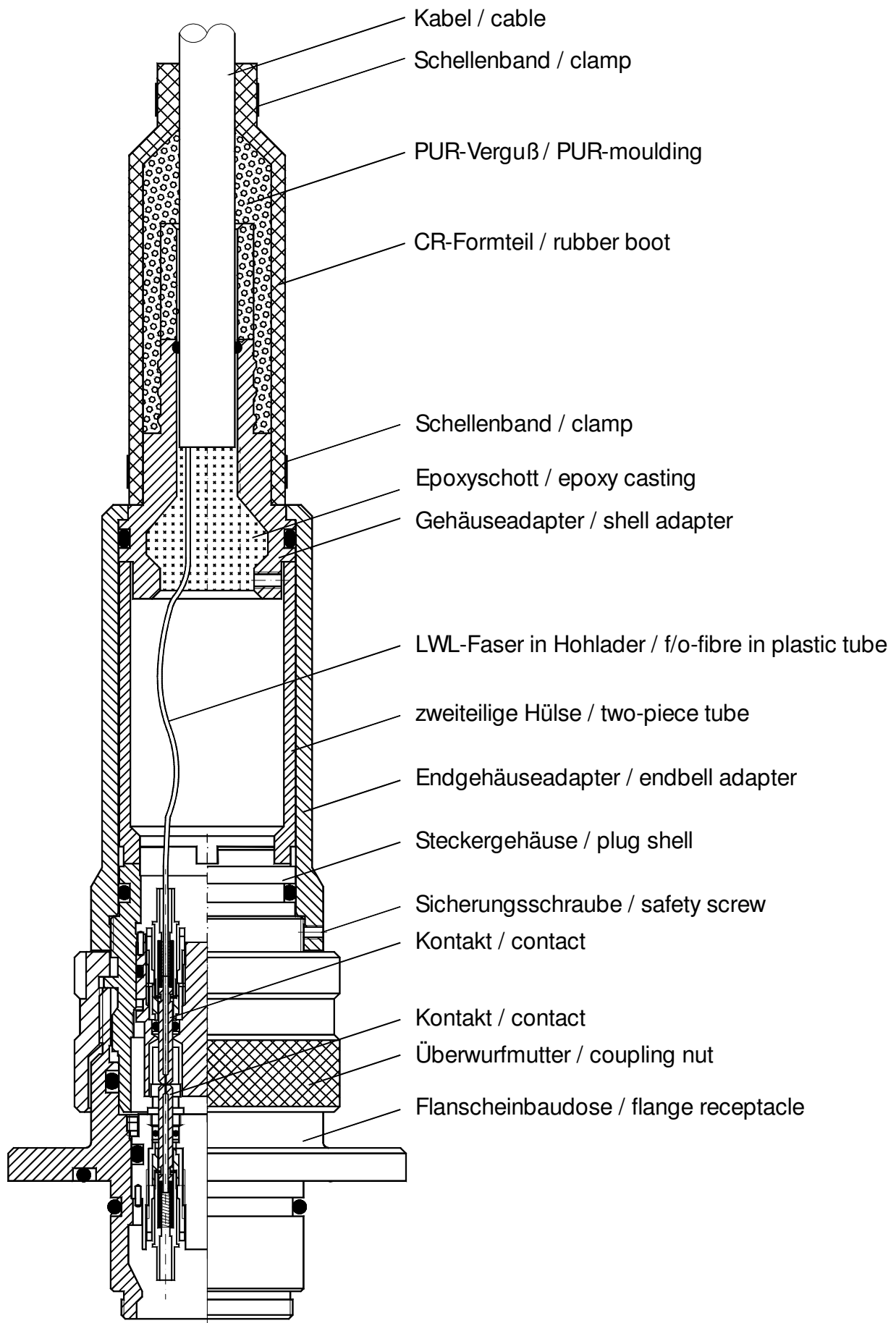
Endbells with strain relief e.g. kevlar armored cable are available on request.

GISMA UNDERWATER CONNECTORS SERIES 40

GENERAL ARRANGEMENT



DESIGN



GISMA UNDERWATER CONNECTORS SERIES 40

MECHANICAL FEATURES

Pressure range:

Size 0 - 5	min. 350 bars *
Size 7	min. 300 bars *

For extra high pressure ratings and inverse pressure receptacles, please contact GISMA application engineering.

Shell material : - marine bronze (CW307G) (titanium on request) *

Temperature range : - -30°C up to +80°C
- connectors for different temperatures on request

Mating operations : - min. 1000 (clean environment)

Shock : - 150 g 11 ms

FIBRE OPTIC FEATURES

GISMA Series 40 connectors can be fitted with single- or multimode fibres.

<u>Attenuation</u>	(850 nm - 1550 nm, dry)	
	typical	maximum (Basis to evaluate the layout of the amplifier)
singlemode	< 0,5 dB	< 0,7 dB
multimode	< 0,5 dB	< 0,7 dB
<u>Mating operations min. :</u>	- 1000 (clean environment)	
<u>Return-loss (typical):</u>	- 40 dB singlemode	
	- 35 dB multimode	

ELECTRICAL FEATURES

<u>Contact diameter :</u>	- 2 mm, gold plated incl. AWG 16 pigtails 150 mm long	1 mm, gold plated incl. AWG 20 pigtails 150 mm long
<u>Current max. :</u>	- 25 A	8 A
<u>Working voltage max. :</u>	- at clean environment 630 V DC	at clean environment 1000 V dc
<u>Contact resistance max. :</u>	- 3 m Ohm	5 m Ohm
<u>Test voltage :</u>	- 2500 V dc	3000 V dc
<u>Insulation resistance:</u>	- > 1 GΩ	> 1 GΩ
<u>Mating operations min. :</u>	- 500	500

We would like to particularly point out that special know-how and tools are essential for connecting LWL-fibre with the contact (ferrule). Special cabling instructions are available on request at GISMA.

* The described pressure rates are only valid for standard components made of bronze. For extra high pressure ratings and other shell materials, please contact GISMA application engineering.
For all Series 40 special product designs, please pay attention to separate data sheets.

GISMA UNDERWATER CONNECTORS SERIES 40

REFERENCE SYSTEM

RECEPTACLE, CABLE CONNECTING RECEPTACLE, PLUG

40. 0 □ . □ . □ □ . □ . □ □ □

series _____

standard-receptacle _____ 0

cable connecting receptacle _____ 1

receptacle with single rear receptacle _____ 5

plug _____ 6

single fibre optic plug for rear receptacle _____ 7

keyway type (if necessary)

____ X ____ keyway 44°

____ Y ____ keyway 66°

____ Z ____ keyway 88°

____ W ____ keyway 110°

____ 00 ____ standard

____ 10 ____ flange receptacle

shell size - contact arrangement _____

0.01 ____ 1 contact _____

1.01 ____ 1 contact _____

2.04 ____ 4 contacts _____

3.06 ____ 6 contacts _____

3.07 ____ 7 contacts _____

4.08 ____ 8 contacts _____

5.12 ____ 12 contacts _____

5.17 ____ 17 contacts _____

7.19 ____ 19 contacts _____

shell-material

____ 1 stainless-steel (1.4404)

____ 2 marine bronze (CW307G)

____ 3 titanium

N.B.: All series 40 connectors are supplied without contacts.
Electrical resp. fibre-optic contacts must be ordered separately.

ENDBELLS

40. □ . □ . □ . □ □ . 0.0

series _____

straight _____ 0

angled 90° on request _____

straight with central kevlar _____ 3

strain relieve _____

XXXX _____ 4

removeable moulding endbell with rubber boot _____ 0

standard version

outer cable-Ø in mm
(e.g. 10 mm = cable Ø 10 mm)

shell size 0 - 7

PROTECTING CAPS

40. □ □ . □ . 00 . □ □

series _____

cap for receptacle, not watertight _____ 20

cap for plug, not watertight _____ 30

cap for receptacle, pressure watertight _____ 08

cap for plug, pressure watertight _____ 09

shell size 0 - 7 _____

shell-material

____ □1 ____ plastic (not watertight)

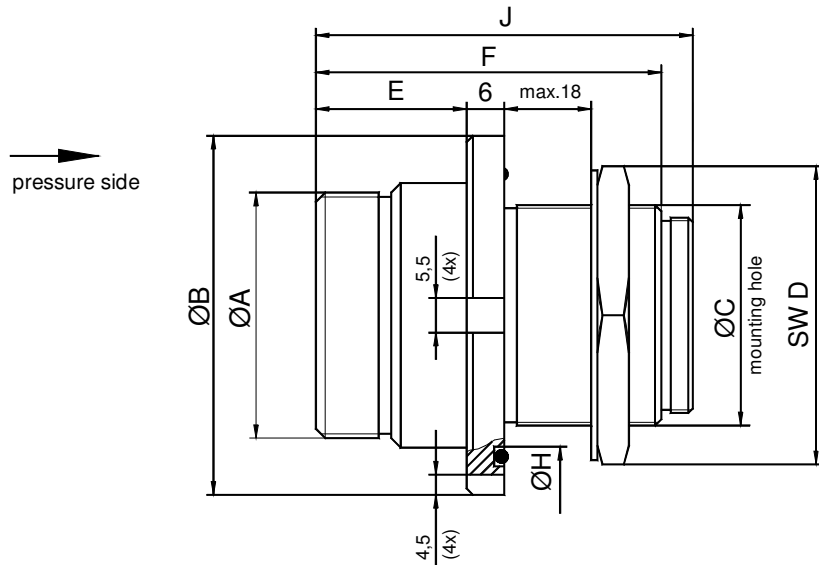
____ □2 ____ marine bronze (CW307G)

____ □3 ____ titanium

____ 3□ ____ with fastening strap

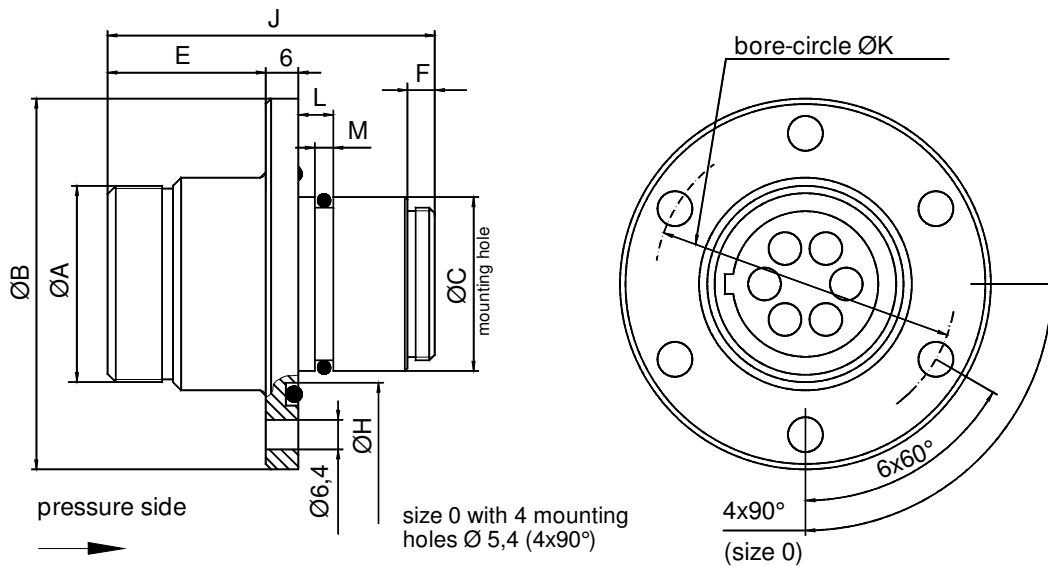
GISMA UNDERWATER CONNECTORS SERIES 40

JAM NUT RECEPTACLE



size	contactarrangement	Ø A	Ø B	Ø C +0,05	SW D	E	F	H	J
0	1 contact	M23,5x1	43	22	27	24	55	24,1	60
1	1 contact	M32x1	50	26	32	24	55	30,2	60
2	4 contacts	M36x1	56	32	41	24	55	36,2	60
3	6 contacts	M39x1	57	35	41	24	55	38,2	60
4	8 contacts	M50x1	69	47	55	24	55	50,2	60
5	12 contacts	M60x1,5	80	56	64	24	55	60,2	60
7	19 contacts	M80x1,5	98	72	80	29	60	76,2	65

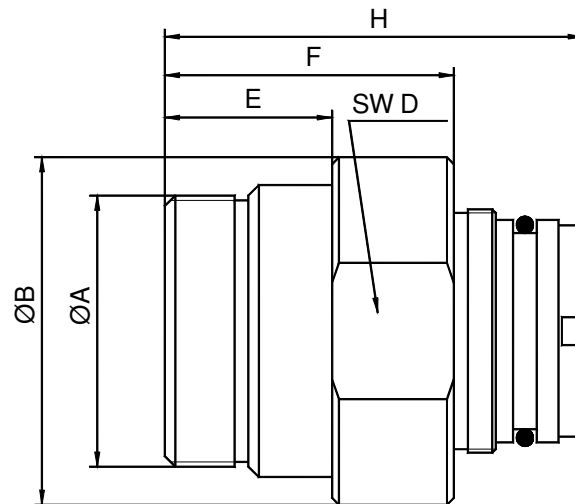
FLANGE RECEPTACLE



size	contactarrangement	A	Ø B	Ø C ±0,05	E	F	Ø H	J	K	L	M
0	1 contact	M23,5x1	48	22	29	5	24,2	50	38,5	6,4	3,4
1	1 contact	M32x1	62	26	29,5	5	30,2	60	50	5,9	3,4
2	4 contacts	M36x1	68	32	29,5	5	36,2	60	56	5,9	3,4
3	6 contacts	M39x1	72	35	29,5	5	40,2	60	60	5,9	3,4
4	8 contacts	M50x1	83	47	29,5	5	52,2	60	71	5,9	3,4
5	12 contacts	M60x1	86	56	29,5	5	59,2	60	74	7,9	3,4
7	19 contacts	M80x1,5	114	72	29	---	78,2	65	102	13,4	3,4

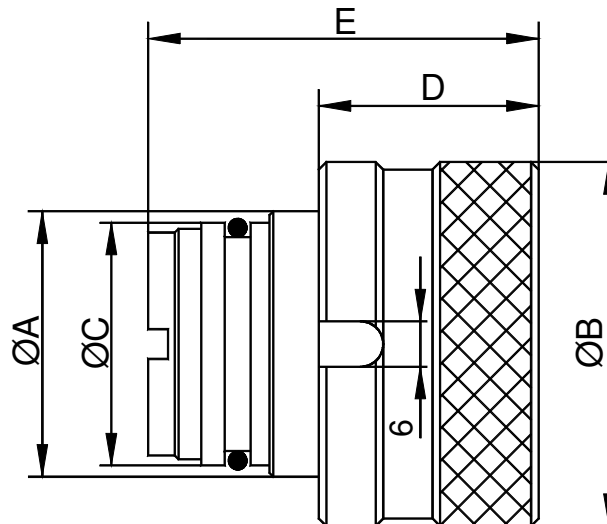
GISMA UNDERWATER CONNECTORS SERIES 40

CABLE CONNECTING RECEPTACLE



size	contact arrangement	Ø A	Ø B	SW D	E	F	H
0	1 contact	M23,5x1	31	27	24	47,5	60
1	1 contact	M32x1	40	36	24	41,5	60
2	4 contacts	M36x1	40	36	24	41,5	60
3	6 contacts	M39x1	50	46	24	41,5	60
4	8 contacts	M50x1	60	55	24	41,5	60
5	12 contacts	M60x1,5	70	65	24	40,2	60
7	19 contacts	M80x1,5	90	85	29,5	51	65

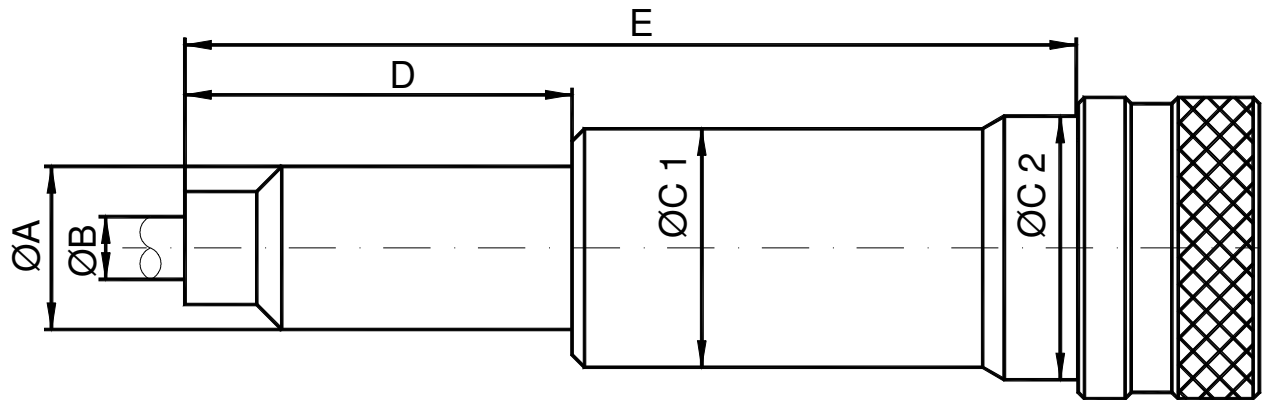
OUTBOARD PLUG



size	contact arrangement	Ø A	Ø B	Ø C	D	E
0	1 contact	M19x0,5	29,6	16,9	29	45,5
1	1 contact	M27x0,5	42	24	29	48
2	4 contact	M27x0,5	44,5	24	29	48
3	6 contact	M35x0,75	48	32	29	48
4	8 contact	M45x0,75	59	41	29	48
5	12 contact	M54x1	69	50	29	49,5
7	19 contacts	M 68x1	90	65	35	49

GISMA UNDERWATER CONNECTORS SERIES 40

ENDBELL



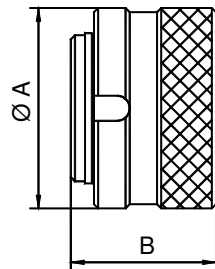
size	contactarrangement	Ø A	max. cable Ø B	min. Ø C 1	min. Ø C 2	min. D	ca. E
0	1 contact	28	12	39	42	95	176
1	1 contact	28	12	39	42	95	176
2	4 contacts	28	12	39	42	95	176
3	6 contacts	28	12	39	42	95	176
4	8 contacts	34	17	49	52	95	183
5	12 contacts	42	22	58	62	105	206
7	19 contacts	52	31	73	80	147	298

GISMA UNDERWATER CONNECTORS SERIES 40

SEALING / PROTECTING CAPS – OUTBOARD CONNECTORS

SEALING CAP

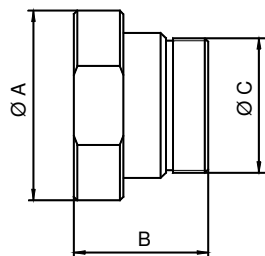
for receptacle



Size	Ø A	B	Part No.
0	29,6	34,5	40.08.0.00.02
1	42	34,5	40.08.1.00.02
2	44,5	34,5	40.08.2.00.02
3	48	34,5	40.08.3.00.02
4	59	35,5	40.08.4.00.02
5	69	35,5	40.08.5.00.02
7	90	41	40.08.7.00.02

SEALING CAP

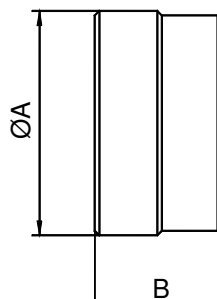
for plug



Size	Ø A	B	C	Part No.
0	30	38	M23,5x1	40.09.0.00.02
1	45	38	M32x1	40.09.1.00.02
2	45	38	M36x1	40.09.2.00.02
3	50	38	M39x1	40.09.3.00.02
4	60	38	M50x1	40.09.4.00.02
5	70	38	M60x1,5	40.09.5.00.02
7	90	43	M80x1,5	40.09.7.00.02

PLASTIC PROTECTING CAP

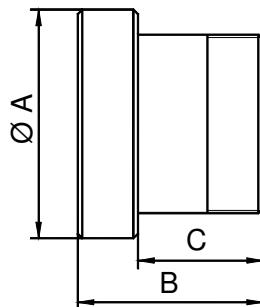
(not pressure watertight) for receptacle



Size	Ø A	B	Part No.
0	30	20	40.20.0.00.01
1	40	20	40.20.1.00.01
2	45	20	40.20.2.00.01
3	50	20	40.20.3.00.01
4	60	20	40.20.4.00.01
5	70	20	40.20.5.00.01
7	90	25	40.20.7.00.01

PLASTIC PROTECTING CAP

(not pressure watertight) for plug



Size	Ø A	B	C	Part No.
0	30,5	40	27	40.30.0.00.01
1	43	40	27	40.30.1.00.01
2	45	40	27	40.30.2.00.01
3	50	40	27	40.30.3.00.01
4	60	40	27	40.30.4.00.01
5	70	40	27	40.30.5.00.01
7	90	45	30	40.30.7.00.01