



**INTRODUCTION**

Cefilac has been designing and manufacturing mechanical seals since 1967, offering products capable of covering a wide range of service conditions.

Installed on the rotary shaft of pumps, mixers, blowers..., those mechanical seals can be used in all industries including chemical, nuclear, steel, food processing...

This leaflet presents the most standard designs. All specific requirements not addressed nor covered in those pages are studied by our engineering team and verified if necessary in our test and development laboratory.

**GULLIVER®**

Complete range of mechanical seals for industrial, chemical or agricultural applications including models with Elastomer bellows or with rubber O-rings. The friction faces and counter faces are made of Carbon, Siliconized graphite, Tungsten or Silicon carbide, Alumina oxide, heat treated steel, Cast iron or Chromic oxide plasma coating.



**CONTENTS**

• Types, Materials, designation .....	2	• Gulliver GH-GCL Type .....	8
• Gulliver GSM-GCP Type .....	3	• Gulliver GM-GCQ Type .....	9
• Gulliver GU-GCB Type .....	4	• Gulliver GMR-GCB or GCR Type .....	10
• Gulliver GVE-GCQ Type .....	5	• Installation instructions .....	11
• Gulliver GY-GCN Type .....	6	• Applications .....	12
• Gulliver GW-GCS Type .....	7	• Mechanical Seals GPA .....	13

MATERIALS DESIGNATION	1	2	3	4	5
	ROTATING RING	STATIONARY RING	SECONDARY SEALS	SPRING / MEMBRANE	METAL PART

## SEALING RINGS MATERIAL

1-2

Resin impregnated carbon graphite	B
Carbon - phenolic press to size	B1
Siliconized graphite	C4
Silicon carbide (SIC)	Q8
Ni-RESIST cast iron	R
Tungsten carbide	U
Alumina 99.5 %	V
Alumina 96 %	V1
Ceramic (steatite)	V2
Cr stainless steel	E
Cr-Ni stainless steel	F
Cr-Ni-Mo stainless steel	G
Cr203 plasma coating on Stainless Steel	W

## SECONDARY SEALS

3

Butyl elastomer	IIR	B
EPDM elastomer	EPDM	E
Chloroprene with PTFE coating		M5
Chloroprene elastomer	CR	N
Nitrile elastomer	NBR	P
HNBR, Elastomer	HNBR	P1
Silicone elastomer	VMQ/FVMQ	S
Fluocarbon elastomer	FPM/FKM	V

## SPRING OR SPRING MEMBRANE

4

Cr-Ni stainless steel	F
Cr-Ni-Mo stainless steel	G
Chloroprene with PTFE coating	M5
Chloroprene tightened	N
HNBR Elastomer	P1

## HOUSING / METAL PART

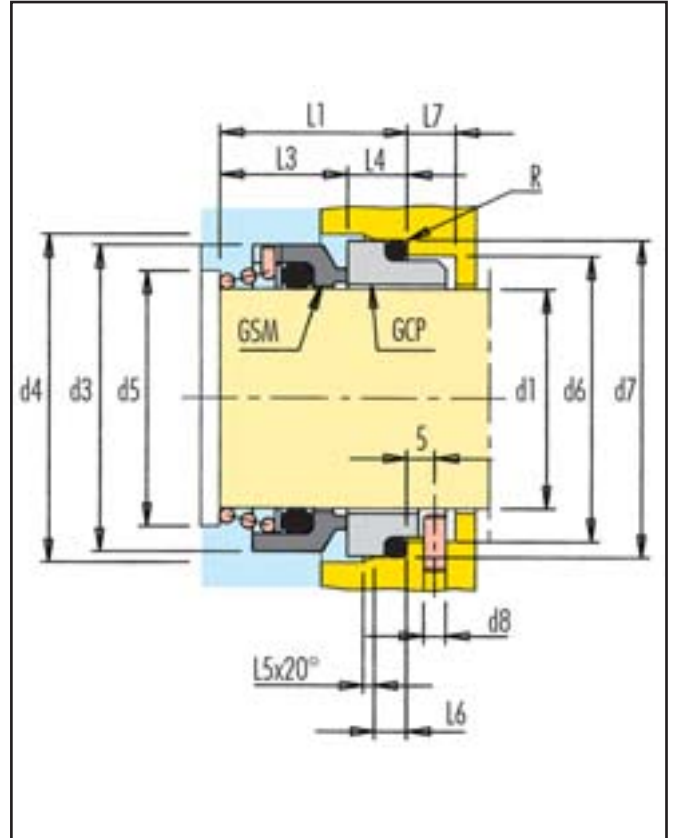
5

Carbon steel	D
Cr stainless steel	E
Cr-Ni stainless steel	F
Cr-Ni-Mo stainless steel	G
Others materials (to specify)	T*
Others coatings (to specify)	X

## DESIGNATION EXAMPLE

Model	DN (shaft diam)	Materials designation	1	2	3	4	5
• GVE GCQ	020	BV2 PFG					Seal + counterface
• GU GCB	150	WBFG					Seal + counterface
• GY	010	BPFG					Seal
• GCN	010	V1P					Counterface

DIN 24960



**INSTALLATION DIMENSIONS**

GULLIVER GSM					
Type	h6 d1	d3	d4	min. d5	±1 L3
GSM18	18	32	34	22	27,5
GSM20	20	34	36	24	27,5
GSM22	22	36	38	27	27,5
GSM24	24	38	40	29	30
GSM25	25	39	41	30	30
GSM28	28	42	44	33	32,5
GSM30	30	44	46	35	32,5
GSM32	32	46	48	38	32,5
GSM33	33	47	49	39	32,5
GSM35	35	49	51	41	32,5
GSM38	38	54	58	44	34
GSM40	40	56	60	47	34
GSM43	43	59	63	50	34
GSM45	45	61	65	52	34
GSM48	48	64	68	55	34
GSM50	50	66	70	58	34,5

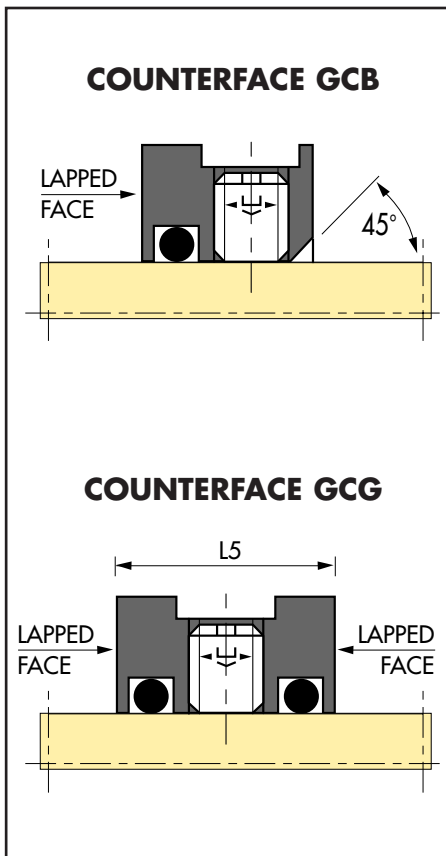
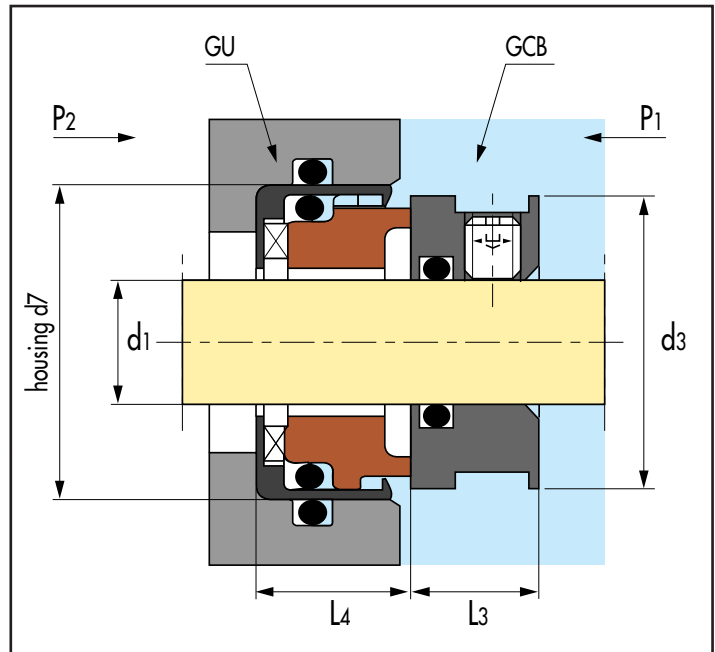
COUNTERFACE GCP									
Type	H11 d6	H8 d7	d8	L4	L5	L6	L7	R	±1 L1
GCP18	27	33	3	10	2	5	9	1,5	37,5
GCP20	29	35	3	10	2	5	9	1,5	37,5
GCP22	31	37	3	10	2	5	9	1,5	37,5
GCP24	33	39	3	10	2	5	9	1,5	40
GCP25	34	40	3	10	2	5	9	1,5	40
GCP28	37	43	3	10	2	5	9	1,5	42,5
GCP30	39	45	3	10	2	5	9	1,5	42,5
GCP32	42	48	3	10	2	5	9	1,5	42,5
GCP33	42	48	3	10	2	5	9	1,5	42,5
GCP35	44	50	3	10	2	5	9	1,5	42,5
GCP38	49	56	4	11	2	6	9	1,5	45
GCP40	51	58	4	11	2	6	9	1,5	45
GCP43	54	61	4	11	2	6	9	2,5	45
GCP45	56	63	4	11	2	6	9	2,5	45
GCP48	59	66	4	11	2	6	9	2,5	45
GCP50	62	70	4	13	2	6	9	2,5	47,5

**CHARACTERISTICS**

Gulliver GSM which had only one conical spring, can be used in one direction of rotation only.  
 Sizes according DIN 24960.

**APPLICATIONS**

General purpose mechanical seal for use in centrifugal pumps handling current liquids at Pmax 10 Bar.



INSTALLATION DIMENSIONS

d1/h6	d3	d7/H8	L3	L4 + 1	L5
010	28	30	13	16	21
012	30	32	13	16	21
015	33	35	13	16	21
018	36	38	13	16	21
020	38	40	14	16	25
022	40	42	14	16	25
025	43	45	14	16	25
026	48	50	14	19	25
028	51	53	14	19	25
030	53	55	14	19	25
035	58	60	14	19	25
040	63	65	17	19	27
045	68	70	17	19	27
050	73	75	17	19	27
055	78	80	17	21	27
060	83	85	17	21	27
065	88	90	17	21	27
070	93	95	17	21	27
075	98	100	17	21	27
080	103	105	17	21	27
085	108	110	17	21	27
090	113	115	17	21	27
100	123	125	17	21	27
110	138	140	17	25	32
120	148	150	20	25	32
130	158	160	20	25	32
140	168	170	20	25	32
150	178	180	20	25	32

CHARACTERISTICS

- Extremely short
- Rotating counterface
- Independent on direction of rotation
- Balanced
- Internal or external pressure

APPLICATIONS

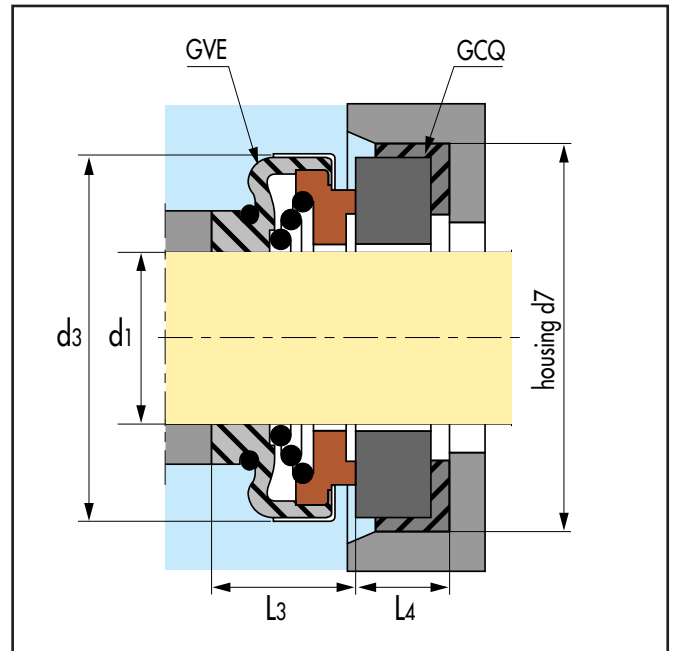
- Food industry:
- milk tank
  - food grinder
  - agitator
  - kneading-machine

OPERATING LIMITS\*

- d1 : 10-150 mm
- P1 : 15 bar - P2 : 5 bar
- t : 150° C maxi\*\*
- v : 20 m/s

\* Performances given for guidance only. The user should verify their accuracy according to his particular working conditions.  
 \*\* According to o'ring quality.

AVAILABLE FROM STOCK



## INSTALLATION DIMENSIONS

GULLIVER GVE			
Shaft diam. $d_1$	Type	Extern diam. $d_3$	Working length + 1 $L_3 + 0$
8	<b>GVE 8</b>	24	13
10	<b>GVE 10</b>	24	13
12	<b>GVE 12</b>	24	13
14	<b>GVE 14</b>	36	13
14-15*	<b>GVE 14-15</b>	36	13
15-16*	<b>GVE 15-16</b>	36	13
17-18*	<b>GVE 17-18</b>	36	13
19	<b>GVE 19</b>	42	13
20	<b>GVE 20</b>	42	13
22	<b>GVE 22</b>	42	13
25*	<b>GVE 25</b>	47	13
28*	<b>GVE 28</b>	54	15
30*	<b>GVE 30</b>	54	15
32*	<b>GVE 32</b>	54	15
35*	<b>GVE 35</b>	59	16
40	<b>GVE 40</b>	65	18
45	<b>GVE 45</b>	70	20
50	<b>GVE 50</b>	85	23
55	<b>GVE 55</b>	85	24,5

COUNTERFACE GCQ		
Type	Extern diam. $d_7$	$L_4$
<b>GCQ 8</b>	26	8
<b>GCQ 10</b>	31	8
<b>GCQ 12</b>	35	8
<b>GCQ 14</b>	38	8
<b>GCQ 16</b>	38	8
<b>GCQ 16</b>	38	8
<b>GCQ 18</b>	42	8
<b>GCQ 20</b>	45	10
<b>GCQ 20</b>	45	10
<b>GCQ 22</b>	45	10
<b>GCQ 25</b>	50	10
<b>GCQ 28</b>	57	10
<b>GCQ 30</b>	57	10
<b>GCQ 32</b>	63	10
<b>GCQ 35</b>	63	10
<b>GCQ 35</b>	68	12
<b>GCQ 40</b>	73	12
<b>GCQ 50</b>	88	15
<b>GCQ 55</b>	88	15

## CHARACTERISTICS

Rubber bellow seal with conical spring protected from pumped product.

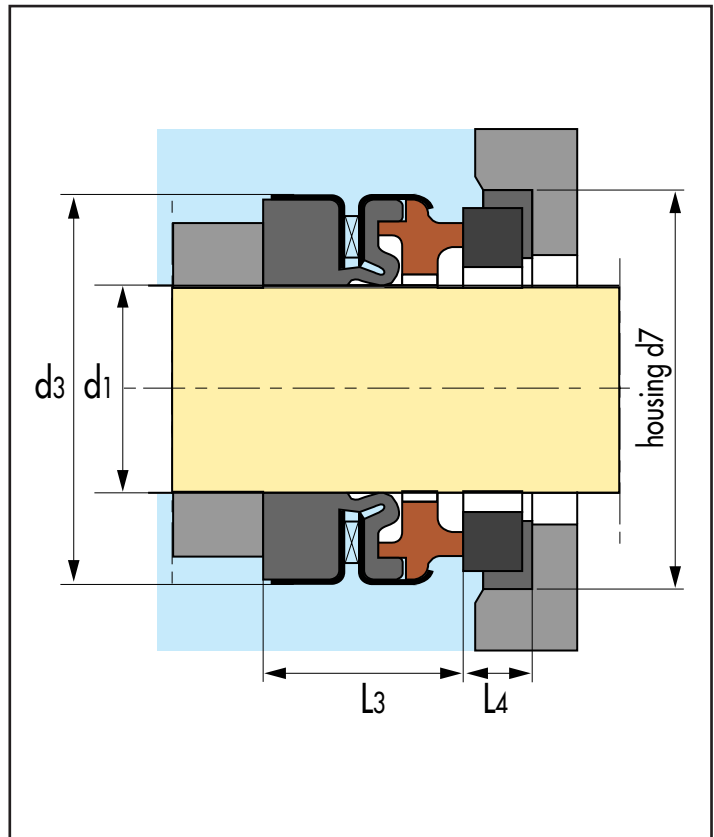
Unbalanced, maximal pressure 5 bar.

\* Models GVM on request.

## APPLICATIONS

General purpose for pumps used water-ring, disk harrow, filtration, and washing machines. Special design: housing special design with positive drive for the friction ring (type GVM\*).

AVAILABLE FROM STOCK DIN-24960

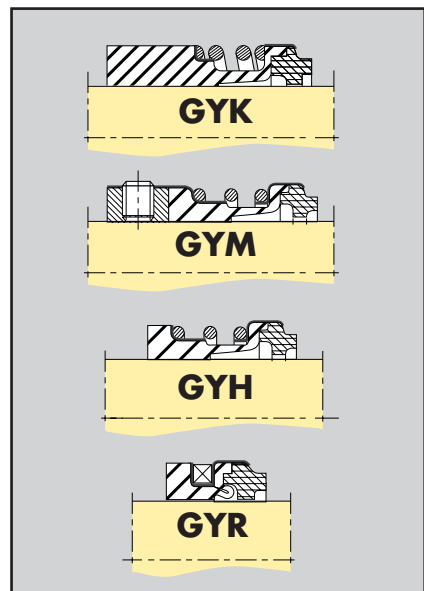


**INSTALLATION DIMENSIONS**

GULLIVER GY				
d <sub>1</sub>	Type	d <sub>3</sub>	L <sub>3</sub> working lenght	
10	<b>GY 10</b>	20	12	+1+0
12	<b>GY 12</b>	22	14	+1+0
14	<b>GY 14</b>	24	15	+1+0
15	<b>GY 15</b>	25	15,5	+1+0
16	<b>GY 16</b>	26	15,5	+1+0
18	<b>GY 18</b>	32	16	+1+0
20	<b>GY 20</b>	34	18	+1+0
22	<b>GY 22</b>	36	18	+1+0
24	<b>GY 24</b>	38	18	+1+0
25	<b>GY 25</b>	39	18	+1+0
28	<b>GY 28</b>	42	20	+1,5+0
30	<b>GY 30</b>	44	20	+1,5+0
32	<b>GY 32</b>	46	20	+1,5+0
33	<b>GY 33</b>	47	20	+1,5+0
35	<b>GY 35</b>	49	20	+1,5+0
40	<b>GY 40</b>	56	23	+1,5+0
43	<b>GY 43</b>	59	23	+1,5+0
45	<b>GY 45</b>	61	23	+1,5+0
50	<b>GY 50</b>	66	23	+1,5+0

COUNTERFACE GCN		
Type	d <sub>7</sub>	L <sub>4</sub>
<b>GCN 10</b>	21	6
<b>GCN 12</b>	23	6
<b>GCN 14</b>	25	6
<b>GCN 16</b>	27	6
<b>GCN 16</b>	27	6
<b>GCN 18</b>	33	6
<b>GCN 20</b>	35	6
<b>GCN 22</b>	37	6
<b>GCN 24</b>	39	6
<b>GCN 25</b>	40	6
<b>GCN 28</b>	43	6
<b>GCN 30</b>	45	7
<b>GCN 32</b>	48	7
<b>GCN 33</b>	48	7
<b>GCN 35</b>	50	7
<b>GCN 40</b>	58	8
<b>GCN 43</b>	61	8
<b>GCN 45</b>	63	8
<b>GCN 50</b>	70	8

**OTHERS TYPICAL DESIGN**

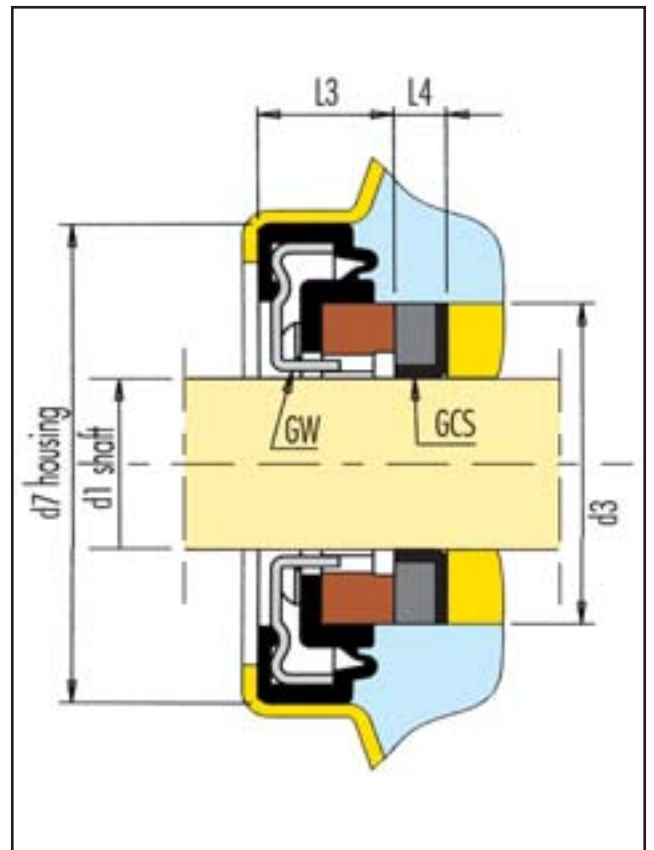


**CHARACTERISTICS**

Single, balanced model and compact design being in fully compliance with normes DIN 24960.  
New designs : GYK, GYM, GYH, GYR : universal family GY.

**APPLICATIONS**

General purpose in standard pumps for industrials, food processing, mild pharmaceutical, cosmetics, uses.  
Maximal pressure : 10 bar.



**INSTALLATION DIMENSIONS**

GULLIVER GW			
Type	d1	H8 d7	± 0,5 L3
GW 40	40	68	12
GW 50	50	80	13
GW 58	58	88	18
GW 85	85	130	20
GW 90	90	130	20

COUNTERFACE GCS		
Type	d3	L4
GCS 40	58	5
GCS 50	70	5
GCS 58	75	7
GCS 85	112	10
GCS 90	112	8.5

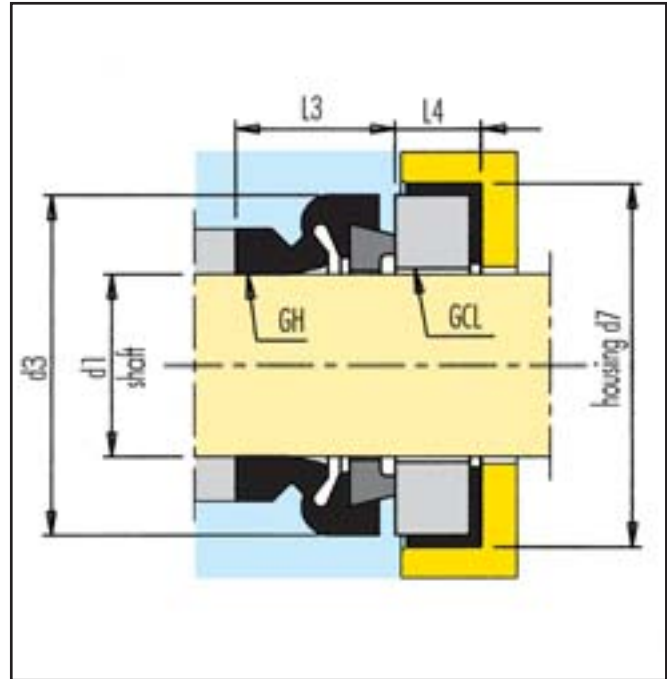
**CHARACTERISTICS**

- Rubber bellow and stationary seal.
- On the medium side, the seal is clean against detergents, fibers (for food), remains.
- Maximal pressure ≈ 1,5 bar.

**APPLICATIONS**

- This seal is utilized mainly top sealing shaft bearing in washing machine (laundry equipment).
- Seal for mixers and tanks, food processing, cosmetic or pharmaceutical products.

WITHOUT ANY METAL PART



## INSTALLATION DIMENSIONS

GULLIVER GH			
Type	d1	d3	L3 <sup>+1</sup> / <sub>+0</sub>
GH 6	6	18	12
GH 7	7	18	12
GH 8	8	18	12
GH 10	10	22	13
GH 12	12	25	13
GH 14	14	28	13
GH 15	15	29	13
GH 16	16	30	13
GH 18	18	32	13
GH 20	20	34	13
GH 22	22	36	13
GH 25	25	39	14
GH 30	30	44	15

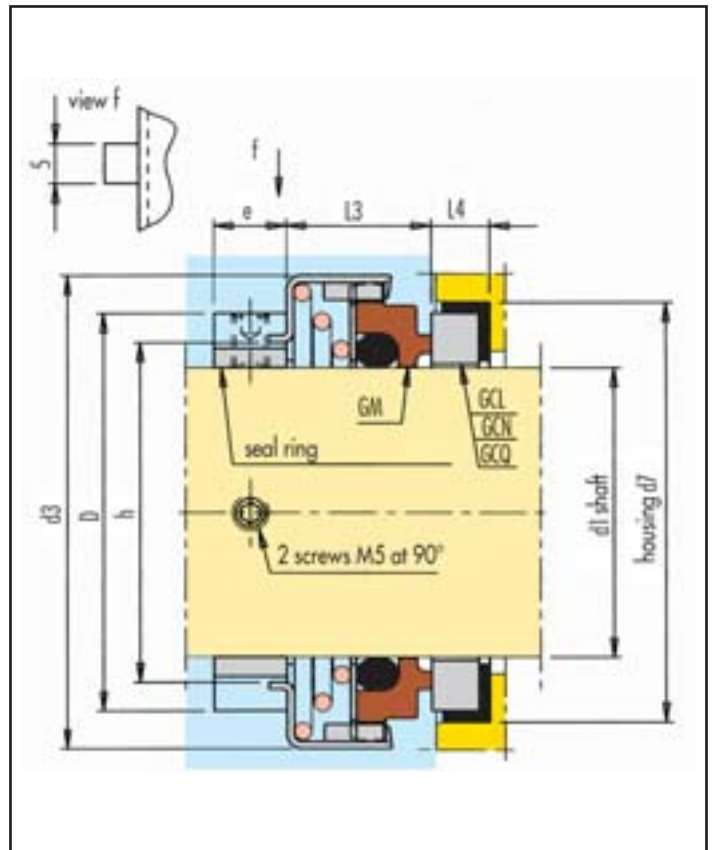
COUNTERFACE GCL		
Type	d7 <sup>H8</sup>	L4
GCL 6	18	7,3
GCL 7	20	7,3
GCL 8	20	7,3
GCL 10	22	7,3
GCL 12	25	7,3
GCL 14	28	7,3
GCL 15	28	7,3
GCL 16	30	9,6
GCL 18	32	9,6
GCL 20	38	9,6
GCL 22	38	9,6
GCL 25	42	9,6
GCL 30	48	12

## CHARACTERISTICS

- Rubber bellow and carbon face compose.

## APPLICATIONS

- This seal suitable to plastic pump as acids, syrup, resins.



INSTALLATION DIMENSIONS

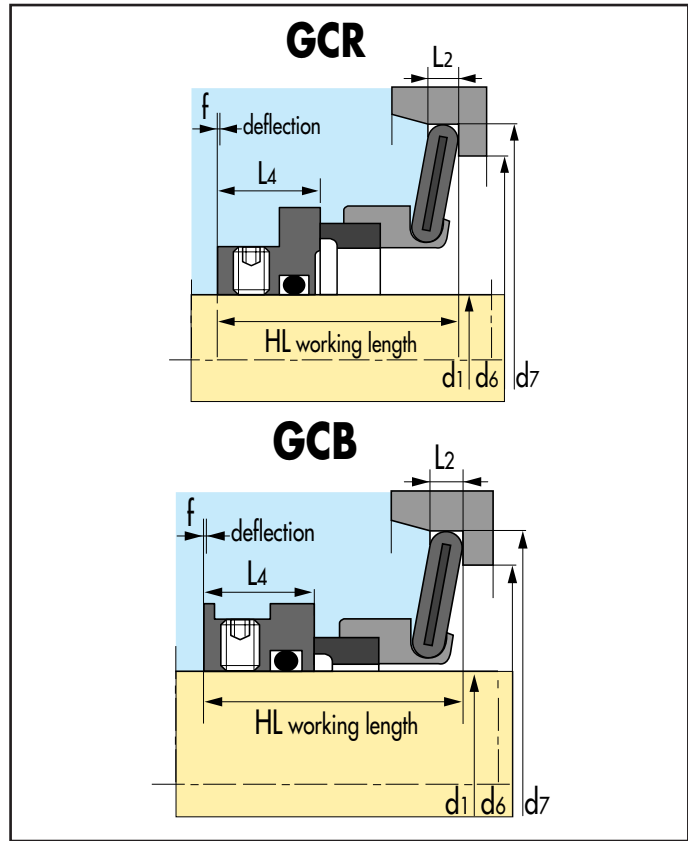
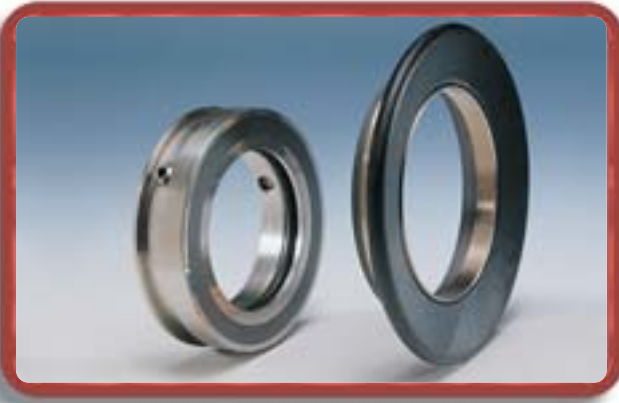
GULLIVER GM					COUNTERFACE GCQ, GCL, GCN								SEAL RING			
d1 h6	Type	d3	h	+ 1 L3 + 0 working length	Type	d7	L4	Type	d7	L4	Type	d7	L4	Type	e	D
8	GM 8	23	13	13	GCQ 8	26	8	GCL 8	20	7,3	GCN 8	18	5	BE8	8	20
10	GM10	25	15	13	GCQ 10	31	8	GCL 10	22	7,3	GCN 10	21	6	BE10	8	21
12	GM 12	27	18	13	GCQ 12	35	8	GCL 12	25	7,3	GCN 12	23	6	BE12	8	25
14	GM 14	29	19	13	GCQ 14	38	8	GCL 14	28	7,3	GCN 14	25	6	BE14	8	30
15	GM 15	31	21	13	GCQ 16	38	8	GCL 15	28	7,3	GCN 16	27	6	BE15	8	31
16	GM 16	31	21	13	GCQ 16	38	8	GCL 16	30	9,6	GCN 16	27	6	BE16	8	31
17	GM 17	33	23	13	GCQ 18	42	8	GCL 18	32	9,6	GCN 18	33	6	BE17	8	32
18	GM 18	33	23	13	GCQ 18	42	8	GCL 18	32	9,6	GCN 18	33	6	BE18	8	32
20	GM 20	35	25	13	GCQ 20	45	10	GCL 20	38	9,6	GCN 20	35	6	BE20	8	35
22	GM 22	40	28	13	GCQ 22	45	10	GCL 22	38	9,6	GCN 22	37	6	BE22	8	35
25	GM 25	45	32	14	GCQ 25	50	10	GCL 25	42	9,6	GCN 25	40	6	BE25	8	40
28	GM 28	50	35	15	GCQ 28	57	10	GCL 28	45	9,6	GCN 28	43	6	BE28	8	43
30	GM 30	54	37	15	GCQ 30	57	10	GCL 30	48	12	GCN 30	45	7	BE30	8	45
35	GM 35	60	42	16	GCQ 35	63	10	GCL 35	55	12	GCN 35	50	7	BE35	10	52
40	GM 40	65	47	18	GCQ 40	68	12	GCL 40	62	12	GCN 40	58	8	BE40	10	55
45	GM 45	70	52	20	GCQ 45	73	12	GCL 45	67	12	GCN 45	63	8	BE45	10	60
50	GM 50	76	57	20	GCQ 50	88	15	GCL 50	75	14	GCN 50	70	8	BE50	10	68

CHARACTERISTICS

GM style is built with a stainless housing including a positive drive by two catch pins, spring, brace and face ring slotted.

APPLICATIONS

General purpose for clear liquids as oil, fuel but with tungsten carbide faces, abrasive products can be sealed. Fuel pumps, gear box, washing machines pumps.



INSTALLATION DIMENSIONS

GULLIVER GMR		COUNTERFACE GCB/GCR							
d1	g6	Ref. GMR	Type	maxi	d6 d7 <sup>+0.1</sup>	HL	L4	mini	L2 f
20		20-30	<b>GCR 20</b>	57	63,5	35	14	4	1
25			<b>GCB 25</b>	57	63,5	35	14	4	1
30			<b>GCR 30</b>	57	63,5	35	14	4	1
35		35-55	<b>GCR 35</b>	84	92,5	40	17	5	2
40			<b>GCR 40</b>	84	92,5	40	17	5	2
45			<b>GCB 45</b>	84	92,5	40	17	5	2
50			<b>GCB 50</b>	84	92,5	40	17	5	2
55			<b>GCB 55</b>	84	92,5	40	17	5	2
60		60-85	<b>GCR 60</b>	118	128	40	17	5	2
65			<b>GCR 65</b>	118	128	40	17	5	2
70			<b>GCR 70</b>	118	128	40	17	5	2
75			<b>GCB 75</b>	118	128	40	17	5	2
80			<b>GCB 80</b>	118	128	40	17	5	2
85			<b>GCB 85</b>	118	128	40	17	5	2
90		90-110	<b>GCR 90</b>	152	162	42	17	5	2,5
100			<b>GCB 100</b>	152	162	42	17	5	2,5
110			<b>GCB 110</b>	152	162	42	17	5	2,5
120		120-140	<b>GCR 120</b>	181	191	46	20	5	2,5
130			<b>GCB 130</b>	181	191	46	20	5	2,5
140			<b>GCB 140</b>	181	191	46	20	5	2,5
150		150-190	<b>GCR 150</b>	233	244	64	30	6	3
160			<b>GCR 160</b>	233	244	64	30	6	3
170			<b>GCB 170</b>	233	244	64	30	6	3
180			<b>GCB 180</b>	233	244	64	30	6	3
190			<b>GCB 190</b>	233	244	64	30	6	3

CHARACTERISTICS

GMR style is based on a deflexion of a spring membrane who ensure dynamic sealing and axial force.  
 Pressure: up to 1 bar

APPLICATIONS

General purpose for mixers, handing abrasive and cristallizable suspensions.  
 Simple and without any cavity to catch remains and bacteria, GMR seal is a good solution for food and pharmaceutical industries.

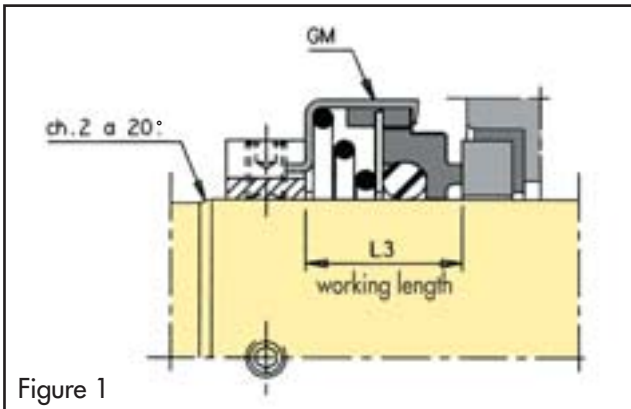


Figure 1

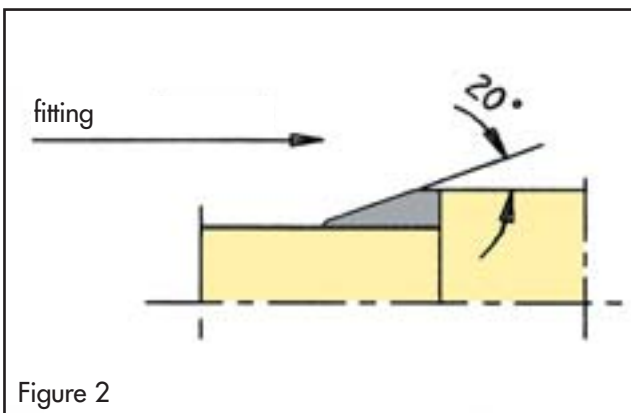


Figure 2

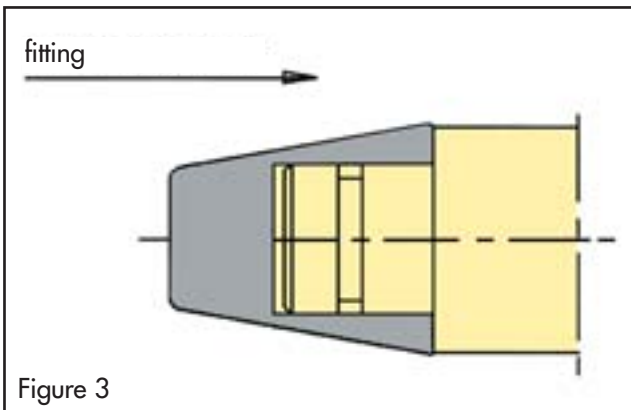


Figure 3

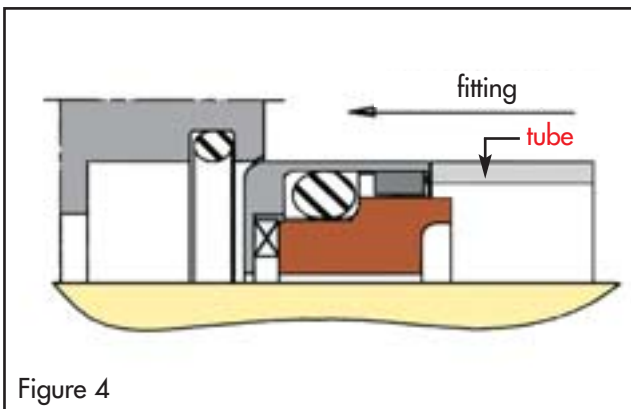


Figure 4

## FITTING INSTRUCTIONS

### SHAFT

Check roughness:  $0,8 < Ra < 3,2$  micron.

For a correct fitting, an entry chamfer or a removable entry cone is necessary (fig. 1+2+3).

### HOUSING

Check tolerances and suserfinished faces (H7 or H8) with a entry chamfer 2mm at 30°.

### FLATNESS AND FINISH OF THE FRICTION FACES

It always better to use a counterface lapped from our factory: face cheked by optical light.

In case of use of a metal face, the criteres of manufactur-ing is:

- flatness: 1 micron maxi (3 lightbands)
- roughness:  $Ra=0,2$  micron maxi.

### AJUSTEMENT

Just before fitting, check:

- that working lenght L3 (or L4) is well according table and permitted tolerances.
- that the "o"ring is placed on a correct part of the shaft without any sharp edges (Fig. 1).
- that the drive tongues (models GM or GVM) are placed on their slots (Fig. 1).

### INSTALLATION

- After this checking, clean shaft and housing with a solvant
- To facilitate fitting, use a lubriciant as a solution of water and soap.
- Push the seal onto the shaft with a well square position without any damages on the face.

Use a fitting tube (Fig. 4) for the type GU.

TYPE OF APPARATUS	MODEL	WORKING CONDITIONS
Water ring pumps	GU / GCB	Water / 10 bar / amb.
Textile equipments	GYH / GCN	Dyeing / 80°
Water pump	GY / GCN	Water / 10 bar / amb.
Disk - harrow	GVE / GCQ	Chim. prod. / 6 bar / amb.
Bottling equipment	GM / GCL	Beer / 5 bar / amb.
Textile equipments	GY / GCN	Dyeing / 80°
Filtration pumps	GYH / GCN	Water / Sea water / 6 bar
Watering machines	GY / GCN	River water / 10 bar
Chemical, cosmetic pumps	GY / GCN	Cream / 5 bar / amb.
Mixer	GU / GCB	Milk / wine / cosmetic / DRY
Mixer	GVE / GY	Pharm. products
Water turbines	GY / GCN	Water / 4 bar
Relay boxes	GM / GU	Oil / kerosene
Wines pumps	GVE / GCO	Wines - alcohols
Washing machines	GVE / GCQ	Water and detergent
Water turbines	GVE / GY	Watering / 4 bar
Water pumps	GVE / GCQ	Sevage water
Pumps	GY / GCN	Dairy products
Mixer	GVE / GCQ	Food mixture
Cutters	GU special	Delicatessen
Washing machines	GVE / GCQ	Water and detergent
Domestic pumps	GVE / GCQ	Waste water
Water irrigation pumps	GVE / GCQ	Fertilisants
Cooling pumps	GY / GCO	Water + glycol / 10 bar / 80°
Cooling pumps F1	GU special	7000 rpm
Washing machines	GW + GCS	Water and detergent

# MECHANICAL SEALS



Brochure  
Documentation N° ET 522 E

## SPECIAL DESIGN

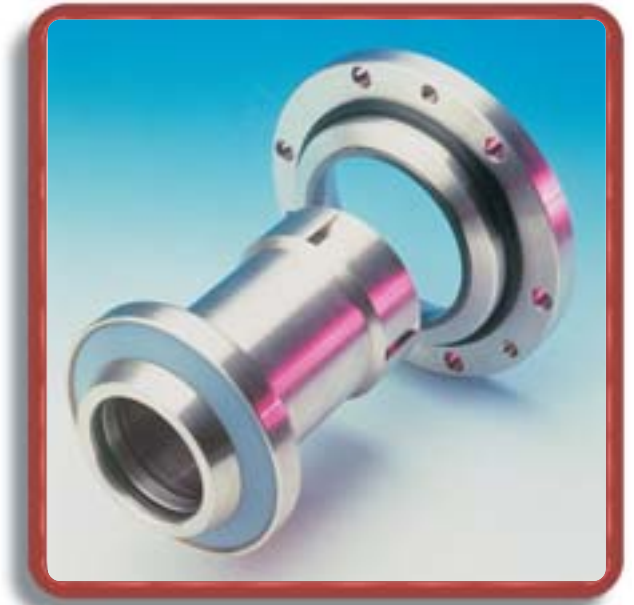
Mechanical seal design for abrasiv products.

## FIELDS

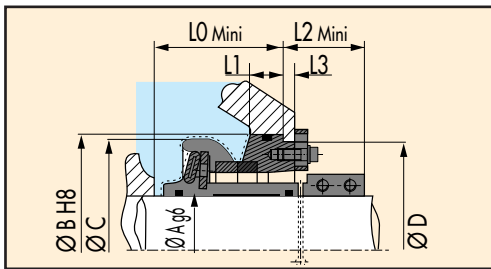
- Aluminium plants,
- treatment of phosphates,  $\text{CaCo}_3$ , Zn, Ni,
- slurry, sand, malasses,
- pulverized coal,
- paper industry: celulose, pulp.

## ADVANTAGE

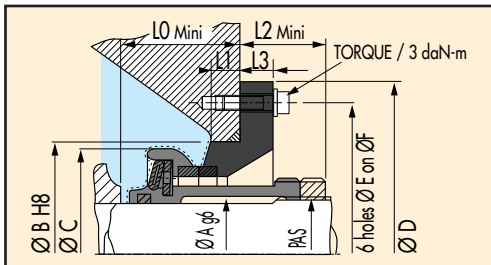
No water injection via lantern ring of stuffing boxes.



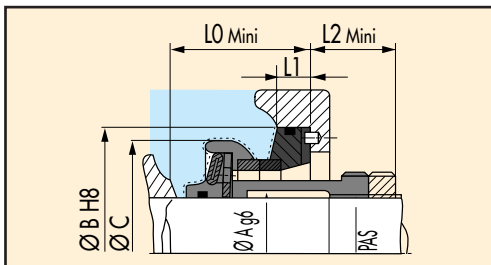
## ARRANGEMENTS



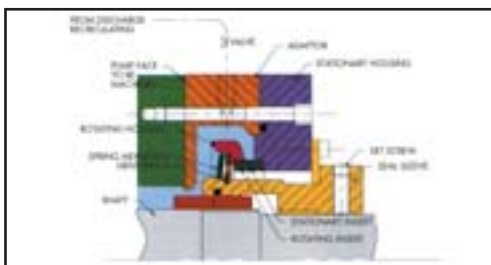
**Internal Cartridge**  
**GPAC**  
Ingersoll-Dresser Pump.  
(Canada)  
Alcan (Canada).



**GPA**  
Pump Envirotech  
Schabaver  
(France).  
Péchiney  
(France).



**GPA**  
Pump KSB  
(Allemagne).



**External cartridge**  
**GPAC**  
Pump Worthington  
Ingersoll-Dresser Pump.  
liquor (Australie).