



*A strong link of your system*

# CARTRIDGE MECHANICAL SEALS SERIES "C"

Fluiten cartridge seals are designed with flexibility in mind, to suit a large number of applications.

This optimisation, reduces the need to carry extensive spare parts, normally associated with multiple variations in seal usage.

The choice of materials, and the careful attention to detail for every solution, are the reason behind the great success of the Fluiten 'C' type cartridge range. This range is now being use with confidence, and complete satisfaction, by major manufacturers of pumps and mixers.

This catalog shows the second generation of this range of cartridges with the last improvements according to the current security requirements of european community

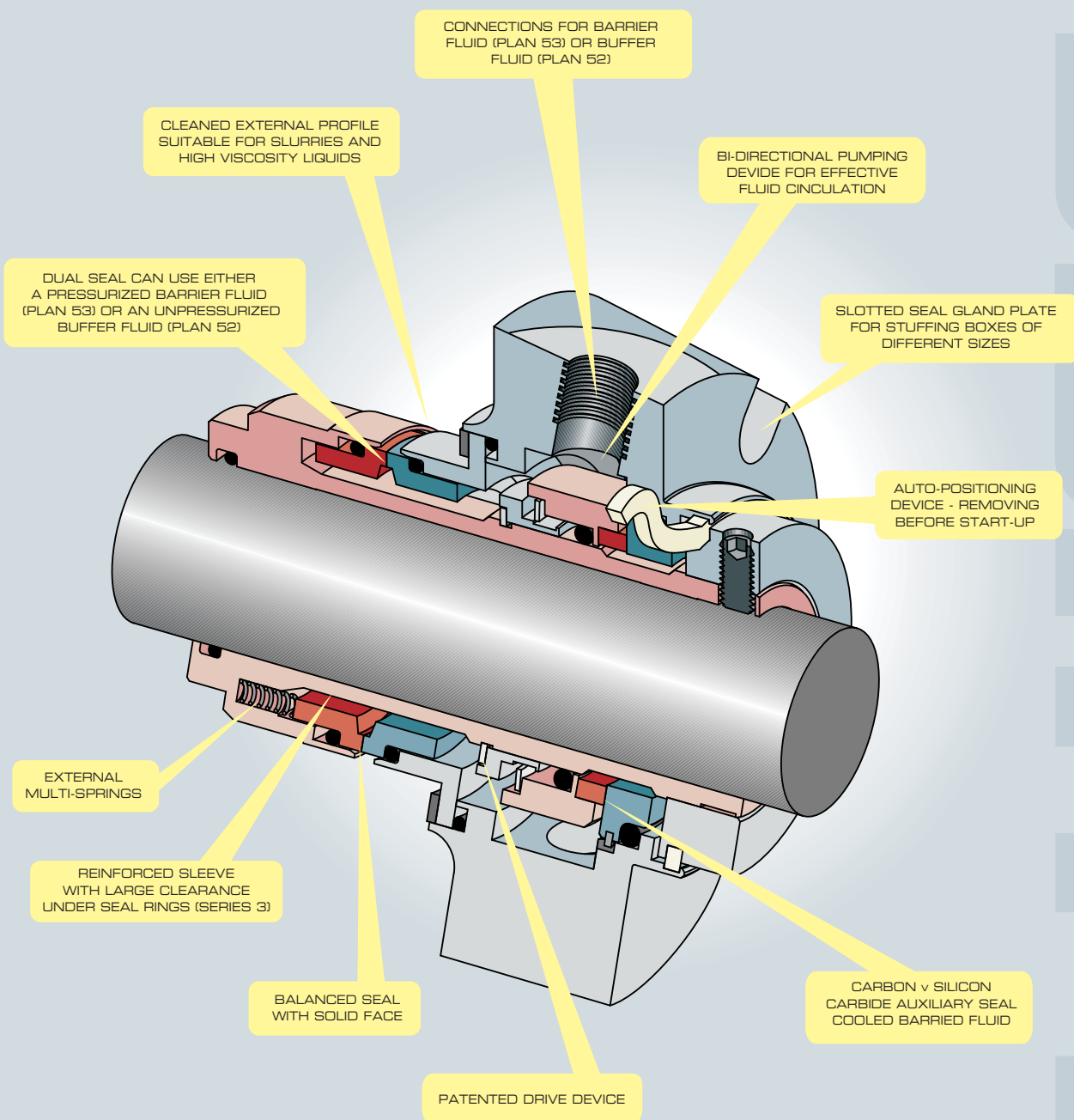


- Single Seals C2K/C2KC/C2S
- Single Seals with throttle bushing C2SQ/C2DQ
- Double Seals C2D
- Seals with reinforced sleeve series "3"
- Dry-running seals C4D/C4DQ



# DOUBLE SEALS CHARACTERISTICS

**C2D/C3D/C4D**  
(C2DQ/C3DQ/C4DQ with throttle bushing for quench)



## MATERIALS:

PRODUCT SIDE		ATMOSPHERE SIDE	
<b>STATIONARY SEAT:</b> Graphite Silicon carbide Tungsten carbide	<b>SPRINGS:</b> AISI 316 Hastelloy (if request)	<b>STATIONARY SEAT:</b> Silicon carbide	<b>THROTTLE BUSHING (C2DQ/C3DQ/C4DQ):</b> Bronze
<b>ROTARY FACE:</b> Silicon carbide Tungsten carbide	<b>OTHER METAL PARTS:</b> AISI 316 Hastelloy (if request)	<b>ROTARY FACE:</b> AISI 316+graphite	<b>SPRING:</b> Superinox
<b>GASKETS:</b> EPDM / FKM Perfluoroelastomers		<b>GASKETS:</b> EPDM / FKM Perfluoroelastomers (if request)	

# MAIN CHARACTERISTICS



**BI-DIRECTIONAL**  
Can be installed on clockwise or anti-clockwise rotating shafts.



**PRICE**  
Engineered to reduce production costs without compromising its quality level.



**RESISTANT TO ACIDS & BASES**  
The seal is resistant to products that are moderately chemically aggressive.



**UNIVERSAL**  
Geometry and materials maximize its application range.



**NO CATASTROPHIC FAILURES**  
The absence of a bellows guarantees that, in case of failure, there is no total fluid leakage.



**SELF-CLEANING**  
The seal eliminates by centrifugal force possible particle sedimentations.



**SELF-POSITIONING**  
Auto-positioning device removing before start-up.



**LOW TURBULENCE HEAT GENERATIONS**  
Its internal geometry reduces the amount of heat generated by turbulences.



**STOCK REDUCTION**  
Optimized material for stock reduction.



**ROBUST**  
The seal includes 2 robust clutch pins resistant to vibrations, cavitations and mechanical stress.



**CARTRIDGE**  
Seal complete of flange and shaft sleeve to guarantee reliable and easy installation.



**LOW EMISSIONS**  
The geometry of the rings has been studied to avoid deformations and guarantee contact effectiveness.

## APPLICATIONS

### INDUSTRY



CHEMICAL INDUSTRY



PHARMACEUTICAL FIELD



FOOD INDUSTRY



PAPER FIELD



WATER TREATMENT

### MACHINES



CENTRIFUGAL PUMPS



SIDE ENTRY MIXERS



BOTTOM ENTRY MIXERS



TOP ENTRY MIXERS

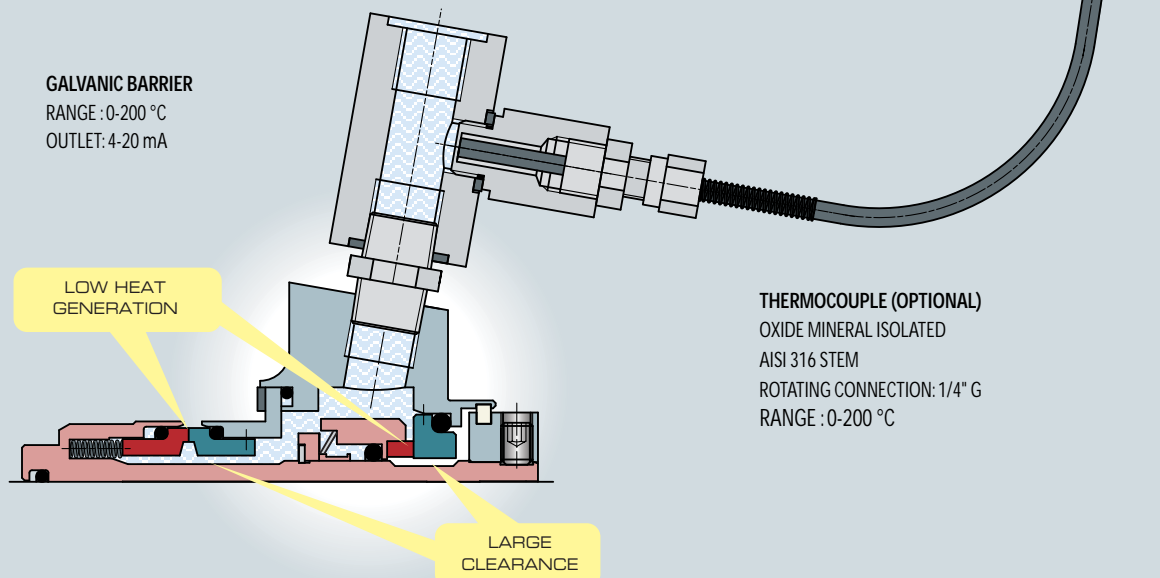


VERTICAL PUMPS

## ATEX COMPLIANCE

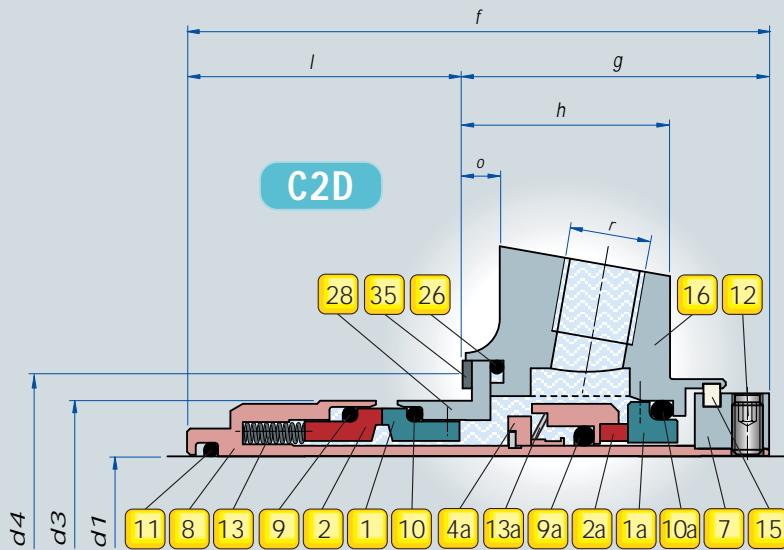
The Cartridges FLUITEN seals range are certified according the ATEX directive 94/9/CE (TÜV) which has defined the European requirements for equipment installed in critical potential explosive areas.

A declaration of conformity and a specific instruction manual can be supplied on demand. This documentation complete the equipment certification required for the duty validation. For high risk applications Fluiten can provide double mechanical seals lubricated and monitored by a thermocouple which has the probe located inside the stationary rings or in contact with the barrier fluid to have direct temperature relief.



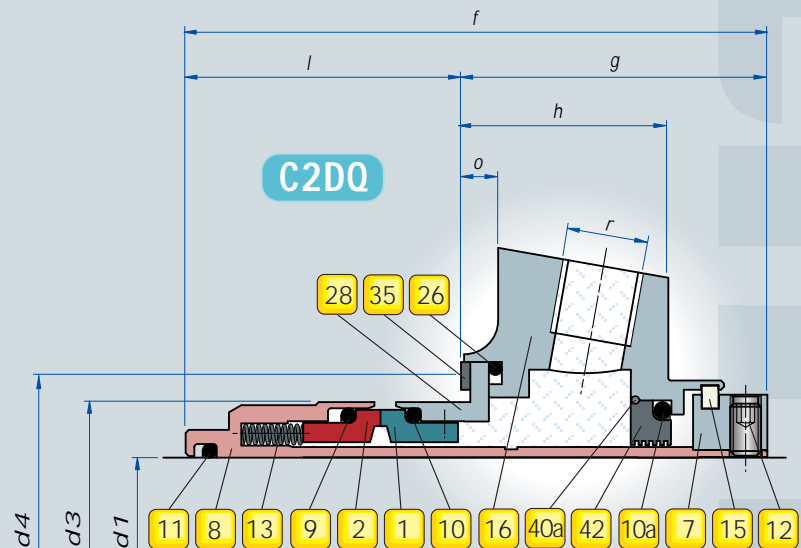
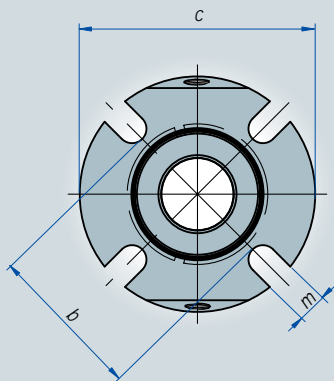


# SEALS DIMENSIONS C2D - C2DQ



## SEAL ELEMENTS:

- |     |                                |     |                                  |
|-----|--------------------------------|-----|----------------------------------|
| 1   | STATIONARY SEAT                | 10a | THROTTLE BUSHING "O" RING (C2DQ) |
| 1a  | STATIONARY SEAT                | 11  | SHAFT SLEEVE "O" RING            |
| 2   | ROTARY FACE                    | 12  | SET SCREWS                       |
| 2a  | ROTARY FACE                    | 13  | SPRINGS                          |
| 4a  | SEAL BODY                      | 13a | SPRING                           |
| 7   | DRIVE COLLAR                   | 15  | POSITIONING DEVICE               |
| 8   | SHAFT SLEEVE                   | 16  | FLANGE                           |
| 9   | ROTARY FACE "O" RING           | 26  | EXTERNAL FLANGE GASKET           |
| 9a  | ROTARY FACE "O" RING           | 35  | FLANGE GASKET                    |
| 10  | STATIONARY SEAT "O" RING       | 40a | SNAP RING                        |
| 10a | STATIONARY SEAT "O" RING (C2D) | 42  | THROTTLE BUSHING                 |



## CHARACTERISTICS:

### C2D

Double cartridge seal, recommended for high duty service. PLAN 52 or PLAN 53 or PLAN 54 (see pag. 11)

### C2DQ

Single cartridge seal with throttle bushing for low pressure quench (< 1 bar), recommended for high duty service. PLAN 62 (see pag. 11)

## OPERATING LIMITS: (\*)

DIAMETER (mm)	SPEED (m/sec)	PRESSURE (bar)	TEMPERATURE (°C)
100	12	25	+250
25	0	0	-50

### Externar fluid pressure:

- C2D (tandem): atmospheric pressure
- C2D (dual): 1-2 bar over product pressure

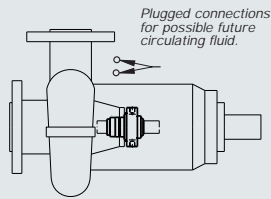
(\*) Pressure limitations depend upon a pressure-velocity relationship based on size, speed, face materials and fluid. Contact our Technical-Commercial office for technical specifics.

Seal Diam.	d1	d3	d4		b	c	f	g	h	l	m	o	r
			min	max									
25	25	43	44	51	63	98	94	49,5	33,5	44,5	12	6	Rp 1/4"
28	28	46	47	52	63	98	94	49,5	33,5	44,5	12	6	Rp 1/4"
30	30	48	49	56	65	98	94	49,5	33,5	44,5	12	6	Rp 1/4"
32	32	50	51	57	67	106	94	49,5	33,5	44,5	12	6	Rp 1/4"
33	33	53	54	61,5	71	106	97,5	53	36	44,5	12	6	Rp 1/4"
35	35	53	54	61,5	71	106	97,5	53	36	44,5	12	6	Rp 1/4"
38	38	56	57	66	76	120	98,5	54	37	44,5	12	6	Rp 1/4"
40	40	58	59	68	76	120	98,5	54	37	44,5	14	6	Rp 1/4"
43	43	61	62	70,5	81	130	98,5	54	37	44,5	14	6	Rp 1/4"
45	45	63	64	73	81	135	98,5	54	37	44,5	14	6	Rp 1/4"
48	48	66	67	75	87	135	98,5	54	37	44,5	14	6	Rp 1/4"
50	50	68	69	78	87	148	100,5	56	39	44,5	14	6	Rp 1/4"
55	55	73	74	83	95	148	102	57,5	40	44,5	18	6	Rp 3/8"
60	60	78	79	91	102	158	102	57,5	40	44,5	18	6	Rp 3/8"
65	65	83	84,5	98,5	112	163	102	57,5	40	44,5	18	6	Rp 3/8"
70	70	93	95	108	125	178	107	62,5	45	44,5	18	6	Rp 3/8"
75	75	98	100	113	130	185	107	62,5	45	44,5	18	6	Rp 3/8"
80	80	105	107	118	135	193	121	69	49	52	18	6	Rp 3/8"
85	85	110	113	123	140	198	121	69	49	52	22	6	Rp 3/8"
90	90	115	118	130	145	205	121	69	49	52	22	6	Rp 3/8"
95	95	121	124	135	150	208	123	69	49	54	22	6	Rp 3/8"
100	100	126	129	140	155	218	123	69	49	54	22	6	Rp 3/8"

Dimensions subject to modifications without notice.

# API PLANS APPLICABLE

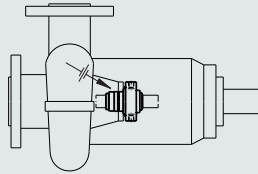
## FOR HORIZONTAL CENTRIFUGAL PUMPS:



PLAN 02

Dead-ended seal chamber with no circulation of flushed fluid.

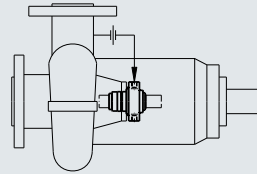
C2D0 - C3D0  
With PLAN 62



PLAN 01

Internal recirculation from pump discharge to seal.

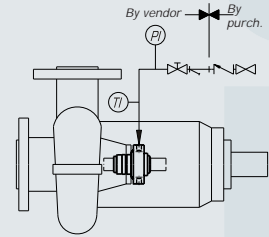
C2K - C3K



PLAN 11

Recirculation from pump case through orifice to seal.

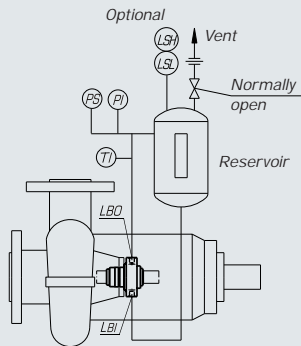
C2KC - C3KC  
C2S - C3S



PLAN 32

Injection to seal from external source of clean fluid.

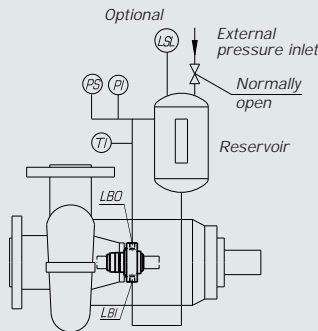
C2KC - C3KC  
C2S - C3S



PLAN 52

Un-pressurized external fluid reservoir with forced circulation; (typically used with tandem seal arrangement)

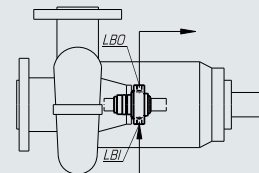
C2D - C3D



PLAN 53

Pressurized external fluid reservoir with forced circulation; (typically used with double seal arrangement)

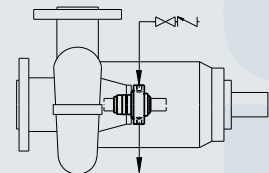
C2D - C3D



PLAN 54

Circulation of clean fluid from external system; (typically used with double seal arrangement)

C2D - C3D

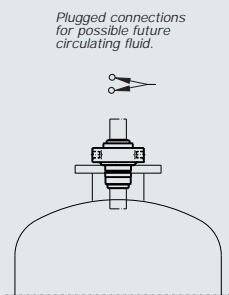


PLAN 62

External fluid quench (steam, gas, water, etc.) typically used with whit throttle bushing or auxiliary sealing device.

C2S0 - C3S0  
C2D0 - C3D0

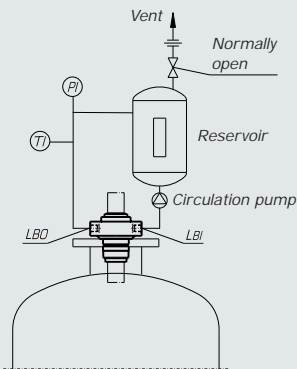
## FOR TOP ENTRY MIXERS:



PLAN 02

Dead-ended seal chamber with no circulation of flushed fluid.

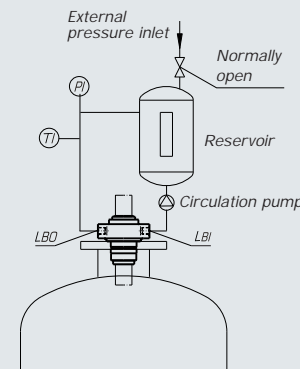
C4D - C4D0  
With PLAN 62



PLAN 52

Un-pressurized external fluid reservoir with forced circulation; (typically used with tandem seal arrangement)

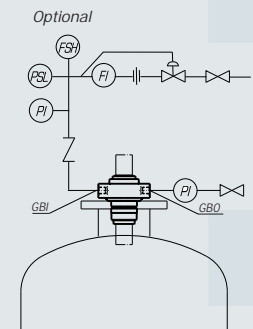
C3D



PLAN 53

Pressurized external fluid reservoir with forced circulation; (typically used with double seal arrangement)

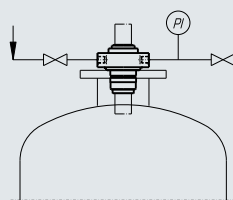
C3D



PLAN 74

Pressurized gas barrier regulated from control panel; (typically used with dry-running double seal arrangement)

C4D



PLAN 62

External fluid quench (steam, gas, water, etc.) typically used with whit throttle bushing or auxiliary sealing device.

C3D0 - C4D0

### API PLAN LEGEND

- (PI) Pressure indicator
- (TI) Temperature indicator
- (PS) Pressure switch
- (PSL) Low pressure alarm
- (LSH) High level alarm
- (LSL) Low level alarm
- (FSH) High flow alarm

LBI Flushing inlet/pressurization

LBO Flushing outlet/pressurization

GBI Barrier gas inlet

GBO Barrier gas outlet

Strainer

Flow-regulation valve

Block valve

Check valve

Orifice

# SERVICE SOLUTIONS

The Fluiten service department, independent from the production process, offer a fast, flexible and high quality assistance for any necessity.

During the repair process are also considered up grading evaluation to make the seals compliant to the recent environmental rules and using the present superior material technology.

High experienced technicians operates according the quality manual which define the level of repair to the initial manufacturing tolerances and performances.



Customer and After sales service for assistance and technical support tel. +39 02 339403.1 or contact us by [info@fluiten.it](mailto:info@fluiten.it) or [www.fluiten.it](http://www.fluiten.it)

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