API 614/ISO 10438-2 DATASHEET
SCOPE AND ATTACHMENTS
USC UNITS

Job No.: _____ Item No.: _____
Page: 7 of 7 By: _____
Date: _____ Revision: _____

				Rev
1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☐ As built			
2	Supplier _____ Manufacturer _____			
3	Purchase Order No. _____ Date _____ Inquiry No. _____ Requisition No. _____			
4				
5	**Shop inspection (API 614/10438-1; 7.1.1)**	Required	Witnessed	
6	○ Compliance with inspector's check list (-1; 7.1.2)	○	○	
7	○ Required for system assemblies	○	○	
8	○ Cleanliness prior to closure (-1; 7.2.3.2)	○	○	
9	○ Required for major components	○	○	
10	○ Material certification to be furnished	○	○	
11	○ Special examinations	○	○	
12	○ Construction code	○	○	
13	○ Code stamp	○	○	
14	○ Certified copies of all testlogs & data	○	○	
15	○ PMI testing (-1; 7.2.2.6.2)	○	○	
16	○ Hardness testing (-1; 7.2.2.3)	○	○	
17	○			
18	○			
19	**Shop test (API 614/10438-1; 7.1.1)**	Required	Witnessed	
20	○ Cleanliness	○	○	
21	○ Four hour run	○	○	
22	○ Check controls	○	○	
23	○ Changeover filters/coolers	○	○	
24	○ One and two pump operation	○	○	
25	○ Sound level	○	○	
26	○ Hydro test assembled system	○	○	
27	○ Use during shop test of equipment (7.3.1.2)	○	○	
28	○ Use for complete unit system test (7.3.1.3)	○	○	
29	○ Certified copies of all test logs and data ○ submit prior to shipment (-1; 8.3.3.2)	○	○	
30	○ Demonstrate pump alignment by unbolting pump inlet and discharge piping (7.3.3.11)	○	○	
31	○			
32	○ Amount of advance notification required before a witnessed or observed inpsection (-1; 7.1.2): weeks.			
33	○ Records or data to be kept by vendor for at least 20 years, in addition to the requirements of 10438-1, 7.2.1 [-1; 7.2.1.1.f)]			
34	○ Surface and subsurface examination required (-1; 7.2.1.3). Examination type:			
35	○ magnetic particle ○ liquid penetrant ○ radiographic ○ ultrasonic			
36	○ One copy of manufacturer's standard instruction manual packed and shipped with equipment (-1; 7.4.7)			
37	**Remarks**			
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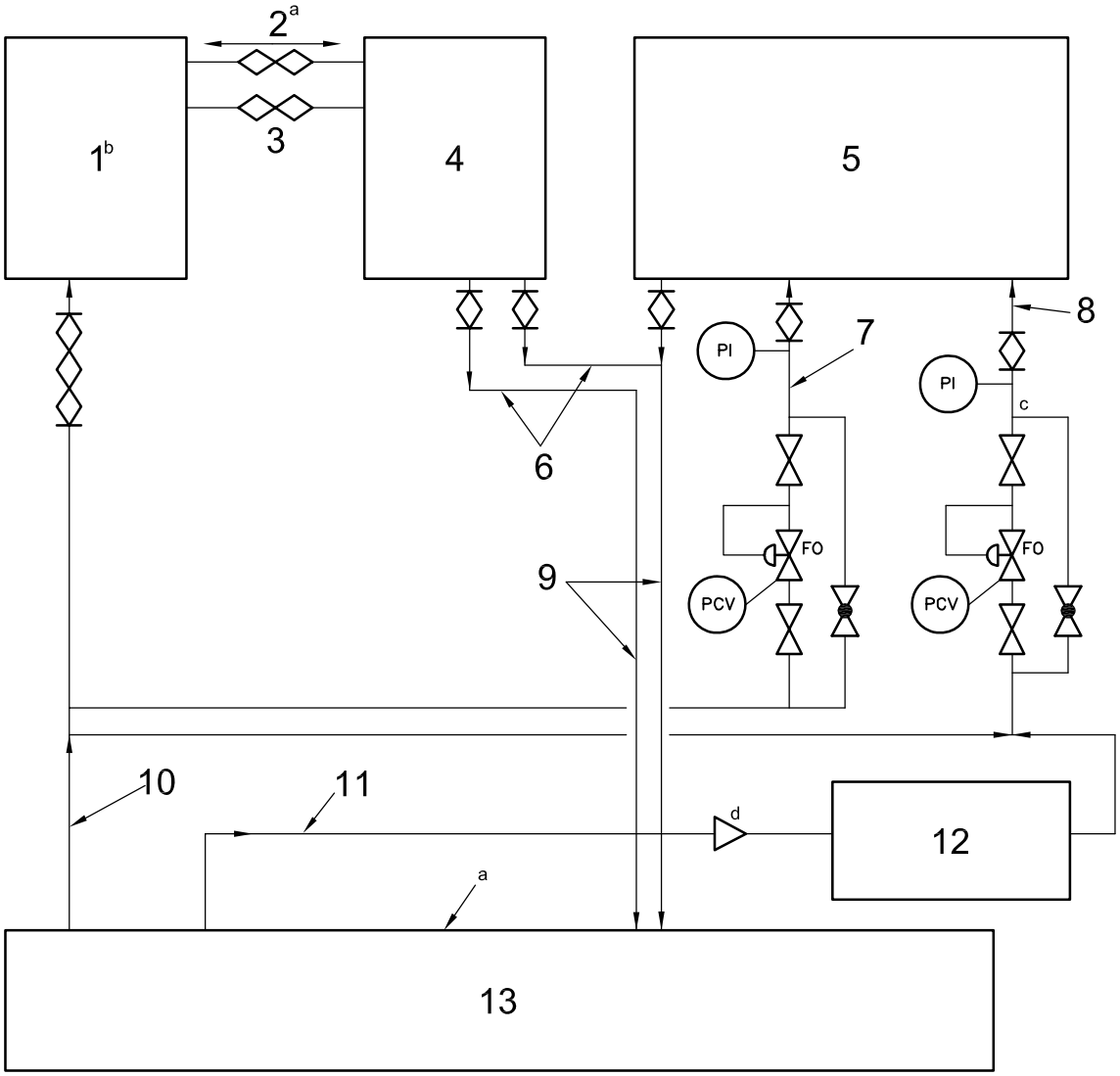
Figure A.1 — Datasheet special purpose oil systems — USC units *(continued)*

Annex B
(informative)

Piping and instrument diagrams



Key

1 overhead-tank module
2 gas reference
3 seal-oil supply
4 seal-oil system module (Figure B.9)
5 main equipment lube- and control-oil module (Figure B.10)
6 drain
7 lube oil
8 control oil
9 oil-return headers
10 oil-supply header
11 alternative control-oil flow
12 twin filter and cooler set (Figure B.20 or B.21)
13 basic oil-supply module (Figure B.12)

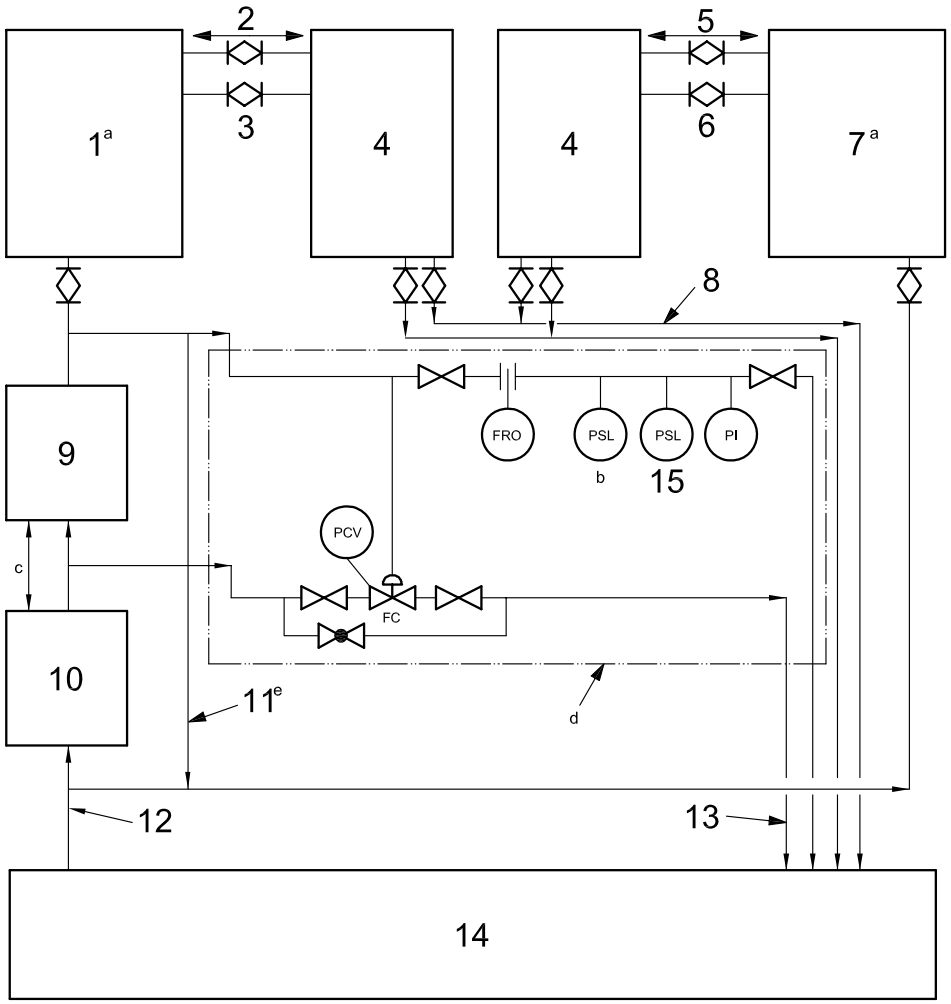
[a] Figure B.1, option A: For systems without overhead seal-oil tanks, the gas reference is connected to a direct-acting differential-pressure control valve. The alternative arrangement is shown in Figure B.12.

[b] The overhead-tank module may be either upstream (Figure B.4) or downstream (Figure B.5) of the seal-oil system module.

[c] This arrangement is valid only when the minimum seal-oil supply pressure is higher than the control-oil pressure.

[d] The check valve is omitted if an accumulator is not used.

Figure B.1 — Combined seal-oil, lube-oil, and control-oil system



Key

1 high-pressure overhead-tank module (Figure B.17)
2 high-pressure gas reference
3 high-pressure seal-oil supply
4 seal-oil module (Figure B.9)
5 low-pressure gas reference
6 low-pressure seal-oil supply
7 low-pressure overhead-tank module (Figure B.17)
8 drain
9 filter and cooler module (Figure B.20 or B.21)
10 booster pump (Figure B.23)
11 alternative low-pressure seal-oil supply lines
12 oil-supply header
13 oil-return headers to reservoir
14 basic oil-supply module (Figure B.12)
15 alarm

[a] The overhead-tank module may be either upstream (see Figure B.4) or downstream (see Figure B.5) of the seal-oil system module.

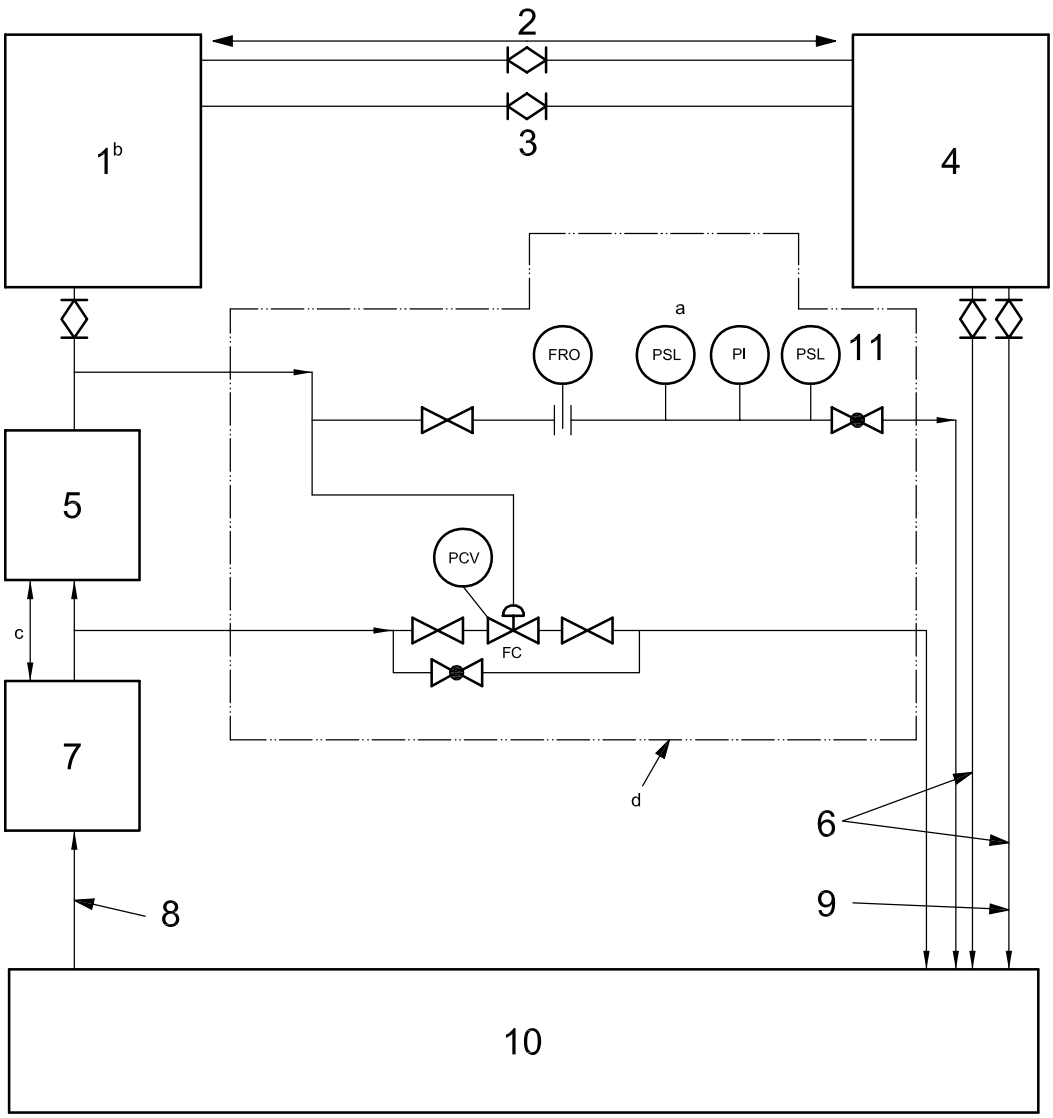
[b] Figure B.2, option A: A switch is included to start the standby booster pump.

[c] Figure B.2, option B: The booster pump and filter are omitted if the basic oil-supply system is specified to provide the required pressure.

[d] Figure B.2, option C: The pressure control valve and associated switches and pressure indicator may be deleted when the equipment has seals that take the total flow of oil from the pumps without the need for back-pressure regulation.

[e] The source for low-pressure seal oil depends on the required pressure.

Figure B.2 — Seal-oil system only, with overhead tanks for equipment with more than one pressure level



Key

1 overhead-tank module (Figure B.17)
2 gas reference
3 seal-oil supply
4 seal-oil module (Figure B.9)
5 filter and cooler module (Figure B.20 or B.21)
6 drain
7 booster pump (Figure B.23)
8 oil-supply header
9 oil-return headers to reservoir
10 basic oil-supply module (Figure B.12)
11 alarm

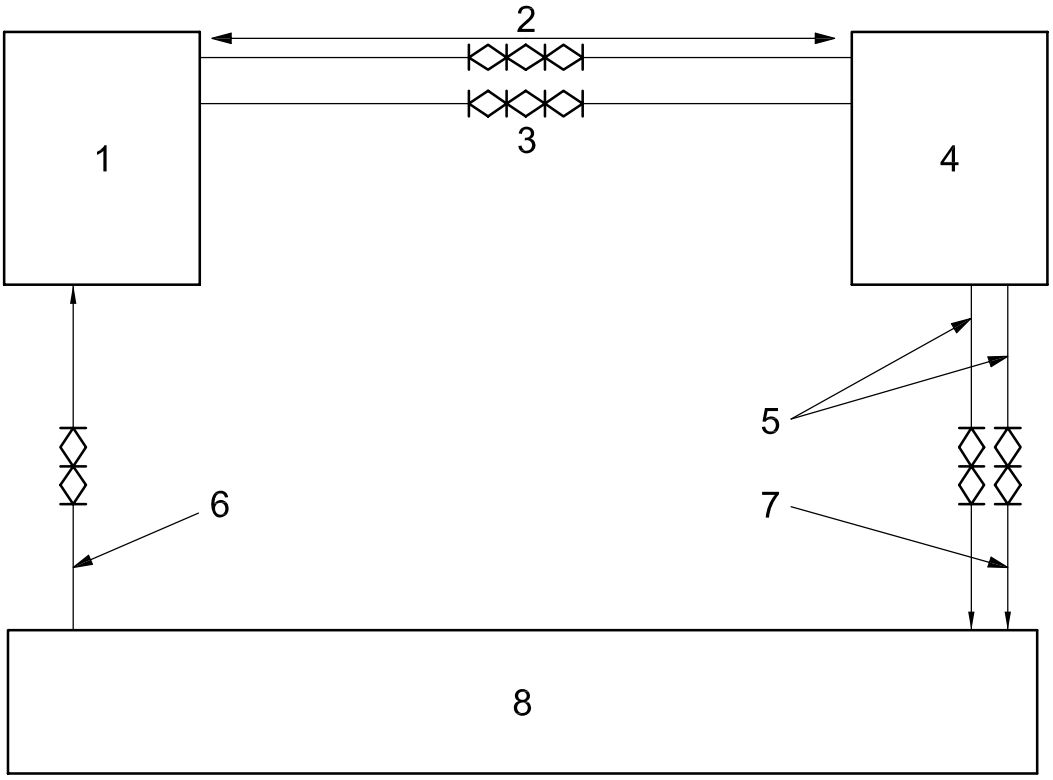
[a] Figure B.3, option A: A switch is included to start the standby booster pump.

[b] The overhead tank module may be either upstream (see Figure B.4) or downstream (see Figure B.5) of the seal-oil module.

[c] Figure B.3, option B: The booster pump and filter are omitted if the basic oil-supply system is specified to provide the required pressure.

[d] Figure B.3, option C: The pressure control valve and associated switches and pressure indicator may be deleted if the equipment seals utilize the total flow of oil from the pumps (e.g., for cooling purposes).

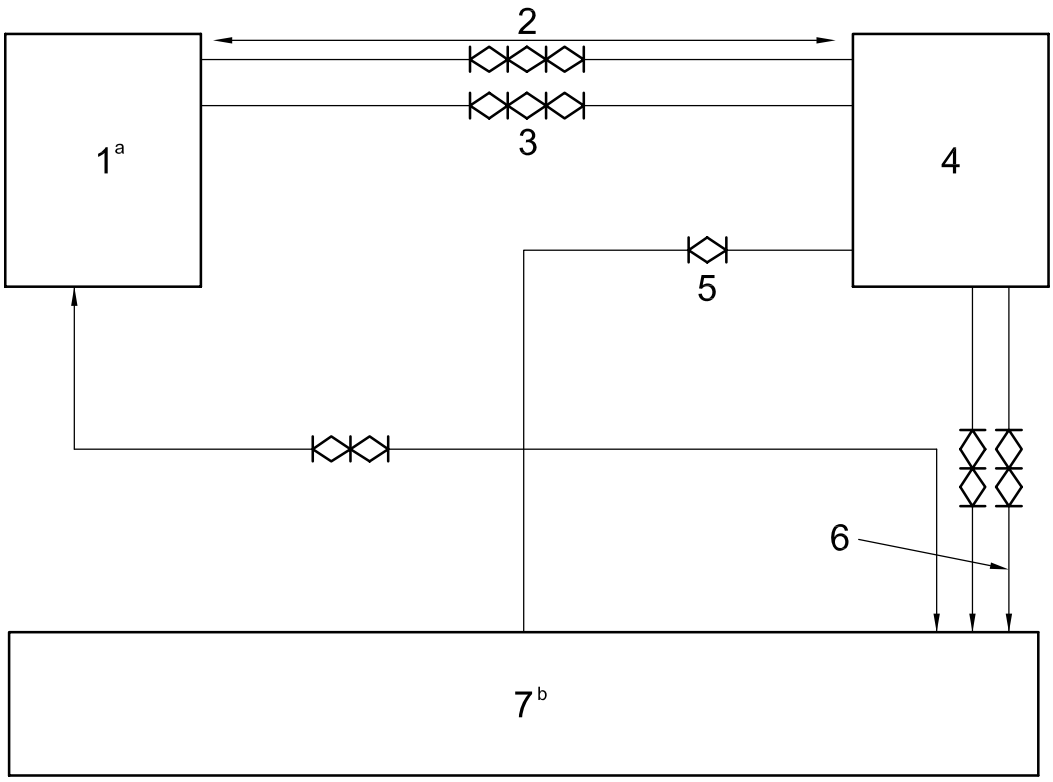
Figure B.3 — Seal-oil system only, with overhead tank for equipment with one pressure level



Key

1 overhead-tank module (Figure B.17)
2 gas reference
3 seal-oil supply
4 seal-oil module (Figure B.9)
5 oil-return headers to reservoir
6 oil-supply header
7 oil-return headers to reservoir
8 basic oil-supply module (Figure B.12)

Figure B.4 — Seal-oil system only, for equipment with liquid film-type seals — Overhead tank upstream of seals



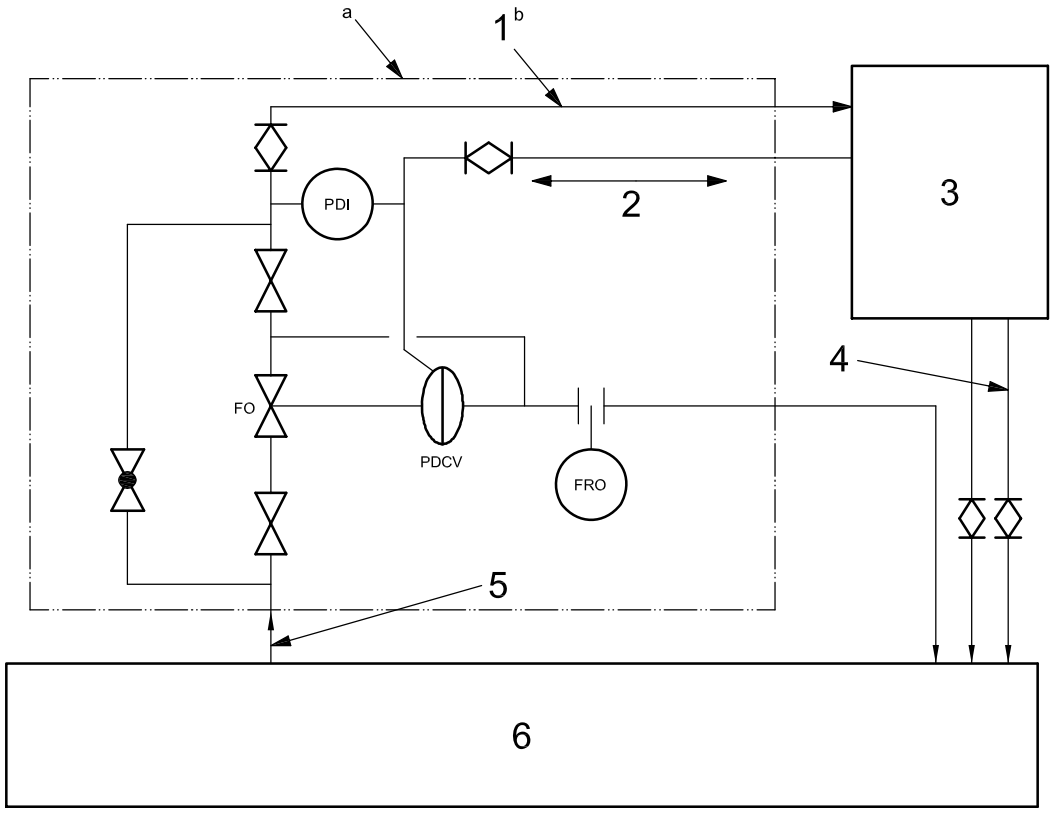
Key

1 overhead-tank module (Figure B.17)
2 gas reference
3 oil out
4 seal-oil module (Figure B.9)
5 seal-oil supply
6 oil-return headers to reservoir
7 basic oil-supply module (Figure B.12)

a The check valve shown in Figure B.17 is omitted from the overhead-tank module.

b The direct-acting pressure-control-valve circuit shown in Figure B.12 is omitted.

Figure B.5 — Seal-oil system only, for equipment with liquid film-type seals — Overhead tank downstream of seals



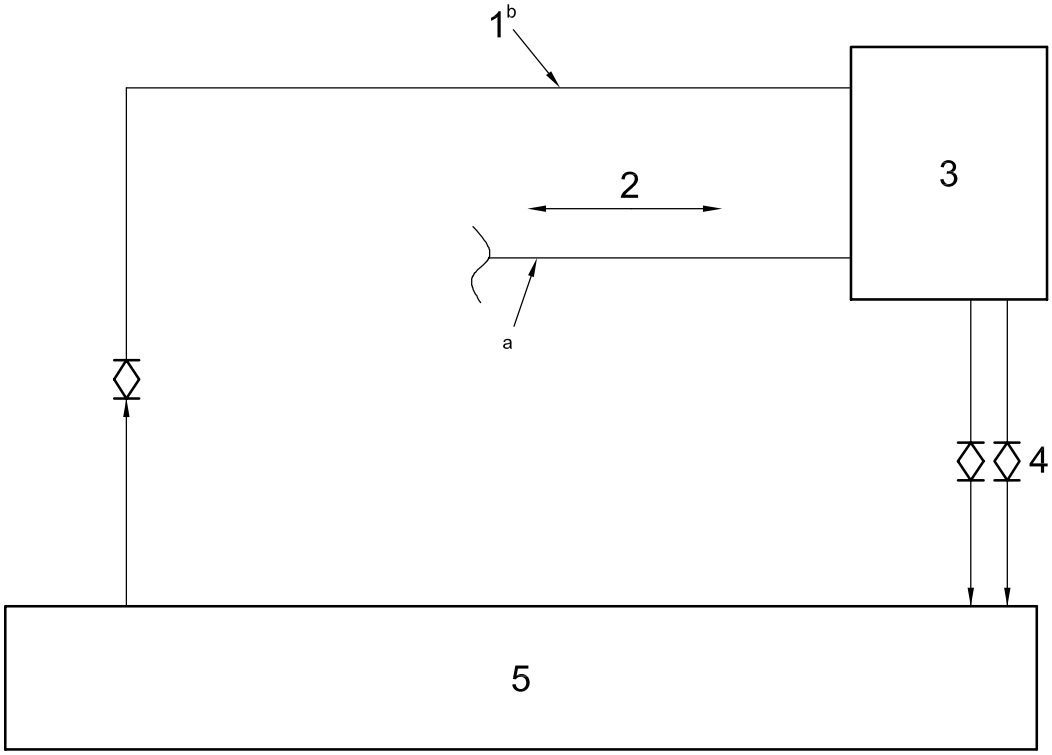
Key

1 seal-oil supply
2 gas reference
3 seal-oil module (Figure B.9)
4 oil-return headers to reservoir
5 oil-supply header
6 basic oil supply module (Figure B.12)

[a] The purchaser and vendor may agree upon an alternative arrangement.

[b] This arrangement is valid only when the pressure of the seal-oil supply at the compressor is lower than the pressure of the cooling water. If the pressure of the cooling water is lower, refer to Figure B.7.

Figure B.6 — Seal-oil system with oil pressure lower than cooling water pressure



Key

1 seal-oil supply

2 gas reference

3 seal-oil module (Figure B.9)

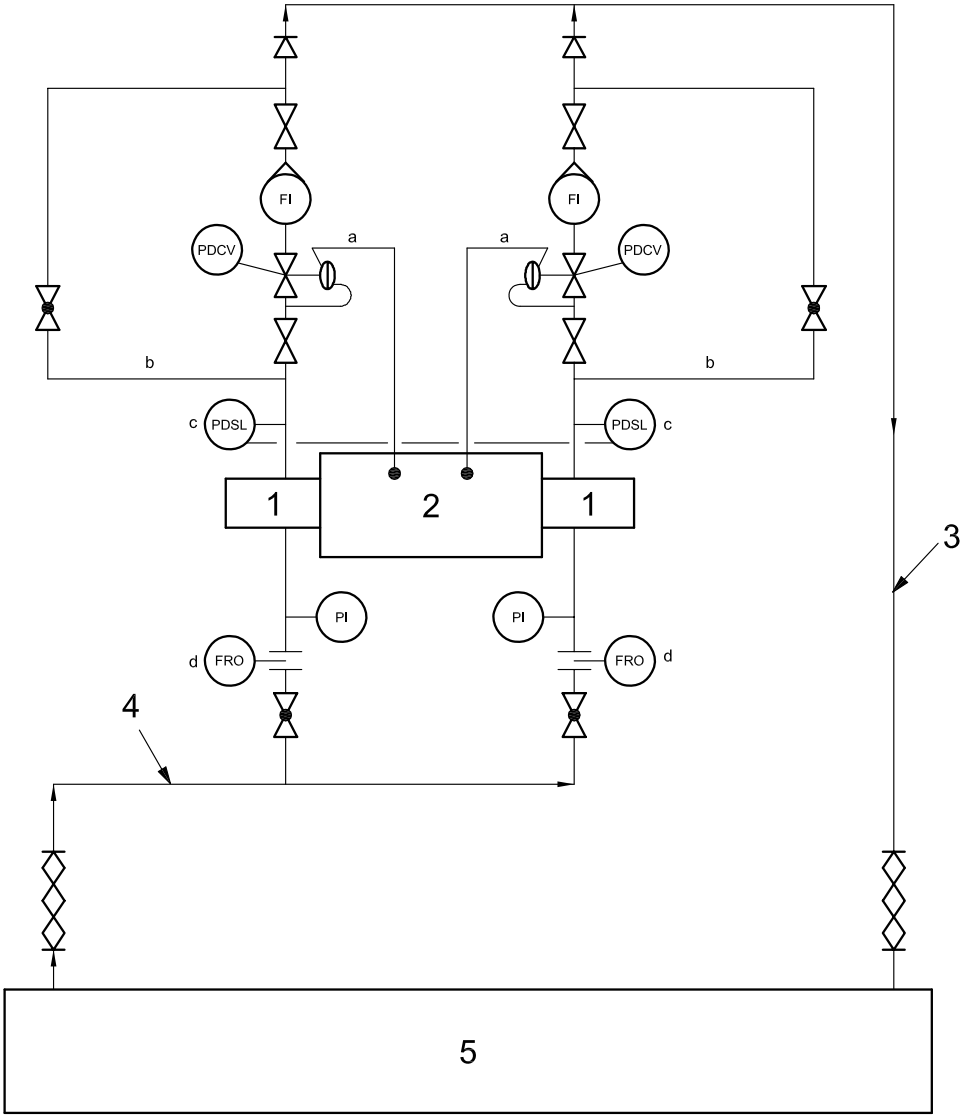
4 oil-return headers to reservoir

5 basic oil-supply module (Figure B.12)

a A direct-acting differential-pressure control valve is used according to the alternative arrangement shown in Figure B.12.

b This arrangement is valid only when the pressure of the seal-oil supply is higher than the pressure of the cooling water. If the pressure of the cooling water is higher, refer to Figure B.6.

Figure B.7 — Seal-oil system with oil pressure higher than cooling water pressure



Key

1 seal

2 equipment

3 oil-return header to reservoir

4 oil-supply header

5 basic oil-supply module (Figure B.12)

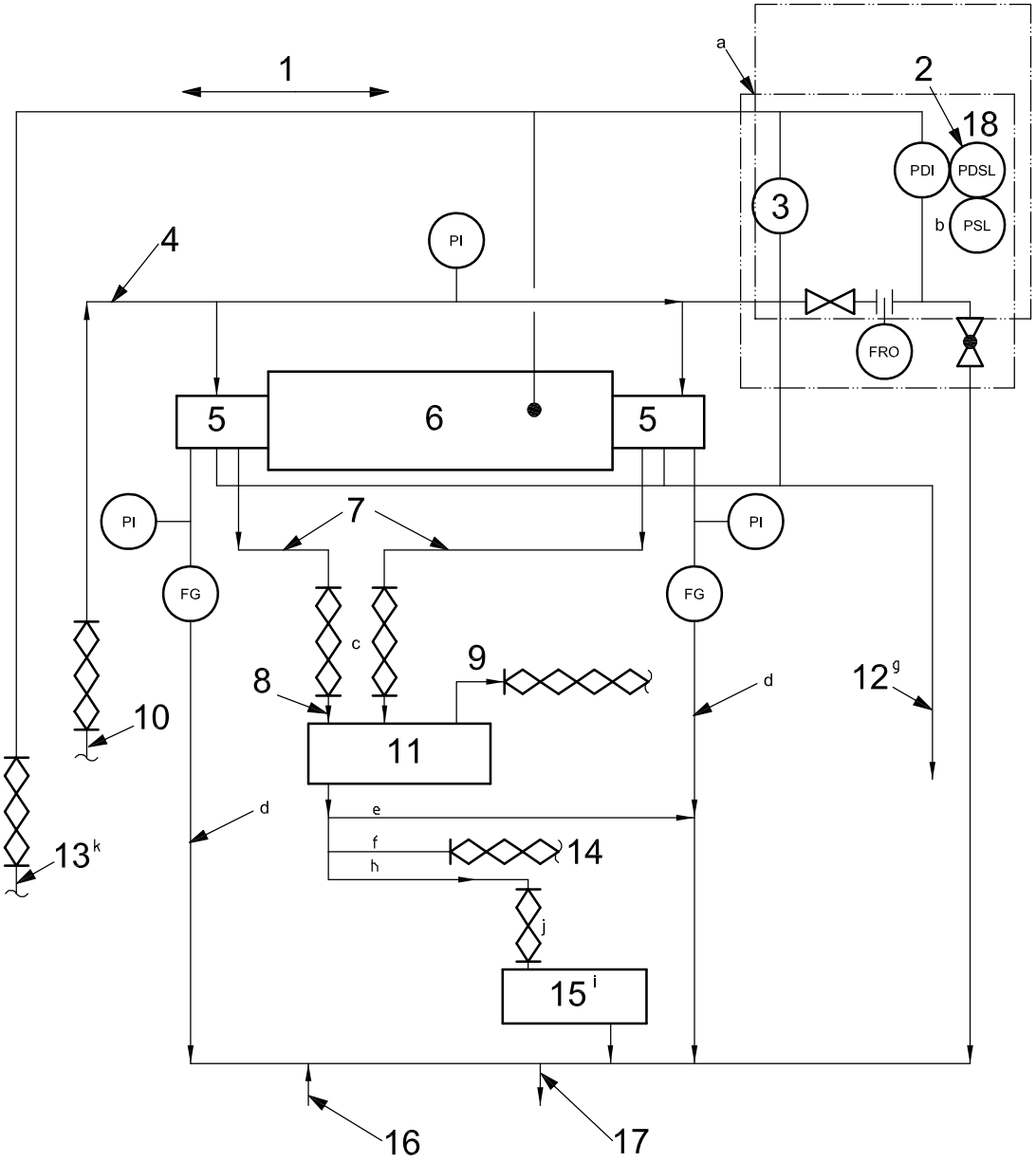
[a] Each direct-acting differential-pressure control valve shall be referenced to sense the working-fluid pressure acting at the corresponding mechanical seal.

[b] Block, isolation, and vent-bleed valves can be omitted for all instruments in trip service with owner's approval.

[c] Figure B.8, option A: A switch to alarm or trip or both is/are included.

[d] Figure B.8, option B: A flow-restriction orifice is included.

Figure B.8 — Seal-oil circulation system for equipment with double mechanical seals or multiple sealing pressure levels



Key

1	gas reference	10	seal-oil supply
2	to start standby pump	11	inner oil seal drain traps (Figure B.14)
3	PDSLL to trip main driver	12	seal-oil return header
4	seal-oil supply header	13	gas reference to differential control or overhead tank
5	seal	14	purchaser's drains
6	equipment	15	degasifier
7	inner seal-oil drains	16	drain header (lube drain for combined lube- and seal-oil systems)
8	drain	17	oil return(s) to reservoir
9	vent	18	alarm

Figure B.9 — Seal-oil module at equipment

[a] The indicated components are omitted if they are furnished separately on the overhead tank.

[b] The low-pressure switch is not required if the module is supplied with a back-pressure regulator circuit (see Figure B.12).

[c] This piping is furnished by the vendor when the drainers are mounted on a compressor baseplate.

[d] On combined lube- and seal-oil systems, the outer seal drain may be combined with the lube-oil drain inside the compressor.

[e] Figure B.9, option A: A drain to the reservoir is included.

[f] Figure B.9, option B: A drain to the purchaser's drains is included.

[g] Alternate seal-oil drain arrangement. For this arrangement, sensing instruments (key items 2 and 3) are referenced to a pressure-controlled header, either upstream or downstream of the seals, as agreed.

[h] Figure B.9, option C: A drain to the degassing drum is included.

[i] Figure B.9, option D: A degassing drum (see Figure 3) is included.

[j] This piping is furnished by the vendor if the degassifier is mounted on a compressor baseplate supplied by the vendor.

[k] Each direct-acting differential-pressure-control valve shall be referenced to sense the working-fluid pressure acting at the corresponding seal.

Figure B.9 — Seal-oil module at equipment (*continued*)