



Australian Government  
IP Australia

## Search Information Statement (SIS)

**Application  
Number**

**PCT/AU2018/051066**

### A. Search Details

<b>Additional Members of the Search Team (if convened):</b>	H. Yu, H. Bal	<b>Earlier Search Results (if available)</b>	
		<b>Current SIS Completion Date</b>	24 December 2018

### B. Search Strategy

Applicant(s)/Inventor(s) name search

Databases: Google, Google Patents, Auspat, Espacenet

Applicant: AQUATEC MAXCON PTY LTD

Inventor/s: Gregory JOHNSTON, David Yule, Kenneth Roy WILDBUR

Other keywords: diffuser membrane

IPC/CPC: B01F3/00/low

All relevant results viewed.

Database: Google Patents

Keywords: diffuser, aerator, membrane, recess, sunken, depression, hollow, purge valves, two, series, float valve, check valve

CPC: B01F3/04255, B01F3/04269, B01F3/04241

All relevant results viewed.

Database: Espacenet

B01F3/04269 and B01F3/04255 as the Cooperative Patent Classification

B01F2003/04354 and B01F3/04255 as the Cooperative Patent Classification

(B01F2003/04276 or B01F3/0412) and B01F3/04255 as the Cooperative Patent Classification

B01F3/04269 and B01F2003/04304 as the Cooperative Patent Classification

(F16K31/18/low or F16K33/00/low or Y10T137/7358) and F16K15/14/low as the Cooperative Patent Classification

(F16K31/18/low or F16K33/00/low or Y10T137/7358) and F16K15/18/low as the Cooperative Patent Classification

series in the title or abstract AND F16K15/00/low and (F16K31/18/low or F16K33/00/low or Y10T137/7358) as the Cooperative Patent Classification

All relevant results viewed.

PATENW	SS Status	Results	Query
1		19	B01F3/04269/C/CNO AND B01F3/04255/C/CNO
2		16	B01F2003/04354/C/CNO/LOW AND B01F3/04255/C/CNO
3		0	((OR F16L55/07, F16K24/06)/IC/C/CNO OR (OR C02F3/201, C02F3/208, Y10S261/70)/C/CNO) AND B01F3/04255/C/CNO AND B01D2313/04/C/CNO
4		35	((OR F16L55/07, F16K24/06)/IC/C/CNO OR (OR C02F3/201, C02F3/208, Y10S261/70)/C/CNO) AND B01F3/04255/C/CNO
5		0	(OR F16L55/07, F16K24/06)/IC/C/CNO AND B01F3/04255/C/CNO
6		15.475	F16K24/00/IC/C/CNO/LOW {devices for venting or aerating}
7		188	B01F3/04255/C/CNO {mixing gases into liquids, bubbling, arrangement of bubbling devices, diffusers, elements opening under air pressure}
8		1	6 AND 7
9		188	7
> 10		201	*XT {..FAMEX SS 9 FROM PATENW}
11		1.170.283	(OR MEMBRANE?, FILM?, LAYER?, TISSUE?) 5D (OR RECESS, RECESSES, RECESSED, DEPRESSION, CAVIT+, GAP?, CONCAVE, HOLLOW+, SCOOPED, SUNKEN, INDENT+)
> 12		3	10 AND 11
13		1.204.445	(OR MEMBRANE?, FILM?, TISSUE?, LAYER?) 3D (OR STRETCH?, TAUT, SEAL+, TIGHT+, STRESS+, EXPAND+, INFLAT+)
> 14		7	10 AND 13
> 15		27	10 AND MEMBRANE?
16		1.523	B01F3/04269/C/CNO {mixing gases into liquids, bubbling, arrangement of bubbling devices, diffusers, flexible porous material}
> 17		1.552	*XT {..FAMEX SS 16 FROM PATENW}
18		111	B01F2003/04304/C/CNO {mixing gases into liquids, bubbling, arrangement of bubbling devices, diffuser element, having dome, cap or inversed cone shape}
> 19		112	*XT {..FAMEX SS 18 FROM PATENW}
> 20		8	17 AND 19
21		532	B01F2003/04297/C/CNO {mixing gases into liquids, bubbling, arrangement of bubbling devices, diffusers, having disc shape}
> 22		555	*XT {..FAMEX SS 21 FROM PATENW}
> 23		319	17 AND 22
> 24		80	23 AND (11 OR 13)
25		1.732	B01F2003/04354/C/CNO/LOW {mixing gases into liquids, bubbling, arrangement of bubbling devices, diffusers, nature of gas outlet, can include perforations, slits, screens, fabric or pores etc.}
> 26		1.772	*XT {..FAMEX SS 25 FROM PATENW}
> 27		40	19 AND 26
28		96.507	(B01D63/00 OR B01D69/00 OR B01D2313/00)/IC/C/CNO/LOW {membrane apparatus}
> 29		107.564	*XT {..FAMEX SS 28 FROM PATENW}
> 30		642	26 AND (29 OR MEMBRANE?)
> 31		301	30 AND (11 OR 13)
32		461	C02F3/208/C/CNO {biological treatment of water, aerobic processes, activated sludge, diffuser, membrane aeration}
> 33		456	*XT {..FAMEX SS 32 FROM PATENW}
> 34		52	33 AND 13
> 35		172	33 AND 11

Results of search statements 1, 2, 4, 8, 12, 14, 15, 20, 24, 27, 18, 31, 34 and 35 viewed.

1	13.736	(OR F16L55/07/IC, F16K24/06/IC, B01F3/04241/LOW, B01F3/04106/LOW, Y10S261/70) /C/CNO {aerating, diffusers, bubbling}
> 2	16.394	*XT {...FAMEX SS 1 FROM PATENW}
3	1.000	(B01F2003/04276 OR B01F3/0412)/C/CNO {arrangement or mounting of diffusers}
> 4	1.018	*XT {...FAMEX SS 3 FROM PATENW}
> 5	1.018	2 AND 4
6	1.172.775	(OR MEMBRANE?, FILM?, LAYER?, TISSUE?) 5D (OR RECESS, RECESSES, RECESSED, DEPRESSION, CAVIT+, GAP?, CONCAVE, HOLLOW+, SCOOPED, SUNKEN, INDENT+)
> 7	59	5 AND 6
8	1.206.803	(OR MEMBRANE?, FILM?, TISSUE?, LAYER?) 3D (OR STRETCH?, TAUT, SEAL+, TIGHT+, STRESS+, EXPAND+, INFLAT+)
> 9	112	5 AND 8
10	38.018	MEMBRANE? 3D (OR STRETCH?, EXPAND+, INFLAT+)
> 11	152	(2 OR 4) AND 10
12	8.831	15UG MEMBRANE?, (OR RECESS, RECESSES, RECESSED, DEPRESSION, CAVIT+, GAP?, CONCAVE, HOLLOW+, SCOOPED, SUNKEN, INDENT+) , (OR DIFFUS+, BUBBL+, AERAT+, (GAS W DISTRIBUT+), (GAS W MIX+))
13	333	12 AND 10

Results of search statements 7, 9, 11 and 13 viewed.

PATENW	SS Status	Results	Query
1		17.052	(F16K31/18 OR F16K33/00)/LOW/IC/C/CNO OR Y10T137/7358/C/CNO {valves with floats}
> 2		20.161	*XT {...FAMEX SS 1 FROM PATENW}
3		15.938	F16K15/14/IC/C/CNO/LOW {check valves, with flexible valve members}
> 4		20.791	*XT {...FAMEX SS 3 FROM PATENW}
> 5		109	2 AND 4
6		8.245	F16K15/18/IC/C/CNO/LOW {check valves, check valves combined with actuated valves}
> 7		10.865	*XT {...FAMEX SS 6 FROM PATENW}
> 8		166	2 AND 7
9		260.338	VALVE? 3D (OR SERIES, CONSECUTIVE, COUPLED, SUBSEQUENT, SUCCESSIVE)
> 10		809	7 AND 9
11		121.225	(OR FLOAT+, BUOYANT) 3D (OR VALVE?, PLUG?)
> 12		51	10 AND 11
> 13		198	2 AND (VALVE? 3D SERIES)
14		799.475	(OR CHECK, ONE_WAY, NON_RETURN, UNI_DIRECTION+) W VALVE?
15		66.022	F16K15/00/IC/C/CNO/LOW {check valves}
> 16		81.756	*XT {...FAMEX SS 15 FROM PATENW}
> 17		39	13 AND (14 OR 16)
18		12.404	DUCK_BILL W VALVE?
> 19		18	10 AND 18
> 20		27.051	(14 OR 16) AND (VALVE? 3D SERIES)
> 21		410	20 AND 18
22		1.351.297	VALVE? 3D (OR TWO, PLURAL+, SECOND, MULTIPLE?, MORE)
> 23		392	21 AND 22
> 24		9	23 AND (2 OR 11)
> 25		1.261	20 AND 11
> 26		1.005	25 AND 22
> 27		9	26 AND 18

Results of search statements 5, 8, 12, 17, 19, 24 and 27 viewed.

\$COMBI	SS Status	Results	Query
1		1	/PN US3736953 { input }
2		1	OR (/PN US3736953 ),(*M1/PN),(*M2/PR) { patent number(s) and family members to combi }
3		10	OR (/CTP/CTL US3736953 ),(*M3/CTP/CTL),(*M4/PN),(*M5/AP) { cited & citing documents from ultraCombi }

Results of search statement 3 viewed.

PATENW	SS Status	Results	Query
1		20.831	(PURGE OR PURGING) W VALVE?
2		17.052	(F16K31/18 OR F16K33/00)/LOW/IC/C/CNO OR Y10T137/7358/C/CNO {valves with floats}
> 3		20.161	*XT {..FAMEX SS 2 FROM PATENW}
> 4		133.110	3 OR ((OR FLOAT+, BUOYANT) 3D (OR VALVE?, PLUG? ) )
> 5		748	1 AND 4
6		12.404	DUCK_BILL W VALVE?
> 7		7	5 AND 6
> 8		81	1 AND 3
9		489.233	C02F1/00/IC/C/CNO/LOW {treatment of water, waste water, sewage}
10		15.938	F16K15/14/IC/C/CNO/LOW {check valves, with flexible valve members}
> 11		20.791	*XT {..FAMEX SS 10 FROM PATENW}
12		489.233	9
> 13		532.374	*XT {..FAMEX SS 12 FROM PATENW}
> 14		38	11 AND 13
15		66.022	F16K15/00/IC/C/CNO/LOW {check valves}
> 16		81.756	*XT {..FAMEX SS 15 FROM PATENW}
17		10.874.036	(OR ELEMENT?, MEMBER?, PORTION?, ITEM?, OBJECT?) 5D (OR ROTAT+, MOVE+, OPEN+, CLOSE, CLOSING, SHUT+, SWITCH+, PIVOT+)
> 18		23.777	16 AND 17
> 19		51	18 AND 13
> 20		525	18 AND 6
> 21		15	20 AND (BUBBLER? OR AERAT+ OR DIFFUSER?)
> 22		12	20 AND ((OR FLOAT+, BUOYANT) 3D (OR VALVE?, PLUG? ) )

Results of search statements 7, 8, 14, 19, 21 and 22 viewed.

Applicant(s)/Inventor(s) name searched in internal databases provided by IP Australia