

Submersible sewage pumps with cutter

TERAL

KO

50Hz



TERAL INC.

Applications

- Sewage storage tanks and kitchen drainage of buildings, hotels, theaters, hospitals, condominiums, schools, etc.
- Combined treatment of sewage and human waste
- Drainage of sewage and waste of hog farms/livestock farms
- Drainage of sewage and waste of food processing plants
- Drainage of other types of sewage and waste containing solids

Features

- ① No tangling or clogging of foreign matter by adoption of cutter mechanism and non-clogging type impeller
- ② The shaft seal part adopts a double mechanical seal to prevent water from entering the motor.
- ③ A built-in motor protector prevents motor burnout due to overload, constraint or open phase.
- ④ KOA model and KOT model are automatic operation built-in types. KOA model performs independent automatic operation while KOT model performs automatic alternate parallel operation.

Description of types

100 KO - 5 7.5

① ② ③ ④ ⑤

- ① Bore diameter
 ② Model KO: Non-automatic
 KOA: Automatic
 KOT: Automatic alternate parallel operation
 ③ Frequency 5: 50Hz 6: 60Hz
 ④ Output
 ⑤ Detachable device Blank: None
 -C: C-type detachable device,
 -S: SEC-type detachable device

Standard specifications

Liquid handled	Liquid quality...Sewage/miscellaneous drainage/waste Liquid temperature...0 - 40°C
Max. solids size for passage	Diameter ... 50%~70% of bore diameter (5.5kW or less of bore 65, 80/bore 100) Spherical solids of 53mm in diameter (compliance with public building work standard specifications)/(7.5kW - 18.5kW of bore 65, 80) Length ... 300% or less of bore diameter
Structure	Impeller ... with non-clogging type semi-open cutter disk Shaft seal ... double mechanical seal
Material	Impeller ... FC200 (5.5kW or less of bore 65, 80/bore 100) FCD450 (7.5kW ~ 18.5kW of bore 65, 80) Cutter disk ... FCD450 Main shaft ... SUS403 (3.7kW or less) SUS420J1 (5.5kW or more) Casing ... FC200
Motor	Type ... Dry submersible Power source ... 3-phase 200V Synchronous rotation speed ... 1500min ⁻¹ Protector ... Automatic reset type auto-cut (7.5kW or less) Thermal protector*1 (11kW or more)
Cable	Power cable ... VCT 4 cores (7.5kW or less) VCT 3 cores + 4 cores (11kW, 15kW) 2PNCT 3 cores + 4 cores (18.5kW) Control cable ... VCT 2 cores (11kW or more)
Mechanical seal	Double mechanical seal Material ... Pump side: SiC vs SiC Motor side: Ceramic vs Carbon
Lubricant	Turbine oil VG32
Flange spec	JIS 10K thin type
Paint	Acrylic alkyd resin Munsell 7.5R4/14

*1 b-contact output



* Please note that some of the devices in the photo may differ from actual devices in coating color, etc.

Standard accessories

Cable	10m
Companion flange (packing, nut, and bolt included)	1set
Aboveground nameplate	1 pc.
Screwed flange for changing bore	1 pc.
(In case of 7.5kW - 18.5kW of bore 80)	

Special specifications

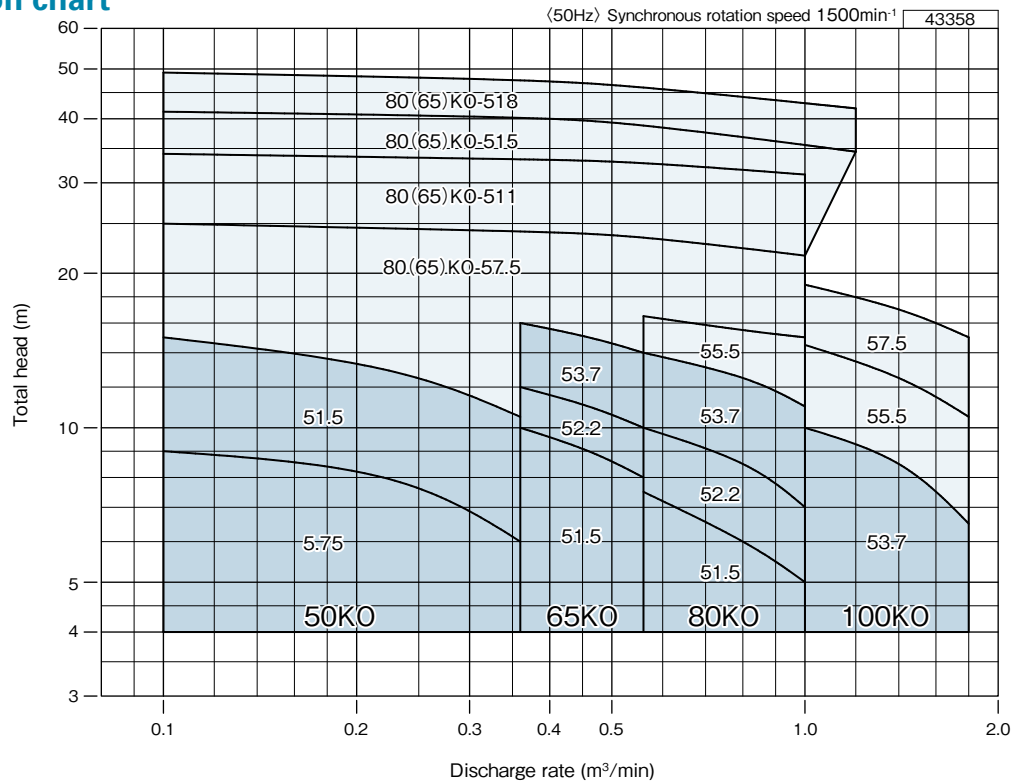
Motor	Power source	3-phase 380V, 3-phase 400V, 3-phase 415V
Lubricant	Liquid paraffin	
Paint	Non-tar epoxy resin painting	
Cable	Cable extension 20m/30m	

Special accessories

Control panel
 Free switch
 Detachable device*

* The material is FC. The entire material can be changed to SCS, or only the chain and foundation bolt can be changed to SUS as option. Also it is possible to attach the sliding guide and chain only.

■ Selection chart



* For dark blue area, automatic KOA model and automatic alternating parallel operation KOT model are also available.

■ Specification table

Operating system	Type	Bore diameter mm	Output kW	Specifications							
				Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m
Non-automatic	50KO-5.75	50	0.75	0.1	9	0.22	8	0.36	6		
	50KO-1.5		1.5	0.1	15	0.22	13	0.36	10.5		
	65KO-51.5	65	1.5	0.36	10	0.46	9	0.56	8		
	65KO-52.2		2.2	0.36	12	0.46	11	0.56	10		
	65KO-53.7		3.7	0.36	16	0.46	15	0.56	14		
	65KO-57.5		7.5	0.1	25.0	0.6	23.5	1.0	21.6		
	65KO-511	80	11	0.1	34.2	0.6	32.8	1.0	31.1		
	65KO-515		15	0.1	41.3	0.6	38.8	1.2	34.5		
	65KO-518		18.5	0.1	49.2	0.6	46	1.2	41.9		
	80KO-51.5		1.5	0.56	7.5	0.8	6	1.0	5		
	80KO-52.2	80	2.2	0.56	10	0.8	8.5	1.0	7		
	80KO-53.7		3.7	0.56	14	0.8	12.5	1.0	11		
	80KO-55.5		5.5	0.56	16.5	0.8	15.5	1.0	15		
	80KO-57.5		7.5	0.1	25	0.6	23.5	1.0	21.6		
	80KO-511	100	11	0.1	34.2	0.6	32.8	1.0	31.1		
	80KO-515		15	0.1	41.3	0.6	38.8	1.2	34.5		
	80KO-518		18.5	0.1	49.2	0.6	46	1.2	41.9		
	100KO-53.7		3.7	1.0	10	1.4	8.5	1.8	6.5		
	100KO-55.5	100	5.5	1.0	14.5	1.4	12.5	1.8	10.5		
	100KO-57.5		7.5	1.0	19	1.4	17	1.8	15		

Operating system	Type	Bore diameter mm	Output kW	Specifications							
				Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m	Discharge rate m ³ /min	Total head m
Automatic	50KOA-5.75	50	0.75	0.1	9	0.22	8	0.36	6		
	50KOA-1.5		1.5	0.1	15	0.22	13	0.36	10.5		
	65KOA-51.5	65	1.5	0.36	10	0.46	9	0.56	8		
	65KOA-52.2		2.2	0.36	12	0.46	11	0.56	10		
	65KOA-53.7	80	3.7	0.36	16	0.46	15	0.56	14		
	80KOA-51.5		1.5	0.56	7.5	0.8	6	1.0	5		
	80KOA-52.2	80	2.2	0.56	10	0.8	8.5	1.0	7		
	80KOA-53.7		3.7	0.56	14	0.8	12.5	1.0	11		
	100KOA-53.7	100	3.7	1.0	10	1.4	8.5	1.8	6.5		
Automatic alternate parallel operation	50KOT-5.75	50	0.75	0.1	9	0.22	8	0.36	6		
	50KOT-1.5		1.5	0.1	15	0.22	13	0.36	10.5		
	65KOT-51.5	65	1.5	0.36	10	0.46	9	0.56	8		
	65KOT-52.2		2.2	0.36	12	0.46	11	0.56	10		
	65KOT-53.7	80	3.7	0.36	16	0.46	15	0.56	14		
	80KOT-51.5		1.5	0.56	7.5	0.8	6	1.0	5		
	80KOT-52.2	80	2.2	0.56	10	0.8	8.5	1.0	7		
	80KOT-53.7		3.7	0.56	14	0.8	12.5	1.0	11		
	100KOT-53.7	100	3.7	1.0	10	1.4	8.5	1.8	6.5		

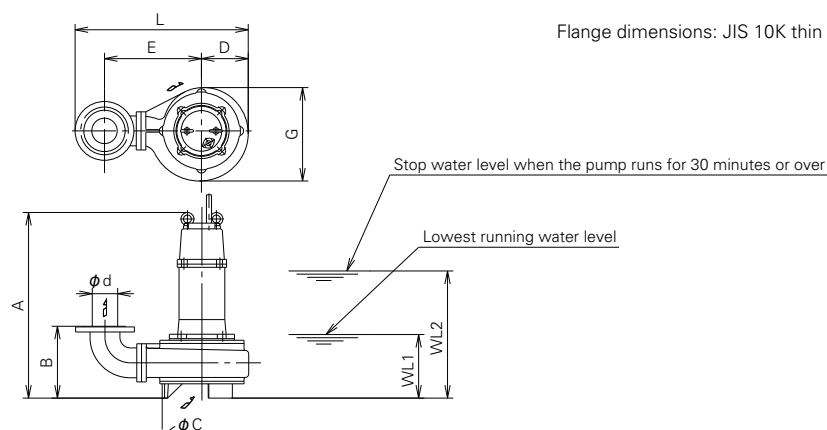
■ Motor specification table

Output kW	Type	Number of poles P	Phase and voltage V	Rating		Starting		Thermal class	Protector	Cable				
				Current A	Rotation speed min ⁻¹	Method	Current A			Type	Number of cores	Size mm ²	Length m	Finishing outer diameter mm
0.75	Dry	4	3-phase/200V	4.0	1380	Direct-on-Line	16.5	B	○	VCT	4	1.25	10	11.1
1.5	Dry	4	3-phase/200V	7.3	1380	Direct-on-Line	31.7	B	○	VCT	4	1.25	10	11.1
2.2	Dry	4	3-phase/200V	10.4	1400	Direct-on-Line	45.9	B	○	VCT	4	1.25	10	11.1
3.7	Dry	4	3-phase/200V	16.8	1400	Direct-on-Line	80.1	F	○	VCT	4	2	10	11.8
5.5	Dry	4	3-phase/200V	23	1440	Direct-on-Line	121	B	○	VCT	4	3.5	10	13.9
7.5	Dry	4	3-phase/200V	31	1435	Direct-on-Line	183	B	○	VCT	4	5.5	10	16.5
11	Dry	4	3-phase/200V	45	1440	Star-delta	217	F	×	VCT	3 4	3.5	10	12.6 13.9
15	Dry	4	3-phase/200V	56	1445	Star-delta	327	F	×	VCT	3 4	5.5	10	15 16.5
18.5	Dry	4	3-phase/200V	72	1450	Star-delta	428	F	×	2PNCT	3 4	8	10	16.7 18.4

Starting current of Star-delta starter is the value of Direct-on-line starting. (If this is made 1/3, it becomes the value when Star-delta starter.)

Assembly drawing

●Non-automatic KO



Flange dimensions: JIS 10K thin type or equivalent

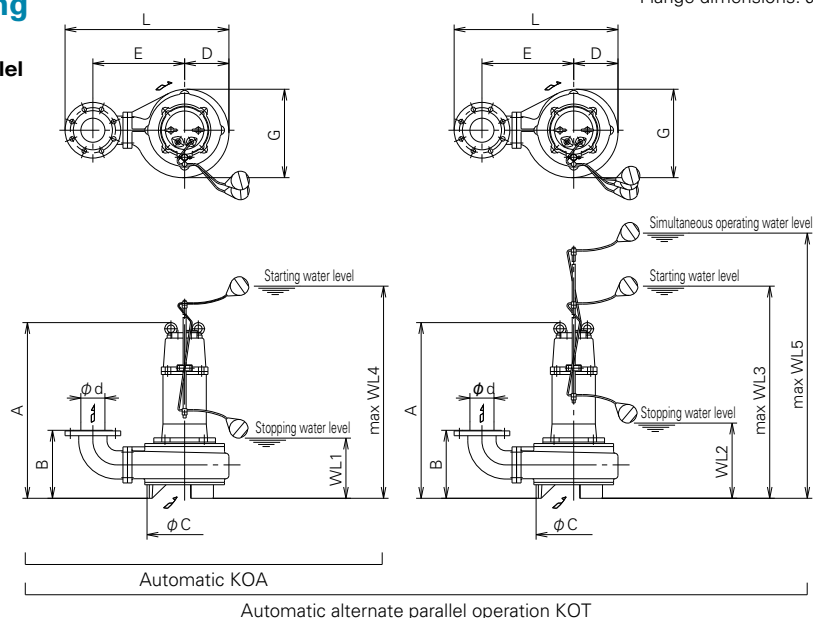
Dimensions

(Unit: mm)

Bore diameter d	Type	Output kW	Pump							Operating water level		Approx. mass kg
			A	B	C	D	E	G	L	WL1	WL2	
50	50KO-5.75	0.75	475	203	210	116	230	238	424	200	381	38.5
	50KO-51.5	1.5	498	206	260	137	250	273	464	200	406	50
65	65KO-51.5	1.5	518	216	250	141	260	282	489	200	426	53
	65KO-52.2	2.2	542	225	280	151	280	311	519	200	436	59
	65KO-53.7	3.7	577	225	280	151	280	311	519	200	471	65
	65KO-57.5	7.5	750	293	355	200	331	400	619	350	700	165
	65KO-511	11	829	293	355	200	341	400	629	350	780	192
	65KO-515	15	885	293	410	228	369	457	684	350	830	230
	65KO-518	18.5	935	293	410	228	369	457	684	350	880	245
80	80KO-51.5	1.5	528	226	250	147	305	294	545	200	436	56
	80KO-52.2	2.2	552	226	280	154	315	314	562	200	446	65
	80KO-53.7	3.7	587	226	280	154	315	314	562	200	481	71
	80KO-55.5	5.5	735	258	300	170	336	340	598	340	680	141
	80KO-57.5	7.5	750	293	355	200	396	400	689	350	700	165
	80KO-511	11	829	293	355	200	341	400	634	350	780	192
	80KO-515	15	885	293	410	228	369	457	689	350	830	230
100	80KO-518	18.5	935	293	410	228	369	457	689	350	880	245
	100KO-53.7	3.7	607	288	280	170	315	337	590	200	501	77
	100KO-55.5	5.5	745	310	300	171	311	341	587	350	690	145
	100KO-57.5	7.5	745	310	300	171	311	341	587	350	690	158

Assembly drawing

●Automatic KOA ●Automatic alternate parallel operation KOT



Flange dimensions: JIS 10K thin type or equivalent

Dimensions

(Unit: mm)

Bore diameter d	Type	Output kW	Pump							Operating water level					Approx. mass kg
			A	B	C	D	E	G	L	WL1	WL2	WL3	WL4	WL5	
50	50KOA(T)-5.75	0.75	540	203	210	116	230	238	424	200	250	1333	1433	1733	39
	50KOA(T)-51.5	1.5	575	206	260	137	250	273	464	200	250	1373	1473	1773	50.5
65	65KOA(T)-51.5	1.5	595	216	250	141	260	282	489	200	250	1393	1493	1793	53.5
80	80KOA(T)-51.5	1.5	605	226	250	147	305	294	545	200	250	1396	1496	1796	56.5

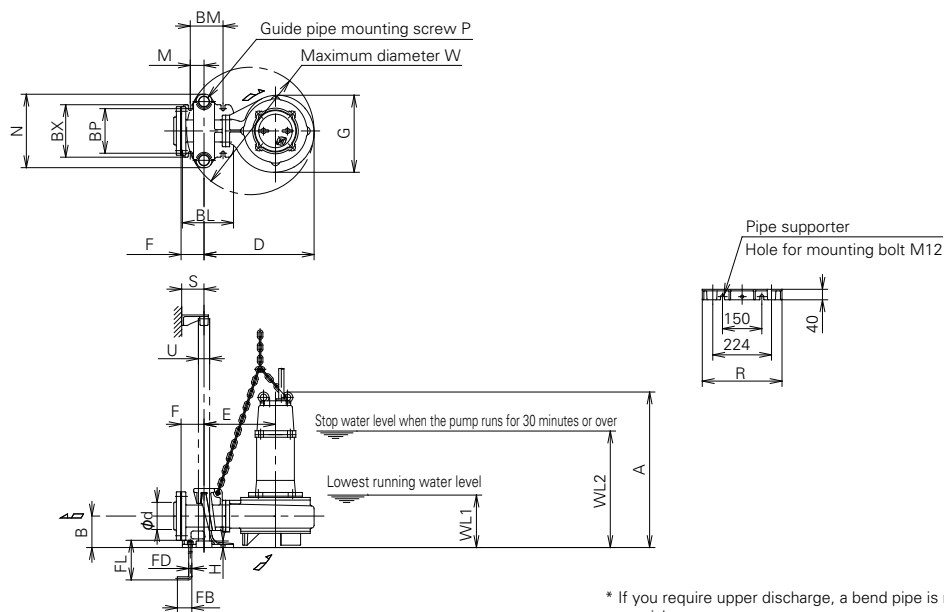
Note) Set the operating water level of KOT model to WL1<WL2<WL3<WL4<WL5 and make the water level difference in each float 50mm or more.

Approx. mass is for one unit.

■ Assembly drawing

●Non-automatic KO + C-type detachable device

Flange dimensions: JIS 10K thin type or equivalent



* If you require upper discharge, a bend pipe is necessary as a special accessory.

■ Dimensions

(Unit: mm)

Bore diameter d	Type	Output kW	Pump								Detachable device			
			A	B	D	E	F	G	S	W	H	M	N	P
50	50KO-5.75-C	0.75	513	120	348	232	84	238	75	410	20	51	275	Rp 1"
	50KO-51.5-C	1.5	532	120	389	252	84	273	75	448	20	51	275	Rp 1"
65	65KO-51.5-C	1.5	542	120	404	263	88	282	85	471	25	53	280	Rp 1½"
	65KO-52.2-C	2.2	551	120	434	283	88	311	85	500	25	53	280	Rp 1½"
	65KO-53.7-C	3.7	586	120	434	283	88	311	85	500	25	53	280	Rp 1½"
	*65KO-57.5-C	7.5	778	170	547	347	104	400	95	610	25	59	290	Rp 1½"
80	80KO-51.5-C	1.5	537	120	420	273	88	294	85	486	25	53	280	Rp 1½"
	80KO-52.2-C	2.2	561	120	437	283	88	314	85	502	25	53	280	Rp 1½"
	80KO-53.7-C	3.7	596	120	437	283	88	314	85	502	25	53	280	Rp 1½"
	*80KO-55.5-C	5.5	763	170	487	317	104	340	95	554	25	59	290	Rp 1½"
	*80KO-57.5-C	7.5	778	170	547	347	104	400	95	610	25	59	290	Rp 1½"
	100KO-53.7-C	3.7	639	170	491	321	104	337	95	557	25	59	290	Rp 1½"
100	100KO-55.5-C	5.5	755	170	489	317	104	341	95	554	25	59	290	Rp 1½"
	100KO-57.5-C	7.5	755	170	489	317	104	341	95	554	25	59	290	Rp 1½"
	100KO-57.5-C	7.5	755	170	489	317	104	341	95	554	25	59	290	Rp 1½"

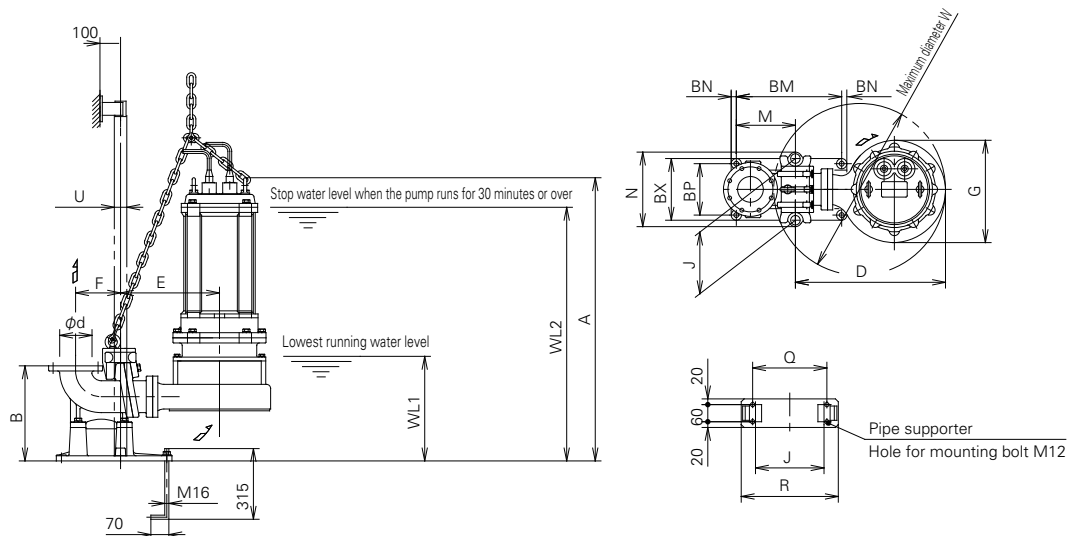
Bore diameter d	Type	Detachable device				Pipe supporter		Foundation bolt			Operating water level		Lifting mass kg
		BL	BM	BP	BX	R	U	FB	FD	FL	WL1	WL2	
50	50KO-5.75-C	170	115	130	160	304	25A	55	M12	250	200	421	38.5
	50KO-51.5-C	170	115	130	160	304	25A	55	M12	250	200	446	50
65	65KO-51.5-C	195	125	170	200	314	32A	55	M12	250	200	456	53
	65KO-52.2-C	195	125	170	200	314	32A	55	M12	250	200	446	59
	65KO-53.7-C	195	125	170	200	314	32A	55	M12	250	200	481	65
	*65KO-57.5-C	245	155	200	240	314	40A	70	M16	315	380	730	165
80	80KO-51.5-C	195	125	170	200	314	32A	55	M12	250	200	446	56
	80KO-52.2-C	195	125	170	200	314	32A	55	M12	250	200	456	65
	80KO-53.7-C	195	125	170	200	314	32A	55	M12	250	200	491	71
	*80KO-55.5-C	245	155	200	240	314	40A	70	M16	315	370	710	141
	*80KO-57.5-C	245	155	200	240	314	40A	70	M16	315	380	730	165
	100KO-53.7-C	245	155	200	240	304	40A	70	M16	315	250	531	77
100	100KO-55.5-C	245	155	200	240	314	40A	70	M16	315	360	700	145
	100KO-57.5-C	245	155	200	240	314	40A	70	M16	315	360	700	158

*Special flange is used.

Assembly drawing

●Non-automatic KO + SEC-type detachable device

Flange dimensions: JIS 10K thin type or equivalent



Dimensions

(Unit: mm)

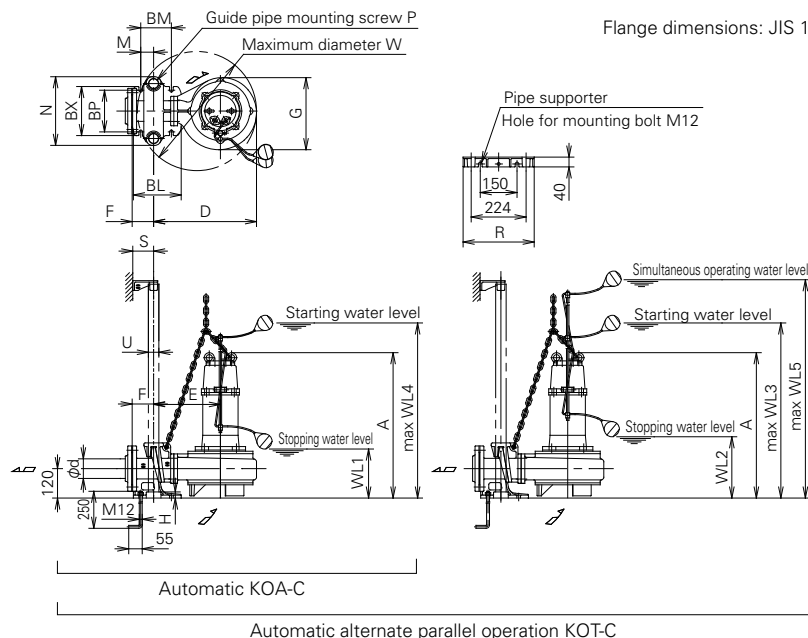
Bore diameter d	Type	Output kW	Pump					Detachable device								Pipe supporter			Operating water level		Lifting mass kg	
			A	D	E	G	W	B	F	J	M	N	BM	BN	BP	BX	Q	R	U	WL1		WL2
65	* 65KO-511-S	11	937	576	376	400	661	370	155	240	230	290	410	20	200	240	260	340	40A	460	880	192
	* 65KO-515-S	15	992	632	404	457	715	370	155	240	230	290	410	20	200	240	260	340	40A	460	930	230
	* 65KO-518-S	18.5	1042	632	404	457	715	370	155	240	230	290	410	20	200	240	260	340	40A	460	980	245
80	80KO-511-S	11	937	576	376	400	661	370	155	240	230	290	410	20	200	240	260	340	40A	460	880	192
	80KO-515-S	15	992	632	404	457	715	370	155	240	230	290	410	20	200	240	260	340	40A	460	930	230
	80KO-518-S	18.5	1042	632	404	457	715	370	155	240	230	290	410	20	200	240	260	340	40A	460	980	245

*Special flange is used.

Assembly drawing

●Automatic type (automatic alternate parallel operation) KOA (T) + C-type detachable device

Flange dimensions: JIS 10K thin type or equivalent



Automatic alternate parallel operation KOT-C

Dimensions

(Unit: mm)

Bore diameter d	Type	Output kW	Pump								Detachable device								Pipe supporter		Foundation bolt			Operating water level					Lifting mass kg
			A	B	D	E	F	G	S	W	H	M	N	P	BL	BM	BP	BX	R	U	FB	FD	FL	WL1	WL2	WL3	WL4	WL5	
50	50KOA(T)-5.75-C	0.75	578	120	348	232	84	238	75	410	20	51	275	Rp1	170	115	130	160	304	25A	55	M12	250	200	250	1373	1473	1773	39
	50KOA(T)-51.5-C	1.5	609	120	389	252	84	275	75	448	20	51	275	Rp1	170	115	130	160	304	25A	55	M12	250	200	250	1373	1503	1803	50.5
65	65KOA(T)-51.5-C	1.5	619	120	404	263	88	282	85	471	25	53	280	Rp1¼	195	125	170	200	314	32A	55	M12	250	200	250	1413	1513	1813	53.5
80	80KOA(T)-51.5-C	1.5	615	120	420	273	88	294	85	486	25	53	280	Rp1¼	195	125	170	200	314	32A	55	M12	250	200	250	1406	1506	1806	56.5

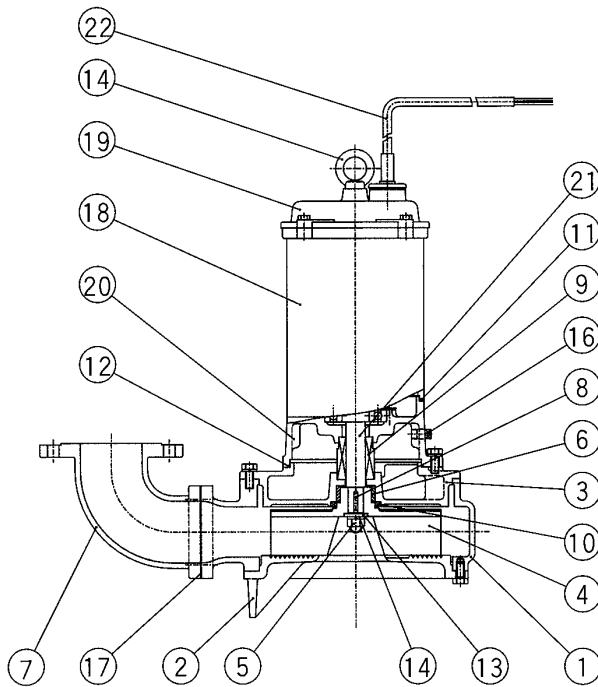
Note) Set the operating water level of KOT model to WL1<WL2<WL3<WL4<WL5 and make the water level difference in each float 50mm or more.

Approx. mass is for one unit.

* In you require upper discharge, a bend pipe is necessary as a special accessory.

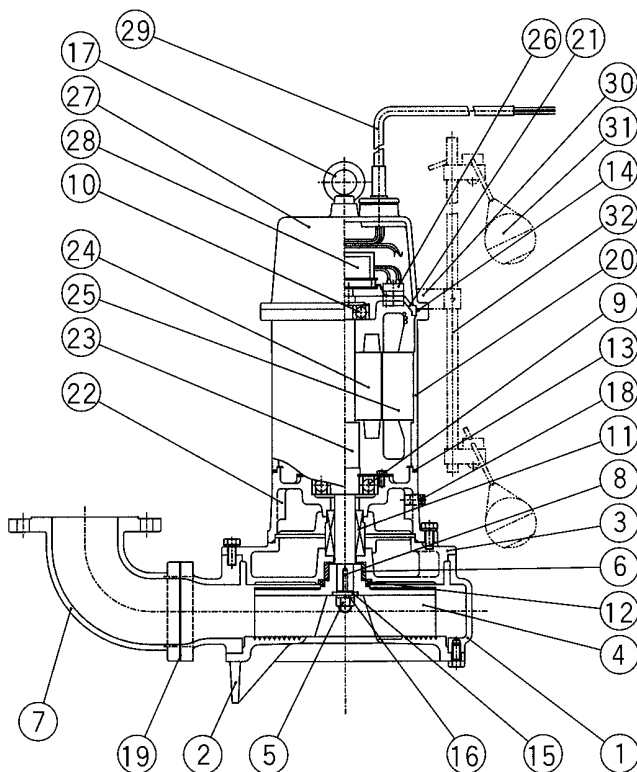
Example of sectional drawing

●Non-automatic KO 1.5kW - 3.7kW



Lubricant
Turbine oil: #32

●Automatic KOA 1.5kW - 3.7kW



Lubricant
Turbine oil: #32

Parts list

No.	Part name	Qty	Material
1	Casing	1	FC200
2	Cutter disk	1	FCD450
3	Seal cover	1	FC200
4	Impeller	1	FC200
5	Impeller nut	1	SUS304
6	Bushing	1	CAC406
7	Discharge elbow	1	FC200
8	Key	1	SUS304
9	Mechanical seal	1	SiC vs SiC Ceramic vs Carbon
10	Oil seal	1	NBR
11	O-ring	1	NBR
12	O-ring	1	NBR
13	Washer	1	SUS403
14	Spring washer	1	SUS304
15	Eye bolt	2	SS400
16	Plug	1	SUS304
17	Gasket	1	Joint sheet
18	Motor frame	1	FC200
19	Protective cover	1	FC200
20	Lower bracket	1	FC200
21	Motor shaft	1	SUS403
22	Lead wire	1	VCT

Applicable model : 50KO-51.5 / 65KO-51.5 / 65KO-52.2 /
65KO-53.7 / 80KO-51.5 / 80KO-52.2 /
80KO-53.7 / 100KO-53.7

No.	Part name	Qty	Material
1	Casing	1	FC200
2	Cutter disk	1	FCD450
3	Seal cover	1	FC200
4	Impeller	1	FC200
5	Impeller nut	1	SUS304
6	Bushing	1	CAC406
7	Discharge elbow	1	FC200
8	Key	1	SUS304
9	Ball bearing	1	SUJ2
10	Ball bearing	1	SUJ2
11	Mechanical seal	1set	SiC vs SiC Ceramic vs Carbon
12	Oil seal	1	NBR
13	O-ring	1	NBR
14	O-ring	1	NBR
15	Washer	1	SUS403
16	Spring washer	1	SUS304
17	Eye bolt	2	SS400
18	Plug	1	SUS304
19	Gasket	1	Joint sheet
20	Motor frame	1	FC200
21	Upper bracket	1	FC200
22	Lower bracket	1	FC200
23	Motor shaft	1	SUS403
24	Rotor	1	S40
25	Stator	1	S40
26	Protector	1	FC200
27	Protective cover	1	-
28	Control substrate	1	-
29	Lead wire	1	VCT
30	Support metal	1	SUS304
31	Float switch	2	ABS resin
32	Float supporter	1	PVC

Applicable model : 50KOA-51.5 / 65KOA-51.5 / 65KOA-52.2 /
65KOA-53.7 / 80KOA-51.5 / 80KOA-52.2 /
80KOA-53.7 / 100KOA-53.7



TERAL INC.

Head Office 230, Moriwake, Miyuki-cyo, Fukuyama-city, Hiroshima, 720-0003, Japan
Tel.+81-84-955-1111 Fax.+81-84-955-5777
www.teral.net

Teral Asia Limited

Room 1001,10/F, Olympia Plaza, 255 King's Road, North Point, Hong Kong
Tel.+852-2571-0935 Fax.+852-2571-0619

TERAL THAI CO.,LTD.

150 Moo 16 Udomsorayuth Rd., T.Bangkrasan, A.Bangpa-In, Ayutthaya 13160 Thailand
Tel.+66-3535-2148-9 Fax.+66-3535-2150

TERAL TRADING & SERVICE CO.,LTD.

150 Moo 16 Udomsorayuth Rd., T.Bangkrasan, A.Bangpa-In, Ayutthaya 13160 Thailand
Tel.+66-3535-2145-7 Fax.+66-3535-8549

Teral Malaysia Sdn.Bhd.

10, Jalan SS13/6A, Subang Jaya Industrial Estate, 47500, Subang Jaya, Selangor D.E, Malaysia
Tel.+60-3-5611 5775 Fax.+60-3-5612 5775

PT.Teral Indonesia Pumps and Fans

Jalan BSD Sektor XI Taman Tekno, Block G3 No.8, Setu Tangerang Selatan, Banten, Indonesia 15314
Tel.+62-21-29665778 Fax.+62-21-75673913

Teral Vietnam Limited Liability Company

Room 1306, 13th Floor, BIDV Tower, 194 Tran Quang Khai Street, Ly Thai To Ward, Hoan Kiem District, Hanoi, Vietnam
Tel.+84-24-3935-2790 Fax.+84-24-3935-2800

Teral General Machine (Shanghai) Co.,Ltd.

No.285, Yuan Qu Road(N), Bei Qiao, Min Hang District, Shanghai 201109, China
Tel.+86-21-6490-9128 Fax.+86-21-6490-9126

Teral-Aerotech Fans Private Ltd.

Plot No.188-189, Ecotech Extension-1, Surajpur Kasna Road, Greater Noida-201306, Uttar Pradesh, India
Tel.+91-9810162210, +91-9310162210

Teral Middle East F.Z.C.

1806-002, 18th floor, BB1, Mazaya Business Avenue, JLT, Dubai, UAE. PO Box 414781
Tel.+971-4369 9039

Teral Pumps & Fans North America Ltd.

Suite # 197, 800-15355 24 Ave Surrey, B.C., CANADA V4A 2H9
Tel.+1-604-839-1008