Tsurumi BER

400V
50Hz

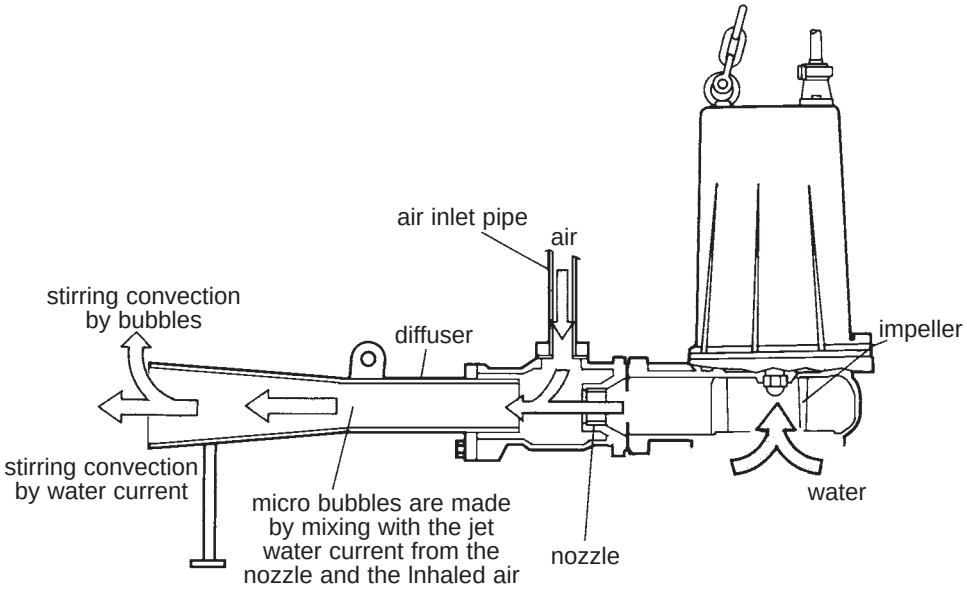
Submersible Ejectors

This submersible ejector is composed of a B type pump and a venturi with diffusor trumpet.

The large flow from the pump, first, at high speed, draws and mixes itself with air in the venturi, then in the diffusor changes into a massive unidirectional horizontal stream of tiny bubbles with water or sludge.

The pump is of the non-clog single blade shaver type.

SUBMERSIBLE EJECTOR series BER/TOS-BER



The Tsurumi Submersible Ejector, as shown in the figure, draws air in from around the jet nozzle (venturi) by means of the water power discharged from the submersible pump.

A mixture of air and water is produced in the venturi and trumpet shaped diffuser and discharged at high speed.

This results in a unidirectional stream of this mixture together with much entrained water.

In time, the stream makes itself felt directly and indirectly over a large area and depth, helped in this churning effect by the draw of water underneath the pump.

Furthermore, even if the water depth fluctuates, the required shaft power hardly changes. The volume of air emission is freely adjustable as well. Because of this, the submersible ejector is also ideal as an aerator in equalizing tanks where the fluctuation in the water level is comparatively great.

This unit can be used with confidence as the main aerator in industrial waste water treatment systems.

A particularly large sales point is the fact that due to the air/water collision that occurs while the suction-inducted air is in a minutely particulated state, oxygen dissolution efficiency is remarkably high.

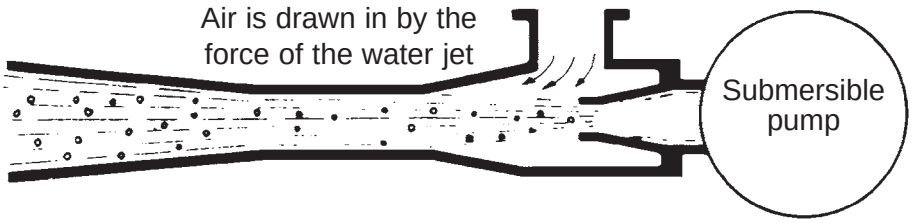
THE PRINCIPLE OF THE EJECTOR SYSTEM

This system is a combination of a submersible pump and a jet pump.

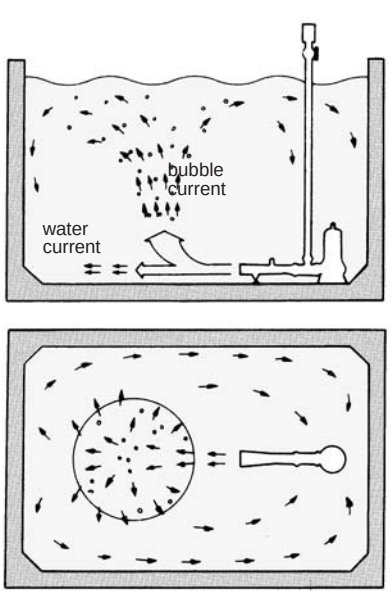
By the action of the ejection current of the submersible pump, a self-feeding force is generated, which draws air from the surface of the water through an air inlet pipe.

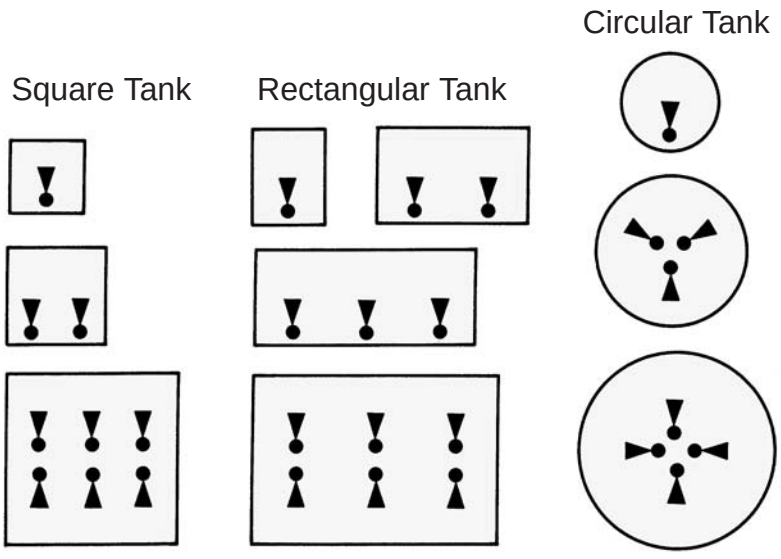
This air is mixed with the water and the mixture is ejected.

The churning force caused by this ejection current is remarkably strong, with the result that exceptionally efficient oxygen dissolution is produced.



CONVECTION PATTERN AND RECOMMENDED INSTALLATION





BER consists of:

- B-series Pump
- Ejector including Silencer & Valve Set and Lifting Chain

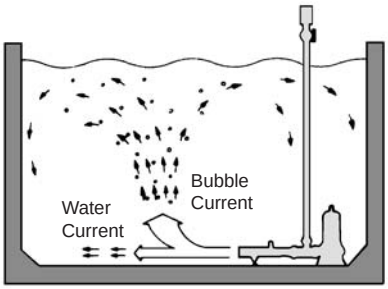
TOS-BER consists of:

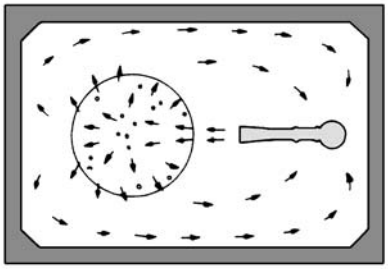
- B-series Pump
- TOS-Ejector including Silencer & Valve Set and Lifting Chain

Specifications:

model		output kW	phase	r.p.m.	starting method	air inlet diameter mm
free standing	guide rail fitting					
8-BER2	TOS-8BER2	0,75	Three	3000	d.o.l.	25
15-BER3	TOS-15BER3	1,5	Three	3000	d.o.l.	32
22-BER4	TOS-22BER4	2,2	Three	1500	d.o.l.	50
37-BER4	TOS-37BER4	3,7	Three	1500	d.o.l.	50
55-BER4	TOS-55BER4	5,5	Three	1500	d.o.l.	50

Convection Pattern:



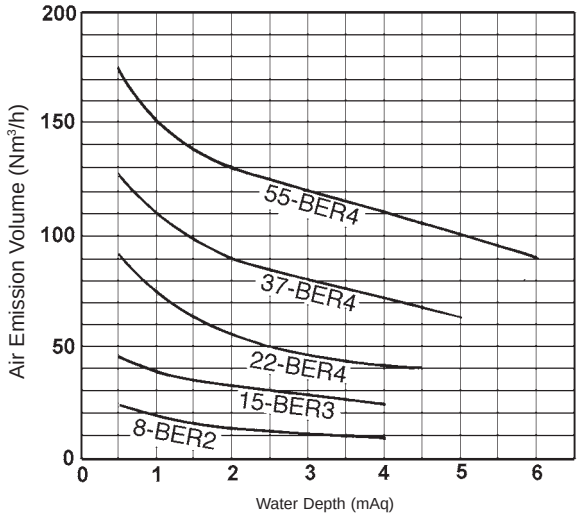


The **BER** ejector can be placed on a solid flat surface, be it the bottom of a pit or lake or river, or a fabricated structure supported from the water´s edge or a pontoon.

The **TOS-BER** fits together differently. The **TOS-BER**´s venturi (with the diffusor trumpet fixed to it) has a foot for fixing to masonry by means of bolts, and a pair of spigots for slide tubes; the pump has a flange with claws for sliding up an down slide tubes. A clamp for the top of a pair of slide tubes is also supplied. When installed as intended, the pump can be lifted out for inspection whilst the venturi and diffusor remain fixed to the bottom or supporting structure, ensuring exact return to the original position when the pump is lowered in place.

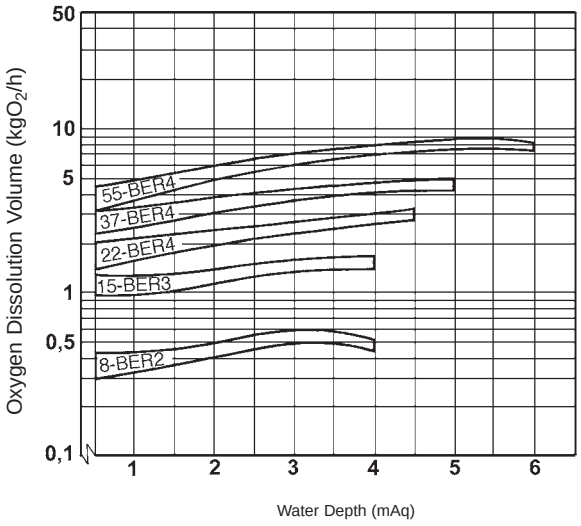
Air Emission volume-Water Depth Curve

(at 20°C, air emission value may vary ±5%)



Oxygen Dissolution Volume-Water Depth Curve

(dissolution volume and fresh water at 20°C, for waste water multiply by 0.85)



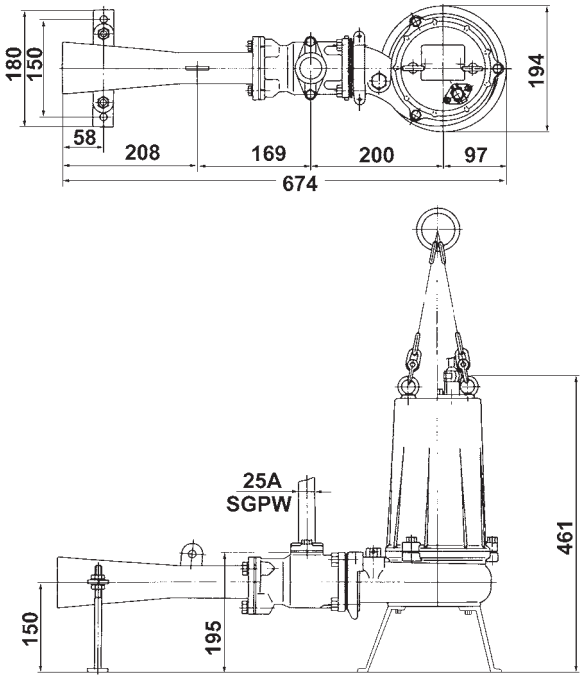
model		O_2 dissolution in clear water at 20°C: kg O_2/hour at discharge depth of						tank dimension			dry weight kg		max. solids handling	cable length m
								max. length m	max. width m	max. depth m	Free standing	TOS-model		
free standing	guide rail fitting	0,5m	2m	3m	4m	5m	6m							
8-BER2	TOS-8BER2	0,30	0,40	0,50	0,44	--	--	3,0	2,0	4,0	28	23	20	10
15-BER3	TOS-15BER3	0,96	1,13	1,26	1,40	--	--	4,0	3,5	4,0	43	34	20	10
22-BER4	TOS-22BER4	1,38	2,00	2,30	2,65	--	--	5,0	5,0	4,5	75	61	35	10
37-BER4	TOS-37BER4	2,30	3,10	3,75	4,10	4,15	--	6,0	6,0	5,0	91	77	35	10
55-BER4	TOS-55BER4	3,15	5,00	6,00	6,90	7,50	7,20	7,0	7,0	6,0	137	120	35	10

Multiply kg O_2 by 0,85 for average soiled water. Kg 0_2 are realistic but approximate. High curves reflect laboratory test results. Figures shown are the LOW curves, attainable under favourable circumstances in ideal installations. Dry weight of the pump without cable.

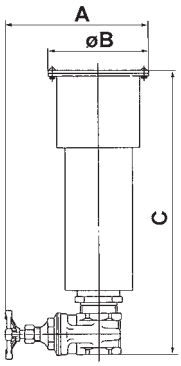
DIMENSIONS

Unit:mm

8-BER2

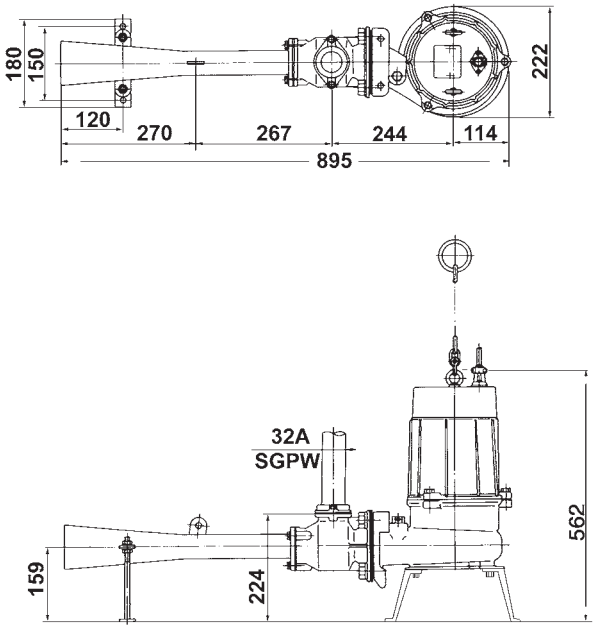


Silencer & Valve Set

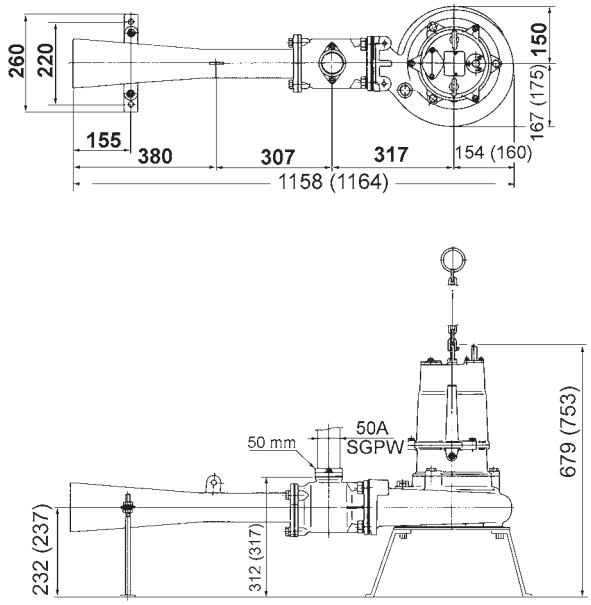


Air pipe Bore	A	øB	C
ø25	147	91	210
ø32	180	116	275
ø50	230	154	370

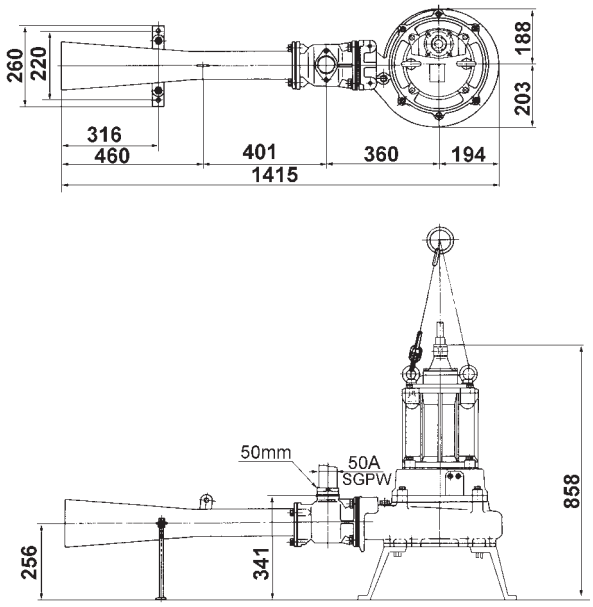
15-BER3



22-BER4 / 37-BER4

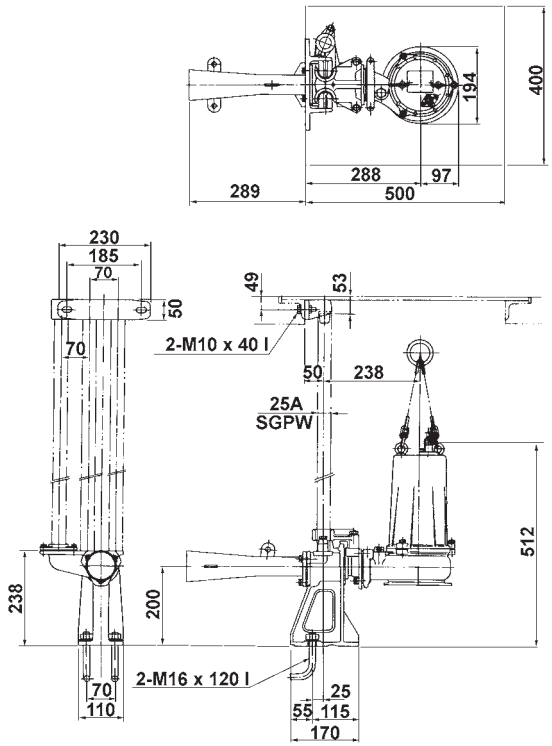


55-BER4

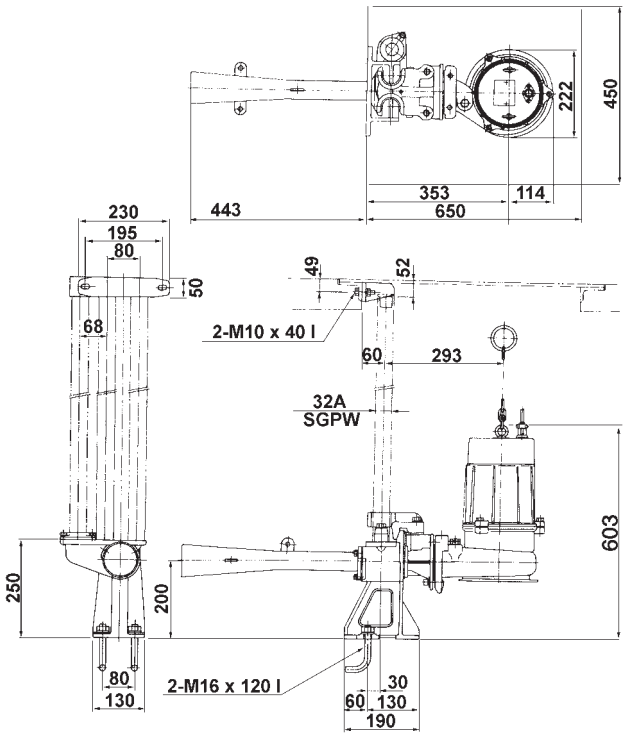


DIMENSIONS Unit: mm

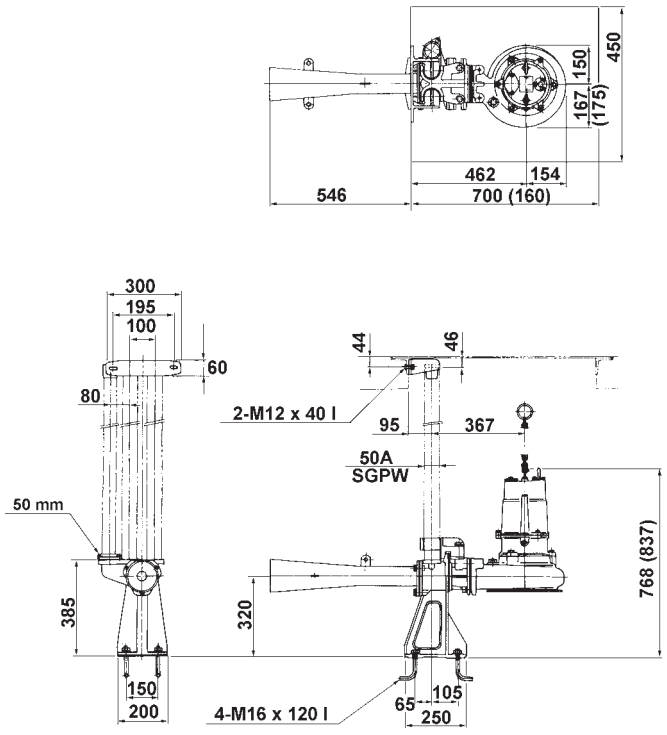
TOS-8BER2



TOS-15BER3

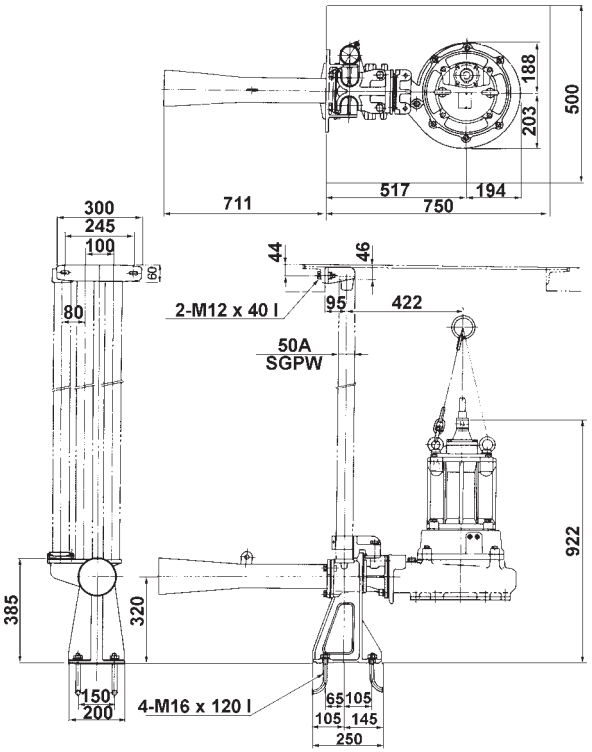


TOS-22BER4 / TOS-37BER4



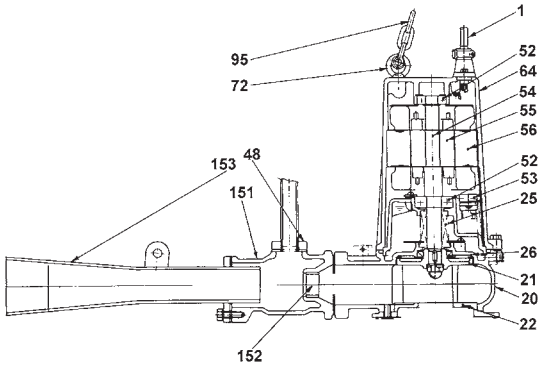
values in ( ) for TOS-37BER3

TOS-55BER4



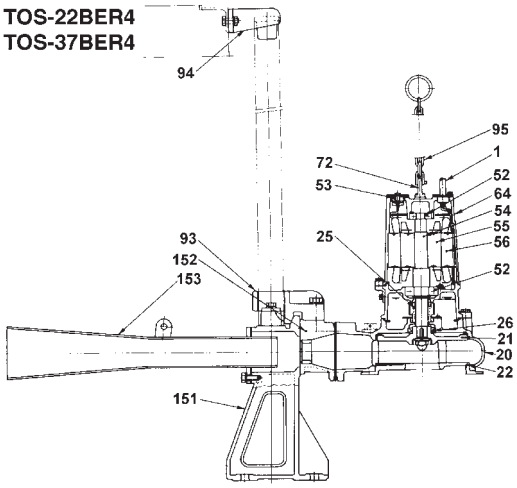
DESIGN AND MATERIALS

8-BER2 / 15-BER3



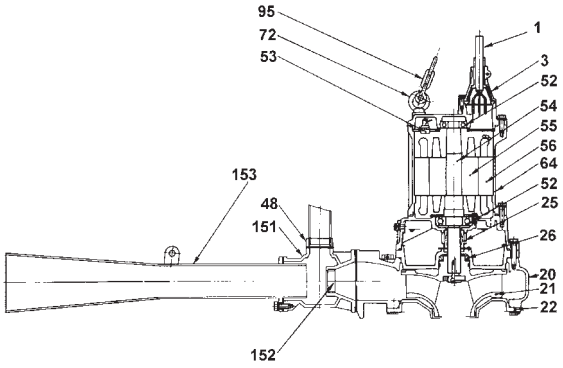
No.	DESCRIPTIONS	MATERIAL	No.	DESCRIPTIONS	MATERIAL
1	Cabtyre Cable	Rubber	54	Shaft	EN-X6Cr13/EN-X30Cr13
20	Pump Casing	Grey Iron Casting	55	Rotor	
21	Impeller	Grey Iron Casting	56	Stator Complete	
22	Suction Cover	Grey Iron Casting	64	Motor Frame	Grey Iron Casting
25	Mechanical Seal	Silicon Carbide	72	Lifting Eye Bolt	Structure Steel
26	Oil Seal	Nitrile Rubber	95	Lifting Chain	Structure Steel
48	Screw Flange	Grey Iron Casting	151	Air-Inlet Casing	Grey Iron Casting
52	Bearing	Ball Bearing	152	Nozzle	Structure Steel Nylon Coated
53	Motor Protector		153	Diffuser	Structure Steel Nylon Coated

TOS-22BER4
TOS-37BER4



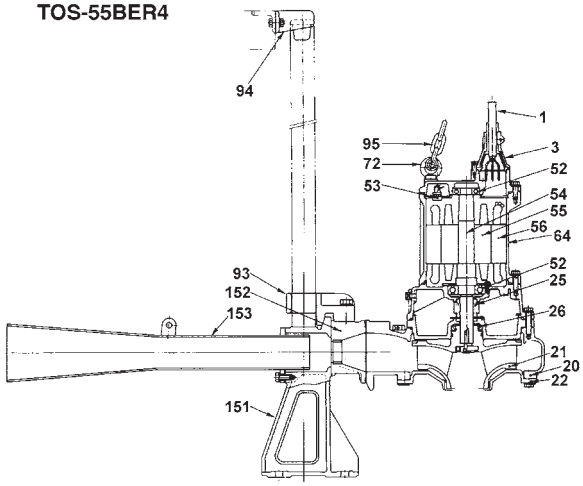
No.	DESCRIPTIONS	MATERIAL	No.	DESCRIPTIONS	MATERIAL
1	Cabtyre Cable	Rubber	55	Rotor	
20	Pump Casing	Grey Iron Casting	56	Stator Complete	
21	Impeller	Grey Iron Casting	64	Motor Frame	Grey Iron Casting
22	Suction Cover	Grey Iron Casting	72	Lifting Eye Bolt	Structure Steel
25	Mechanical Seal	Silicon Carbide	93	Guide Hook	Ductile Iron Casting
26	Oil Seal	Nitrile Rubber	94	Guide Support	Ductile Iron Casting
52	Bearing	Ball Bearing	95	Lifting Chain	Structure Steel
53	Motor Protector		151	Air-Inlet Casing	Grey Iron Casting
54	Shaft	Stainl.steel EN-X6Cr13	152	Nozzle	Structure Steel Nylon Coated
			153	Diffuser	Structure Steel Nylon Coated

55-BER4



No.	DESCRIPTIONS	MATERIAL	No.	DESCRIPTIONS	MATERIAL
1	Cabtyre Cable	Rubber	53	Motor Protector	
3	Cable Gland	Grey Iron Casting	54	Shaft	Stainl.steel EN-X6Cr13
20	Pump Casing	Grey Iron Casting	55	Rotor	
21	Impeller	Grey Iron Casting	56	Stator Complete	
22	Suction Cover	Grey Iron Casting	64	Motor Frame	Grey Iron Casting
25	Mechanical Seal	Silicon Carbide	72	Lifting Eye Bolt	Structure Steel
26	Oil Seal	Nitrile Rubber	95	Lifting Chain	Structure Steel
48	Screw Flange	Grey Iron Casting	151	Air-Inlet Casing	Grey Iron Casting
52	Bearing	Ball Bearing	152	Nozzle	Structure Steel Nylon Coated
			153	Diffuser	Structure Steel Nylon Coated

TOS-55BER4



No.	DESCRIPTIONS	MATERIAL	No.	DESCRIPTIONS	MATERIAL
1	Cabtyre Cable	Rubber	55	Rotor	
3	Cable Gland	Grey Iron Casting	56	Stator Complete	
20	Pump Casing	Grey Iron Casting	64	Motor Frame	Grey Iron Casting
21	Impeller	Grey Iron Casting	72	Lifting Eye Bolt	Structure Steel
22	Suction Cover	Grey Iron Casting	93	Guide Hook	Ductile Iron Casting
25	Mechanical Seal	Silicon Carbide	94	Guide Support	Ductile Iron Casting
26	Oil Seal	Nitrile Rubber	95	Lifting Chain	Structure Steel
52	Bearing	Ball Bearing	151	Air-Inlet Casing	Grey Iron Casting
53	Motor Protector		152	Nozzle	Structure Steel Nylon Coated
54	Shaft	Stainl.steel EN-X6Cr13	153	Diffuser	Structure Steel Nylon Coated

Tsurumi (Europe) GmbH

Heltorfer Straße 16
D-40472 Düsseldorf
Tel.: +49-211-4179373
Fax: +49-211-4791429
Email: sales@tsurumi-europe.com
www.tsurumi-europe.com

Your Dealer

Cat.-no. BER-E-03/03