



**Y-KO Series Installation, Operation, Service,  
Maintenance and Spare Parts User Manual**

## Dear Customer,

Thank you for choosing our product, to use this booster set in the proper way be sure to read this manual completely before start-up and keep this manual with the certificate of warranty in a safe place.

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## 01. Introduction

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damage to property and may void the warranty. When ordering spare parts use page 15.

## 02. Use of Booster Set

Water is usually delivered by public supply systems and the pressure is generally sufficient for the proper operation of the user's water and sanitary equipment. When this pressure is not sufficient, booster sets are installed to increase water pressure and ensure an acceptable minimum value at the furthest points. Therefore, the water supply to a building, group of buildings or to a system, in general, can be considered satisfactory when all the user points can deliver the required quantity of water.

## 03. Schematic Booster Set Connection Method

Water is supplied by installing a water storage tank between the users off take and booster set. (Fig.1)

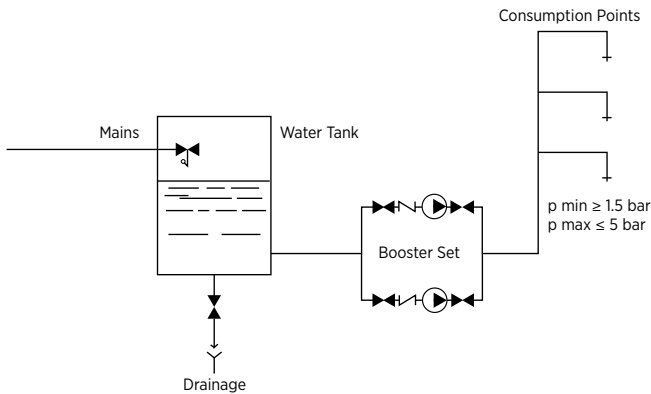


Figure 1

## 04. Handling

When the booster unit is delivered, check that it has not been damaged during shipping. Promptly inform our nearest dealer, if necessary. Do not use the eyebolts, expansion tanks, inlet and discharge manifolds etc., as they are not designed to bear the weight of the booster set. The product must be handled with care using suitable hoisting equipment; accidents can damage the product without being necessarily visible on the outside; hoisting non-packed products by securely putting them into a sling from the main chassis. Please, put the unit on to the floor, gently.

## 05. Applications

The booster sets are suitable for water handling systems in the civil, industrial and agricultural sectors, for pressure boosting water supply for small houses, buildings, factories, industrial plants, holiday villages and water treatment plants.

They are not suitable for;

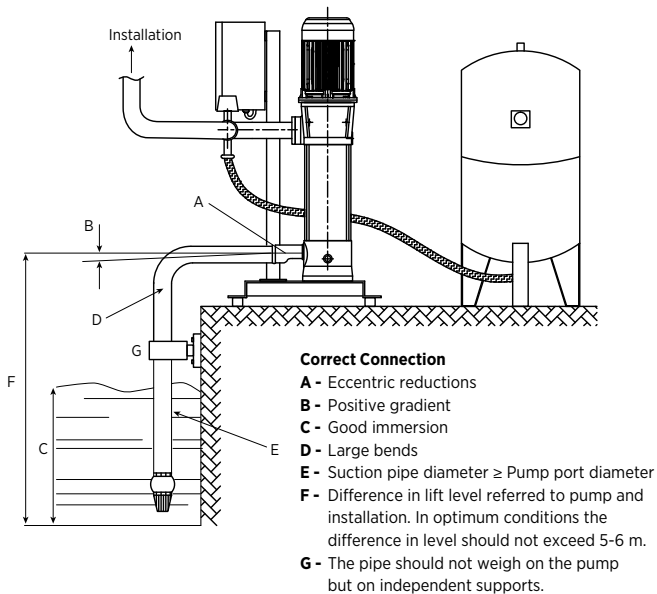
- Liquids containing abrasives
- Liquid with solid and fibrous substances - Flammable and explosive liquids

## 06. Installation

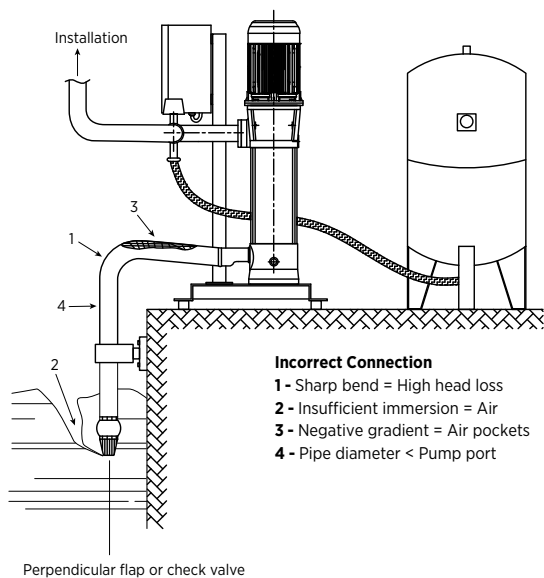
For booster unit lifting and moving sling it safely. The unit should not be exposed to the weather or freezing temperatures. Make sure that there are no obstacles, preventing normal flow of the cooling air moved by the motor fan. The booster set must be put on to a horizontal concrete base or equivalent structure by the 4 pieces of rubber supports, which are provided with the unit. The bigger industrial models must be firmly secured by means of appropriate bolts to a concrete base.

## 07. Suction and Discharge Pipes

Use pipes suitable for the maximum booster set working pressure. The suction pipe must be perfectly sealed and of suitable size for the suction conditions (suction pipe  $\varnothing \geq \text{min. inlet manifold } \varnothing$  of the booster set or pump). When the liquid level is lower than the booster set, a foot valve must be fitted at the end of the suction pipe (see Fig.2) (Fig.3)



**Figure 2**



**Figure 3**

## 08. Start-Up

Expansion vessels are delivered at 4 bars, with pre-charged factory settings. The pre-charged pressure in the tank must be adjusted before start-up so that it will be slightly below the cut-in ( starting ) pressure of the pump(s). Practical recommended pressure level can be determined as %10 lower than the cut-in ( starting ) pressure of tank.

### 08.1 Electrical Connection

The booster sets use single or three-phase motors sized and powered according to European standards. The booster set must be connected by a qualified electrician in compliance with current local electrical regulations. Ensure that the mains voltage corresponds to the voltage specified on the booster set rating plate

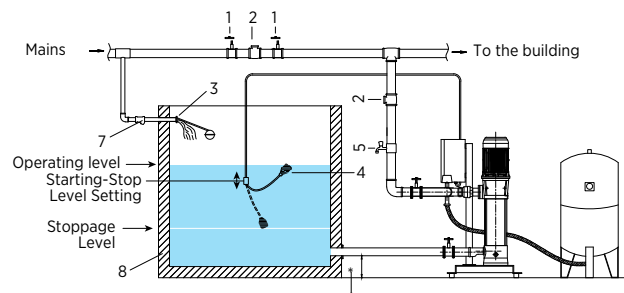
Before start-up, the grounding of the booster shall be maintained. The current leakage relay (30 mA) shall be installed in the pump controller before the energy supply.

a) Single pump booster sets are supplied as standard with a thermal magnetic protection switch and float switch for protection against dry running.

b) Multi-pump booster sets are supplied with control panels with, main on-off switch, fuse carrier and fuses, power contactors, overload relays, phase protection relays over 7,5 KW, electronic change over control board, float switch for protection against dry running, automatic-manual switch for each pump power on, running, reset and no water indicating (warning) lights.

## 09. Pre-Operation Test

Fill the suction pipe and the pumps with water to test before the actual operation. Assemble the pipes as shown in figures 4 and 5 and connect the float switch.



\* The suction pipe should be at least 15 cm above the tank bottom.

- 1 - Valve
- 2 - Check valve
- 3 - Float valve
- 4 - Float switch
- 5 - Service tap
- 6 - Upright valve
- 7 - Strainer
- 8 - Water Tank

**Figure 4**

## 10. Liquid Level Higher Than the Booster or At The Same Level

Close the discharge valve, remove the fill/bleed plug and open the suction valve until the water flows out of the fill/bleed plug. Then close the plug.

## 11. Liquid Level Lower Than the Pump (Negative Suction)

Close the discharge valve, remove the fill/bleed plug and by means of a funnel fill the water, close the plug.

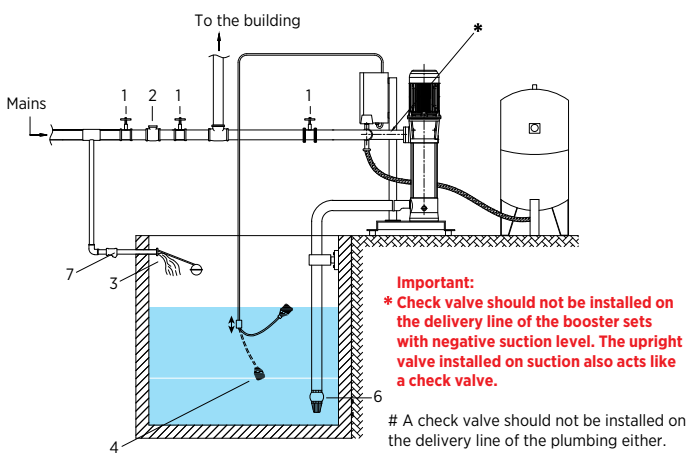


Figure 5

**Note :** Adjust the float switch according to the size of the tank. (Page 9)

## 12. Checking the Rotation Three-Phase Motors

After connecting and filling, start the pump with the discharge valve closed and check that the rotation direction is correct (shown on the coupling and the motor) through the coupling protection or fan cover. If the direction of rotation is not correct, stop the motor, disconnect from the mains and invert two wires on the terminal board. B

## 13. Operation

Start up the booster set with the discharge (delivery) gate valve closed and fallow pump or pumps reaching to the switched-off pressure of the unit from the manometer. Then open the service tap and check the system pressure is dropping and the pump or the pumps running at the starting pressure. If everything is okay, open all the gate valves in the delivery line and let the system under booster-set pressure.

## 14. Operations Description

### 14.1 Example for two-pump sets

The starting and stopping of the pumps are determined by the pressure values set on the pressure switches. Each pressure switch is connected to a single pump with a cyclic pump change over. The differential pressure is the pressure difference between starting pressure and switch-off pressure. It is set at the same value for both pumps. Figure 6 shows the operating mode with the pumps curves

On demand, water is drawn from the tank

- When the pressure drops to the P1 value the first pump starts.
- If the water consumption increases and the pressure drops to the P2 value, the second pump starts.
- When consumption reduces and the pressure increases until it reaches the P2s value, one of the pumps is switched off.
- If consumption keeps reducing, the pump charges the tank and stops at the P1s value.

### 3 and 4 pumps booster sets have the same operation sequence

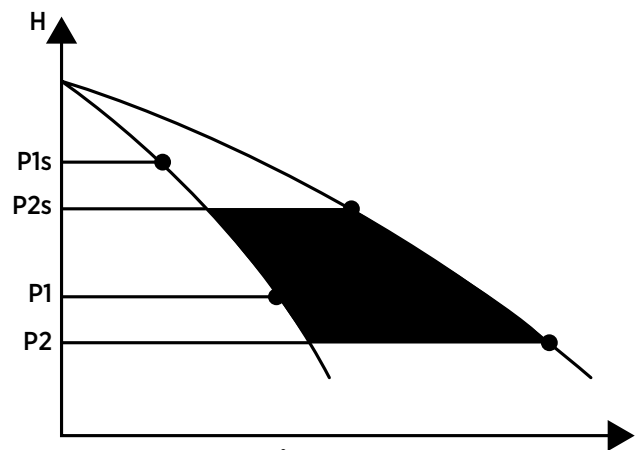


Figure 6

## 15. Fire Fighting Booster Sets

### 15.1 Usage

Fire fighting boosters should not be used for anything other than fire-fighting. They should not be used for garden irrigation, building installation, vehicle washing etc.

The control panel of a fire fighting booster is different than the panel of a regular booster. Fire fighting boosters are designed to work continuously during a fire. Due to the law, these boosters do not include thermal protection protecting the electrical engine against fire.

Fire fighting boosters run only during fire. Thus, there is a weekly test program aiming to minimize the possible failures arising from long-term stand-by and to detect and intervene to any available failure. Fire fighting booster works for a set period of time automatically on a set date and time, and stop. By ensuring the pumps operate one at a time during the time set on the weekly test program, all the pumps are operated in order.

If the water level falls below the minimum level in the water tank, the device will not be able to supply the required pressure and falls down to the calibration set pressure (a value just below the operating pressure). At this point, an audio and visual alarm is activated. Thanks to the electronic circuit. If the system demands water from the system during the weekly test program, the test ends and the booster starts working regularly.

## 15.2 Installation

- Install the fire fighting pump in a humid-free environment without the risk of frost and explosion, and good ventilation.
- To keep the temperature constantly above +4 °C in the booster room or the booster station, the appropriate environment and the tools should be provided.
- The rooms should be large enough to allow comfortable entry and exit.
- If the chamber is below the surface level, stairs allowing easy entry and exit should be built. (Because it is very important to intervene to the failures in cases of emergency.)
- The room should be well illuminated and the room should have a sufficient number of plugs.
- The fire fighting booster should be placed near the water tank or cistern as close as possible. It is required for the suction pipe to be short and its diameter to be equal to or larger than the diameter of the suction pump, and space should ensure that the assembly will be made using a minimum amount of curves or brackets.
- Pipe connections (collectors, suction line, delivery line) should be arranged in a way that their inlets and outlets do not prevent accessing the parts required to be accessed during emergencies and the control panels.,
- While placing the fire fighting boosters, it should be considered that the engine and/or the pump

group may be required to be disassembled and taken out of the room. (Pipe and collector connections should not prevent dismounting and removing the pump and/or engine that are the other boiler room equipments.)

- The floor should be inclined enough to allow water drainage. If the group chamber is below the surface level, the accumulated water should be discharged using submerged pump and the submerged pump should be backed up.
- If there is a risk of flood in the chamber, electrical control panels should be mounted as high as possible. If required, it should be carried to a section where there is no such risk.
- If the control panels are on the chassis of the pump group, it should be ensured during assembly that the control panel is easily accessible and its cover is easily openable (for repair and maintenance).
- If the control panels are separate from the pump group, it should be ensured during assembly that the control panel is easily accessible and the front panel is directly seen when entered into the room.
- Control panels should be grounded.

## 16. Jockey Pump in a Booster Unit

The jockey pump in a booster set generally to maintain the small amount of water demands in death hours of a day instead of running the main pump in a huge plant.

## 17. Maintenance

The booster sets do not require specific inspections at regular intervals. As a precaution, however, we recommend that you carry out some or all of the following checks at varying intervals depending on the operating conditions;

- Leaks
- Thermal protector activation
- No. of starts per hour
- Noisy operation

If any malfunctions are found, refer to the next section for possible causes and remedies, Check membrane tank air pressure regularly every 6 months (page 7). The pump does not require any scheduled routine maintenance. It may require extraordinary maintenance which is generally cleaning the liquid end or replacing the mechanical seal or other worn parts. In this case, please refer to the pages 12 - 25.

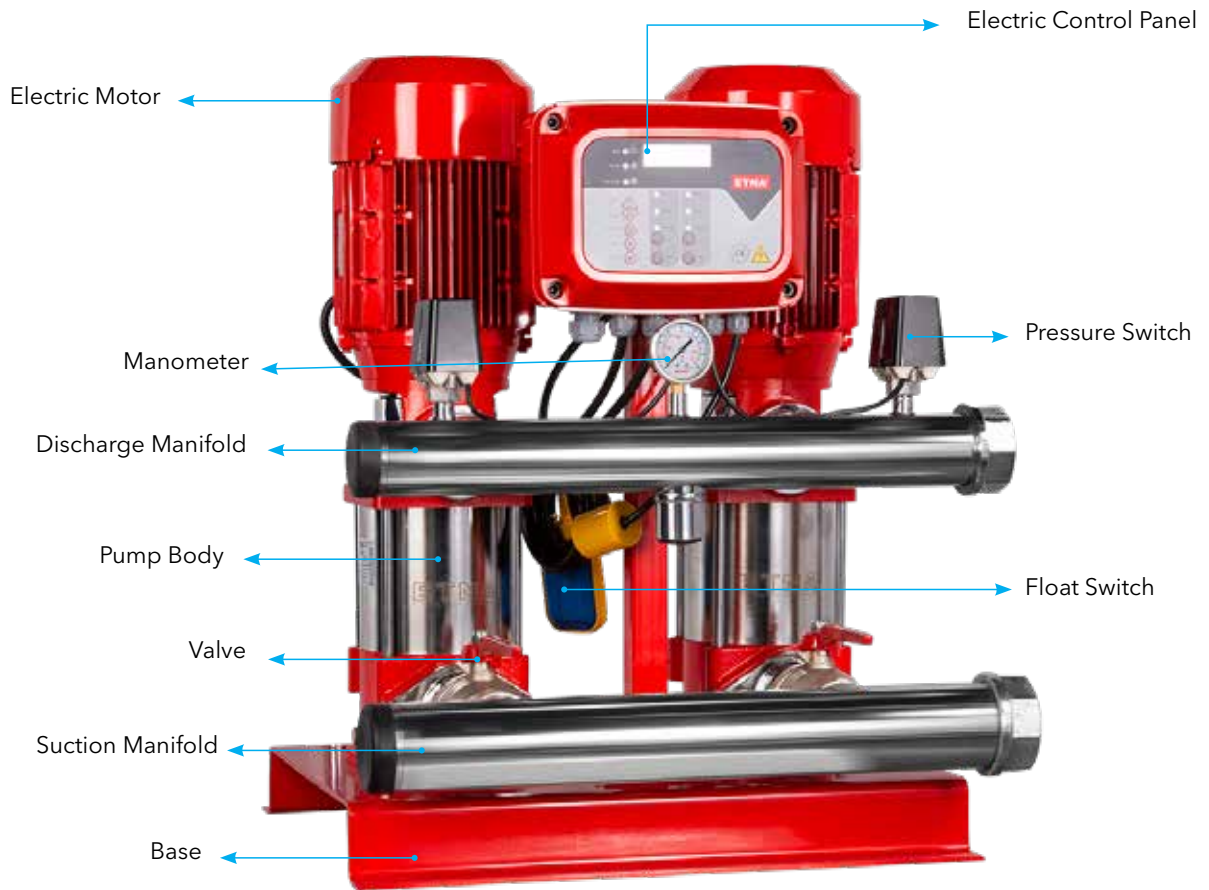


## 18. Troubleshooting

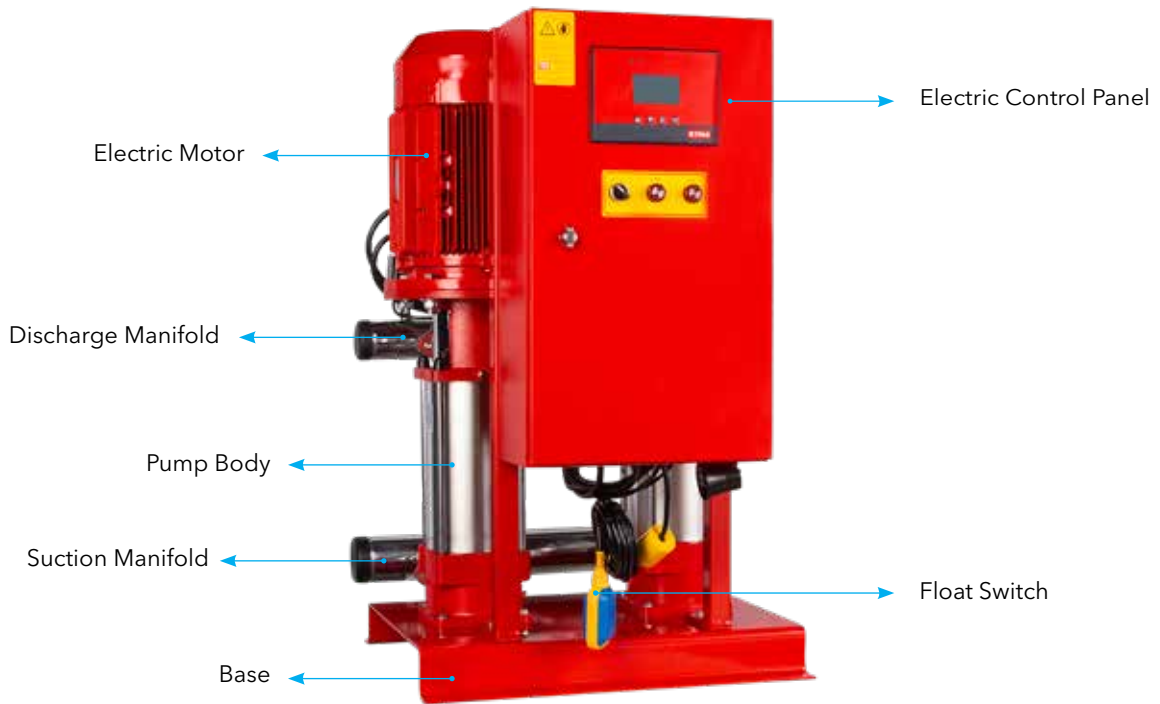
Making sure the booster set is disconnected from the mains before performing any maintenance operations.

FAILURE	REASON	SOLUTION
<b>1)</b> The booster set does not start	<b>A.</b> No mains voltage <b>B.</b> Blown fuses because the motor or the power supply cable are short-circuited <b>C.</b> Overload protection previously activated	<b>A.</b> Supply electric power <b>B.</b> Repair the motor or replace the cable <b>C.</b> Reset the protector (If it repeats again, see problem 4)
<b>2)</b> The booster set does not deliver a reduced or irregular flow	<b>A.</b> Piping obstructed or valve jammed <b>B.</b> Pump not primed because it has not been filled, or because of faulty seal on suction piping or foot valve (contains the mechanical seal may have been seriously damaged) <b>C.</b> Difference in level and/or excessive suction flow resistance <b>D.</b> Incorrect rotation direction (3-phase motors only) <b>E.</b> Air in suction pipe or pump	<b>A.</b> Dismantle and clear or replace. <b>B.</b> Fill the pump with liquid after checking the seal on the suction pipe and foot valve, and the integrity of the mechanical seal. <b>C.</b> Reduce the difference in level. Use a large diameter pipe. Clear the foot valve. Replace the foot valve with a larger capacity valve. <b>D.</b> Invert power supply wires on the terminal board <b>E.</b> Bleed the air
<b>3)</b> The pumps vibrate and noisy.	<b>A.</b> The pump is cavitating <b>B.</b> Worn motor or support bearings. <b>C.</b> Foreign bodies between fixed and rotating parts of pump	<b>A.</b> Check the flow-see probable cause 2C <b>B.</b> Replace the bearings <b>C.</b> Clean or replace the parts.
<b>4)</b> The overload protector steps in <b>a.</b> Accidentally <b>b.</b> Systematically	<b>A.</b> See 3C <b>B.</b> Temporary lack of a phase <b>C.</b> See 3B <b>D.</b> To many numbers of start-stops	<b>D.</b> The membrane is blown or less air in the membrane tank replace the membrane or charge the air into the tank %10 less of the starting pressure value when the system is not under pressure
<b>5)</b> The pump rotates in reverse when it is stopped	<b>A.</b> Leak in the suction pipe <b>B.</b> Faulty foot valve or check valve <b>C.</b> Air in suction pipe	<b>A.</b> Repair or replace <b>B.</b> Replace faulty foot valve <b>C.</b> Discharge the air
<b>6)</b> The pumps do not make change over	<b>A.</b> Wrong pressure switch setting. <b>B.</b> Damaged electronic card	<b>A.</b> Adjust the pressure switches <b>B.</b> Replace the electronic card

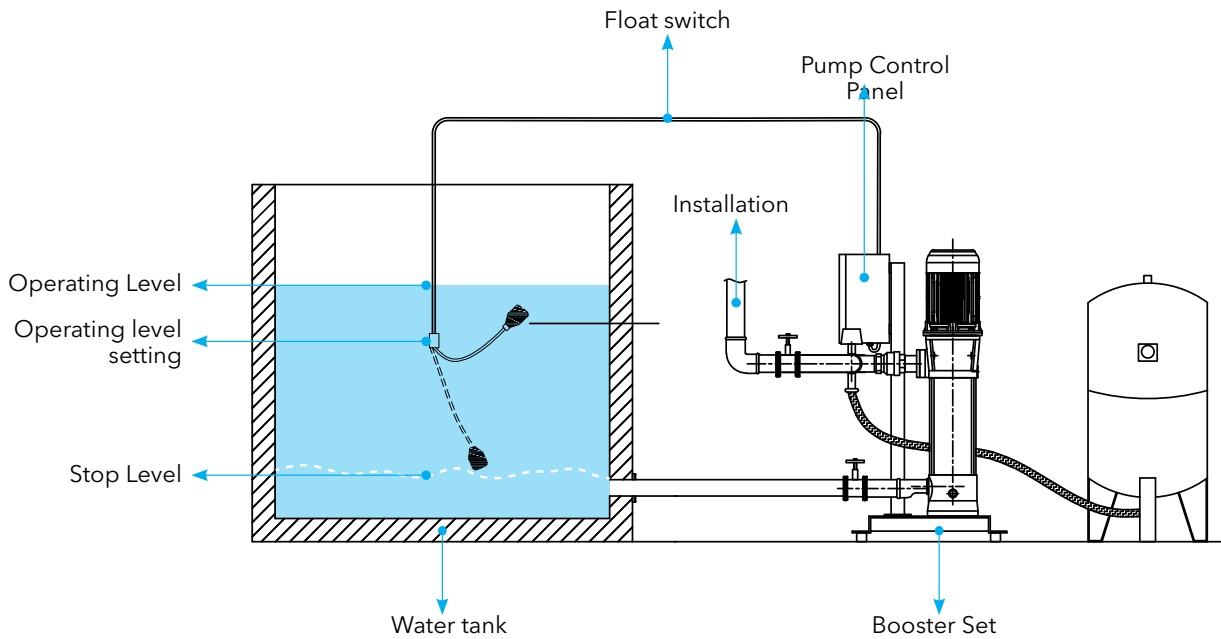
## 19. Main Components of a Booster Set







## 20. Float Switch Adjustments



## 21. Power Supply Cable Sizes for the Booster Sets

PUMP CONTROL PANEL POWER SUPPLY-CABLE SELECTION TABLE														
Power		Voltage	CABLE SECTION 3 x ... mm <sup>2</sup>											
HP	KW		1,5	2,5	4	6	10	16						
MAXIMUM LENGTH (METER)														
0,5	0,37	220 V	80	130										
0,75	0,55		55	90	140									
0,1	0,75		40	80	105	160								
1,5	1,10		30	50	75	115	190							
2	1,50		20	35	60	90	145	235						
3	2,20			30	50	70	120	185						

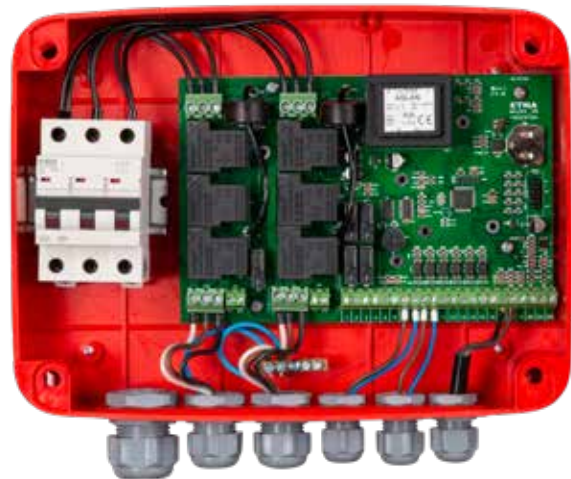
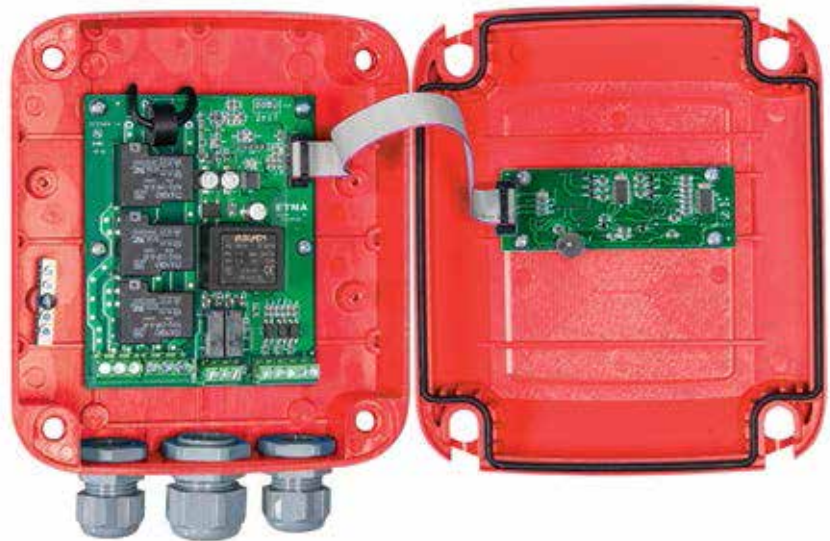
\* The above table can be used for cable selection between pump control panel and motor of the pump.

Power		Voltage	CABLE SECTION 3 x ... mm <sup>2</sup>														
HP	KW		2,5	4	6	10	16	25	35	50	70	95	120	150			
MAXIMUM LENGTH (METER)																	
3	2,2	380 V	190	300	460												
4	3		150	240	360												
5,5	4		110	170	260	450											
7,5	5,5		80	130	190	340	540										
10	7,5		60	100	150	250	410										
12,5	9,2		50	80	120	205	330	510									
15	11			60	100	170	280	440									
17,5	13				90	150	245	385									
20	15				80	130	210	330	460	660							
25	18,5					100	170	260	370	530							
30	22					90	140	220	310	440							
35	26						120	190	270	380	540						
40	30						100	170	230	330	460						
50	37							130	190	270	380	520					
60	45							110	160	230	320	440	550				
70	52								140	200	280	385	480				
75	55								120	170	240	330	410	530			
80	59								115	160	230	310	390	500			
90	66								110	150	220	290	370	470			
100	75									96	140	190	270	330	425		
110	81										125	175	245	300	380		
125	92										110	160	220	275	340		
150	110											130	180	220	290		
180	132												150	190	240		
200	150													130	170	220	
225	165														125	150	190
250	185																170
275	200															160	

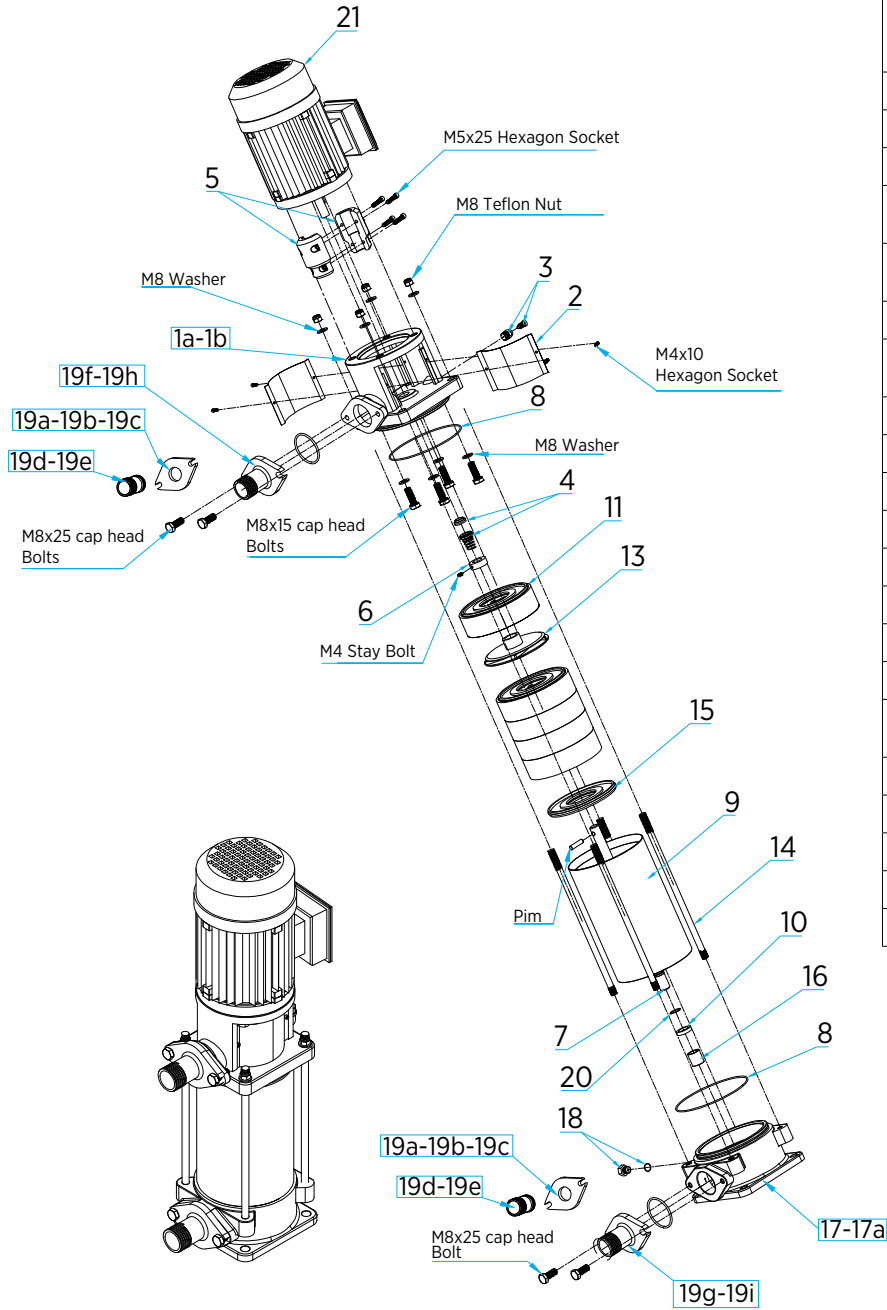
\* The above table can be used for control panel power supply from network.

\* The maximum cable lengths specified in the tables are calculated due to voltage drop of 3% and a ambient temperature of 25 °C.

## 22. Electric Panels for Single and Double Pump



## 23. Spare Parts KO 4-7 Series Exploded Picture

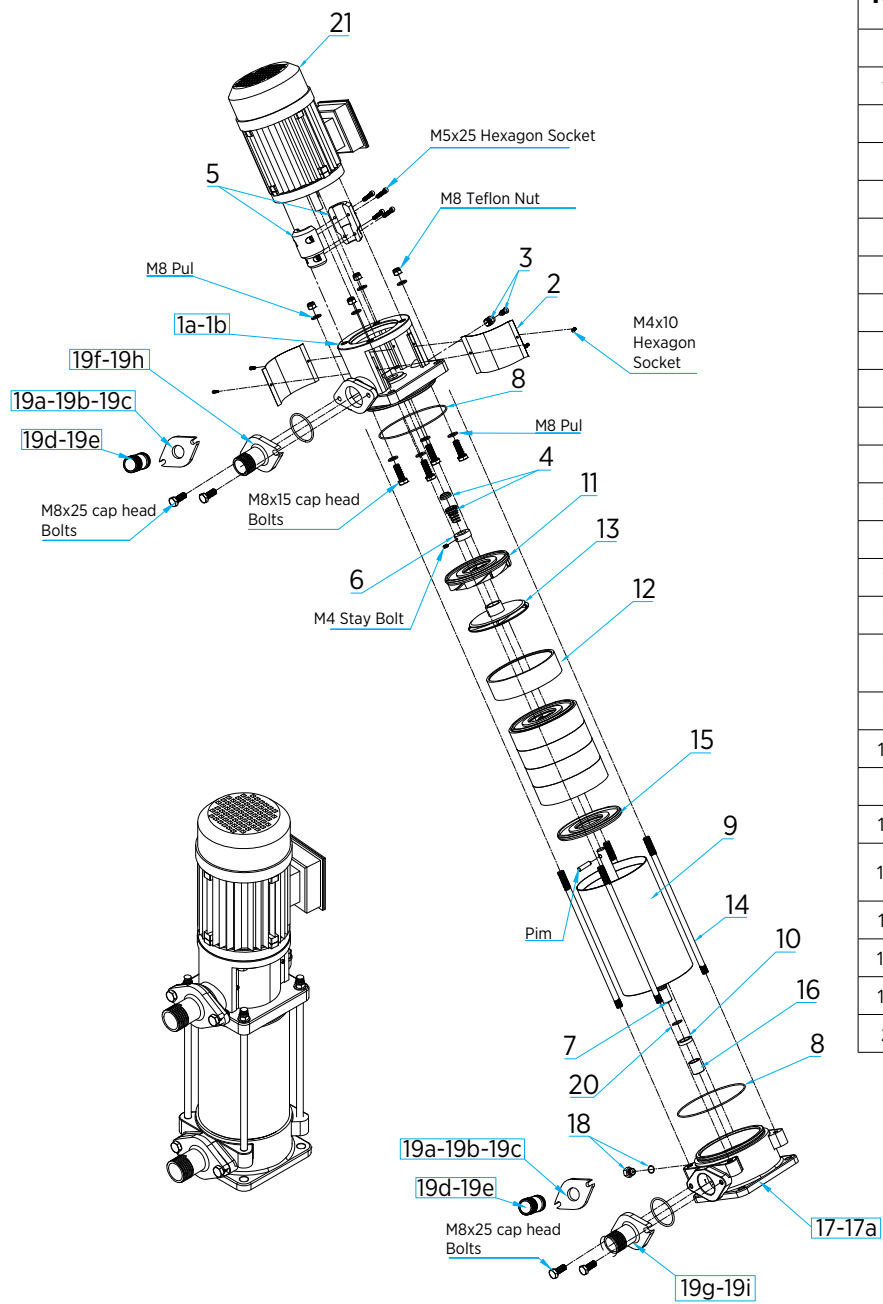


NO	PART NAME	EXPLANATION
1a	Upper Head	GG22- GG25
1b	Upper Head	GG22- GG25
2	Coupling Case Plate	AISI304
3	Pump Discharge Casing	AISI304
4	Mechanical Seal	M106K / CE / EPDM / SUS304
5	Coupling	Zamak
6	Retaining Ring Shaft Spring	AISI304
7	SHAFT	AISI420
8	O'RING	Nbr
9	Jacket	AISI304
10	Retaining Ring Shaft	AISI304
11	Diffuser	Noryl
13	Fan	Noryl
14	DOWEL PIN	AISI304
15	DISK	Noryl
16	Intermediate Bush Bearing	Sinter
17	Lower Head	GG22- GG25
18	Plug	Brass
19a	Pump Flange O-Ring	Nbr
19d	Pump Flange Pressure	Chromium Plated ST37
19e	Pump Flange Suction	Chromium Plated ST37

## KO 4-7 Series Spare Part

N.	CODE	PART NAME
1a	025 0700 002	Upper Head KO 4-7 Tons 80
1b	025 0700 003	Upper Head KO 4-7 Tons 90
2	025 0700 008	Coupling Case Plate KO 4-7 80
	025 0700 009	Coupling Case Plate KO 4-7 90
3	019 0000 008	Pump Discharge Casing
4	019 0000 001	Mechanical Seal Q 12 K.
5	025 0700 005	Coupling KO Ø19/80 G 0.7-1.1 KW
	025 0700 006	Coupling KO Ø24/90G 1.5-2.2 KW
6	019 0000 010	Retaining Ring Shaft Spring Q11
	019 0000 012	EPB/C Locking Shaft
7	025 0404 001	SHAFT KO 4/4 - 7/4 L=207
	025 0406 001	SHAFT KO 4/6 - 7/6 L=255
	025 0407 001	SHAFT KO 4/7 - 7/7 L= 279
	025 0408 001	SHAFT KO 4/8 - 7/8 L= 303
	025 0409 001	SHAFT KO 4/9 - 7/9 L=327
	025 0710 001	SHAFT KO 7/10 L=323
8	025 0400 012	113.98x2.62 NBR70 O'RING KO4-7
9	025 0404 002	Jacket KO 4/4 - 7/4 L=118
	025 0406 002	Jacket KO 4/6 - 7/6 L=166
	025 0407 002	Jacket KO 4/7 - 7/7 L=190
	025 0408 002	Jacket 4/8 - 7/8 L=214
	025 0409 002	Jacket 4/9 L=238
10	019 0000 009	EPH-KO 4/7 Retaining Ring Shaft
11	025 0400 011	Diffuser KO 4
	025 0700 011	Diffuser KO 7
13	025 0400 008	Fan KO 4
	025 0400 010	Fan KO 7
14	025 0404 003	DOWEL PIN KO 4/4 7/4 L=167
	025 0406 003	DOWEL PIN KO 4/6 - 7/6 L=215
	025 0407 003	DOWEL PIN KO 4/7 - 7/7 L=239
	025 0408 003	DOWEL PIN KO 4/8 7/8 L=263
	025 0409 003	DOWEL PIN KO 4/9 7/9 L=287
	026 0710 003	DOWEL PIN KO 7/10 L=311
15	025 0400 904	DISK KO 4
	025 0700 910	DISK KO 7
16	001 2000 019	Intermediate Bush Bearing B-C SB-012
17	025 0700 001	Lower Head KO 4-7
18	019 1000 004	Funnel Plug (1/4 Yellow Blind Plug)
	001 5950 002	Funnel Plug 3/8 (Blind Plug)
19a	001 5950 001	EPC Pump Flange 1" and O-Ring
	001 5950 002	KO 90 Pump Flange 1 1/4" and O-Ring
19d	001 5951 004	Pump Nipple 1 1/4"
19e	001 5951 002	Pump Nipple 1"

## KO 10-15-25 Series Exploded Picture



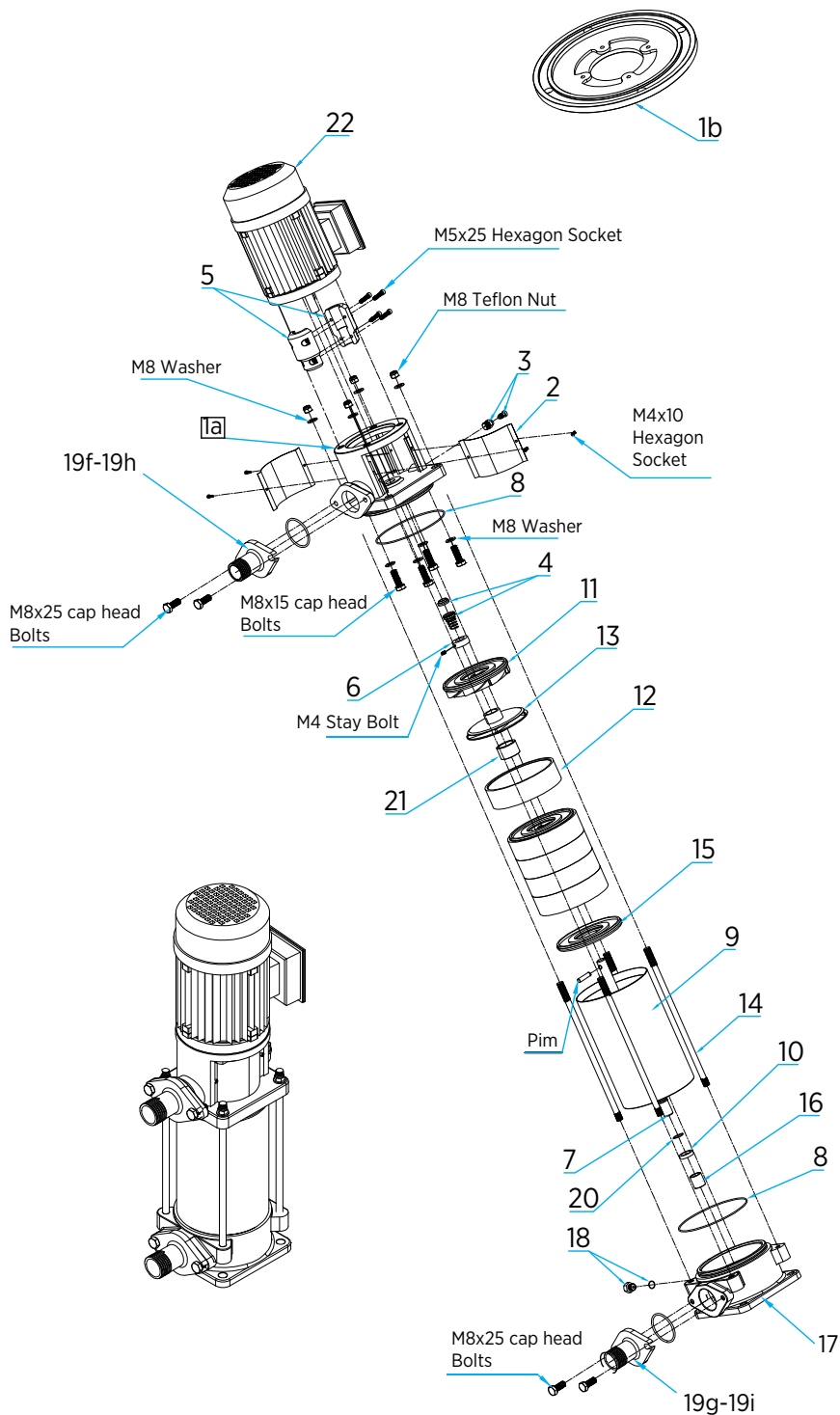
NO	PART NAME	EXPLANATION
1a	Upper Head	GG22- GG25
1b	Upper Head	GG22- GG25
2	Coupling Case	AISI304
3	Pump Discharge Casing	AISI304
4	Mechanical Seal	M106K / CE / EPDM / SUS304
5	Coupling	Zamak
6	Locking Shaft	AISI304
7	Shaft	AISI420
8	Pump O-Ring	NBR
9	Jacket	AISI304
10	Retaining Ring Shaft	AISI304
11	Diffuser	Noryl
12	Sleeve	Noryl
13	Fan	Noryl
14	Dowel Pin	AISI304
15	Disk	Noryl
16	Intermediate Bush Bearing	Sinter
17	Lower Head	GG22- GG25
17a	Lower Head	GG22- GG25
18	Plug	Brass
19a	Pump Flange and O-Ring	NBR
19b	Pump Flange and O-Ring	NBR
19c	Pump Flange and O-Ring	NBR
19d	Pump Flange Pressure	Chromium Plated ST37
19e	Pump Flange Suction	Chromium Plated ST37
20	Retaining Wire	AISI304



## KO 10-15-25 Series Spare Part

N.	CODE	PART NAME
1a	025 1005 001	Upper Head KO 10-15 Tons 90
1b	025 1007 001	Upper Head KO 25 Tons 100
2	022 0000 017	Coupling Case Plate KO
3	019 0000 008	Pump Discharge Casing (Air Relief Cock)
4	022 0000 003	Mechanical Seal Q 16 K.
5	025 1005 002	Coupling KO Q22/90 G 2,2-3KW
	022 2503 005	Coupling KO Q28/100G 4-5,5-7,5 KW
	022 2506 005	Coupling KO Q38/11 KW
6	022 2500 010	Locking Shaft K 10-15-25
7	025 1005 004	Shaft KO 10-15/5 L=309
	025 1007 003	Shaft KO 10/7 L=385
	025 1009 002	Shaft KO 10-15/9 L= 462
	025 1012 002	Shaft KO 10-15/12 L= 576
	025 1015 002	Shaft KO 10/15 L=690
	025 1504 002	Shaft KO 15/4 L=271
	025 1506 002	Shaft KO 15/6 L=347
	025 1508 002	Shaft KO 15/8 L=423
	025 2503 002	Shaft KO 25/3 L=233
	025 2504 002	Shaft KO 25/4 L=271
8	025 1000 002	Pump O-Ring KO 127*2,62 KO 10-15-25
	025 1005 005	Jacket KO 10-15/5 L=213
9	025 1007 004	Jacket KO 10/7 L=289
	025 1009 003	Jacket KO 10-15/9 - 25/6 L=266
	025 1012 003	Jacket 10-15/12 - 25/8 L=480
	025 1015 003	Jacket 10/15 L=594
	025 1504 003	Jacket KO 15/4 L=174
	025 1506 003	Jacket KO 15/6 - 25/4 L=251
	025 1508 003	Jacket KO 15/8 L=327
	025 2503 003	Jacket KO 25/3 L=137
10	022 1000 007	Retaining Ring Shaft K 10-15
	022 2500 011	Retaining Ring Shaft K 25
11	022 1000 002	Diffuser KO 10-15
	022 2500 004	Diffuser KO 25
	025 3500 002	Diffuser KO 35
12	022 1000 003	Sleeve KO 10-15
	022 2500 006	Sleeve KO 25
13	022 1000 001	Fan K 10
	022 1500 001	Fan K 15
	022 2500 002	Fan K 25
14	025 1005 003	Dowel Pin KO 10-15/5 L=273
	025 1007 002	Dowel Pin KO 10/7 L=350
	025 1009 001	Dowel Pin KO 10-15/9 - 25/6 L=430
	025 1012 001	Dowel Pin KO 10-15/12 - 25/8 L=539
	025 1015 001	Dowel Pin KO 10/15 L=653
	025 1504 001	Dowel Pin KO 15/4 L=235
	025 1506 001	Dowel Pin KO 15/6 - 25/4 L=311
	025 1508 004	Dowel Pin 15/8 L=385mm
15	022 1000 905	Disk K 10-15
	022 2500 907	Disk K 25
16	001 2000 017	Intermediate Bush Bearing SB-014 KO
17	025 1000 001	Lower Head KO 90 KO 10/15 25
17a	025 1000 001	Lower Head KO 100 KO 25
18	016 1000 004	Funnel Plug (1/4 Yellow Blind Plug)
	022 0000 015	Funnel Plug 3/8 (Blind Plug)
19a	001 5950 002	KO 90 Pump Flange 1 1/4" and O-Ring
19b	001 5950 003	KO 100 Pump Flange 1 1/4" and O-Ring
19c	001 5950 004	KO 100 Pump Flange 1 1/2" and O-Ring
19d	001 5951 004	Pump Nipple 1 1/4"
19e	001 5951 003	Pump Nipple 1 1/2"
20	022 1000 006	Retaining Wire K 10-15
	022 2500 019	Retaining Wire K 25

# KO 35-45 Series Exploded Picture



NO	PART NAME	EXPLANATION
1a	Upper Head	GG22- GG25
1b	Flange	GG22- GG25
2	Coupling Case Plate	AISI304
3	Air Relief Cock	AISI304
4	Mechanical Seal	M106K / CE / EPDM / SUS304
5	Coupling	Zamak
6	Locking Shaft	AISI304
7	Shaft	AISI420
8	Head O-Ring	NBR
9	Jacket	AISI304
10	Retaining Ring Shaft	AISI304
11	Diffuser	Noryl
12	Sleeve	Noryl
13	Fan	Noryl
14	Dowel Pin	AISI304
15	Disk	Noryl
16	Intermediate Bush Bearing	Sinter
17	Lower Head	GG22- GG25
18	Plug	Brass
19f	Necked Flange Pressure	Chromium Plated ST37
19g	Necked Flange Suction	Chromium Plated ST37
19h	Necked Flange Pres	Chromium Plated ST37
19i	Necked Flange Suction	Chromium Plated ST37
20	Retaining Wire	AISI304
21	Teflon Ring	Teflon

## KO 35-45 Series Spare Part

N.	CODE	PART NAME
1a	025 4500 007	Upper Head KO 35-45 Tons
1b	025 1000 003	Flange KO 132 (1.1 KW Intermediate Connection)
2	022 0000 017	Coupling Case Plate KO
3	019 0000 008	Air Relief Cock
4	022 0000 003	Mechanical Seal Q 16 K.
5	022 2503 005	Coupling KO Ø28/100G 5.5-7.5 KW
	022 2506 005	Coupling KO Q38/11 KW
	025 4500 012	Coupling Ø42/160 G 15-18.5-22 KW
	025 4500 014	Coupling KO 45 Q48 /22 KW
6	022 2500 010	Locking Shaft K 35-45
7	025 3503 002	Shaft KO 35/3 L=327
	025 3504 002	Shaft KO 35/4 L=373
	025 3505 003	Shaft KO 35/5 L=419
	025 3506 004	Shaft KO 35/6 L=465
	025 3507 005	Shaft KO 35/7 L=511
	025 3508 005	Shaft KO 35/8 L=557
	025 4503 002	Shaft KO 45/3 L=415
	025 4504 002	Shaft KO 45/4 L=487
	025 4505 002	Shaft KO 45/5 L=559
025 4506 002	Shaft KO 45/6 L=631	
8	022 2500 012	KO 35-45 Head O-Ring Q 158.42x2.62
9	025 3503 001	Jacket KO 35/3 L=158
	025 3504 001	KJacket KO 35/4 L=204
	025 3505 001	Jacket KO 35/5 L=249
	025 3506 001	Jacket KO 35/6 L=295
	025 3507 001	Jacket KO 35/7 L=341
	025 3508 001	Jacket KO 35/8 L=386
	025 4503 001	Jacket KO 45/3 L=241
	025 4504 001	Jacket KO 45/4 L=313
	025 4505 001	Jacket KO 45/5 L=385
025 4506 001	Jacket KO 45/6 L=457	
10	025 4500 010	Retaining Ring Shaft K 35-45
11	025 3500 002	Diffuser KO 35
	025 4500 002	Diffuser KO 45
12	025 3500 004	Sleeve KO 35
	025 4500 004	Sleeve KO 45
13	025 3500 001	Fan K 35
	025 4500 001	Fan K 45
14	025 4500 005	Dowel Pin KO 35/3 L=295
	025 4500 005	SDowel Pin KO 35/4L=341
	025 4500 005	Dowel Pin KO35/5 L=386
	025 4500 005	Dowel Pin KO 35/6 L=432
	025 4500 005	Dowel Pin KO 35/7 L=478
	025 4500 005	Dowel Pin KO 35/8 L=523
	025 4500 005	Dowel Pin KO 45/2 L=308
	025 4500 005	Dowel Pin KO 45/3 L=381
	025 4500 005	Dowel Pin KO 45/4 L=453
	025 4500 005	Dowel Pin KO 45/5 L=525
025 4500 005	Dowel Pin KO 45/6 L=597	
15	025 3500 003	Disk K 35
	025 4500 003	Disk K 45
16	001 2000 017	Intermediate Bush Bearing SB-014 KO
17	025 4500 006	Lower Head KO 35-45
18	016 1000 004	Funnel Plug (1/4 Yellow Blind Plug)
	022 0000 015	Funnel Plug 3/8 (Blind Plug)
19f	001 5930 004	KO 35 - Necked Flange Pressure (2 ")
19g	001 5930 005	KO 35 - Necked Flange Suction (2 1/2")
19h	001 5950 006	KO 45 Necked Flange Pressure (2 1/2")
19i	001 5950 007	KO 45 Necked Flange Suction (3")
20	025 4500 009	Retaining Wire KO 35-45
21	025 4500 011	KO 45 Teflon Ring







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