

MANUBLOC 3000

Parallel shaft geared motors and gear units

Selection guide

Electromechanical products

Manubloc 3000

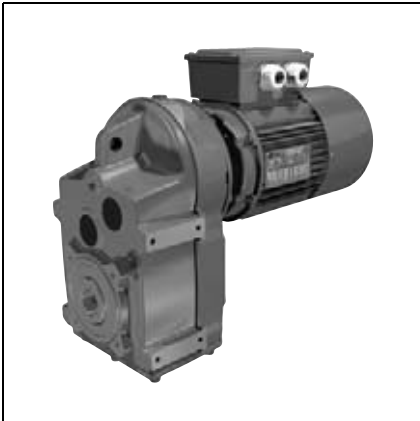
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General



Manubloc 3000 geared motors with parallel gears are used to adapt the speed of the electric motor to that of the driven machine. Their size is therefore determined by the motor power (P) expressed in kilowatts (kW) and the output rotation speed of the gearbox (n_S) in revolutions per minute (min^{-1}). The main characteristic of the speed reducer is the rated output torque (M_{nS}) expressed in Newton-metres (N.m):

$$M_{nS} = \frac{P \times 9550}{n_S} \times \text{efficiency}$$

A range of four sizes: 32, 33, 34, 35.
Rated output torque up to 2800 N.m.
Power ratings: from 0.25 to 30 kW.
Reduction ratios: 5 to 315.
From two to three reduction stages.
High efficiency: 95% to 97%.
Reversible.
Quiet operation.

Construction

Manubloc (Mub) gearbox

Component	Materials	Remarks
Frame	Cast iron	<ul style="list-style-type: none"> - use of ENGJL-200 cast iron (flake graphite: 200 MPa tensile strength) single component perlite to ensure unit is fully sealed - monobloc ribbed with internal reinforcements to absorb vibrations and noise, and increase its rigidity - plain housing NU or with BT, BS or BD flange. They are compact and meet industrial requirements
Gears	Steel Ni Cr Mo	<ul style="list-style-type: none"> - cut by the gear hob, they are heat treated and then undergo final machining. <p>The quality and precision of the gear cutting allow maximum torque with minimum noise level</p>
Shaft	Steel	<ul style="list-style-type: none"> - grinding of sealing surfaces - hollow (size 32 to 35) with key in accordance with ISO R773 or hollow with shrink disc - tolerance of diameters in accordance with NFE 22-051 and ISO R 775
Lipseals	Nitrile	- antidust lipseals in accordance with DIN 3760 form AS
Flange	Cast iron	- reinforced by large ribs, this ensures ruggedness of the gearbox under heavy loads
Lubrication	Oil	<ul style="list-style-type: none"> - in accordance with ISO 6743/6 - delivered with the quantity of oil corresponding to the operating position, it is fitted with drain, level and breather plugs
Mounting		<p>AP: input shaft gearbox MI: geared motor with integral motor MU: geared motor with IEC motor, manufactured with universal mounting</p>
Standard motor		<p>LS: multi-voltage 220/380 V - 230/400 V - 240/415 V</p> <ul style="list-style-type: none"> - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - metal terminal box with cable gland supplied - IP 55 standard protection
Brake motors		<p>FCR: failsafe brake induction motor, from 0.25 to 15 kW, IP 55 protection FCPL: failsafe brake induction motor, from 18.5 to 30 kW, IP 44 protection</p>
Finish	Paint	Shade: RAL 6000 (green), system I (1 polyurethane vinyl layer of 25/30 μm)

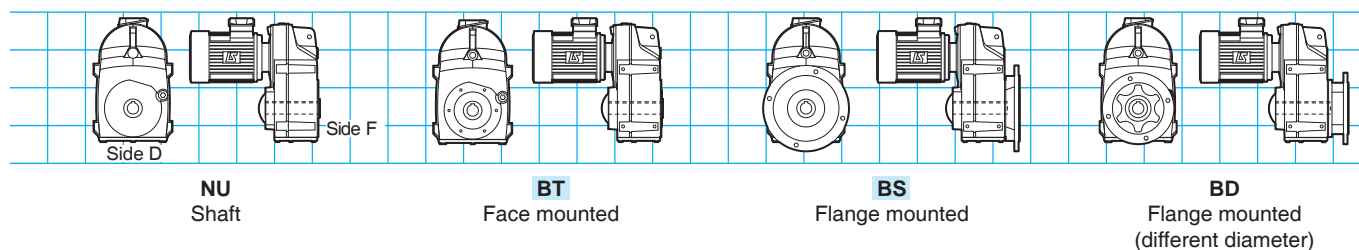
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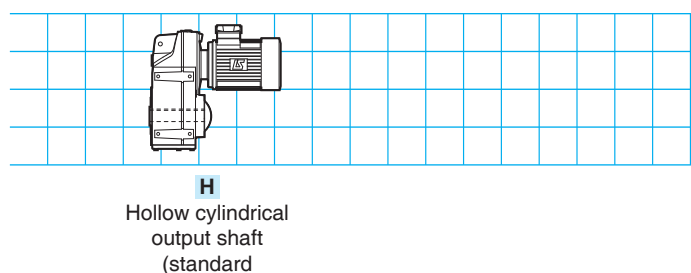
Mounting - Operating positions

Standard position: gearbox view from side F, motor behind, side D on the floor.

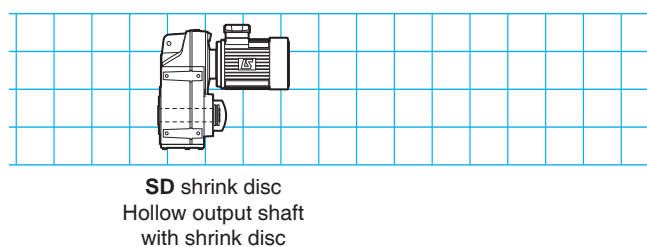
1 - Mounting



2 - Output shaft

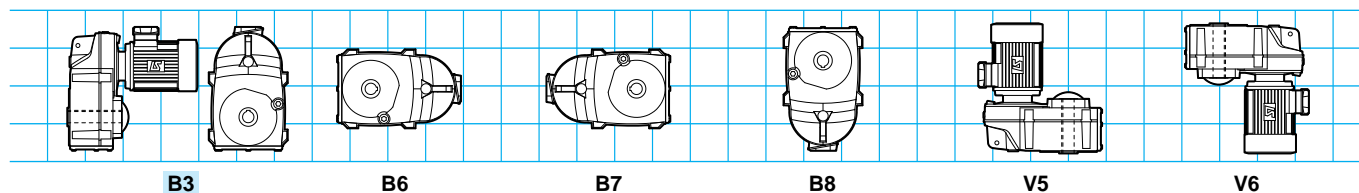


3 - Option

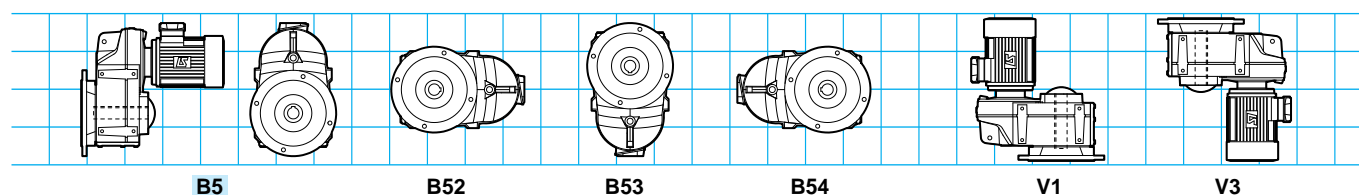


4 - Positions

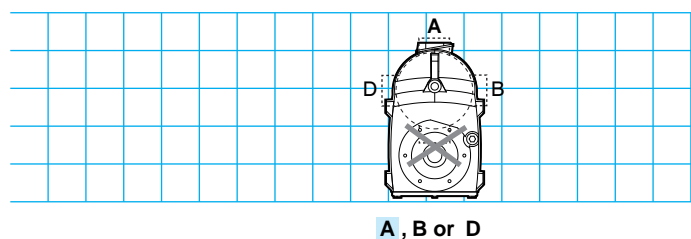
4.1 - Mounting on NU housing



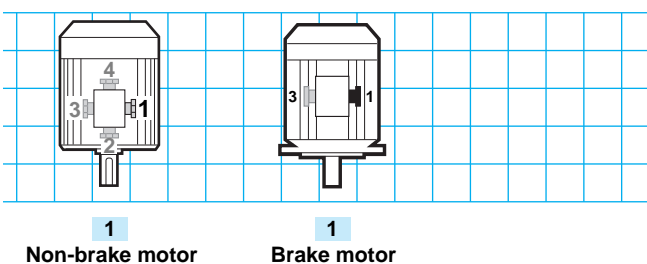
4.2 - With BT, BS, BD flange



5 - Terminal box position



6 - Cable gland position



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Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which respond to very wide-ranging needs. Most of the drives available are described in the industry catalogue.

For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Manubloc Mub 3000 gearboxes can be used in conjunction with the following drives:

• **3-phase induction motors:**

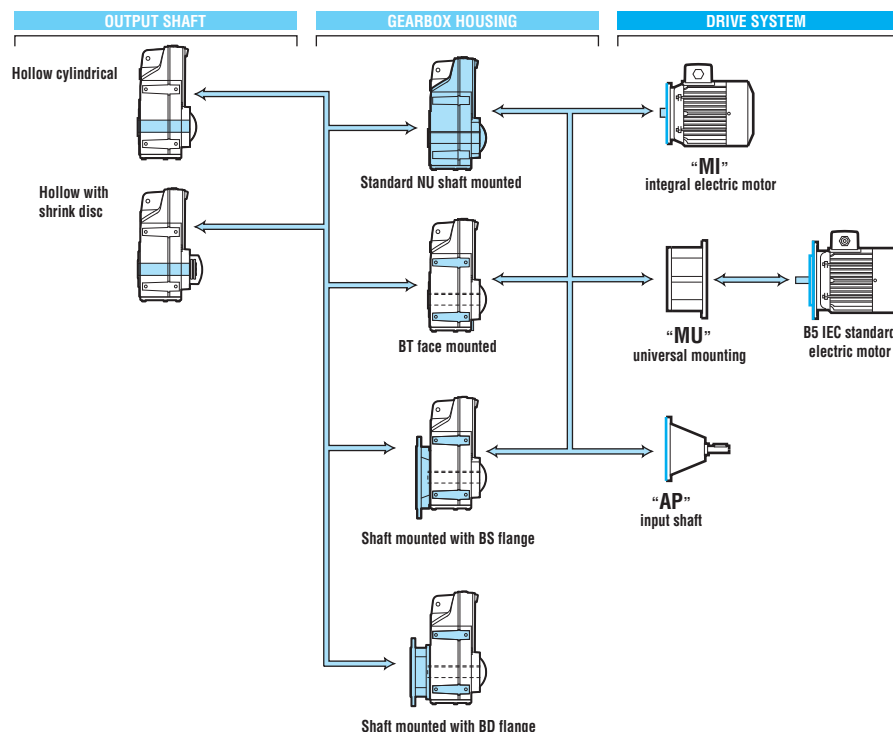
- LS motor from 0.25 to 30 kW
- FCR brake motor from 0.25 to 15 kW
- FCPL brake motor from 18.5 to 30 kW

• **electronic variable speed motors:**

- centralised system with separate drive**
- LSMV motor from 0.25 to 30 kW
- LSMV FCR brake motor from 0.25 to 11 kW
- LSMV FCPL brake motor from 15 to 22 kW

decentralised system with integrated drive

- VARMECA from 0.25 to 11 kW



Designation / Coding

Mub	3333	B5	BT	H	57.2	MI	4P	LS 80 L	0.75 kW	230/400 V 50 Hz	UG
Type of Manubloc gearbox	Size and manufacturer code	Operating position	Mounting form	Definition of output shaft	Exact reduction	Integral mounting	No. of poles	Series, frame size, manufacturer code	Rated output power	Mains voltage and frequency	Use

Example of coding:

Manubloc 3333 B5 0.75 kW, 26 min⁻¹, class II:

Description

Mub 3333 B5 BT H 57.2 MI
4P LS 80 0.75 kW 50 Hz 230/400V UG

Electromechanical products Manubloc 3000

Selection

The selection of a gearbox or a geared motor should take account of the application.
Some of these applications are listed in the indicative "AGMA" load classification, on the next page.

The table opposite summarises the relationship between the "AGMA" class and the gearbox duty factor K_p .

"AGMA" class	Gearbox duty factor K_p
I	1
II	1.4
III	2

1st case – Your application is listed

Follow the indicative classification table of loads according to "AGMA", on the next page.

Indicative load classification according to "AGMA"

Applications

OPERATION in hours/day			
	3 h/day	10 h/day	24 h/day
CONVEYORS (loaded or fed uniformly)			
belt	I	I	II
chain	I	I	II

Application example: belt CONVEYOR

Operating time: 10 hours/day

"AGMA" class: I

K_p duty factor of gearbox = 1

2nd case – Your application is not listed

The "AGMA" selection class is defined by the daily operating time and the type of application operation, according to the table below.

Type of application	Daily operating time	"AGMA" class
Shock-free, not many starts	10 hours/day	I
Damped shocks	10 hours/day	II
Shock-free, not many starts	24 hours/day	III
Violent shocks, many starts	10 hours/day	III
Damped shocks	24 hours/day	III

Electromechanical products

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List of applications

OPERATION in hours/day			
	3 h/day	10 h/	24 h/
COOLING TOWERS	-	-	-
AGITATORS			
liquids with variable	II	II	II
liquids and solids	II	II	II
pure liquids	I	I	I
semi-liquids, variable	II	II	II*
FOOD AND BEVERAGE INDUSTRY			
cereal cookers	I	I	II
beet choppers	II	II	II
meat choppers	II	II	II
dough mixers	I	II	II
extruding machines	I	II	III
FEEDING (attachment)			
alternative	III	III	III*
disks	I	I	I
lattice	I	II	II
belt	I	II	II
screw	I	II	II
TRANSMISSION SHAFT			
loads with moderate	I	II	II
loads with severe shocks	III	III	III*
constant loads	I	I	II
CLAY (industry)			
brick machines	III	III	III*
processing machines	II	II	II
mixers	II	II	II
brick presses	III	III	III*
TIPPERS	III	III	
TIMBER (industry)			
supplying:			
saws in series	III	III	III*
shape-cutting machines	II	II	III
planers	II	II	III
cutting	II	II	III
chains	I	II	III
turntable control	I	II	III
main conveyors	I	II	III
ball conveyors	III	III	III*
circular feed conveyors	I	II	III
burner conveyors	I	II	III
waste conveyors	I	II	III
plank conveyors	III	III	III*
transfer conveyors	I	II	III
devices:			
for planer inclination	I	II	III
for ball turning	III	III	III*
barking machine, feeder	II	II	III
main drive system barking	III	III	III*
roller drive system	III	III	III*
haulage of balls:			
inclined	III	III	III*
well	III	III	III*
cutting saws:			
chain	II	II	III
alternative	II	II	III
sorting tables	I	II	III
ball support plates	III	III	III*
bark drums	III	III	III*
peeling tower	-	-	-
transfer:			
on bogies	I	II	III
chain	I	II	III
BREWERIES,			
boilers, continuous duty			II
cookers, continuous duty			II
brewing vats, continuous			II
bottling machines	I	I	II
scaling hoppers:			
frequent starts	II	II	III
GRINDERS			
minerals	III	III	III*
stones	III	III	III*
HAMMER MILLS	III	III	III*
ROTATING GRINDERS			
rod mills	III	III	III*
ball mills	III	III	III*
pebble mills	III	III	III*
RUBBER (industry)			
air chamber extruder	II	II	II

OPERATION in hours/day			
	3 h/day	10 h/	24 h/
grinders (2 or more)	II	II	II*
calenders	II	II	III
extruding machines	I	II	III
sheet forming machines	I	II	III*
mixers	III	III	III*
CLARIFIERS	I	I	II
SORTERS, GRADERS	I	II	II
COMPRESSORS			
lobe	I	II	II
centrifugal	I	II	II
CONVEYORS (loaded or fed uniformly)			
belt			II
chain	I	I	II
scale	I	I	II
bucket	I	I	II
metal plate	I	I	II
screw	I	I	II
assembly	I	I	II
furnace	I	I	II
CONVEYORS (loaded or fed non-uniformly)			
severe duty:			
belt	II	II	II
chain	II	II	II
scale	II	II	II
bucket	II	II	II
metal plate	II	II	II
roller	I	I	II
screw	II	II	II
alternative	III	III	III*
assembly	II	II	II
furnace	II	II	II
vibrator	III	III	III*
removal	I	I	-
CANE KNIVES	II	II	III
SIEVES			
rotating	I	II	III
stone washer with water	I	I	II
DREDGERS			
shaker control	III	III	III*
cutting head control	III	III	III*
sieve control	III	III	III*
conveyors	I	II	II
pumps	I	II	II
cable winding drums	I	II	-
handling winches	II	II	-
duty winches	II	II	-
CONTROL (vehicle)	II	II	II
ELEVATORS			
centrifugal unloading	I	I	II
gravity unloading	I	I	II
escalators	I	II	III
buckets:			
continuous load	I	I	II
severe load	II	II	II
uniform load	I	I	II
hoist for building materials	III	III	-
WINDING MACHINES	-	-	-
FILTERS	I	II	III
FURNACES			
dryers, coolers	I	II	II
tumbling barrels	III	III	III*
CRANES AND LIFTING			
moving truck	-	-	-
moving bridge	-	-	-
bucket winches	-	-	-
hoisting gear	-	-	-
ANCHOR CAPSTANS	II	II	II*
PRINTING (presses)	I	I	II
PACKAGING MACHINES			
stackers	II	III	III
wrapping machines	I	I	II
WASHING MACHINES			
drum	II	II	II
reversible	II	II	II
MACHINE TOOLS			
main drive system	I	I	II
auxiliary drive system	I	I	II
punching machines	III	III	III*
flat planers	III	III	III*

OPERATION in hours/day			
	3 h/day	10 h/	24 h/
bending rollers	II	II	II
nut tappers	II	III	III*
shears	III	III	III
MIXERS			
constant density	I	I	II
variable density	I	II	II
cement, continuous duty	I	II	II
cement, intermittent duty	I	I	-
METALLURGY (industry)			
drawing frames, carriage	III	III	III*
drawing frames, main	III	III	III*
table conveyor:			
single direction of	I	II	III
reverse operation	III	III	III
wire winders	I	II	II
sheet metal winders	I	II	II
spreading roller drive	III	III	III*
splitting lines	II	II	III
wire drawing mills,	II	II	III
shape-cutting machines	III	III	III*
separating rollers	-	-	-
drying rollers	-	-	-
PAPER (industry)			
fans	-	-	-
agitators, mixers	I	I	II
wind up turrets	I	II	II
calenders	I	II	II*
conveyors	I	II	II
ball conveyors	III*	III*	III*
cutters, plating machines	I	II	II
bleaching vats	I	II	II
cylinders	I	II	II
felt stitching machines	III*	III*	III*
washers, thickeners	I	II	II*
barking machines	III	III	III
pulp machines, uncoilers	I	II	II
pulp hammers	II	II	II*
presses	I	II*	II*
suction rollers	I	II	II*
dryers	I	II	II*
wood pulp storing	I	II	II
bark drums	III	III	III*
felt tension devices	I	II	II
PUMPS			
alternative:			
multi-cylinder single-	I	II	II
centrifugal	I	I	II
dosing	I	II	II*
rotating:			
geared	I	I	II
with lobes, with plates	I	I	II
SEWAGE PLANTS			
surface fans	III	III	III
duck type fans	III	III	III
bar screens	I	I	II
screw pumps	I	II	III
TEXTILES			
reelers (except drum)	I	II	II
calenders	I	II	II
padding calenders	I	II	II
carding machines,	I	II	II*
alignment control	-	-	-
glueing machines	I	II	II
drying machines, mangles	II	II	II
napping mills	I	II	II
washing machines	I	II	II
soap milling machines	I	II	II
dyeing machines	I	II	II
knitting machines	-	-	-
cloth finishing machines:			
washers, spreading	I	II	II
dryers, calenders	I	II	II
thread preparation	I	II	II
weaving looms	II	III	III
spinning machines	I	I	II
dryers	I	II	II
loading hoppers	II	II	II
VENTILATION	-	-	-

*: These classes assume minimum and normal conditions. To take account of variations which may affect the load conditions, it is recommended that applications are carefully researched before making a selection.

-: Consult Leroy-Somer

Electromechanical products

Manubloc 3000

Selection

Mub 3000: NU, BT, BS, BD
LS, LS brake FCR - FCPL - Cl.F - 400 V - 50 Hz

		Maximum quantity per order			
Inputs		Mub 3232-33	Mub 3332-33	Mub 3432-33	Mub 3532-33
AP	-				
MI LS	0.25-9 kW	2	2	2	2
	11-30 kW	-	-	1	1
MI LS FCR	0.25-9 kW	2	2	2	2
	11-15 kW	-	-	2	2
MI LS FCPL	18-30 kW	-	-		
MU LS	0.25-9 kW	2	2	2	2
	11-30 kW	-	-	1	1
MU LS FCR	0.25-9 kW	2	2	2	2
	11-15 kW	-	-	1	1
MU LS FCPL	18-30 kW	-	-		
MU FLS	0.55-7.5 kW	2	2	2	2

Mechanical options					
	Hollow shaft				Flexible joint
	NU H	BT H	BS H - BD H	SDB	FM
Mub 3232-33		2	2	2	2
Mub 3332-33		2	2	2	2
Mub 3432-33		2	2	2	2
Mub 3532-33		2	2	2	2

Pages of dimensions corresponding to mounting				
Mounting	Mub 3232-33	Mub 3332-33	Mub 3432-33	Mub 3532-33
AP	p. 24	p. 24	p. 24	p. 24
MI	p. 14-15	p. 16-17	p. 18-19	p. 20-21
MU	p. 25	p. 25	p. 25	p. 25

Inputs		Electrical options			Brake options			
4p/MI-MU		230/400 V	400 V Δ	PTO/PTC	DLRA	Drip cover	TRR	Different Mf
LS	0.18-3 kW				-	-	-	-
	4-9 kW				-	-	-	-
	11-15 kW MI				-	-	-	-
	11-15 kW MU				-	-	-	-
FLS	0.55-7.5 kW MU				-	-	-	-
LS FCR	0.18-3 kW							
	4-5.5 kW							
	7.5-9 kW							
	11-15 kW							

1 WD*	<	2 WD*	<	5 WD*	<	10 WD*	<	15 WD*	<	To be agreed
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*WD : Working Days
Logistical Lead Times between order date and date of shipment.

Electromechanical products

Manubloc 3000

AGMA I, II, III

Mub 3232-3233: NU, BT, BS, BD
LS, LS brake FCR - IP 55 - IP 44 - Cl.F - 400 V - 50 Hz - U.G.

Mub 3232-3233

		LS (kW)																	
		0.25	0.37	0.55	0.75	0.9	1.1	1.5	1.8	2.2	3	4	5.5	7.5	9				
3-phase 4-pole LS																			
min ⁻¹	i	71			80		90			100		112	132S	132M					
6.36	228	1.24	0.82																
7.00	207	1.37	0.90																
8.06	180	1.56	1.03																
8.84	164	1.71	1.13																
10.2	142	1.98	1.31	0.86															
11.4	127	2.21	1.46	0.96															
12.8	113	2.47	1.63	1.07															
14.6	99.3	2.81	1.86	1.21												0.88			
15.5	93.8	2.97	1.96	1.28	0.93	0.79													
18.4	79	3.48	2.30	1.50	1.09	0.93													
19.5	74.5	3.68	2.43	1.58	1.15	0.98										0.80			
22.0	66	4.11	2.71	1.76	1.28	1.09										0.90			
25.1	57.8	4.49	2.96	1.93	1.40	1.20	0.98												
28.5	50.8	4.86	3.20	2.08	1.52	1.29	1.06												
32.3	44.9						1.14									0.83			
36.4	39.8						1.23									0.90			
41.2	35.2						1.33	0.97	0.81										
37.3	38.9	6.52	4.32	2.87	2.09	1.73													
43.5	33.3	7.47	4.93	3.23	2.35	1.99										1.63	1.19	1.00	0.81
47.7	30.4	8.35	5.53	3.67	2.67	2.22										1.81	1.32	1.10	0.90
52.7	27.5	9.21	6.10	4.05	2.95	2.45										2.00	1.46	1.22	0.99
61.7	23.5	10.60	7.00	4.58	3.34	2.82	2.31	1.69	1.41	1.15	0.84								
69.4	20.9		7.87	5.15	3.75	3.17	2.60	1.90	1.59	1.30	0.95								
77.5	18.7		8.76	5.73	4.18	3.53	2.89	2.11	1.77	1.44	1.06					0.79			
87.9	16.5		9.95	6.51	4.74	4.01	3.28	2.40	2.01	1.64	1.20					0.90			
97.3	14.9		11.05	7.23	5.27	4.46	3.65	2.66	2.23	1.82	1.33	1.00							
111	13.1			8.21	5.98	5.06	4.14	3.02	2.53	2.07	1.51	1.13	0.83						
118	12.3			9.10	6.62	5.50	4.49	3.28	2.73	2.23	1.63	1.22	0.89						
137	10.6			10.27	7.48	6.21	5.07	3.70	3.08	2.52	1.84	1.38	1.00						
156	9.32				8.27	7.02	5.75	4.20	3.52	2.87	2.10	1.58	1.16						
172	8.42										2.18	1.64	1.19						
195	7.45										2.51	1.88	1.38						
207	6.99		2.43								1.82	1.32							
245	5.91		2.79	2.09							1.53								
294	4.94										1.65								
370	3.92									3.33	2.50	1.83							
3-phase 4-pole LS brake																			
FCR		71			80		90			100		112	132						

Mub 3233

Mub 3232

Electromechanical products

Manubloc 3000

AGMA I, II, III

Mub 3332-3333: NU, BT, BS, BD
LS, LS brake FCR - IP 55 - IP 44 - Cl.F - 400 V - 50 Hz - U.G.

Mub 3332-3333

LS (kW)																
		0.25	0.37	0.55	0.75	0.9	1.1	1.5	1.8	2.2	3	4	5.5	7.5	9	
3-phase 4-pole LS																
min ⁻¹	i	71			80		90			100		112	132S	132M		
4.56	318	1.62	1.07											Mub 3333		
5.32	272	1.89	1.25	0.82												
5.84	248	2.07	1.37	0.90												
6.44	225	2.28	1.51	0.99												
7.55	192	2.67	1.76	1.15	0.84											
8.49	171	3.00	1.98	1.30	0.94											0.80
9.45	153	3.34	2.20	1.44	1.05											0.89
10.7	135	3.78	2.50	1.63	1.19											1.01
11.9	122	4.20	2.77	1.81	1.32	1.12	0.91									
13.5	107	4.75	3.14	2.05	1.50	1.27	1.04									
14.5	100	5.07	3.35	2.19	1.60	1.35	1.11									0.81
16.7	87	5.83	3.85	2.52	1.84	1.55	1.27									0.93
19.0	76.3			2.87	2.09	1.77	1.45	1.06	0.88							
26.7	54.3	9.17	6.05	3.96	2.88	2.44	2.00	1.46	1.22	1.00				Mub 3332		
29.6	49.1	10.12	6.68	4.37	3.18	2.69	2.20	1.61	1.35	1.10						
33.0	43.9	11.28	7.45	4.87	3.55	3.00	2.46	1.79	1.50	1.23						0.90
38.0	38.1	12.95	8.55	5.59	4.07	3.45	2.82	2.06	1.73	1.41						1.03
43.0	33.7	14.59	9.63	6.30	4.59	3.88	3.18	2.32	1.94	1.59	1.16	0.87				
46.8	31	15.83	10.45	6.84	4.98	4.21	3.45	2.52	2.11	1.72	1.26	0.95				
52.9	27.4		11.79	7.71	5.62	4.75	3.89	2.84	2.38	1.94	1.42	1.07				
59.4	24.4		13.19	8.63	6.28	5.32	4.35	3.18	2.66	2.17	1.59	1.19				0.87
66.2	21.9		14.65	9.58	6.98	5.91	4.83	3.53	2.96	2.41	1.77	1.32	0.97			
71.9	20.2		15.87	10.38	7.56	6.40	5.23	3.82	3.20	2.61	1.91	1.44	1.05			
81.0	17.9			11.64	8.48	7.17	5.87	4.29	3.59	2.93	2.15	1.61	1.18	0.87		
93.0	15.6			13.30	9.68	8.20	6.71	4.90	4.10	3.35	2.45	1.84	1.34	0.99		0.83
103	14.1										2.70	2.02	1.48	1.09		0.91
118	12.3										3.08	2.31	1.69	1.24		1.04
130	11.1										1.86	1.37	1.14			
144	10.1	3.72	2.79								2.04	1.50	1.25			
166	8.76											2.34	1.72	1.44		
264	5.49											3.59	2.64	2.21		
3-phase 4-pole LS brake																
FCR		71			80		90			100		112	132			

Mub 3333

Mub 3332

Electromechanical products

Manubloc 3000

AGMA I, II, III

Mub 3532-3533: NU, BT, BS, BD
LS, LS brake FCR - IP 55 - FCPL - IP 44 - Cl.F - 400 V - 50 Hz - U.G.

Mub 3532-3533

LS (kW)

		1.1	1.5	1.8	2.2	3	4	5.5	7.5	9	11	15	18.5	22					
min ⁻¹	i	90				100		112	132S	132M		160		180					
6.75	215	1.79	1.30	1.09	0.89														
7.88	184	2.11	1.53	1.28	1.04														
8.55	169	2.26	1.65	1.38	1.12										0.82				
9.80	148	2.62	1.91	1.59	1.30										0.95				
11.2	130	2.96	2.16	1.80	1.47										1.07	0.80			
12.4	117	3.30	2.40	2.00	1.63										1.19	0.89			
13.9	104	3.69	2.69	2.24	1.83										1.34	1.00			
15.2	95.3					1.45	1.09	0.79											
17.6	82.4					1.68	1.26	0.91											
19.5	74.5					1.86	1.39	1.01											
22.1	65.5							1.14							0.84				
24.0	60.4							1.24							0.91				
27.0	53.7							1.39							1.02		0.86		
30.2	47.9							1.56							1.14		0.96	0.78	
33.8	43														0.87				
37.0	39.2														0.95				
42.4	34.2														1.08		0.79		
44.7	32.4	9.48	6.91	5.79	4.72	3.45	2.59	1.89	1.39	1.16									
52.1	27.8	10.71	7.81	6.54	5.33	3.90	2.92	2.14	1.57	1.31									
56.7	25.6	12.19	8.88	7.44	6.07	4.44	3.33	2.43	1.79	1.49									
65.1	22.3	13.96	10.18	8.52	6.95	5.09	3.81	2.79	2.05	1.71	1.40	1.02	0.83						
73.8	19.7	15.70	11.44	9.59	7.81	5.72	4.29	3.13	2.30	1.92	1.57	1.15	0.94	0.79					
82.2	17.6	18.21	13.28	11.12	9.06	6.63	4.97	3.63	2.67	2.23	1.82	1.33	1.08	0.91					
92.3	15.7	19.02	13.86	11.61	9.47	6.93	5.19	3.80	2.79	2.33	1.90	1.39	1.13	0.95					
101	14.4					8.13	6.09	4.45	3.27	2.73	2.23	1.64	1.33	1.12					
117	12.4					7.67	5.75	4.20	3.09	2.58	2.11	1.54	1.25	1.05					
129	11.2					8.92	6.68	4.89	3.59	3.00	2.45	1.80	1.46	1.23					
147	9.89							5.34	3.93	3.28	2.68	1.96	1.59	1.34					
159	9.12							5.63	4.14	3.46	2.83	2.07	1.68	1.41					
179	8.11							6.22	4.57	3.82	3.12	2.29	1.86	1.56					
200	7.24							6.65	4.89	4.08	3.34	2.44	1.98	1.67					
224	6.48										4.38	3.21	2.61	2.19					
245	5.91										4.61	3.37	2.74	2.30					
281	5.17										4.93	3.61	2.94	2.47					
3-phase 4-pole LS brake																			
FCR		90				100		112	132		160								
FCPL														180					

Dimensions

Dimensions in millimetres

Hollow shaft with shrink disc

Electromechanical products

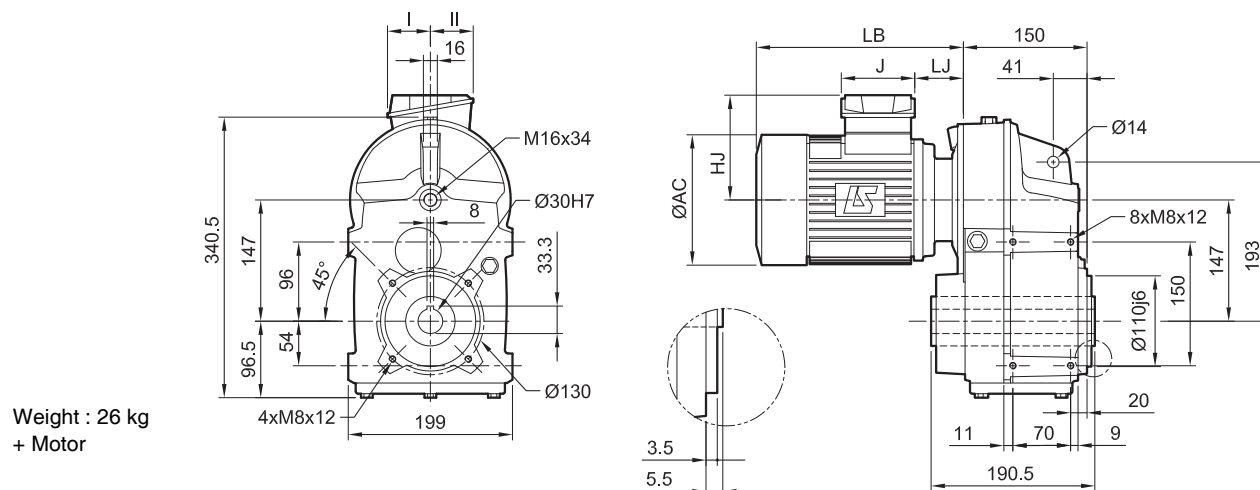
Manubloc 3000

Dimensions

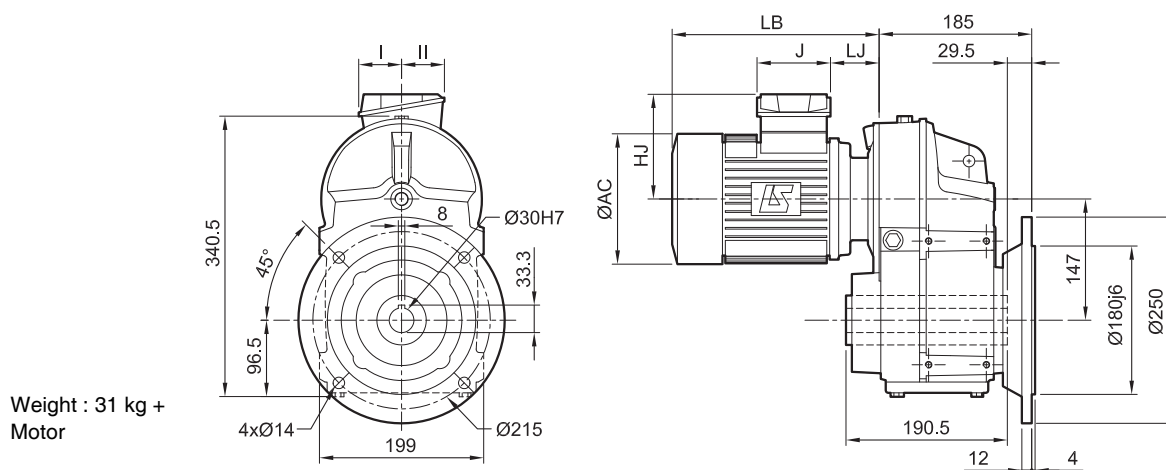
Dimensions of Manubloc (Mub) gearboxes, MI integral mounting, Mub 3232 and Mub 3233




Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft



- BS flange form, H cylindrical hollow shaft



Fr. size	4-pole motors																							
	LS								LSMV								LS, LSMV ¹ FCR							
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
71 L	140	109	86	216	49	43	43	8.3	140	135	160	216	34	55	55	8.5	140	135	160	268	34	55	55	11.3
80 L	170	133	90	250	61	43	60	10.9	170	146	160	250	46	55	55	10.8	172	146	160	300	46	55	55	18
90 L	190	143	90	310.5	71.5	43	60	15.2	190	156	160	310.5	58.5	55	55	17.3	184	156	160	349.5	58.5	55	55	24.2
100 L	200	148	90	335.5	71.5	43	60	22.5	200	161	160	335.5	59.5	55	55	25.7	200	161	160	397.5	59.5	55	55	30
112	200	148	90	335.5	71.5	43	60	24.9	235	169	160	335.5	62	55	55	33	235	169	160	434	62	55	55	44.5
132 S	280	175	110	441	25	57	73	60	-	-	-	-	-	-	-	-	280	188	160	457	61	55	55	90

1. LSMV 71 FCR ----> LSMV 112 MG FCR.

Electromechanical products

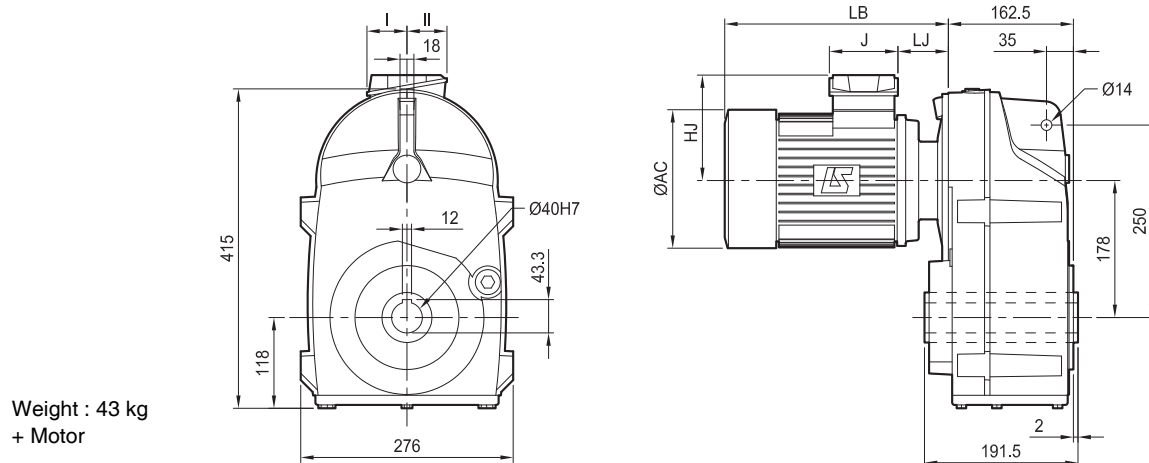
Manubloc 3000

Dimensions

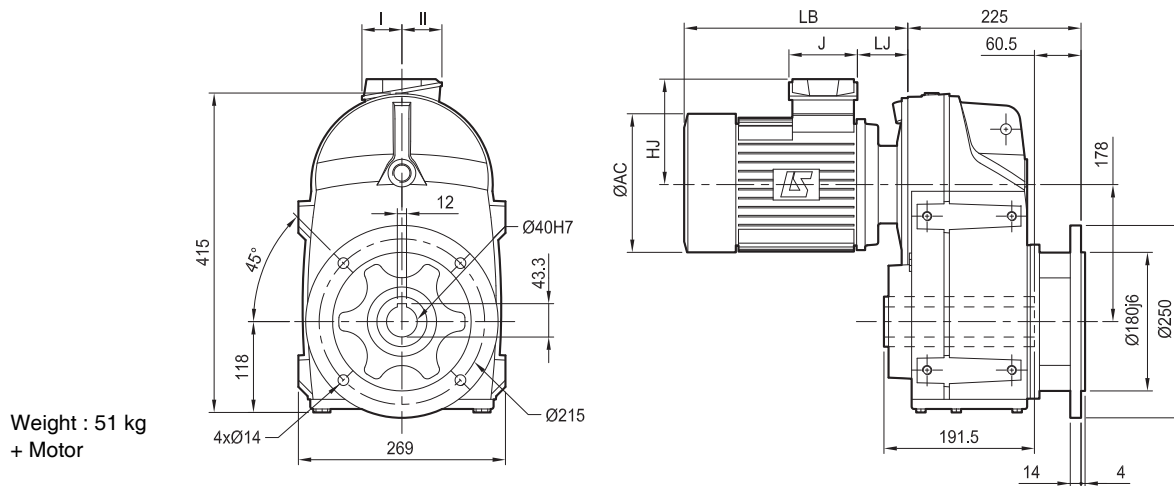
Dimensions of Manubloc (Mub) gearboxes, MI integral mounting,
Mub 3332 and Mub 3333

Dimensions in millimetres

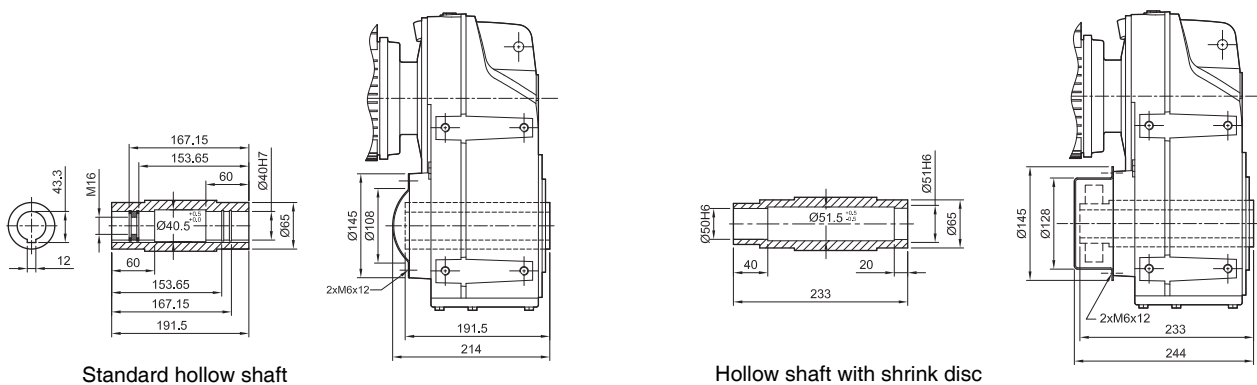
- NU form, H cylindrical hollow shaft



- BD flange form, H cylindrical hollow shaft



- Details



Electromechanical products

Manubloc 3000

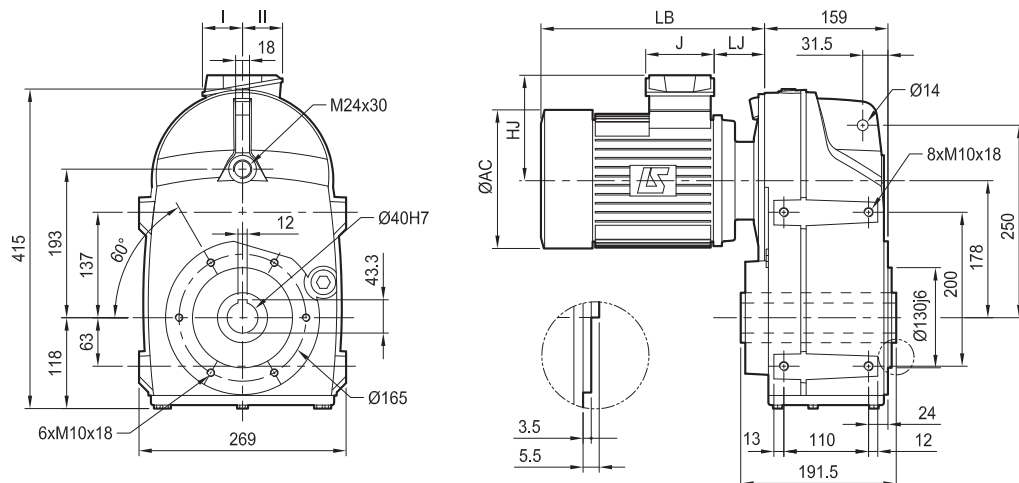
Dimensions

Dimensions of Manubloc (Mub) gearboxes, MI integral mounting, Mub 3332 and Mub 3333

Dimensions in millimetres

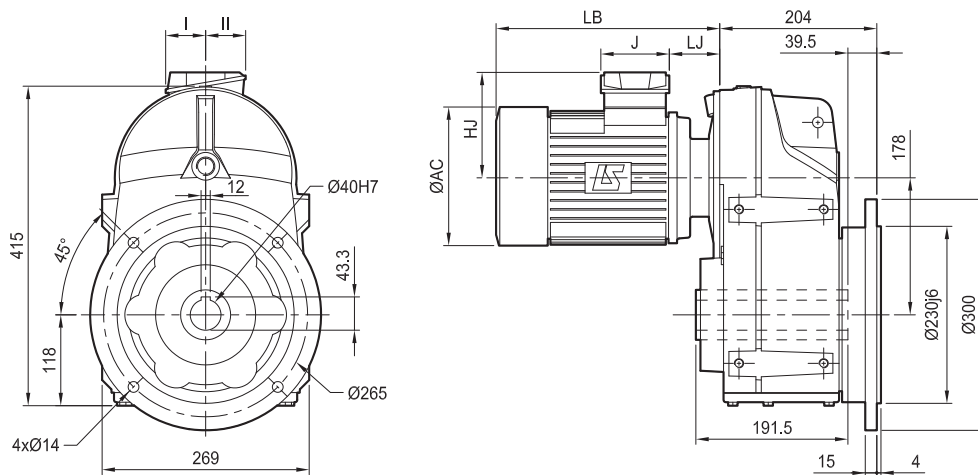
- BT flange form, H cylindrical hollow shaft




Weight : 43 kg
+ Motor



- BS flange form, H cylindrical hollow shaft

Weight : 51 kg
+ Motor



Fr. size	4-pole motors																							
	LS								LSMV								LS, LSMV FCR							
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	kg	 kg	HJ	J	LB	LJ	I	II	 kg
71 L	140	109	86	212	45	43	43	8.3	140	135	160	212	30	55	55	8.5	140	135	160	264	30	55	55	11.3
80 L	170	133	90	246	57	43	60	10.9	170	146	160	246	42	55	55	10.8	172	146	160	296	42	55	55	18
90 L	190	143	90	286.5	67.5	43	60	15.2	190	156	160	286.5	54.5	55	55	17.3	184	156	160	345.5	54.5	55	55	24.2
100 L	200	148	90	331.5	67.5	43	60	22.5	200	161	160	331.5	55.5	55	55	25.7	200	161	160	393.5	55.5	55	55	30
112	200	148	90	331.5	67.5	43	60	24.9	235	169	160	349	58	55	55	33	235	169	160	430	58	55	55	44.5
132 M	280	175	110	435	73	57	73	60	280	188	160	435	73	55	55	65	280	188	160	541	73	55	55	90

Dimensions

Dimensions in millimetres

The technical drawing shows the front view of the pump assembly. Key dimensions include:

- Total height: 477
- Height from base to centerline: 128
- Base width: 291
- Top flange diameter: Ø50H7
- Flange thickness: 53.8
- Internal vertical channel diameter: 14
- Top mounting hole diameter: 25

Technical drawing of the motor assembly showing dimensions in mm. The drawing includes a side view and a front view. Key dimensions are: total length 275.5, mounting bracket width 60.5, total height 208, mounting hole diameter Ø180j6, and base diameter Ø250. Other dimensions include LB, J, LJ, HB, and ØAC.

Technical drawing of the 339.5 model, showing a side view and a cross-section. The side view shows a rectangular body with a width of 304 and a height of 160. The cross-section shows a central bore with a diameter of Ø61.5 and a length of 12. The total length of the body is 304. The drawing includes dimensions for the bore, the body, and the mounting holes.



Electromechanical products

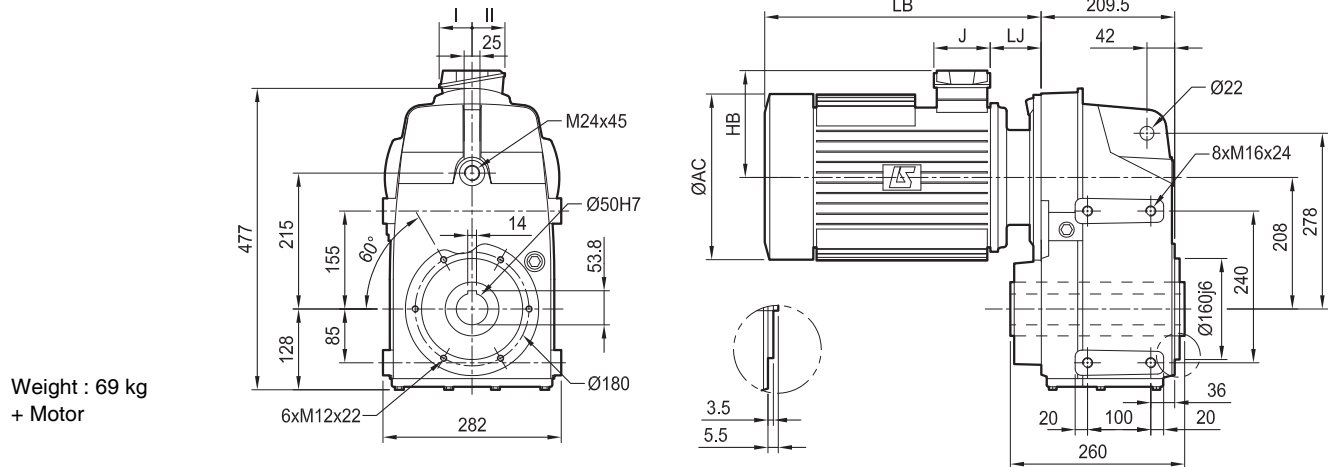
Manubloc 3000

Dimensions

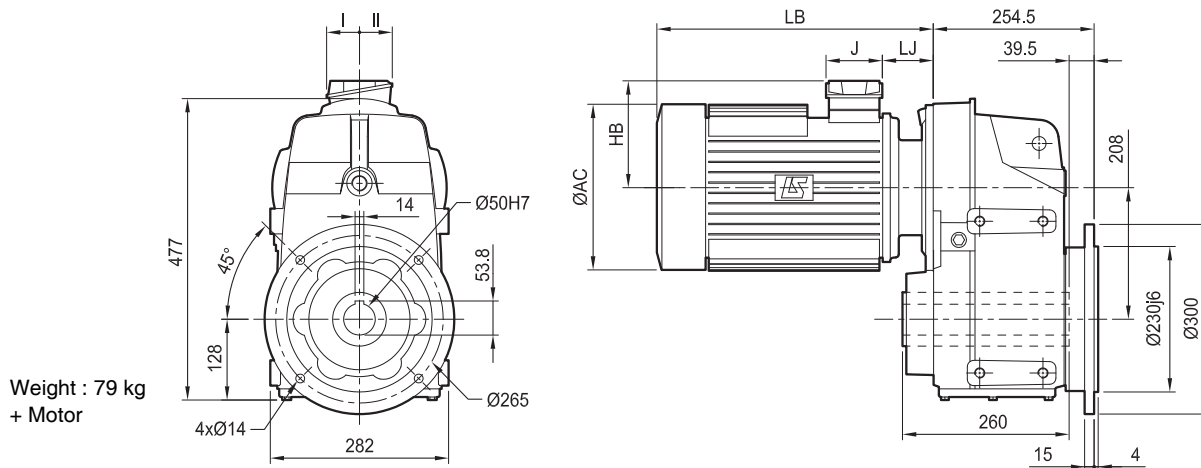
Dimensions of Manubloc (Mub) gearboxes, MI integral mounting, Mub 3432 and Mub 3433

Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft



- BS flange form, H cylindrical hollow shaft



4-pole motors

Fr. size	LS								LSMV								LS, LSMV ¹ FCR - LS FCPL ¹							
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
80 L	170	133	90	250	61.5	43	60	10.9	170	146	160	250	46.5	55	55	10.8	172	146	160	300.5	46.5	55	55	18
90 L	190	143	90	286.5	67.5	43	60	15.2	190	156	160	286.5	54.5	55	55	17.3	184	156	160	345.5	54.5	55	55	24.2
100 L	200	148	90	331.5	67.5	43	60	22.5	200	161	160	331.5	55.5	55	55	25.7	200	161	160	393.5	55.5	55	55	30
112	200	148	90	331.5	67.5	43	60	24.9	235	169	160	353	62	55	55	33	235	169	160	434	62	55	55	44.5
132 M	280	175	110	439	77	57	73	60	280	188	160	439	77	55	55	65	280	188	160	545	77	55	55	90
160	316	208	134	547	96	92	63	86	316	235	194	529	63	92	63	110	316	231	160	620	96	55	55	110
180	316	249	186	566	73	111	98	112	350	256	186	606	76	111	98	165	345	235	134	696	57	92	63	155

1. FCR: LS 71 ----> LS 160 LR (15 kW), LSMV 71 ----> LSMV 160 MR (11 kW); FCPL: LS 180.

LSMV FCPL

Fr. size	AC	HJ	J	LB	LJ	I	II	kg
160 LU	345	235	134	696	57	92	63	155
180 LU	384	255	186	792	76.5	111	98	210

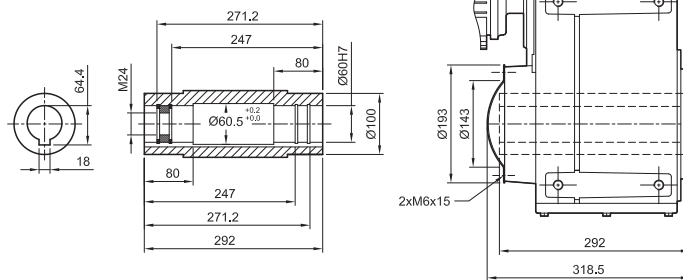
Dimensions

Dimensions in millimetres

The technical drawing illustrates the LS-7000 pump assembly from three perspectives:

- Front View (Left):** Shows the main body with a total width of 365 mm and a total height of 582 mm. The mounting flange has a diameter of Ø60H7. Key internal features include a central shaft with a diameter of 18 mm and a distance of 151 mm from the base to the centerline.
- Top View (Middle):** Displays the circular top surface with a grid pattern. It indicates two horizontal dimensions, II and I, defining the top section's geometry.
- Side View (Right):** Provides a detailed view of the motor and housing. The motor length is labeled LB, and the total assembly length is 292 mm. The motor shaft diameter is Ø24 mm. Other dimensions shown include 240 mm, 57 mm, 256 mm, 346 mm, 2 mm, HJ, J, LJ, and 25 mm.

Standard hollow shaft



Electromechanical products

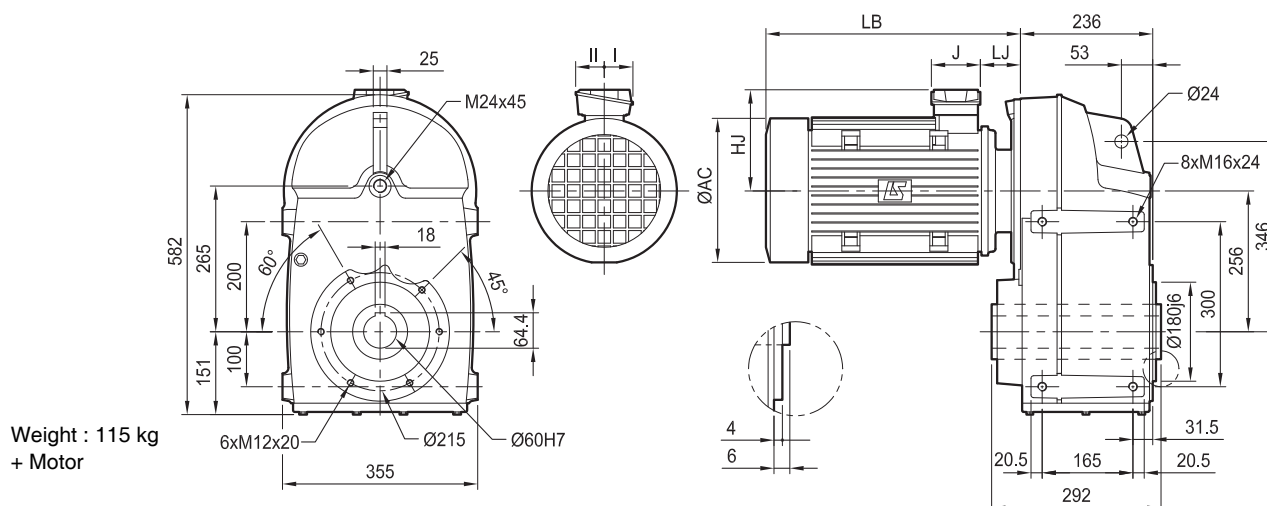
Manubloc 3000

Dimensions

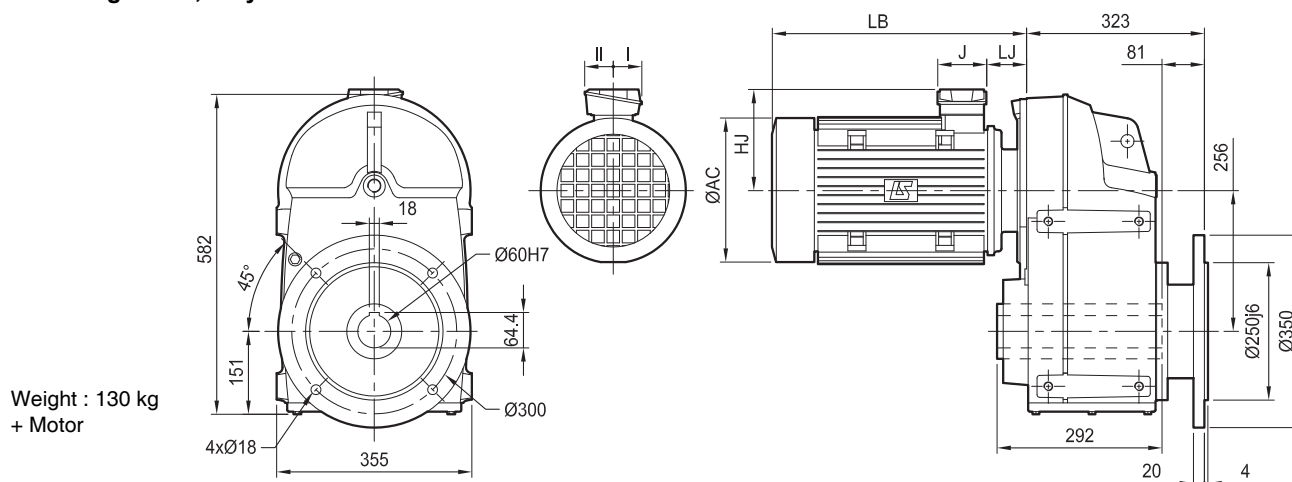
Dimensions of Manubloc (Mub) gearboxes, MI integral mounting, Mub 3532 and Mub 3533

Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft



- BS flange form, H cylindrical hollow shaft



4-pole motors

Fr. size	LS								LSMV								LS, LSMV ¹ FCR - LS FCPL ¹							
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
90 L	190	143	90	281.5	62.5	43	60	15.2	190	156	160	281.5	49.5	55	55	17.3	184	156	160	340.5	49.5	55	55	24.2
100 L	200	148	90	326.5	62.5	43	60	22.5	200	161	160	326.5	50.5	55	55	25.7	200	161	160	388.5	50.5	55	55	30
112	200	148	90	326.5	62.5	43	60	24.9	235	169	160	326.5	53	55	55	33	235	169	160	425	53	55	55	44.5
132 M	280	175	110	430	68	57	73	60	280	188	160	430	68	55	55	65	280	188	160	536	56	55	55	90
160	316	208	134	538	87	92	63	86	316	235	194	546	80	92	63	110	316	231	160	611	87	55	55	110
180	316	249	186	556	90	111	98	112	350	256	186	627	97	111	98	165	345	235	134	687	48	92	63	150
200	350	256	186	627	97	111	98	165	390	276	186	636.5	92.5	111	98	190	384	256	186	826	67.5	111	98	240

1. FCR: LS 71 → LS 160 LR (15 kW), LSMV 71 → LSMV 160 MR (11 kW); FCPL: LS 180 → LS 200.

LSMV FCPL

Fr. size	AC	HJ	J	LB	LJ	I	II	kg
160 LU	345	235	134	687	48	92	63	155
180 LU	384	256	186	783	67.5	111	98	210
200 L	410	276	186	905	68	111	98	260

Electromechanical products

Manubloc 3000

Dimensions

Manubloc (Mub) gearboxes, Mub 3232 to Mub 3533 hollow shaft with SD shrink disc

Components

Specially designed for assembling hollow shafts, it attaches the transmission device securely to the shaft. The torque (M), radial (FR) and axial (Fa) forces are transmitted integrally without play.

There is no need to use a key, and the absence of the keyway avoids incipient cracks.

Alternating movements are possible within the limits of the torque (M) indicated in the technical catalogue selection tables.

The initial absence of play is retained throughout the life of the gearbox.

The tightening torque (Ms) is maintained for operating temperatures from -50 °C to +250 °C.

Surface roughness tolerance

The maximum permissible surface roughness is $R_z \text{ max} = 15 \mu\text{m}$.

The maximum permissible tolerance on the shrink disc working reach diameter = h8.

Secure positioning

While the screws are tightened, the hub does not move axially in relation to the shaft.

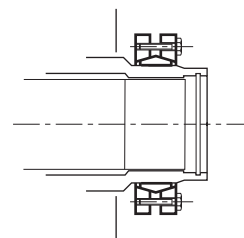
Characteristics of the shrink disc

The very high transmissible torque (shrink disc M) is given below. Take account of the torque that may be transmitted by the gearbox.

No axial movement between shaft/hub (shrink disc Fa).

Takes little time to assemble.

Quick to dismantle.



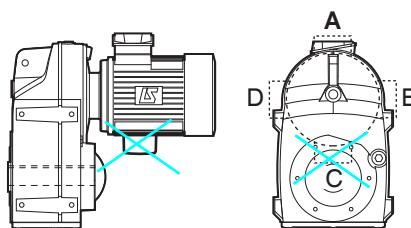
Gearbox type	Shrink disc torque	Tightening torque of shrink disc screws	Dimensions
	M (N.m)	M (N.m)	see pages
Mub 3532-3533	6000	30	20 - 21
Mub 3432-3433	3200	30	18 - 19
Mub 3332-3333	2200	12	16 - 17
Mub 3232-3233	1160	12	14 - 15

Definition

For gearboxes with hollow shaft, the form must be defined specifically:

- **NU SD**: housing without holes
- **BT SD**: housing with tapped holes

Restriction: in the majority of cases, motors cannot be supplied with the terminal box in position C.



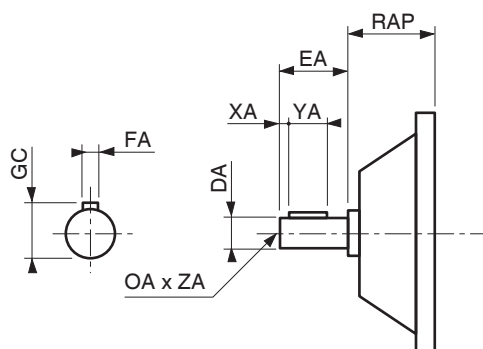
Electromechanical products

Manubloc 3000

Dimensions

Dimensions of the AP input shaft

Dimensions in millimetres



AP									kg
Mub	Ø DA	EA	YA	XA	FA	GC	RAP	OA x ZA	
Mub 35	38j6	80	63	8	10	41	129.5	M12x28	14
Mub 34	28j6	60	50	5	8	31	138.5	M10x22	5
Mub 33	28j6	60	50	5	8	31	69	M10x22	5
Mub 32	24j6	50	40	4.5	8	27	73	M10x22	1.2

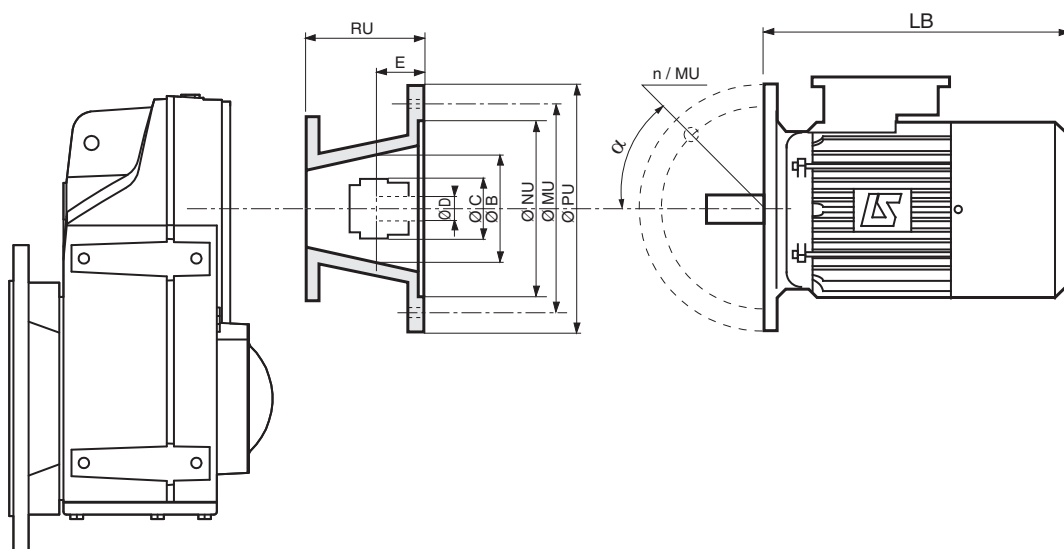
Electromechanical products

Manubloc 3000

Dimensions

Dimensions of Manubloc (Mub) gearboxes, MU universal mounting

Dimensions in millimetres



FS	LS IM 3001									U-mounts							
	(IM B5) IEC									Mub 32		Mub 33		Mub 34		Mub 35	
	Ø D	Ø E	LB	LB brake ¹	Ø FF-MU	Ø NU	Ø PU	n	α°	Ø C	RU	Ø C	RU	Ø C	RU	Ø C	RU
71	14	30	183	271	130	110	160	4	45	65	122	65	122	65	122	-	-
80	19	40	215	292	165	130	200	4	45	65	130	65	130	65	130	65	121
90	24	50	265	324	165	130	200	4	45	65	130	65	130	65	130	65	121
100	28	60	290	388	215	180	250	4	45	65	144	65	144	65	144	65	135
112	28	60	290	425	215	180	250	4	45	65	144	65	144	65	144	65	135
132	38	80	387	532	265	230	300	4	45	-	-	65	162	65	169	65	157.5
160	42	110	495	567	300	250	350	4	45	-	-	-	-	95	194	95	183
180	48	110	520	683	300	250	350	4	45	-	-	-	-	95	194	95	183
200	55	110	599	828	350	300	400	4	45	-	-	-	-	95	194	95	183

1. Brakes FCR : 71 → 160
FCPL : 180 → 200

	Mub			
	32--	33--	34--	35--
Max. weight of MU (kg)	8	14	20	35
Max. weight of LS (kg)	70	120	150	205

I - SCOPE OF APPLICATION

These General Conditions of Sale ("GCS") shall apply to the sale of all products, components, software and services (referred to as "Products") proposed or sold by the Seller to the Client. Said GCS shall also apply to all quotation or offers made by the Seller, and are an integral part of all orders. "Seller" is understood to mean all companies directly or indirectly controlled by LEROY-SOMER. As a complementary measure, orders are also subject to the latest version in force of the Inter-Union General Conditions of Sale for France of the F.I.E.E.C. (*Fédération des Industries Electriques, Electroniques et de Communication* [Federation of Electrical, Electronic and Communication Industries]), inasmuch as they are not contrary to the GCS.

The acceptance of the Seller's offers or quotations, or any order, entails the acceptance without reservation of these GCS and rules out all contrary provisions shown on all other documents and, in particular, on the Client's order forms and the Client's General Conditions of Purchase.

If the sale concerns castings, by way of derogation to Paragraph 1 above, said castings shall be subject to the latest version in force of the *Conditions Contractuelles des Fondries Européennes* (General Contractual Conditions of European Foundries).

The Products and services sold pursuant to these GCS may under no circumstances be used for applications in the nuclear field, as such sales expressly fall under technical specifications and specific contracts that the Seller reserves the right to refuse.

II - ORDERS

All orders, even those taken by the Seller's agents and representatives, and regardless of the transmission method, shall only bind the Seller after written acceptance thereby of the order.

The Seller reserves the option of modifying the characteristics of its Products without notice. However, the Client shall retain the possibility of specifying the characteristics on which its commitment is contingent. In the absence of any such express stipulation, the Client may not refuse delivery of new, modified Products.

The Seller may not be held liable for an unsatisfactory selection of Products if said selection results from conditions of use that are incomplete and/or mistaken, or not disclosed to the Seller by the Client. Except in the event of a stipulation to the contrary, the offers and quotations remitted by the Seller shall only be valid for thirty days as from the date on which they are drawn up.

Where the Products must comply with standards, specific regulations and/or be received by control and inspection agencies, the price request must be accompanied by the technical specification, all terms and conditions the Seller must comply with. Reference shall be made thereto on the quotation or offer. Approval and attendance costs shall always be borne by the Client.

III - PRICES

Tariffs are expressed exclusive of tax and may be revised without notice.

Prices are either deemed to be firm for the period of validity specified on the quotation, or subject to a revision formula attached to the offer and which specifies, according to the regulations, parameters pertaining to the materials, products, various services and salaries for which the indices are published in the B.O.C.C.R.F. (*Bulletin Officiel de la Concurrence, de la Consommation et de la Répression des Fraudes* [French Official Journal of Competition and Consumer Matters, and Anti-Fraud Measures]).

All additional costs, in particular approval costs, specific checks, etc., shall be invoiced in addition.

IV - DELIVERY

Sales are governed by the latest edition in force of the INCOTERMS published by the Internal Chamber of Commerce ("I.C.C. INCOTERMS").

The Products shall be dispatched according to the conditions stated on the order acknowledgement issued by the Seller for all orders of Products.

Except in the event of specific provisions, the prices correspond to Products that are made available in the Seller's factories, including basic packaging.

Except in the event of a provision to the contrary, the Products shall always be transported at the risk of the addressee. In all cases, it shall be the responsibility of the addressee to make any claims to the carrier, within the delivery time and in the forms specified by law, concerning the state or number of parcels received, and to concomitantly provide the Seller with a copy of such declaration. Failure to comply with said procedure shall exempt the Seller from any liability. In any event, the Seller's liability may not exceed the amount of the indemnities received from its insurers.

If the provisions concerning transportation are amended by the Client subsequent to the acceptance of the order, the Seller reserves the right to invoice any supplemental costs that may result therefrom.

Except in the event of a contractual or statutory obligation to the contrary, packaging shall not be returnable.

In the event that a delivery of Products is delayed for a reason not attributable to the Seller, the Products stored on the Seller's premises shall be insured at the exclusive risk of the Client. Consideration for storage, costs will be invoiced at a rate of 1% (*one per cent*) of the total amount of the order, per week or partial week of storage, with no deductible or *de minimis* amount, as from the date of Products availability provided for in the contract. Upon expiration of a period of thirty days as from said date, the Seller may, at its discretion, either freely dispose of the Products and/or agree with the Client on a new delivery date for said Products, or invoice the Client in full for payment, according to the timeframes and amount provided for contractually. In any event, down payments shall inure to the Seller as indemnities, without prejudice to any other action the Seller may take.

V - DELIVERY TIME

The Seller shall only be bound by the delivery time mentioned on its order acknowledgement. Said delivery time shall only start to run as from the date of issuance of the order acknowledgement by the Seller, and subject to the fulfillment of the conditions provided for on the confirmation receipt, in particular receipt of the down payment for the order, notification of the opening of an operative irrevocable and confirmed documentary credit that complies in all respects to the Seller's request (*in particular regarding the amount, currency, validity and licence*), acceptance of the payment conditions accompanied by the implementation of any guarantees requested, etc.

Exceeding delivery time shall not grant the Client entitlement to damages and/or penalties.

Except in the event of a specific condition to the contrary, the Seller reserves the right to make partial deliveries.

Delivery times shall be interrupted by right and without the need for any judicial formalities, by any failure to pay or late payment by the Client.

VI - TESTS - QUALIFICATION

The Products manufactured by the Seller are checked and tested before leaving its factories. Clients may be present at said tests if specified on the order.

Specific tests and/or trials, as well as approval of Products, requested by the Client, whether carried out on the Client's premises or in the Seller's factories, on site, or by control and inspection agencies, must be specified on the order and are always at Client's expense.

Prototypes for Products specially developed or adapted for a Client must be qualified by the Client before serial production. In order to ensure that it is compatible with the other components that make up its equipment, and that it is adapted to the intended use. Said qualification will also enable the Client to ensure that the Products comply with the technical specification. In this respect, the Client and Seller shall sign a Product Approval Form in two original, one of which shall be retained by the Client and one by the Seller.

In the event that the Client requires delivery without having firstly qualified the Products, said Products shall be delivered as they stand and shall always be deemed to be prototypes; the Client shall then be solely liable for using the Products or delivering them to its own clients. However, the Seller may also decide not to deliver the Products that have not received the Client's prior approval.

VII - PAYMENT CONDITIONS

All sales shall be deemed to be completed and payable at the Seller's registered office, without any possible derogation, regardless of the payment method, where the contract was concluded and where delivery was made.

Where the Client is located out of French territory, invoices shall be payable in cash upon receipt, or by a bank draft or a bill of exchange, within 30 (thirty) days net.

All early payment compared to the deadline fixed shall give right to a discount of 0.2% (*nought point two per cent*) per month, of the amount concerned of the invoice.

Except in the event of provisions to the contrary, where the Client is located outside of French Territory, invoices shall be payable in cash against remittance of shipping documents, or by irrevocable documentary credit confirmed by a first rate French bank, at Client's expense.

Payment shall be understood to mean the funds being made available on the Seller's bank account and must imperatively be made in the invoicing currency.

Pursuant to French Law no. 2001-420 of 15 May 2001, failure to pay an invoice when due shall trigger, after service of formal notice that has remained without effect, payment to the Seller of a flat-rate penalty on the due date of the receivable, which shall be applied to amount inclusive of tax of monies owed if the invoice is liable to VAT (*Value Added Tax*), and the suspension of pending orders. Said penalty is equal to the European Central Bank Rate + 7 basis points.

The collection of said monies via litigation shall trigger an increase of 15% (*fifteen per cent*) of the amount claimed, with a minimum of Euros 500 exclusive of tax (*five hundred euros exclusive of tax*), with tax in addition if due.

Moreover, subject to compliance with the statutory provisions in force, in the event of total or partial failure to pay any invoice or instalment whatsoever, regardless of the payment method used, all amounts that remain owed to the Seller (*including its subsidiaries, affiliated or allied companies, whether French or foreign*) for all deliveries and services, regardless of the due date originally provided for, shall immediately become due.

Notwithstanding any specific payment conditions provided for between the parties, the Seller reserves the right to require, in the event of a decline in the Client's credit rating, a payment incident or bankruptcy of the Client :

- the payment in cash, before the Products leave the factory, for all orders currently being fulfilled,
- down payments to be made on all orders,
- alternative or different payment guarantees.

VIII - PAYABLE AND RECEIVABLE BALANCE

Except where prohibited by law, the Seller and the Client expressly agree to balance their payables and receivables arising from their trade relations, even if all conditions defined by law for legal balancing are not met.

For the application of said clause, the Seller shall mean any company of the LEROY-SOMER Group.

IX - TRANSFER OF RISK / RESERVE OF TITLE

Risk shall be transferred as soon as the Products are made available, according to the delivery conditions stipulated on the order acknowledgement.

The transfer to the Client of title shall take place after payment in full. In the event that the restitution of the Products delivered is claimed by the Seller, the Seller is entitled to retain any down payment as compensation.

Remittance of a bill that creates an obligation to pay (*bill of exchange or other*) shall not constitute payment and discharge. For as long as the price has not been paid in full, the Client is required to inform the Seller, within twenty-four hours, of the sequestration, requisition or confiscation of the Products for the benefit of a third party, and to take all protective measures to make known the Seller's property right in the event of action by creditors, and to cause such right to be respected.

X - CONFIDENTIALITY

Each of the parties undertakes to maintain the confidentiality of all technical, trade, financial or other information received from the other party, whether orally, in writing or by any other means of communication, when any order is negotiated and/or fulfilled.

This confidentiality obligation shall apply throughout the period during which the order is fulfilled and for 5 (five) years subsequent to completion or cancellation thereof, regardless of the reasons therefor.

XI - INDUSTRIAL AND INTELLECTUAL PROPERTY

Data, studies, results, information or software, whether patentable or not obtained by the Seller when any order is fulfilled shall remain the exclusive property of the Seller.

With the exception of instruction and maintenance manuals, documents of any nature remitted to the Client shall remain the exclusive property of the Seller and must be returned to it upon request, even if the Client was invoiced for part of the cost of the study, and said documents may not be disclosed to third parties or used without the Seller's prior written agreement.

XII - CANCELLATION / TERMINATION

The Seller reserves the right to cancel or terminate immediately, at the Seller's discretion, by right and without the need for any judicial formalities, the contract in the event of failure to pay any portion whatsoever of the price, when due, or in the event of any breach of any of the Client's contractual obligations. Down payments and any amount already paid shall remain in Seller's hands in the form of indemnities, without prejudice to the Seller's right to claim damages. In the event that the contract is cancelled, the Products must be returned to the Seller immediately, regardless of where the Products are located, at Client's expense and risk, under penalty of 10% (*ten per cent*) of the value thereof, per week's delay.

XIII - WARRANTY

The Seller warrants the Products against all operating defects caused by a material or manufacturing fault, for a period of twelve months as from the date on which the Products are made available, unless a different statutory provision subsequently applies, under the conditions defined below.

The warranty may only be triggered insofar as the Products have been stored, used and maintained in accordance with the Seller's instructions and manuals. The warranty does not apply where the defect results, in particular, from :

- inadequate monitoring, maintenance or storage,
- normal wear and tear on the Products,
- servicing or modification of the Products without the Seller's prior written authorisation,
- abnormal use of the Products or use of the Products for a purpose other than that intended,
- faulty installation of the Products on the premises of the Client and/or the end user,
- failure by the Client to disclose the purpose or conditions of use of the Products,
- failure to use genuine spare parts,
- force majeure or any event that is beyond the control of the Seller.

In any case, the warranty is limited to the replacement or repair of the parts or Products deemed faulty by the Seller's technical departments. If the repair is entrusted to a third party, the repair shall only be carried out once the Seller has agreed to the quotation for the repair.

All Products returns must have been given the Seller's prior, written authorisation.

The Products to be repaired must be dispatched carriage paid, to the address given by the Seller. If the Products are not accepted under warranty, their return to the Client shall be invoiced to the Client or the end user.

This warranty shall apply to the Seller's Products that are made readily available and therefore does not cover the de-installation and re-installation of said Products in the equipment into which it is mounted.

Repair, modification or replacement of any part or Product during the warranty period may not result in the warranty period being extended.

The provisions of this article constitute the Seller's sole obligation concerning the warranty of the Products delivered.

XIV - LIABILITY

The Seller's liability is strictly limited to the obligations stipulated in these GCS and those expressly accepted by the Seller. All penalties and indemnities provided for therein constitute lump sum damages that include discharge for the Seller and are exclusive of any other penalty or indemnification.

With the exception of the Seller's gross negligence and the compensation of bodily injury, the Seller's liability shall be limited, in total, to the contractual amount, exclusive of tax, of the Product(s) that give(s) right to compensation.

The Seller may under no circumstances be required to indemnify consequential, indirect and / or punitive damages that the Client may use as the basis for a claim; as a result, the Seller may not be required to indemnify, in particular, production losses, operating losses or lost profit or, in general, any damage eligible for indemnification other than bodily injury or damage to property.

The Client undertakes to hold harmless the Seller and / or its insurers from any and all claims made by its insurers and/or any third party in a contractual relation with the Client, in excess of the limit and for the exclusions listed above.

XV - SPARE PARTS AND ACCESSORIES

Spare parts and accessories shall be supplied upon request, to the extent of their availability. Associated costs shall be invoiced in addition.

The Seller reserves the right to require a minimum quantity or invoicing amount per order.

XVI - WASTE MANAGEMENT

The Products that form the purpose of the sale does not fall within the scope of the European Directive 2002/96/EC (WEEE) dated January 27th, 2003, and all related legislation of Member States of the European Union that result therefrom, on the composition of electrical and electronic equipment and the disposal of waste from such equipment.

In accordance with Article L 541-2 of the French Environment Code, it is the responsibility of the waste holder to ensure the disposal thereof or to cause the disposal thereof at its own expense.

XVII - FORCE MAJEURE

With the exception of the Client's obligation to pay the monies owed to the Seller in respect of an order, the Client and Seller may not be held liable for the total or partial failure to perform their contractual obligations if such failure results from the occurrence of a force majeure. Delays or disturbances in production that totally or partially result from war (whether declared or not), terrorist act, strikes, riots, accidents, fires, floods, natural disasters, transportation delays, shortage of components or materials, governmental decision or action (including prohibition on import/export or the withdrawal of an import/export licence) shall, in particular, be deemed a force majeure.

If one of the parties is delayed or prevented from performing its obligations by reason of this Article for a period in excess of 180 consecutive days, each party may then terminate, by right and without any need for judicial formalities, the unperformed part of the order, by written notice to the other party, without liability. However, the Client shall be required to pay the price agreed pertaining to the Products already delivered on the date of termination.

XVIII - PROHIBITION ON UNLAWFUL PAYMENTS

The Client shall refrain from being engaged in any activity that would expose the Seller or any of its affiliates to a risk of penalties under laws and regulations of any relevant jurisdiction prohibiting improper payments, including but not limited to bribes or gifts of an obviously unreasonable amount, to any government or agency officials, to political parties or their officials or candidates for public office, or to any employee of any customer or supplier.

XIX - TRADE COMPLIANCE LAWS

The Client agrees that all applicable import, export control and sanctions laws, regulations, orders and requirements, as they may be amended from time to time, including without limitation those of the European Union, the United States of America, and the jurisdictions in which the Seller and the Client are established or from which Products may be supplied, and the requirements of any licences, authorisations, general licences or licence exceptions relating thereto ("Trade Compliance Laws") will apply to its receipt and use of Products, as well as related services and technology. In no event shall the Client use, transfer, release, export or re-export the Products, related services or technology in violation of Trade Compliance Laws.

Seller shall have no obligation to supply any Products, or services unless and until it has received any necessary licences or authorisations or has qualified for general licences or licence exceptions under Trade Compliance Laws.

If for any reason any such licences, authorisations or approvals are denied or revoked, or if there is a change in any Trade Compliance Laws that would prohibit Seller from fulfilling the contract, or would in the reasonable judgement of Seller otherwise expose Seller and/or Seller's Affiliate(s) to a risk of liability under Trade Compliance Laws, Seller shall be relieved without liability of all obligations under the contract.

XX - SEVERABILITY

All clauses and/or provisions of these General Conditions that are deemed or become null or void shall not cause the nullity or voidance of the contract, but solely the clause and/or provision concerned.

XXI - DISPUTES

THIS CONTRACT SHALL BE GOVERNED BY AND INTERPRETED IN ACCORDANCE WITH THE LAWS OF FRANCE.

ANY DISPUTE IN RELATION TO THE INTERPRETATION OR THE EXECUTION OF THIS CONTRACT NOT AMICABLY SETTLED BETWEEN THE PARTIES WITHIN A 30 DAY PERIOD, SHALL BE SETTLED BY THE COMPETENT COURT OF ANGOULÊME (FRANCE), EVEN IN THE CASE OF INTRODUCTION OF THIRD PARTIES OR THE INVOLVEMENT OF SEVERAL DEFENDANTS. HOWEVER, THE SUPPLIER RESERVES THE EXCLUSIVE RIGHT TO BRING THE DISPUTE TO THE COMPETENT COURTS OF THE SELLER OR THE CLIENT.



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