

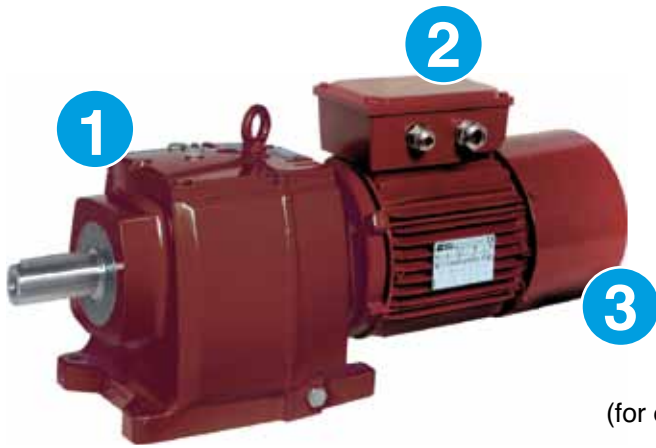


Permanent Magnet Solutions
Dyneo[®]

3000 Range of geared motors
LSRPM
Selection guide

Selection guide

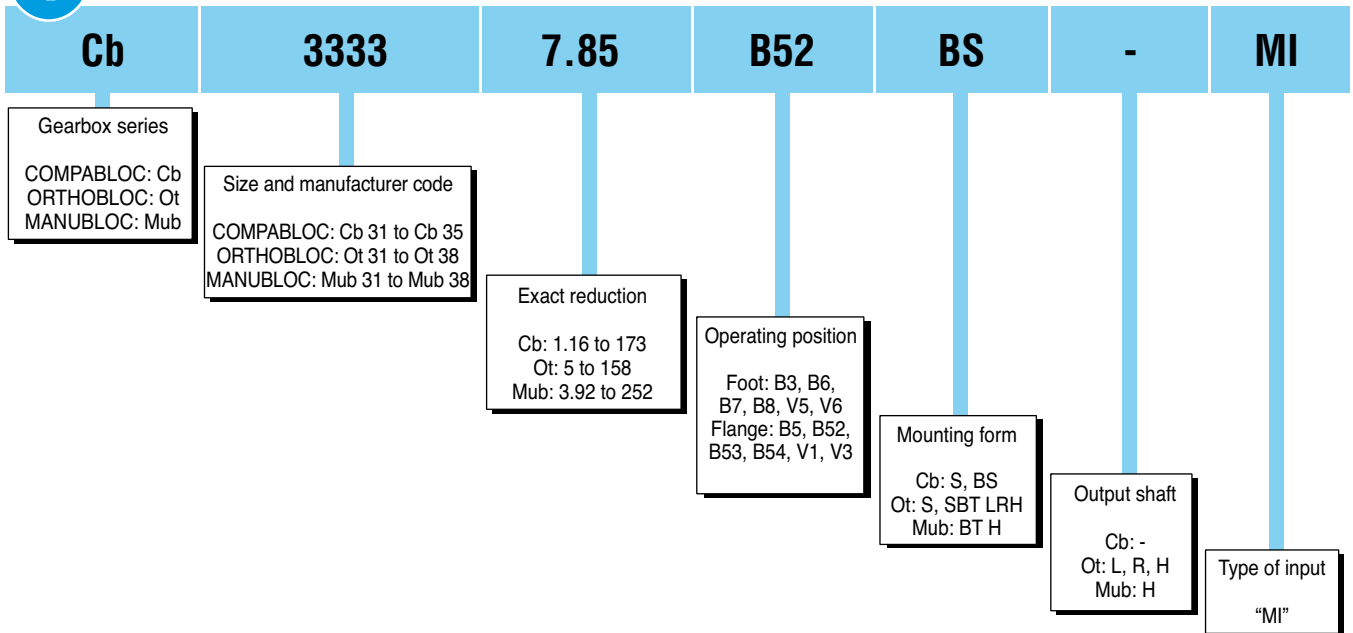
3000 range of geared motors - LSRPM



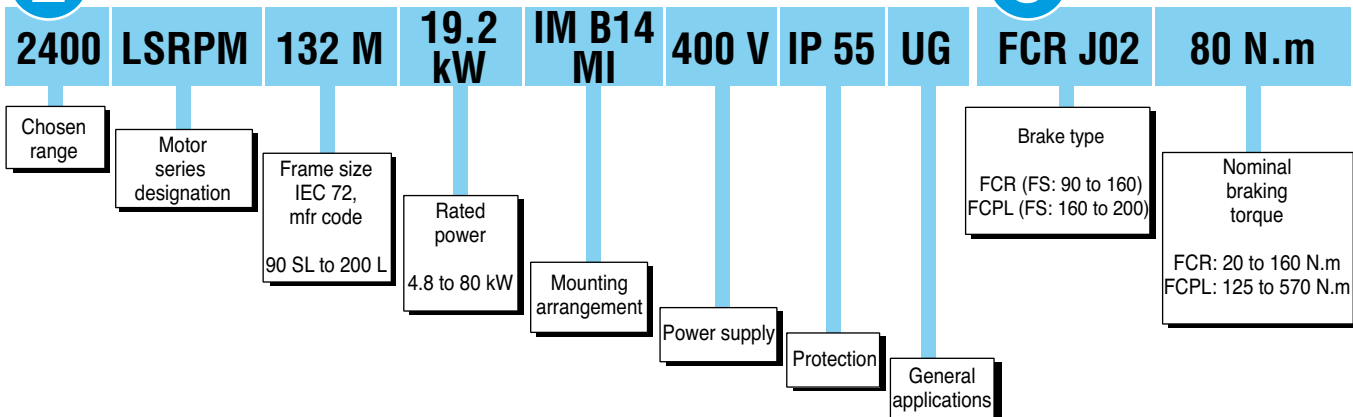
The complete **geared** motor reference described below (for example) will enable you to **order** the desired equipment.

The selection method consists of going through the details on the label.

1 GEARBOX



2 MOTOR



3 BRAKE

Selection guide

3000 range of geared motors- LSRPM

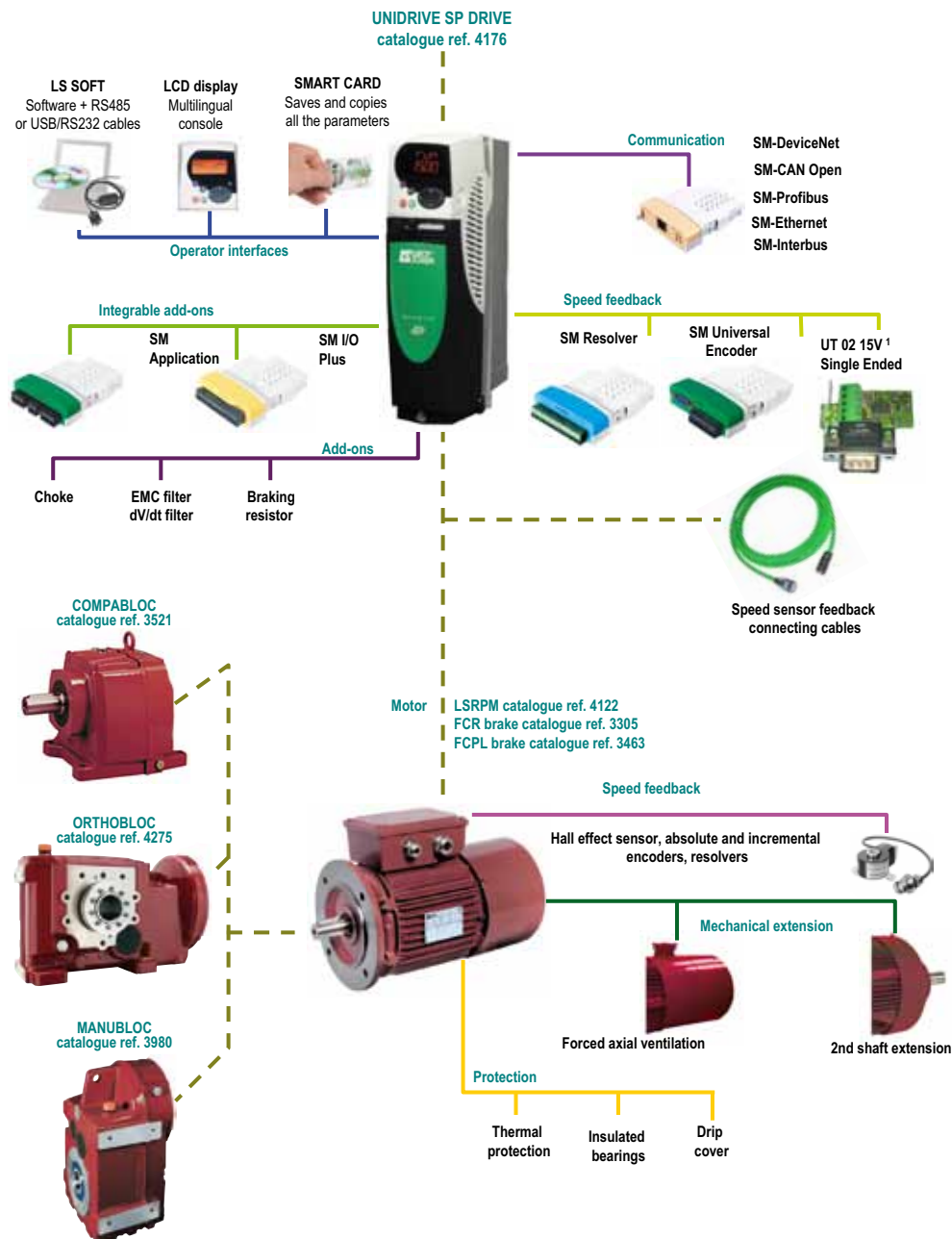
Introduction

DYNEO® offers innovative, high-performance solutions consisting of synchronous geared motors with permanent magnets used in conjunction with LEROY-SOMER variable speed drives. These solutions adapted to the industrial environment produce optimum electrical and mechanical performance:

- Very high efficiency
- Compact geared motor size
- High torque

The 3000 RANGE - LSRPM combinations described in this manual are suitable for most applications: pumping, materials handling, conveying, extrusion, etc. Add-ons or options for drives and motors can be included to satisfy the demands of the process.

For further information about the products described in this manual, please consult the corresponding technical documentation.



The option characteristics are described in the technical documents for the relevant products.

¹: UT 02 required to manage the Hall effect sensor.

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A1 - Quality assurance

LEROY-SOMER's quality management system is based on:

- Control of procedures right from the initial sales offering until delivery to the customer, including design, manufacturing start-up and production

- A total quality policy based on making continuous progress in improving operational procedures, involving all departments in the company in order to give customer satisfaction as regards delivery times, conformity and cost

- Indicators used to monitor procedure performance

- Corrective actions and advancements with tools such as FMECA, QFD, MAVP, MSP/MSQ and Hoshin type improvement workshops on flows, process re-engineering, plus Lean Manufacturing and Lean Office

- Annual surveys, opinion polls and regular visits to customers in order to ascertain and detect their expectations

Personnel are trained and take part in the analyses and the actions for continuously improving the procedures.



LEROY-SOMER has entrusted the certification of its expertise to various international organisations.

Certification is granted by independent professional auditors, and recognises the high standards of the **company's quality assurance procedures**. All activities resulting in the final version of the machine have therefore received official certification **ISO 9001: 2000 from the DNV**. Similarly, our environmental approach has enabled us to obtain certification ISO 14001: 2004.

Products for particular applications or those designed to operate in specific environments are also approved or certified by the following organisations: CETIM, LCIE, DNV, INERIS, EFECTIS, UL, BSRIA, TUV, CCC, GOST, which check their technical performance against the various standards or recommendations.



ISO 9001 : 2000





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A2 - Standards and approvals

ORGANIZATION OF STANDARDS AUTHORITIES

International bodies

<p>Worldwide</p> 	<p>General standardization ISO International Standards Organisation</p> <p>TC Technical committees</p> <p>SC Sub-committees</p> <p>WG Working groups</p>	<p>General standardization ISO International Standards Organisation</p> <p>TC Technical committees</p> <p>SC Sub-committees</p> <p>WG Working groups</p>
<p>European</p> 	<p>CEN European Committee for Standards</p> <p>ECISS European Committee for Iron and Steel Standardization</p> <p>TC Technical committees</p>	<p>CENELEC European Committee for Electrotechnical Standardization</p>

Country	Initials	Name
AUSTRALIA	SAA	Standards Association of Australia
BELGIUM	IBN	Institut Belge de Normalisation
CIS (formerly USSR)	GOST	Gosudarstvenne Komitet Standartov
DENMARK	DS	Dansk Standardiseringsraad
FINLAND	SFS	Suomen Standardisoimisliitto
FRANCE	AFNOR including UTE	Association Française de Normalisation including: Union Technique de l'Electricité
GERMANY	DIN/VDE	Verband Deutscher Elektrotechniker
GREAT BRITAIN	BSI	British Standards Institution
ITALY	CEI	Comitato Electrotecnico Italiano
JAPAN	JIS	Japanese Industrial Standard
NETHERLANDS	NNI	Nederlands Normalisatie - Instituut
NORWAY	NFS	Norges Standardiseringsforbund
SAUDI ARABIA	SASO	Saudi Arabian Standards Organization
SPAIN	UNE	Una Norma Española
SWEDEN	SIS	Standardiseringskommissionen I Sverige
SWITZERLAND	SEV or ASE	Schweizerischer Elektrotechnischer Verein
USA	ANSI including NEMA	American National Standards Institute including: National Electrical Manufacturers

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A3 - Unit conversions

Unit	MKSA (IS international system)		AGMA (US system)	
Length	1 m = 3.2808 ft	1 mm = 0.03937 in	1 ft = 0.3048 m	1 in = 25.4 mm
Weight	1 kg = 2.2046 lb		1 lb = 0.4536 kg	
Torque	1 N.m = 0.7376 lb.ft	1 N.m = 141.6 oz.in	1 lb.ft = 1.356 N.m	1 oz.in = 0.00706 N.m
Force	1 N = 0.2248 lb		1 lb = 4.448 N	
Moment of inertia	1 kg.m ² = 23.73 lb.ft ²		1 lb.ft ² = 0.04214 kg.m ²	
Power	1 kW = 1.341 HP		1 HP = 0.746 kW	



A4 - Glossary

AGMA	Application class	Kp	Gearbox duty factor
BA	Shaft extension	kW	Kilo Watt
BD	Flange with clearance holes different diameter from the standard	L	Shaft output on left
BS	Standard flange with clearance holes	LSRPM	Motor series
BT	Face with tapped holes	Mot	Motor
Cb	Compabloc	Mub	Manubloc
T _N	Rated torque	M _{MAX}	Maximum torque
η	Efficiency	M _S	Starting torque
η T	Total efficiency	M _f	Braking torque
F _d	Switching frequency	M _N	Rated torque
F _J	Inertia factor	N _N	Rated speed
H	Hollow shaft	n _{S MAX}	Maximum gearbox speed of rotation
FS	Frame size	n _{S MIN}	Minimum gearbox speed of rotation
i	Exact reduction	Ot	Orthobloc
I _S	Starting current	P _N	Rated output power
I _M	Maximum current	P _u	Output power
I _N	Rated current	R	Shaft output on right
J	Moment of inertia	U.G.	General applications
J _{CM}	Moment of inertia of the load at the motor shaft	Z	Starting frequency
J _M	Moment of inertia of the motor		

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A5 - Selection criteria

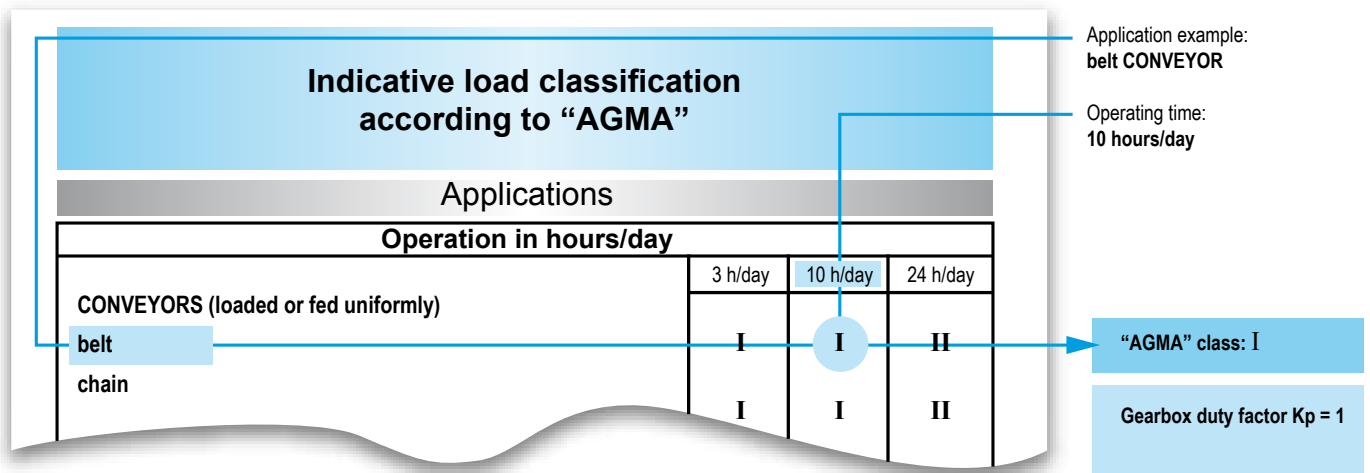
The selection of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, on page 11.

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 load classification table according to "AGMA" on page 11.



2nd case – Your application is not listed

The gearboxes must be selected on the basis of 3 equally important criteria:

- The motor power or output torque
- The output speed and input speed (or reduction ratio)
- The duty factor

The duty factor **K** is defined in general terms in the table below for an electric motor drive. It depends on:

- The daily operating time, expressed in hours per day (h/d)
- the starting frequency **Z** (st/h)

When using with a frequency inverter, it is possible to exclude the number of starts from the determination of the required **K** factor by limiting the starting torque.

- The inertia factor **FJ**:

Ratio of the load inertia to the motor inertia: curves I, II, III.

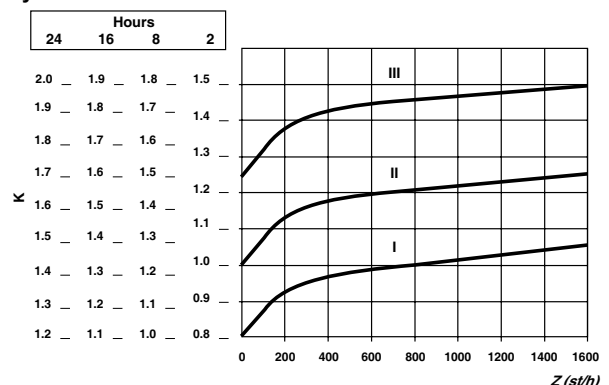
Application class	I	II	III
FJ	≤ 0.25	≤ 3	≤ 10
Type of operation	Steady (shock-free)	Damped shocks	Violent shocks

$$FJ = \frac{J_{CM}}{J_M}$$

- J_{CM} : moment of inertia of the load at the motor shaft
- J_M : moment of inertia of the motor (p. 15-16)

For applications with an **FJ** factor > 10, please contact the Leroy-Somer technical department.

Duty factor K



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A6 - List of applications



OPERATION in hours/day	3 h/day	10 h/day	24 h/day	OPERATION in hours/day	3 h/day	10 h/day	24 h/day	OPERATION in hours/day	3 h/day	10 h/day	24 h/day
COOLING TOWERS	-	-	-	grinders (2 or more)	II	II	II*	bending rollers	II	II	II
AGITATORS				calenders	II	II	II*	nut tappers	II	III	III*
liquids with variable density	II	II	II	extruding machines	II	II	III	shears	III	III	III
liquids and solids	I	I	II	sheet forming machines	I	II	II*	MIXERS			
pure liquids	I	I	II	mixers	III	III	III*	constant density	I	I	II
semi-liquids, variable density	II	II	II*	CLARIFIERS				variable density	I	II	II
FOOD AND BEVERAGE INDUSTRY				SORTERS, GRADERS				cement, continuous duty	I	II	II
cereal cookers	I	I	II	COMPRESSORS				cement, intermittent duty	I	I	-
beet choppers	II	II	II	lobe	I	II	II	METALLURGY (industry)			
meat choppers	II	II	II	centrifugal	I	II	II	drawing frames, carriage	III	III	III*
dough mixers	I	II	II	CONVEYORS (loaded or fed uniformly)				drawing frames, main control	III	III	III*
extruding machines	I	II	III	belt	I	I	II	table conveyor:			
FEEDING (attachment)				chain	I	I	II	single direction of operation	I	II	III
reciprocating	III	III	III*	apron	I	I	II	reverse operation	III	III	III
disks	I	I	II	bucket	I	I	II	wire winders	I	II	II
lattice	I	II	II	scraper	I	I	II	sheet metal winders	I	II	II
belt	I	I	II	screw	I	I	II	spreading	III	III	III*
screw	I	II	II	assembly	I	I	II	roller drive			
TRANSMISSION SHAFT				furnace	I	I	II	splitting lines	II	II	III
loads with moderate shocks	I	II	II	CONVEYORS (loaded or fed non-uniformly)				wire drawing mills, flatteners	II	II	III
loads with severe shocks	III	III	III*	heavy duty:				shape-cutting machines	III	III	III*
constant loads	I	I	II	belt	II	II	II	separating rollers	-	-	-
CLAY (industry)				chain	II	II	II	drying rollers	-	-	-
brick machines	III	III	III*	apron	II	II	II	PAPER (industry)			
processing machines	II	II	II	bucket	II	II	II	aerators	-	-	-
mixers	II	II	II	scraper	II	II	II	agitators, mixers	-	-	-
brick presses	III	III	III*	roller	I	I	II	wind up turrets	I	I	II
TIPPERS	III	III	III*	screw	II	II	II	calenders	I	I	II*
TIMBER (industry)				reciprocating	III	III	III*	conveyors	I	II	II
supplying:				assembly	II	II	II	ball conveyors	III*	III*	III*
saws in series	III	III	III*	furnace	II	II	II	cutters, plating machines	I	II	II
shape-cutting machines	II	II	III	vibratory	III	III	III*	bleaching vats	I	II	II
planers	II	II	III	removal	I	I	-	cylinders	I	II	II
cutting	II	II	III	CANE KNIVES	II	II	III	felt stitching machines	III*	III*	III*
chains	II	II	III	SIEVES				washers, thickeners	I	II	II*
turntable control	I	I	II	rotary	I	II	III	barking machines (mechanical)	I	III	III
main conveyors	II	II	III	stone washer with water circulation	I	I	II	pulp machines, uncoilers	I	II	II
ball conveyors	III	III	III*	DREDGERS				pulp hammers	II	II	II*
circular feed conveyors	I	II	III	shaker control	III	III	III*	presses	I	II*	II*
burner conveyors	I	II	III	cutting head control	III	III	III*	suction rollers	I	II	II*
waste conveyors	I	II	III	sieve control	III	III	III*	dryers	I	II	II*
plank conveyors	III	III	III*	conveyors	I	II	II	wood pulp storing machines	I	II	II
transfer conveyors	I	II	III	pumps	I	II	II	barking drums	III	III	III*
devices:				cable winding drums	I	II	-	felt tension devices	I	II	II
for planer inclination	I	II	III	handling winches	II	II	-	PUMPS			
for ball turning	III	III	III*	service winches	II	II	-	reciprocating:			
barking machine, feeder	II	II	III	CONTROL (vehicle)	II	II	II	multi-cylinder single-acting	I	II	II
main drive system barking machine	III	III	III*	ELEVATORS				centrifugal	I	I	II
roller drive system	III	III	III*	centrifugal unloading	I	I	II	dosing	I	II	II*
haulage of balls:				gravity unloading	I	I	II	rotary:			
inclined	III	III	III*	escalators	I	II	III	geared	I	I	II
well	III	III	III*	buckets:				lobed, vaned	I	I	II
cross-cut saws:				continuous load	I	I	II	SEWAGE PLANTS			
chain	II	II	III	heavy load	I	I	II	surface aerators	III	III	III
reciprocating	II	II	III	uniform load	I	I	II	duck type aerators	III	III	III
sorting tables	I	II	III	hoist for building materials	III	III	-	bar screens	I	I	II
ball support plates	III	III	III*	WINDING MACHINES	-	-	-	screw pumps	I	II	III
barking drums	III	III	III*	FILTERS	II	II	III	TEXTILES			
peeling tower	-	-	-	FURNACES				reelers (except drum)	I	II	II
transfer:				dryers, coolers	I	II	II	calenders	I	II	II
on bogies	I	II	III	tumbling barrels	III	III	III*	padding calenders	I	II	II
chain	I	II	III	CRANES AND LIFTING				carding machines, spinners	I	II	II*
BREWERIES, DISTILLERIES				moving truck	-	-	-	alignment controls	-	-	-
boilers, continuous duty			II	moving bridge	-	-	-	glueing machines	I	II	II
cookers, continuous duty			II	bucket winches	-	-	-	drying machines, mangles	II	II	II
brewing vats, continuous duty			II	hoisting gear	-	-	-	napping mills	I	II	II
bottling machines	I	I	II	WINDLASSES, CAPSTANS	II	II	II*	washing machines	I	II	II
scaling hoppers:				PRINTING (presses)	I	I	II	soap milling machines	I	II	II
frequent starts	II	II	III	PACKAGING MACHINES				dyeing machines	I	II	II
GRINDERS				stackers	II	III	III	knitting machines	-	-	-
minerals	III	III	III*	wrapping machines	I	I	II	cloth finishing machines:			
stones	III	III	III*	WASHING MACHINES				washers, spreading machines	I	II	II
HAMMER MILLS	III	III	III*	drum	II	II	II	dryers, calenders	I	II	II
ROTARY GRINDERS				reversible	II	II	II	thread preparation machines:			
rod mills	III	III	III*	MACHINE TOOLS				weaving looms	II	III	III
ball mills	III	III	III*	main drive system	I	II	II	spinning machines	I	I	II
pebble mills	III	III	III*	auxiliary drive system	I	II	II	dryers	I	II	II
RUBBER (industry)				punching machines (geared)	III	III	III*	loading hoppers	II	II	II
air chamber extruder	II	II	II	flat planers	III	III	III*	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

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A7 - Selection method

What you need to know

• THE APPLICATION

• THE OPERATING LIFE IN HOURS/DAY

• THE MOUNTING METHOD

SELECT THE OPERATING CLASS (AND DUTY FACTOR)

This is determined by your application (indicative classification table on page 11). The gearbox duty factor K_p is defined according to the class.

Example opposite:

Application: belt conveyor
Operation: 10 hours a day, damped shocks
Output power: 8.4 kW
Operating class: **AGMA II**

If there is any doubt about the application and the conditions of use, we recommend that you consult the technical documentation for the desired product, and have your calculation checked by someone at LEROY-SOMER.

• THE POSITION OF THE OUTPUT SHAFT IN THE GEARBOX DRIVING THE APPLICATION

• THE POWER IN kW REQUIRED BY THE APPLICATION

SELECT THE GEARBOX RANGE

- Concentric gearboxes (output shaft directly in line with the input shaft)
- Right-angle gearboxes (output shaft at right-angles to the input shaft)
- Parallel shaft gearboxes (output shaft parallel to the input shaft)

Depending on the power (in kW) required by the application, define the gearbox family in the range.

Example opposite:

Concentric 8.4 kW: **Compabloc 3000**

Selection guide 3000 - LSRPM range geared motors

A5 - Selection criteria

The selection of a geared motor should take account of the application. Some of these applications are listed in the indicative "AGMA" load classification, on page 11.

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

Suivre le tableau de classification indicative
Follow the indicative load classification table according to "AGMA", on page 11.

Indicative classification of loads 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

Gearbox duty factor $K_p = 1$

2nd case – Your application is not listed

The gearboxes must be selected on the basis of 3 equally important criteria:

- The motor power or output torque.
- The output speed and input speed (or reduction ratio).
- The duty factor.

The duty factor K is defined in general terms in the table below for an electric motor drive. It depends on:

- The daily operating time, expressed in hours per day (h/d).

- The starting frequency Z (st/h).

When using with a frequency inverter, it is possible to exclude the number of starts from the determination of the required K factor by limiting the starting torque.

- The inertia factor FJ :

Ratio of the load inertia to the motor inertia: curves I, II, III.

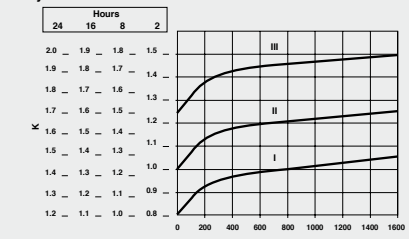
Application class	I	II	III
FJ	≤ 0.25	≤ 3	≤ 10
Type of operation	Steady (shock-free)	Damped shocks	Violent shocks

$$FJ = \frac{J_{CM}}{J_M}$$

- J_{CM} : moment of inertia of the load at the motor shaft
- J_M : moment of inertia of the motor (p. 15-16)

For applications with an FJ factor > 10, please contact the Leroy-Somer technical department.

Duty factor K



Power in kW/Output torque

	kW	4.8	6	7.2	8.4	-	-	-	36	-	-	100	-	-
	Nm	0	500	-	1000	-	-	-	2500	-	-	10000	25000	50000
CONCENTRIC														
COMPABLOC 3000														
RIGHT ANGLE														
ORTHOLOC 3000														
PARALLEL SHAFTS														
MANUBLOC 3000														

Selection guide 3000 range of geared motors - LSRPM

A7 - Selection method

*What you need
to know*

• THE SPEED REQUIRED BY THE APPLICATION

Cb 3000 range

Depending on the selected operating class (I, II, III), choose the gearbox in the Cb 3000 range which has the smallest Kp factor for the selected class (< 1.4 for cl. I, < 2 for cl. II, > 2 for cl. III).

The Kp factor can be read directly in the tables, as in the example opposite, depending on both the output speed and power. The Cb 3000 selection data indicate directly the exact reduction ratio.

Example opposite:

Output speed: 189 min⁻¹

Exact reduction: 12.7

Kp factor: 1,7 cl. II

Gearbox size: Cb 3333

• THE MOUNTING METHOD

SELECT THE MECHANICAL FORM

Depending on the requirement, define:

- The mounting form: feet, BS flange.
- The output shaft in the case of orthogonal or parallel shaft gearboxes.
- The type of mounting: MI integral mounting.
- The page with the dimensions of the equipment is indicated on the second table.

Example opposite:

Mounting form: BS

MI mounting

Page 45

Compabloc 3000 - LSRPM									
D8 - Selection									
Classes I, II, III (Kp = 1, 1.4, 2)		Cb 3333 LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - Cl. F - 400 V						Integral mounting MI	
Cb 3333									
LSRPM (kW)									
2400 min ⁻¹									
min ⁻¹	i exact	90 SL	90 L	100 L	132 M	160 MP			
52.9	45								
54.5	44								
60.9	39.4	1.07							
70.2	34.2	1.23	0.98						
79.5	30.2	1.39	1.11						
86.3	27.8	1.50	1.20	1.00					
97.6	24.6	1.69	1.35	1.13	0.97				
110	21.9	1.89	1.51	1.26	1.18	0.96			
122	19.6	2.07	1.65	1.38	1.3	1.04			
133	18.1	2.22	1.77	1.48	1.27	1.12			
149	16.1	2.45	1.96	1.63	1.40	1.24			
171	14	2.73	2.18	1.82	1.6	1.38	1.00		
189	12.7	2.99	2.35	1.95	1.70	1.50	1.09		
218	11	3.21	2.57	2.14	1.84	1.62	1.18		
240	9.98			2.34	2.00	1.77	1.28		
241	9.95	2.22	1.77						
265	9.06	3.74	2.99	2.49	2.14	1.89	1.37		
306	7.85	4.10	3.28	2.73	2.34	2.07	1.50	1.21	1.03
339	7.09	3.11	2.49	2.07	1.78	1.57	1.14		
374	6.41	3.44	2.75	2.29	1.97	1.74			
429	5.59			2.63	2.25	1.97			
474					2.91	2.49			
						2.75			
							3.17		
									1.08

D7 - Conditions						
Cb: S, BS						
LSRPM: IP55 - Cl. F - 400 V - from 4.8 to 80 kW						
LSRPM FCR brake: IP55 - Cl. F - 400 V - from 4.8 to 36 kW - U.G.						
LSRPM FCPL brake: IP44 - 50 Hz - Cl. F - 400 V - from 25 to 80 kW - U.G.						
MI						
Delivery date to be agreed						
	MI input	Cb 31--	Cb 32--	Cb 33--	Cb 34--	Cb 35--
LSRPM	4.8 → 9.5 kW					
	13.1 → 19.2 kW	-	-			
	25 → 36 kW	-	-	-		
LSRPM FCR	37.5 → 80 kW	-	-			
	4.8 → 9.5 kW					
LSRPM FCPL	13.1 → 19.2 kW	-	-			
	25 → 36 kW	-	-			
LSRPM FCPL	25 → 80 kW	-	-			
Pages of dimensions corresponding to mounting form						
1-stage Cb forms						
	Type	Foot	Flange			
		S	BS			
Cb 3131		38	38			
Cb 3231		39	39			
Cb 3331		40	40			
Cb 3431		41	41			
Cb 3531		42	42			
Multi-stage Cb forms						
	Type	Foot	Flange			
		S	BS			
Cb 3133		43	43			
Cb 3233		44	44			
Cb 3333		45	45			
Cb 3433		46	46			
Cb 3533		47	47			
Options						
brake						

Selection guide

3000 range of geared motors - LSRPM

B1 - Selection data

B1.1 - LSRPM 2400 min⁻¹ range

2400
range

POWER SUPPLY UPSTREAM FROM THE 400 V DRIVE

Type	Rated power P_N kW	Rated speed N_N min-1	Rated torque M_N N.m	Rated current I_N A	Efficiency η %	(1) Max. torque/ Rated torque M_{MAX}/M_N	(1) Max. current/ Rated current I_{MAX}/I_N	Moment of inertia J kg.m ²	Weight IM B14 kg
LSRPM 90 SL	4.8	2400	19	9.1	90.5	1.5	1.5	0.0032	14
LSRPM 90 L	6	2400	24	11.2	91.5	1.5	1.5	0.0051	17
LSRPM 100 L	7.2	2400	29	13.4	92	1.5	1.5	0.0066	19
LSRPM 100 L	8.4	2400	33	15.6	92.5	1.5	1.5	0.0078	24
LSRPM 100 L	9.5	2400	38	17.7	93	1.5	1.5	0.009	26
LSRPM 132 M	13.1	2400	52	25	92.5	1.5	1.5	0.0165	40
LSRPM 132 M	16.3	2400	65	31	93	1.5	1.5	0.0231	44
LSRPM 132 M	19.2	2400	76	37	93.5	1.5	1.5	0.0311	49
LSRPM 160 MP	25	2400	99	47	94	1.5	1.5	0.0418	60
LSRPM 160 MP	31	2400	122	58	94.5	1.5	1.5	0.0514	69
LSRPM 160 LR	36	2400	145	69	94.5	1.5	1.5	0.0626	79
LSRPM 200 L	37.5	2400	149	75	95	1.35	1.45	0.13	135
LSRPM 200 L	50	2400	199	101	95.6	1.35	1.45	0.17	150
LSRPM 200 L	65	2400	259	137	95.9	1.35	1.45	0.2	165
LSRPM 200 L	80	2400	318	168	96.3	1.35	1.45	0.24	180
LSRPM 225 MR	100	2400	398	193	96.5	1.35	1.45	0.3	215

(1) Risk of demagnetisation above these values.

The performances given are those of LSRPM motors used in conjunction with LEROY-SOMER drives. The values and tolerances conform to IEC 60034-1.

Selection guide

3000 range of geared motors - LSRPM

B1 - Selection data

B1.2 - LSRPM FCR brake

2400
range

POWER SUPPLY UPSTREAM FROM THE 400 V DRIVE

General applications (U.G.)

• FCR brake - IP55 - Separate power supply - Factory-set braking torque

Rated power	Rated speed	Rated torque	Rated current	Efficiency	(1) Max. torque/ Rated torque	(1) Max. current/ Rated current	Moment of inertia	Braking torque	Weight		
P_N	N_N	M_N	I_N	η	M_{MAX}/M_N	I_{MAX}/I_N	J	$Mf \pm 20\%$	IM B14		
kW	min-1	N.m	A	%			10^{-3} kg.m ²	N.m	kg		
Motor type	Brake type										
LSRPM 90 S	FCR J01	4.8	2400	19	9.1	90.5	1.5	1.5	5	20	23
LSRPM 90 L	FCR J01	6	2400	24	11.2	91.5	1.5	1.5	6.9	25	26
LSRPM 100 LR	FCR J01	7.2	2400	29	13.4	92	1.5	1.5	8.4	32	28
LSRPM 100 LR	FCR J01	8.4	2400	33	15.6	92.5	1.5	1.5	9.6	32	33
LSRPM 100 LR	FCR J01	9.5	2400	38	17.7	93	1.5	1.5	10.8	32	35
LSRPM 132 M	FCR J02	13.1	2400	52	25	92.5	1.5	1.5	43.5	80	55
LSRPM 132 M	FCR J02	16.3	2400	65	31	93	1.5	1.5	50.1	80	59
LSRPM 132 M	FCR J02	19.2	2400	76	37	93.5	1.5	1.5	58.1	80	64
LSRPM 160 MP	FCR J02	25	2400	99	47	94	1.5	1.5	68.8	105	75
LSRPM 160 MP	FCR J02	31	2400	122	58	94.5	1.5	1.5	78.4	120	84
LSRPM 160 LR	FCR J02	36	2400	145	69	94.5	1.5	1.5	89.6	160	94

(1) Risk of demagnetisation above these values.

B1.3 - LSRPM FCPL brake

2400
range

POWER SUPPLY UPSTREAM FROM THE 400 V DRIVE

General applications (U.G.)

• FCPL brake - IP44 - Separate power supply - Factory-set braking torque

Rated power	Rated speed	Rated torque	Rated current	Efficiency	(1) Max. torque/ Rated torque	(1) Max. current/ Rated current	Moment of inertia	Braking torque	Weight		
P_N	N_N	M_N	I_N	η	M_{MAX}/M_N	I_{MAX}/I_N	J	$Mf \pm 20\%$	IM B14		
kW	min-1	N.m	A	%			10^{-3} kg.m ²	N.m	kg		
Motor type	Brake type										
LSRPM 160 MP	FCPL 40 H	25	2400	99	47	94	1.5	1.5	44.5	125	90
LSRPM 160 MP	FCPL 40 H	31	2400	122	58	94.5	1.5	1.5	54.1	180	99
LSRPM 160 LR	FCPL 40 H	36	2400	145	69	94.5	1.5	1.5	65.3	180	109
LSRPM 200 L	FCPL 54	37.5	2400	149	75	95	1.35	1.45	140.9	220	210
LSRPM 200 L	FCPL 54	50	2400	199	101	95.6	1.35	1.45	180.9	260	225
LSRPM 200 L	FCPL 60 H/1	65	2400	259	137	95.9	1.35	1.45	217.8	400	250
LSRPM 200 L	FCPL 60 H/1	80	2400	318	168	96.3	1.35	1.45	257.8	400	265
LSRPM 225 MR	FCPL 60 H/1	100	2400	398	193	96.5	1.35	1.45	317.8	570	300

Selection guide

3000 range of geared motors - LSRPM

B2 - Connection

B2.1 - TERMINAL BOX

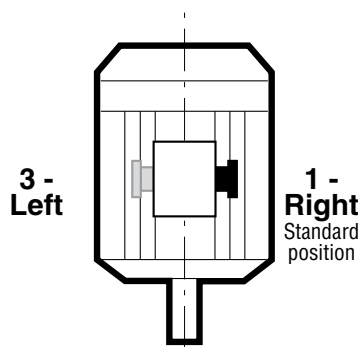
Placed as standard on the top of the motor near the drive end, the terminal box has IP55 protection.

The standard position of the cable glands is on the right, seen from the drive end, position A1.

B2.2 - TIGHTENING TORQUE ON THE TERMINAL BOX NUTS

Terminal	M4	M5	M6	M8	M10	M12	M16
Torque N.m	2	3.2	5	10	20	35	65

Positions of the cable gland in relation to the motor drive shaft



Only positions 1 and 3 are possible

B2.3 - TERMINAL BOX DRILLING FOR CABLE GLANDS

LSRPM motors are supplied with pre-drilled and tapped terminal boxes for mounting cable glands

Motor type	Power		Auxiliary		Brake	
	Number of drill holes	Drill hole diameter	Number of drill holes	Drill hole diameter	Number of drill holes	Drill hole diameter
LSRPM 90 SL/L	1	ISO M25X1.5	1	ISO M16X1.5	1	ISO 20A
LSRPM 100 L	1	ISO M25X1.5	1	ISO M16X1.5	1	ISO 20A
LSRPM 132 M	1	ISO M40X1.5	1	ISO M16X1.5	1	ISO 20A
LSRPM 160 MP/LR	1	ISO M40X1.5	1	ISO M16X1.5	1	FCR: ISO 20A FCPL: ISO 20
LSRPM 200 L/LU	2	ISO M40X1.5	1	ISO M20X1.5	1	ISO 20
LSRPM 200 L1/LU1	2	ISO M63X1.5	1	ISO M16X1.5	1	ISO 20
LSRPM 225 MR	2	ISO M40X1.5	1	ISO M20X1.5	1	ISO 20

B2.4 - CABLE GLANDS

In certain applications, it is necessary for there to be earth continuity between the cable and the motor earth to ensure protection of the installation in accordance with the EMC directive, 89/336/EEC. A **cable gland with anchorage on screened cable option** is therefore available over the entire LSRPM range.

Type and cable size of cable glands

Type of cable gland	Cable size	
	Min. cable Ø (mm)	Max. cable Ø (mm)
ISO 16	6	11
ISO 20	7.5	13
ISO 20A	5	12
ISO 25	12.5	18
ISO 32	17.5	25
ISO 40	24.5	33.5
ISO 50	33	43
ISO 63	42.5	55

B2.5 - ENCODER CONNECTIONS

For the encoder option, connection is made via a connector fixed on the terminal box.

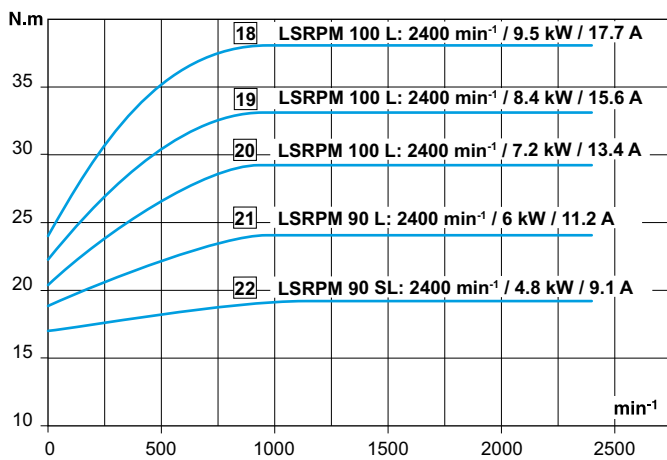
Selection guide 3000 range of geared motors - LSRPM

C1 - UNIDRIVE SP drive characteristics, 2400 range

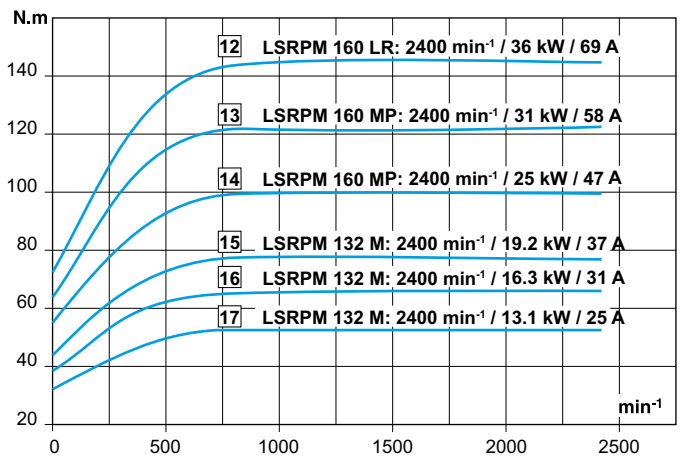
C1.1 - Torque characteristics



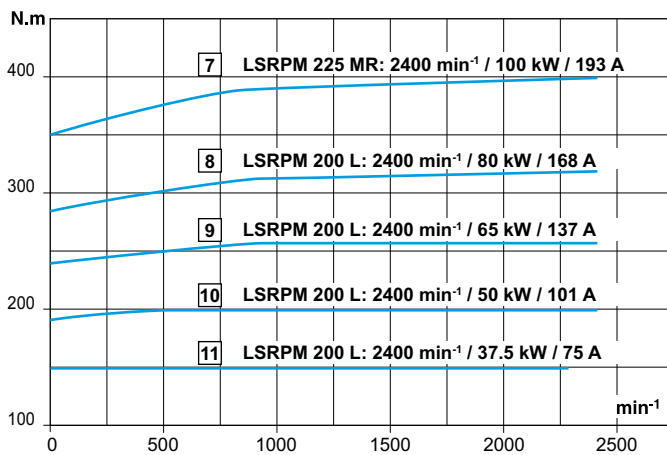
Torque from 0 to 38 N.m



Torque from 38 to 145 N.m



Torque from 145 to 400 N.m



Selection guide

3000 range of geared motors - LSRPM

C1 - UNIDRIVE SP drive characteristics, 2400 range

C1.2 - Selection

2400 range

Type	Rated power	Drive designation		Available power	Rated torque	Maximum torque	Rated current ¹	Maximum current ¹	Minimum switching frequency	Total efficiency ²	Moment of inertia	Motor weight
	P_N kW	LS	CT	kW	M_N N.m	M_{max} N.m	I_N A	$I_{max/60sec}$ A	F_D kHz	η_T %	J kg.m ²	IM B14 kg
LSRPM 90 SL	4.8	SP 4.5T	SP 1405	4.6	18.4	20.2	8.8	9.68	3	88.7	0.0032	14
		SP 5.5T	SP 1406	4.8	19	28.5	9.1	13.65				
LSRPM 90 L	6	SP 5.5T	SP 1406	6	24	26.4	11	12.1	3	89.7	0.0051	17
		SP 8T	SP 2401	6	24	36	11.2	16.8				
LSRPM 100 L	7.2	SP 8T	SP 2401	7.2	29	43.5	13	19.5	3	90.2	0.0066	19
LSRPM 100 L	8.4	SP 8T	SP 2401	8.2	32	35.2	15.3	16.83	3	90.7	0.0078	24
		SP 11T	SP 2402	8.4	33	49.5	15.6	23.4				
LSRPM 100 L	9.5	SP 11T	SP 2402	9.5	38	49.6	17.7	23.1	3	91.1	0.009	26
		SP 16T	SP 2403	9.5	38	56.9	17.7	26.5				
LSRPM 132 M	13.1	SP 11T	SP 2402	11	43	47.3	21	23.1	3	90.2	0.0165	40
		SP 16T	SP 2403	13.1	52	78	25	37.5				
LSRPM 132 M	16.3	SP 16T	SP 2403	15.2	61	67.1	29	31.9	3	90.7	0.0231	44
		SP 22T	SP 3401	16.3	65	97.5	31	46.5				
LSRPM 132 M	19.2	SP 22T	SP 3401	18.2	71.9	79.1	35	38.5	3	91.6	0.0311	49
		SP 27T	SP 3402	19.2	76	114	37	55.5				
LSRPM 160 MP	24.5	SP 27T	SP 3402	22.9	90.6	99.7	43	47.3	3	92.1	0.0418	60
		SP 33T	SP 3403	24.5	97	145.5	46	69				
LSRPM 160 MP	31	SP 33T	SP 3403	29.9	118	129.8	56	61.6	3	92.6	0.0514	69
		SP 40T	SP 4401	31	122	183	58	87				
LSRPM 160 LR	36	SP 40T	SP 4401	35.5	143	157.3	68	74.8	3	92.6	0.0626	79
		SP 50T	SP 4402	36	145	217.5	69	103.5				
LSRPM 200 L	37.5	SP 50T	SP 4402	37.5	149	201	75	108.75	3	93.1	0.13	135
LSRPM 200 L	50	SP 60T	SP 4403	50	199	220	101	114.4	3	93.7	0.17	150
		SP 75T	SP 5401	50	199	269	101	146.45				
LSRPM 200 L	65	SP 75T	SP 5401	65	259	281	137	151.8	3	94	0.2	165
		SP 100T	SP 5402	65	259	350	137	198.65				
LSRPM 200 L	80	SP 100T	SP 5402	80	318	343	168	184.8	3	94.4	0.24	180
		SP 120T	SP 6401	80	318	412	168	232				
LSRPM 225 MR	100	SP 120T	SP 6401	100	398	451	193	226	3	94.6	0.3	215
		SP 150T	SP 6402	100	398	523	193	271				

1. The drive parameters must comply with the rated current values to ensure thermal control is maintained, as must the maximum current values to avoid the risk of demagnetisation.
 2. Motor efficiency X drive efficiency.

Compabloc 3000 - LSRPM

D1 - General



Compabloc 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 speed reducers 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 five sizes: 31, 32, 33, 34, 35.
 Rated output torque: from 10 N.m to 3150 N.m.
 Power ratings: from 4.8 to 80 kW.
 Reduction ratios: from 0.79 to 173.
 High efficiency: 95% to 98%.
 Reversible.
 Quiet operation.

Construction

Description of Compabloc gearboxes (Cb)

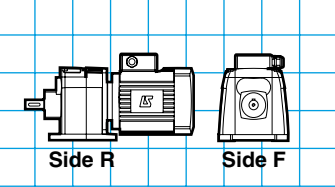
Component	Materials	Remarks
Housing	Cast iron	<ul style="list-style-type: none"> - use of single-component pearlitic ENGJL-200 cast iron (flake graphite: 200 MPa tensile strength) to ensure unit is fully sealed - monobloc ribbed with internal reinforcements to absorb vibrations and noise, and increase its rigidity - S foot mounted, or BS flange mounted. 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. The quality and precision of the gear cutting allow maximum torque with minimum noise level
Lipseals	Nitrile	<ul style="list-style-type: none"> - sealing ring on motor side - sealed gasket with antidust lipseal in accordance with DIN 3760 form AS - gasket under the access cover
Shaft	Steel	<ul style="list-style-type: none"> - grinding of sealing surfaces - key in accordance with ISO R773 - tolerance of diameters in accordance with NFE 22-051 and ISO R 775 - tapped holes at the shaft end for fixing connecting devices in accordance with DIN 332
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		MI: geared motor with integral motor
Synchronous motor with permanent magnets		LSRPM: 400 V <ul style="list-style-type: none"> - pressed steel ventilation cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - pre-drilled aluminium alloy terminal box without cable glands - IP55/IK08 standard protection
Brake motor		FCR: failsafe brake synchronous motor, from 4.8 to 36 kW, IP55 protection FCPL: failsafe brake synchronous motor, from 25 to 80 kW, IP44 protection
Finish	Paint	Shade: RAL 3005 (burgundy), system Ia - Resistance to saline mist: 72 hours (according to NFX 41002)

Compabloc 3000 - LSRPM

D2 - Fixing type, foot mounting

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

Definition of mounting form: S

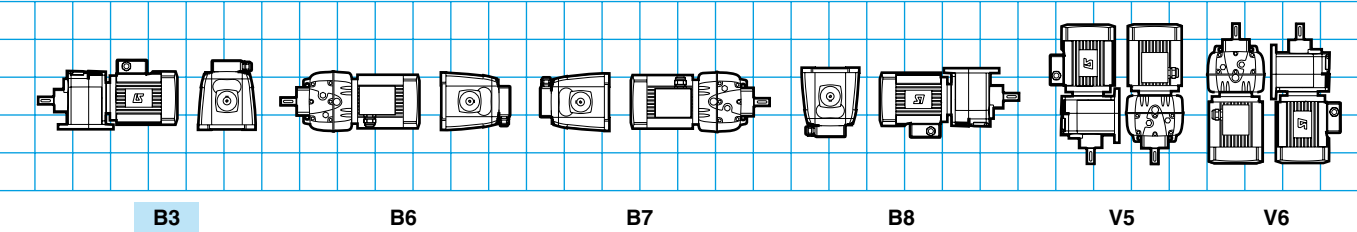


S

Foot mounted housing

Definition of the operating position for S foot mounted form

1-stage Compabloc: Cb 3131 to Cb 3531, multi-stage Compabloc: Cb 3133 to Cb 3533



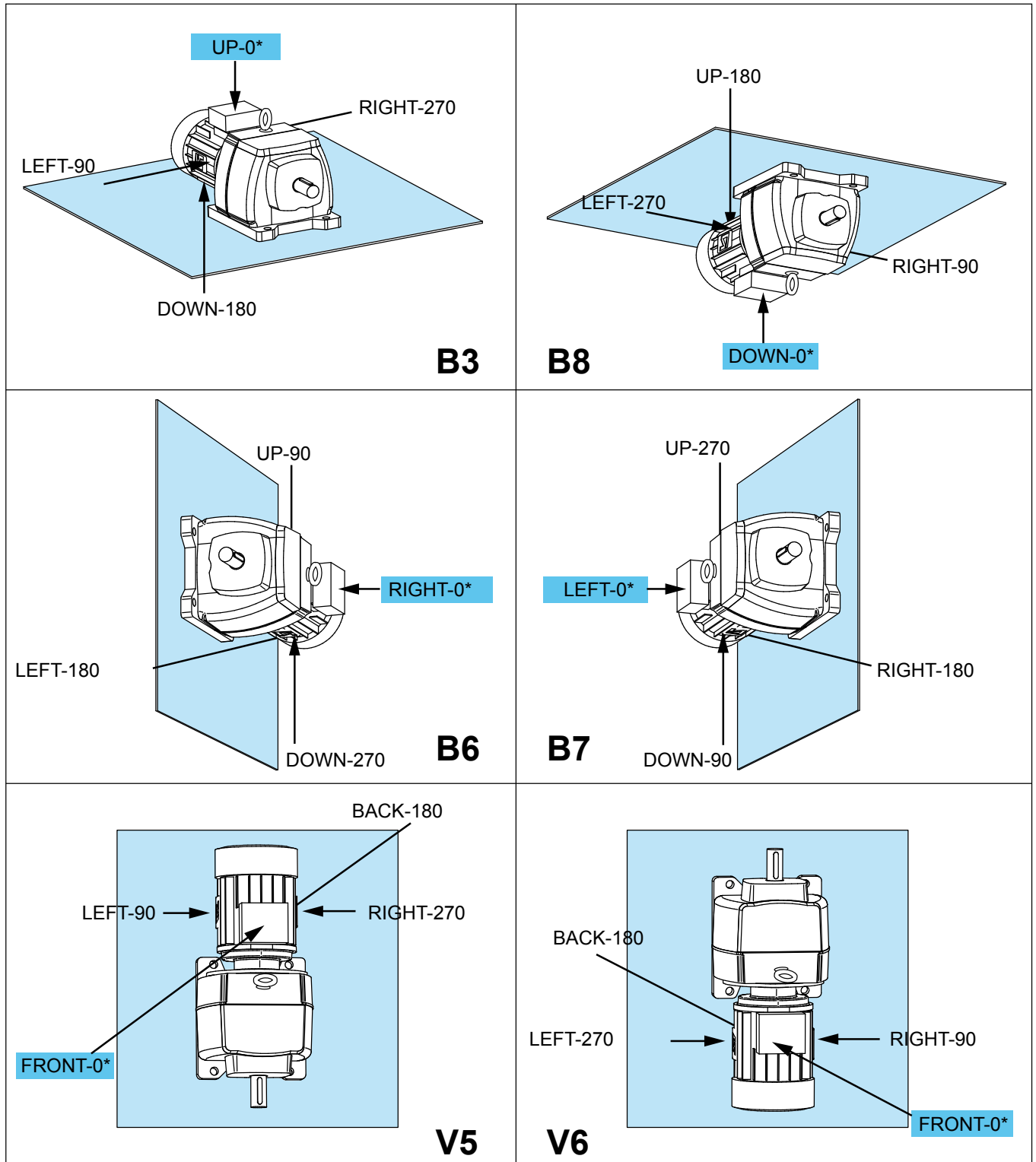
D

Compabloc 3000 - LSRPM

D3 - S operating position

The absolute orientation of the connection (TB: Up, Down, Right, Left, Front, Back) is related to the chosen operating position.

The relative orientation (0-90-180-270, in the trigonometric direction), a consequence of the absolute position, is related to the base of the gearbox for an observer, facing the gearbox.



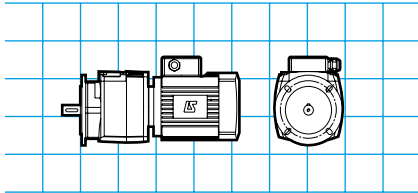
*: Std terminal box

Compabloc 3000 - LSRPM

D4 - Fixing type, flange mounting

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

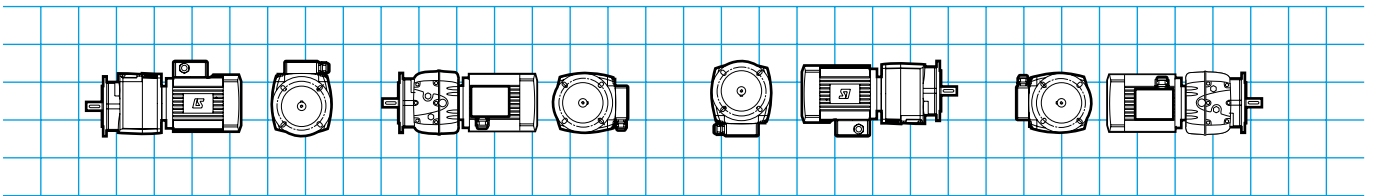
Definition of mounting form: BS



BS
Flange mounted
housing

Definition of the operating position for BS flange mounted form

1-stage Compabloc: Cb 3131 to Cb 3531, multi-stage Compabloc: Cb 3133 to Cb 3533

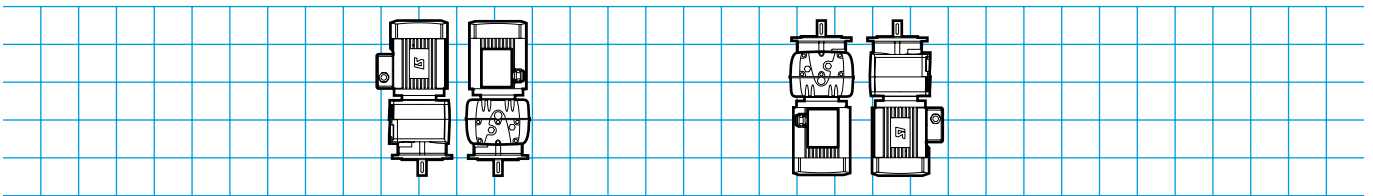


B5

B52

B53

B54



V1

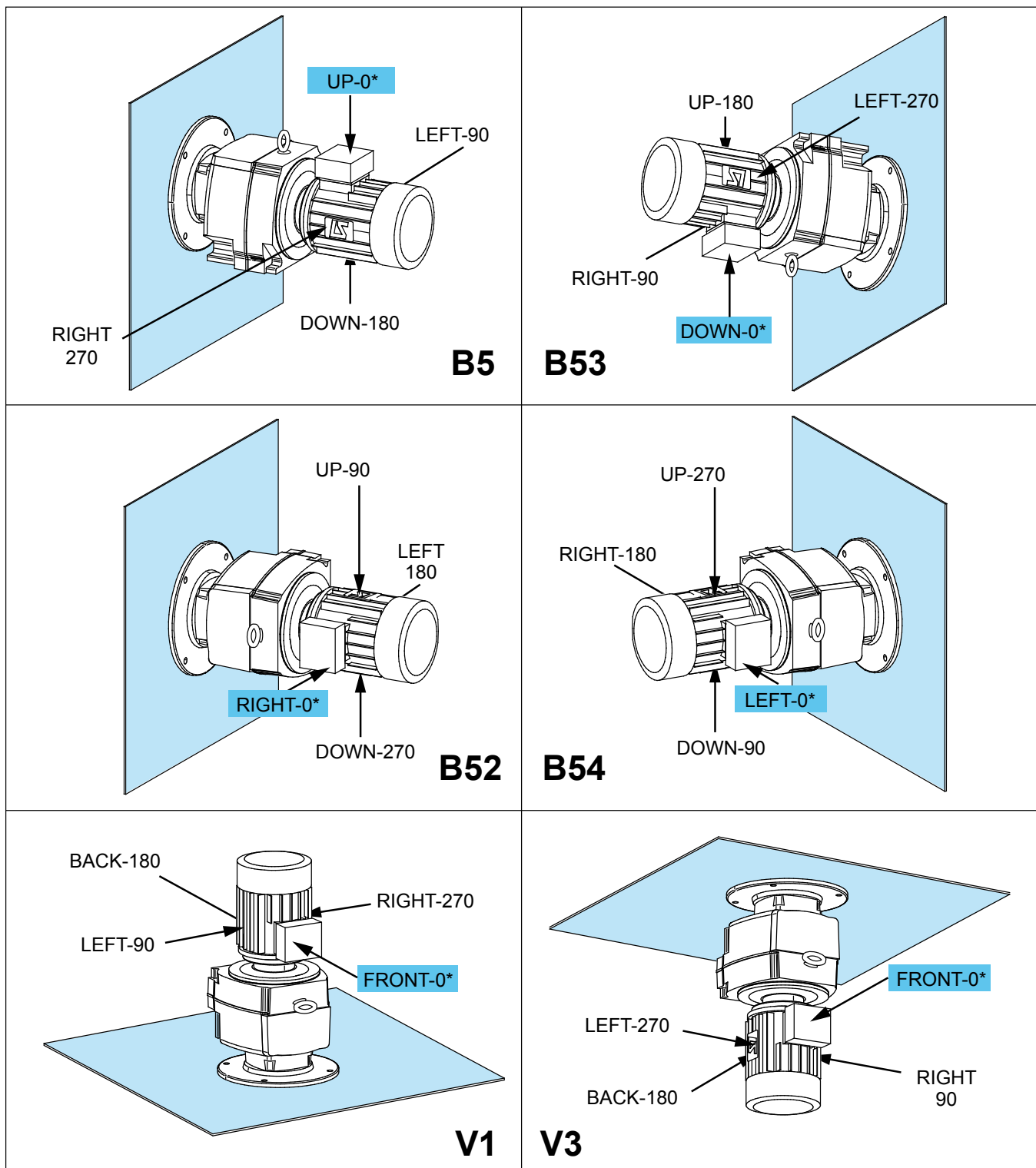
V3

Compabloc 3000 - LSRPM

D5 - BS operating position

The absolute orientation of the connection (TB: Up, Down, Right, Left, Front, Back) is related to the chosen operating position.

The relative orientation (0-90-180-270, in the trigonometric direction), a consequence of the absolute position, is related to the base of the gearbox for an observer, facing the gearbox.



*: Std terminal box

Compabloc 3000 - LSRPM

D6 - Designation/Coding



1 RÉDUCTEUR

Cb	3333	7.85	B52	BS	-	MI
Série réducteur COMPABLOC	Taille et indice constructeur 3131, 3133 3231, 3233 3331, 3333 3431, 3433 3531, 3533	Réduction exacte 1.16 à 173	Position de fonctionnement Pattes : B3, B6, B7, B8, V5, V6 Bride : B5, B52, B53, B54, V1, V3	Forme de fixation S BS	Arbre de sortie	Type d'entrée "MI"

2 MOTEUR

2400	LSRPM	132 M	19.2 kW	IM B14 MI	400 V	IP 55	UG	3 FREIN	80 N.m
Gamme retenue	Désignation série moteur	Hauteur d'axe CEI 72, indice constructeur 90 SL à 200 L	Puissance nominale 4.8 à 80 kW	Forme de construction	Alimentation	Protection	Usage général	Type frein FCR (HA : 90 à 160) FCPL (HA : 160 à 200)	Moment de freinage nominal FCR : 20 à 160 N.m FCPL : 125 à 570 N.m

Exemple de codification :
Compabloc 3333 B52 19,2 kW, 300 min-1,
frein classe I

Désignation :
Cb 3333 7,85 B52 BS - MI 2400 LSRPM 132 M
19,2 kW 400V IP 55 UG FCR J01

Code :
466 7880

Compabloc 3000 - LSRPM

D7 - Conditions

Cb: S, BS

LSRPM: IP55 - Cl. F - 400 V - from 4.8 to 80 kW

LSRPM FCR brake: IP55 - Cl. F - 400 V - from 4.8 to 36 kW - U.G.

LSRPM FCPL brake: IP44 - 50 Hz - Cl. F - 400 V - from 25 to 80 kW - U.G.

MI

Delivery date to be agreed

	MI input	Cb 31--	Cb 32--	Cb 33--	Cb 34--	Cb 35--
LSRPM	4.8 --> 9.5 kW					
	13.1 --> 19.2 kW	-	-			
	25 --> 36 kW	-	-	-		
	37.5 --> 80 kW	-	-	-		
LSRPM FCR	4.8 --> 9.5 kW					
	13.1 --> 19.2 kW	-	-			
	25 --> 36 kW	-	-			
LSRPM FCPL	25 --> 80 kW	-	-			

Pages of dimensions corresponding to mounting

Type	1-stage Cb forms	
	Foot	Flange
	S	BS
Cb 3131	38	38
Cb 3231	39	39
Cb 3331	40	40
Cb 3431	41	41
Cb 3531	42	42

Type	Multi-stage Cb forms	
	Foot	Flange
	S	BS
Cb 3133	43	43
Cb 3233	44	44
Cb 3333	45	45
Cb 3433	46	46
Cb 3533	47	47

Options

Input	MI	Electrical options	Mechanical options			Brake options		
		PTO/PTF, etc	Drip cover	2nd shaft ext.	Forced axial ventilation	Encoder	Hand Brake Release	Different Mf
LSRPM	4.8 --> 9.5 kW						-	-
	13.1 --> 19.2 kW						-	-
	25 --> 36 kW						-	-
	37.5 --> 80 kW						-	-
LSRPM FCR	4.8 --> 9.5 kW							
	13.1 --> 19.2 kW							
LSRPM FCPL	25 --> 36 kW							
	25 --> 80 kW							



Compabloc 3000 - LSRPM

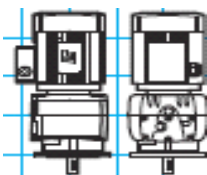
D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3131
LSRPM, LSRPM FCR brake - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Cb 3131	
		LSRPM (kW)	
		4.8	6
		2400 min ⁻¹	
min ⁻¹	i exact	90 SL	90 L
303	7.91		
335	7.17		
384	6.25		
422	5.69		
488	4.92		
548	4.38		
611	3.93		
698	3.44		
738	3.25		
876	2.74	0.96	
930	2.58	0.97	
1048	2.29	1.04	
1200	2	1.09	
1364	1.76	1.14	
1538	1.56	1.18	
1739	1.38	1.23	0.98
1967	1.22	1.10	
2069	1.16	1.36	1.08
LSRPM and brake		LSRPM 2400 min ⁻¹ and FCR brake	
FCR		90 L	



Selection example

Required power:	4.8 kW
Required speed:	1370 min ⁻¹
Duty factor required by the application:	$K_p = 1$
Operating position; Mounting form:	V1 vertical; BS flange
Designation: Cb 3131 i:1.76 V1 BS - MI 2400 LSRPM 90 SL 4.8 kW - 400V	

Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

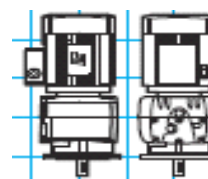
Cb 3133
LSRPM, LSRPM FCR brake - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Cb 3133	
		LSRPM (kW)	
		4.8	6
		2400 min ⁻¹	
min ⁻¹	i exact	90 SL	90 L
141	17		
150	16		
169	14.2		
194	12.4		
220	10.9		
231	10.4		
248	10		
273	8.79		
280	8.57		
317	7.57	1.00	
334	7.19	1.03	
374	6.42	1.09	
425	5.65	1.13	
481	4.99	1.18	
542	4.43	1.21	0.97
614	3.91	1.10	
647	3.71	1.39	1.11
LSRPM and brake		LSRPM 2400 min ⁻¹ and FCR brake	
FCR		90 L	

Selection example

Required power: 6 kW
 Required speed: 650 min⁻¹
 Duty factor required by the application: $K_p = 1$
 Operating position; Mounting form: V1 vertical; BS flange
Designation: Cb 3133 i:3.71 V1 BS - MI 2400 LSRPM 90 L 6 kW - 400V



Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3231
LSRPM, LSRPM FCR brake - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Cb 3231					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	
		2400 min ⁻¹					
min ⁻¹	i exact	90 SL	90 L	100 L			
297	8.08						
347	6.92						
380	6.31						
420	5.71						
492	4.88						
554	4.33	0.99					
617	3.89	1.10					
700	3.43	1.25	1.00				
777	3.09	1.38	1.11				
882	2.72	1.57	1.26	1.05			
941	2.55	1.68	1.34	1.12	0.96		
1086	2.21	1.86	1.49	1.24	1.06		
1237	1.94	2.01	1.61	1.34	1.15	1.02	
1371	1.75	2.04	1.64	1.36	1.17	1.03	
1548	1.55	2.20	1.76	1.47	1.26	1.11	
1655	1.45	2.14	1.71	1.43	1.22	1.08	
1951	1.23	2.31	1.85	1.54	1.32	1.17	
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L			100 L		



Selection example:

Required power: 6 kW
 Required speed: 1100 min⁻¹
 Duty factor required by the application: $k_p = 1.4$
 Operating position; Mounting form: Horizontal B5; BS flange
Designation: Cb 3231 i:2.21 B5 BS - MI 2400 LSRPM 90 L 6 kW - 400V

Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3233
LSRPM, LSRPM FCR brake - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Cb 3233					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	13.1
		2400 min ⁻¹					
min ⁻¹	i exact	90 SL	90 L	100 L		132 M	
79.2	30.3						
89.2	26.9						
99.2	24.2						
113	21.3	1.01					
125	19.2	1.08					
142	16.9	1.18					
152	15.8	1.23	0.99				
175	13.7	1.36	1.09				
200	12	1.48	1.19	0.99			
220	10.9	1.58	1.26	1.05			
249	9.62	1.71	1.37	1.14	0.98		
266	9.02	1.79	1.43	1.19	1.02		
315	7.63	1.99	1.59	1.33	1.14	1.00	
345	6.96	1.93	1.55	1.29	1.11	0.98	
393	6.1	2.21	1.77	1.47	1.26	1.12	
436	5.51	2.42	1.93	1.61	1.38	1.22	
492	4.88	2.66	2.13	1.78	1.52	1.35	0.98
525	4.57	2.81	2.25	1.88	1.61	1.42	1.03
620	3.87	3.10	2.48	2.07	1.77	1.57	1.14
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L		100 L		132 M	

Selection example:

Required power: 9.5 kW

Required speed: 440 min⁻¹

Duty factor required by the application: $k_p = 1$

Operating position; Mounting form: Horizontal B5; BS flange

Designation: Cb 3233 i:5.51 B5 BS - MI 2400 LSRPM 100 L 9.5 kW - 400V



Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Cb 3331
LSRPM, LSRPM FCR brake - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Cb 3331					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	13.1
		2400 min ⁻¹					
min ⁻¹	i exact	90 SL	90 L	100 L		132 M	
307	7.83						
339	7.08						
379	6.33	1.27	1.01				
436	5.5	1.45	1.16				
493	4.87	1.60	1.28	1.07			
537	4.47	1.66	1.33	1.11			
608	3.95	1.82	1.46	1.22	1.04		
682	3.52	1.89	1.51	1.26	1.08	0.96	
759	3.16	1.95	1.56	1.30	1.12	0.99	
825	2.91	2.32	1.85	1.54	1.32	1.17	
930	2.58	2.70	2.16	1.80	1.54	1.36	0.99
1067	2.25	2.63	2.11	1.76	1.50	1.33	0.96
1176	2.04	2.76	2.21	1.84	1.58	1.40	1.01
1356	1.77	2.62	2.09	1.75	1.50	1.32	0.96
1491	1.61			1.74	1.49	1.32	0.96
1644	1.46	2.65	2.12	1.76	1.51	1.34	0.97
1905	1.26	2.79	2.24	1.86	1.60	1.41	1.02
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L		100 L		132 M	



Selection example

Required power:	8.4 kW
Required speed:	760 min ⁻¹
Duty factor required by the application:	Kp = 1
Operating position; Mounting form:	Horizontal B52; BS flange
Designation: Cb 3331 i:3.16 B52 BS - MI 2400 LSRPM 100 L 8.4 kW - 400V	

Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3333
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Cb 3333									
		LSRPM (kW)									
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	
		2400 min ⁻¹									
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP	
52.9	45										
54.5	44										
60.9	39.4	1.07									
70.2	34.2	1.23	0.98								
79.5	30.2	1.39	1.11								
86.3	27.8	1.50	1.20	1.00							
97.6	24.6	1.69	1.35	1.13	0.97						
110	21.9	1.89	1.51	1.26	1.08	0.96					
122	19.6	2.07	1.65	1.38	1.18	1.04					
133	18.1	2.22	1.77	1.48	1.27	1.12					
149	16.1	2.45	1.96	1.63	1.40	1.24					
171	14	2.73	2.18	1.82	1.56	1.38	1.00				
189	12.7	2.98	2.38	1.99	1.70	1.50	1.09				
218	11	3.21	2.57	2.14	1.84	1.62	1.18				
240	9.98			2.34	2.00	1.77	1.28				
241	9.95	2.22	1.77								
265	9.06	3.74	2.99	2.49	2.14	1.89	1.37				
306	7.85	4.10	3.28	2.73	2.34	2.07	1.50	1.21	1.03		
339	7.09	3.11	2.49	2.07	1.78	1.57	1.14				
374	6.41	3.44	2.75	2.29	1.97	1.74	1.26				
429	5.59	3.94	3.16	2.63	2.25	1.99	1.45				
474	5.06			2.91	2.49	2.20	1.60				
523	4.59	4.80	3.84	3.20	2.75	2.43	1.76				
603	3.98	5.54	4.43	3.69	3.17	2.80	2.03	1.63	1.39	1.06	
LSRPM and brakes		LSRPM 2400 min⁻¹ and brakes									
FCR		90 L		100 L			132 M			160 MP	
FCPL											160 MP

Selection example

Required power: 19.2 kW
 Required speed: 300 min⁻¹
 Duty factor required by the application: $K_p = 1$
 Operating position; Mounting form: Horizontal B52; BS flange
Designation: Cb 3333 i:7.85 B52 BS - MI 2400 LSRPM 132 M 19.2 kW - 400V



Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3431
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Cb 3431											
		LSRPM (kW)											
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5
		2400 min ⁻¹											
min ⁻¹	i exact	90 SL	90 L	100 L				132 M			160 MP	160 LR	200 L
296	8.1	2.07	1.66										
351	6.83	2.57	2.05										
390	6.15	2.85	2.28	1.90	1.63	1.44	1.04						
431	5.57	3.15	2.52	2.10	1.80	1.59	1.15						
468	5.13	3.42	2.73	2.28	1.95	1.73	1.25						
544	4.41	3.97	3.18	2.65	2.27	2.01	1.46	1.17	0.99				
584	4.11	4.26	3.41	2.84	2.44	2.15	1.56	1.26	1.07				
667	3.6	4.87	3.89	3.25	2.78	2.46	1.78	1.43	1.22				
755	3.18	5.51	4.41	3.67	3.15	2.78	2.02	1.62	1.38	1.06			
848	2.83	6.16	4.93	4.11	3.52	3.11	2.26	1.82	1.54	1.18	0.95		
945	2.54	6.69	5.35	4.46	3.82	3.38	2.45	1.97	1.67	1.28	1.04		
1106	2.17	7.44	5.95	4.96	4.25	3.76	2.72	2.19	1.86	1.43	1.15	0.99	
1218	1.97			5.27	4.52	4.00	2.90	2.33	1.98	1.52	1.22	1.05	1.01
1379	1.74			5.14	4.40	3.89	2.82	2.27	1.93	1.48	1.19	1.03	0.99
1538	1.56			6.05	5.18	4.58	3.32	2.67	2.27	1.74	1.40	1.21	1.16
1739	1.38			6.00	5.15	4.55	3.30	2.65	2.25	1.73	1.39	1.20	1.15
1935	1.24			5.56	4.77	4.22	3.06	2.46	2.09	1.60	1.29	1.11	1.07
LSRPM and brakes		LSRPM 2400 min⁻¹ and brakes											
FCR		90 L		100 L			132 M			160 MP	160 LR		
FCPL										160 MP	160 LR	200 L	



Selection example

Required power: 19.2 kW

Required speed: 850 min⁻¹

Duty factor required by the application: $K_p = 1.4$

Operating position; Mounting form: Horizontal B7; foot mounted

Designation: Cb 3431 i:2.83 S B7 - MI 2400 LSRPM 132 M 19.2 kW - 400V

Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3433
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

Cb 3433													
LSRPM (kW)													
2400 min ⁻¹													
min ⁻¹	i exact	90 SL	90 L	100 L		132 M			160 MP		160 LR	200 L	
26.5	90.7	0.96											
30.0	80.1	1.08											
33.6	71.4	1.21	0.97										
37.6	63.9	1.35	1.08										
43.9	54.7	1.57	1.25	1.05									
47.7	50.3	1.68	1.35										
48.4	49.6			1.15	0.99								
54.9	43.7			1.30	1.11	0.99							
56.5	42.5	1.98	1.59										
62.8	38.2	2.20	1.76	1.47	1.26	1.11							
69.4	34.6	2.42	1.94	1.61	1.38	1.22							
75.2	31.9	2.62	2.09	1.74	1.50	1.32	0.96						
87.6	27.4	3.03	2.42	2.02	1.73	1.53	1.11						
94.1	25.5	3.25	2.60	2.16	1.85	1.64	1.19	0.96					
107	22.4	3.68	2.94	2.45	2.10	1.86	1.35	1.08					
121	19.8	4.10	3.28	2.74	2.35	2.07	1.50	1.21	1.03				
136	17.6	4.52	3.62	3.01	2.58	2.28	1.66	1.33	1.13				
152	15.8	4.93	3.95	3.29	2.82	2.49	1.81	1.45	1.23				
178	13.5	5.50	4.40	3.66	3.14	2.78	2.01	1.62	1.37	1.06			
197	12.2			3.92	3.36	2.97	2.15	1.73	1.47	1.13			
222	10.8			4.24	3.64	3.22	2.33	1.88	1.59	1.22	0.99		
248	9.67			4.57	3.92	3.46	2.51	2.02	1.71	1.32	1.06		
279	8.6			4.93	4.22	3.73	2.71	2.18	1.85	1.42	1.14	0.99	
312	7.69			5.29	4.53	4.01	2.91	2.34	1.98	1.52	1.23	1.06	1.02
350	6.86	7.43	5.94	4.95	4.25	3.75	2.72	2.19	1.86	1.43	1.15	0.99	
386	6.21			5.28	4.53	4.00	2.90	2.33	1.98	1.52	1.23	1.06	1.01
438	5.48			5.15	4.41	3.90	2.83	2.27	1.93	1.48	1.20	1.03	0.99
489	4.91			6.07	5.20	4.60	3.33	2.68	2.28	1.75	1.41	1.21	1.16
549	4.37			5.99	5.13	4.54	3.29	2.65	2.25	1.72	1.39	1.20	1.15
614	3.91			5.57	4.78	4.22	3.06	2.46	2.09	1.61	1.29	1.11	1.07
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes											
FCR		90 L		100 L		132 M			160 MP		160 LR		
FCPL									160 MP		160 LR	200 L	

Selection example

Required power: 25 kW

Required speed: 180 min⁻¹

Duty factor required by the application: $K_p = 1$

Operating position; Mounting form: Horizontal B7; foot mounted

Designation: Cb 3433 i:13.5 S B7 - MI 4200 LSRPM 160 MP 25 kW - 400V



Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Cb 3531
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Cb 3531													
		LSRPM (kW)													
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	
		2400 min-1													
min-1	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L		
300	8	3.67	2.94	2.45	2.10	1.86	1.35								
349	6.87	4.06	3.25	2.71	2.32	2.05	1.49								
380	6.31	4.69	3.75	3.13	2.68	2.37	1.72								
436	5.5	5.30	4.24	3.54	3.03	2.68	1.94	1.56	1.33	1.02					
495	4.85	5.81	4.65	3.87	3.32	2.93	2.13	1.71	1.45	1.12					
552	4.35	6.26	5.00	4.17	3.57	3.16	2.29	1.84	1.56	1.20	0.97				
619	3.88	6.62	5.30	4.41	3.78	3.35	2.43	1.95	1.66	1.27	1.03				
676	3.55	6.92	5.54	4.61	3.95	3.50	2.54	2.04	1.73	1.33	1.07				
782	3.07	7.50	6.00	5.00	4.28	3.79	2.75	2.21	1.87	1.44	1.16	1.00			
866	2.77	7.77	6.22	5.18	4.44	3.93	2.85	2.29	1.94	1.49	1.20	1.04	0.99		
984	2.44			5.47	4.69	4.14	3.01	2.42	2.05	1.57	1.27	1.09	1.05		
1067	2.25			5.65	4.84	4.28	3.11	2.50	2.12	1.63	1.31	1.13	1.09		
1200	2			5.92	5.07	4.49	3.25	2.61	2.22	1.70	1.37	1.18	1.14		
1341	1.79			6.15	5.28	4.66	3.38	2.72	2.31	1.77	1.43	1.23	1.18		
1500	1.6			6.41	5.49	4.86	3.52	2.83	2.40	1.85	1.49	1.28	1.23		
1644	1.46			6.60	5.65	5.00	3.62	2.91	2.47	1.90	1.53	1.32	1.27		
1875	1.28			6.84	5.86	5.18	3.76	3.02	2.56	1.97	1.59	1.37	1.31	0.98	
LSRPM and brakes		LSRPM 2400 min-1 and brakes													
FCR		90 L		100 L			132 M			160 MP		160 LR			
FCPL										160 MP		160 LR		200 L	



Selection example

Required power: 31 kW

Required speed: 680 min⁻¹

Duty factor required by the application: Kp = 1

Operating position; Mounting form: Horizontal B7; foot mounted

Designation: Cb 3531 i:3.55 S B7 - MI 2400 LSRPM 160 MP 31 kW - 400V

Compabloc 3000 - LSRPM

D8 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Cb 3533
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Cb 3533														
		LSRPM (kW)														
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80
		2400 min ⁻¹														
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L			
13.9	173	0.96														
15.1	159	1.05														
17.4	138	1.20	0.96													
19.7	122	1.33	1.07													
21.8	110	1.45	1.16	0.97												
24.6	97.5	1.58	1.26	1.05												
26.9	89.3	1.67	1.34	1.12	0.96											
31.1	77.2	1.84	1.47	1.23	1.05											
34.4	69.8	1.94	1.55	1.30	1.11	0.98										
39.1	61.4			1.40	1.20	1.06										
42.4	56.6			1.46	1.25	1.11										
48.3	49.7	3.22	2.58	2.15	1.84	1.63	1.18									
56.2	42.7	3.73	2.98	2.49	2.13	1.89	1.37									
61.2	39.2	4.05	3.24	2.70	2.32	2.05	1.48									
70.2	34.2	4.62	3.70	3.08	2.64	2.33	1.69	1.36	1.16							
79.7	30.1	5.23	4.18	3.48	2.99	2.64	1.91	1.54	1.31	1.00						
88.6	27.1	5.75	4.60	3.84	3.29	2.91	2.11	1.69	1.44	1.10						
99.6	24.1	6.34	5.07	4.23	3.62	3.20	2.32	1.87	1.58	1.22	0.98					
109	22.1	6.81	5.44	4.54	3.89	3.44	2.49	2.00	1.70	1.31	1.05					
126	19.1	7.55	6.04	5.03	4.31	3.81	2.77	2.22	1.89	1.45	1.17	1.01				
140	17.2	8.12	6.49	5.41	4.64	4.10	2.97	2.39	2.03	1.56	1.26	1.08	1.04			
158	15.2			5.87	5.03	4.45	3.23	2.59	2.20	1.69	1.36	1.17	1.13			
171	14			6.21	5.32	4.71	3.41	2.74	2.33	1.79	1.44	1.24	1.19			
194	12.4	7.14	5.71	6.74	5.78	5.11	3.71	2.98	2.53	1.94	1.57	1.35	1.29	0.97		
216	11.1			7.25	6.22	5.50	3.99	3.20	2.72	2.09	1.68	1.45	1.39	1.04		
241	9.94			7.81	6.69	5.92	4.29	3.45	2.93	2.25	1.81	1.56	1.50	1.12		
265	9.07			8.29	7.10	6.28	4.56	3.66	3.11	2.39	1.92	1.66	1.59	1.19		
303	7.92				7.76	6.86	4.98	4.00	3.40	2.61	2.10	1.81	1.74	1.30	1.00	
334	7.18			7.03	6.02	5.33	3.86									
376	6.38			7.75	6.65	5.88	4.26	3.42	2.91	2.23	1.80	1.55	1.49	1.12		
421	5.7			8.27	7.09	6.27	4.55	3.65	3.10	2.38	1.92	1.65	1.59	1.19		
471	5.1					8.40	6.09	4.89	4.15	3.19	2.57	2.22	2.13	1.60	1.23	1.00
515	4.66					8.81	6.39	5.13	4.36	3.35	2.70	2.32	2.23	1.67	1.29	1.05
590	4.07					6.83	5.49	4.66	3.58	2.89	2.49	2.39	1.79	1.38	1.12	

LSRPM and brakes

LSRPM 2400 min⁻¹ and brakes

FCR	90 L	100 L	132 M	160 MP	160 LR	
FCPL				160 MP	160 LR	200 L

Selection example

Required power: 50 kW
 Required speed: 250 min⁻¹
 Duty factor required by the application: $k_p = 1$
 Operating position; Mounting form: Horizontal B7; foot mounted
Designation: Cb 3533 i:9.94 S B7 - MI 2400 LSRPM 200 L 50 kW - 400V




Compabloc 3000 - LSRPM

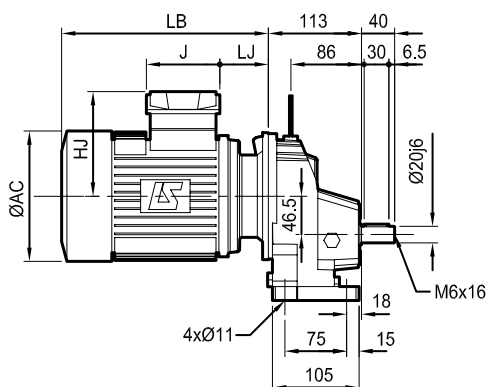
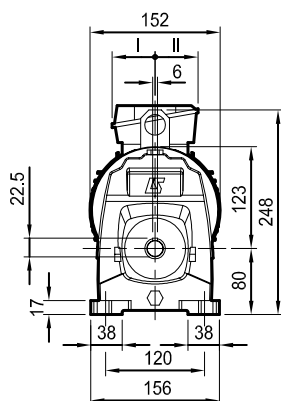
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3131


Dimensions in millimetres

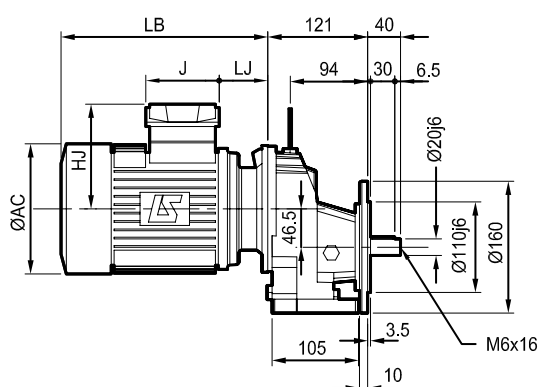
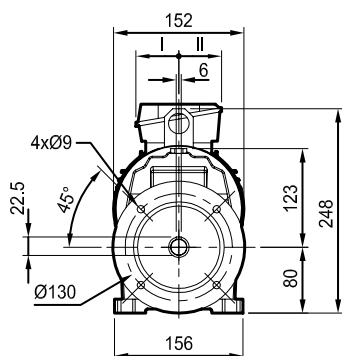
- S foot mounted



 Cb: 6.9 kg + Motor



- Standard BS flange

 Cb: 8.1 kg + Motor



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26

Compabloc 3000 - LSRPM

D9 - Dimensions

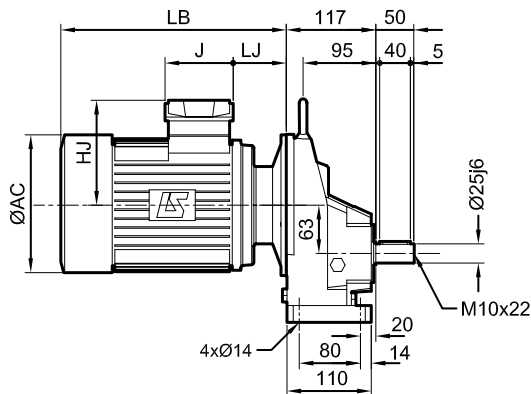
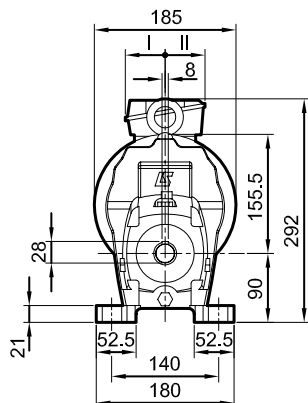
Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3231

Dimensions in millimetres

- S foot mounted



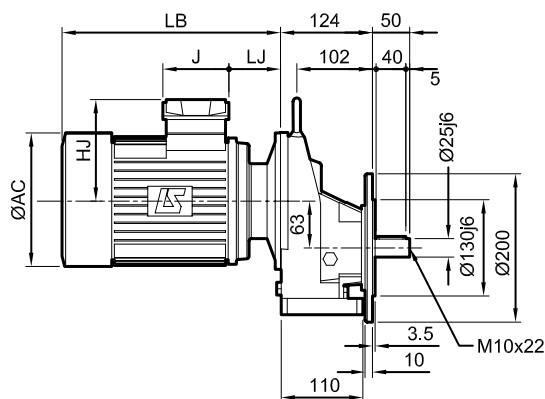
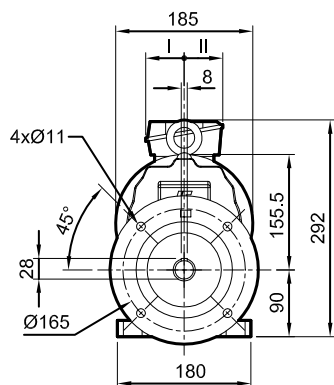
Cb: 8.3 kg + Motor



- Standard BS flange



Cb: 10.3 kg + Motor



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
100 L	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5


Compabloc 3000 - LSRPM

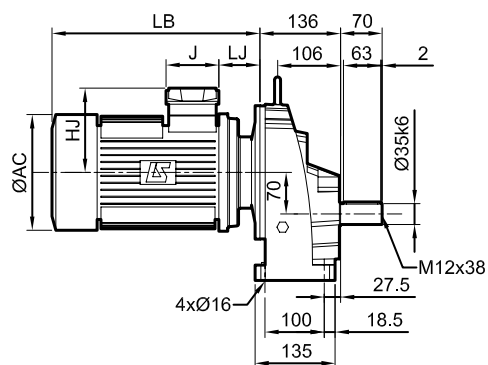
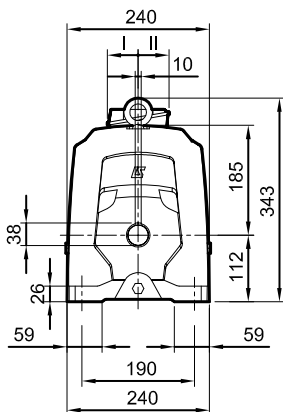
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3331


Dimensions in millimetres

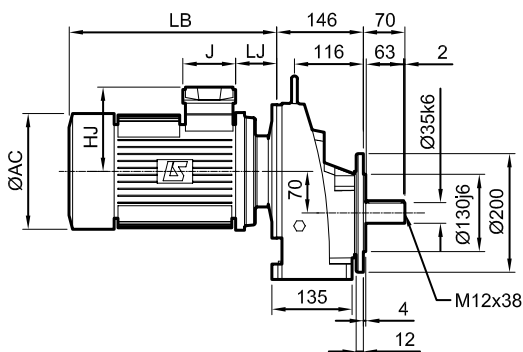
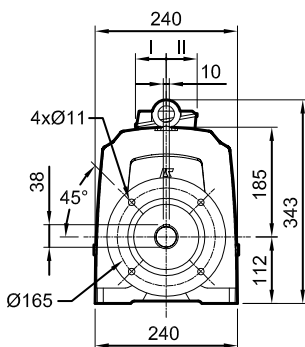
- S foot mounted



 Cb: 15.5 kg + Motor



- Standard BS flange

 Cb: 19.4 kg + Motor



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5
132 M	280	209	195	433	73	79	78	49	280	209	195	541	73	79	78	79


Compabloc 3000 - LSRPM

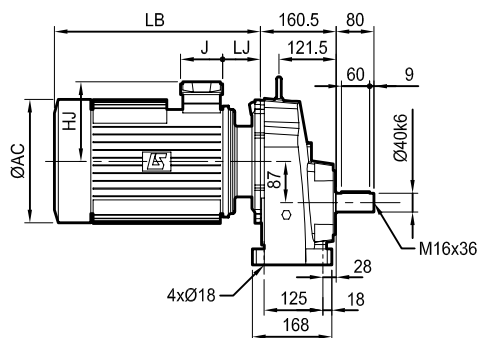
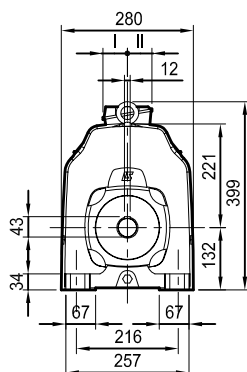
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3431


Dimensions in millimetres

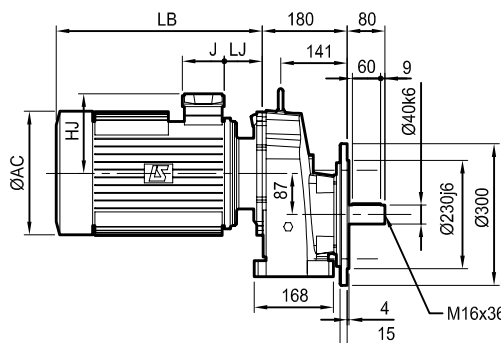
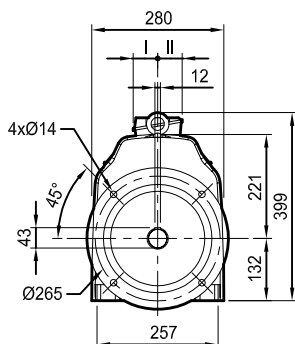
- S foot mounted




 Cb: 25 kg + Motor



- Standard BS flange

 Cb: 31 kg + Motor



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors															
	LSRPM								LSRPM FCR						LSRPM FCPL									
	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	200	155	160	286.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-
132 M	280	209	195	439	77	79	78	49	280	209	195	545	77	79	78	79	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109
200 L	390	276	186	655	97	112	98	180	-	-	-	-	-	-	-	-	410	276	186	908	97	112	98	265


Compabloc 3000 - LSRPM

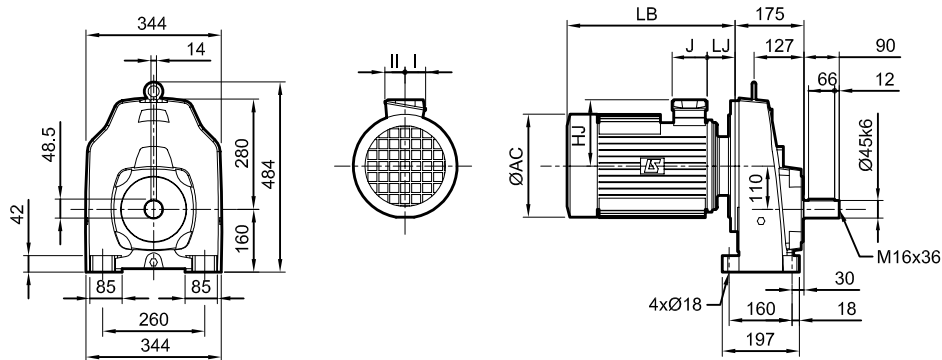
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3531


Dimensions in millimetres

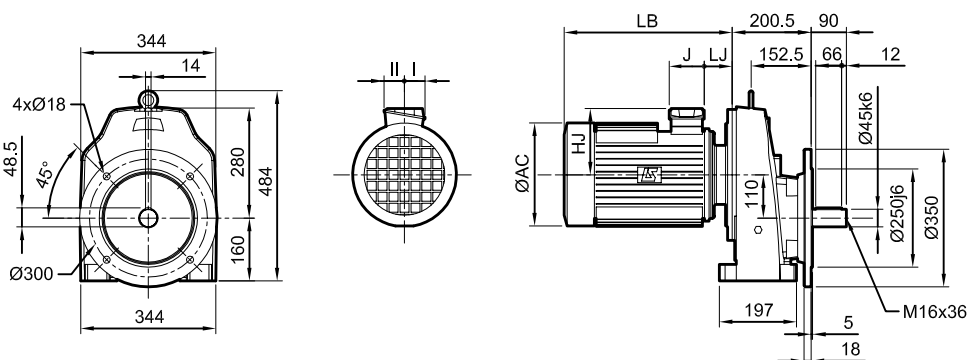
- S foot mounted




 Cb: 41 kg + Motor



- Standard BS flange

 Cb: 48 kg + Motor



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR					LSRPM FCPL											
	AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II		
90 L	200	155	160	281.5	50.5	55	55	17	184	177	195	340.5	49.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	326.5	51.5	55	55	26	200	183	195	388.5	50.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	430	66	79	78	49	280	209	195	536	56	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	546	87	112	98	79	316	276	186	611	87	112	98	103	264	227	186	687	87	112	98	209	
200 L	390	276	186	637	92	112	98	180	-	-	-	-	-	-	-	-	410	276	186	905	68	112	98	265	


Compabloc 3000 - LSRPM

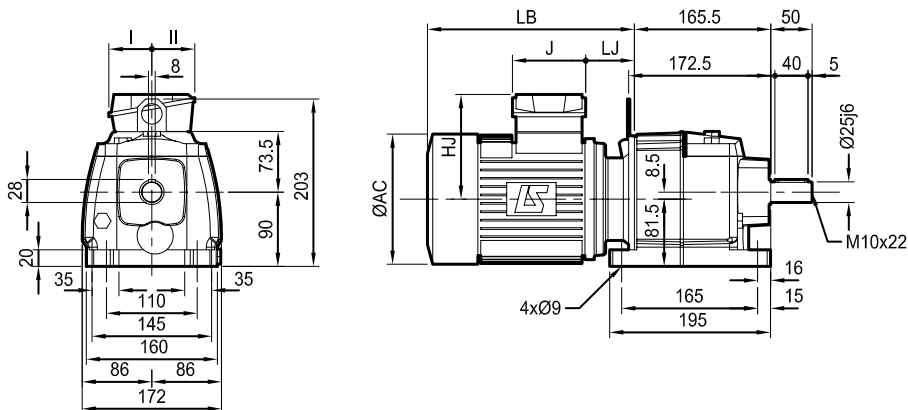
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3133


Dimensions in millimetres

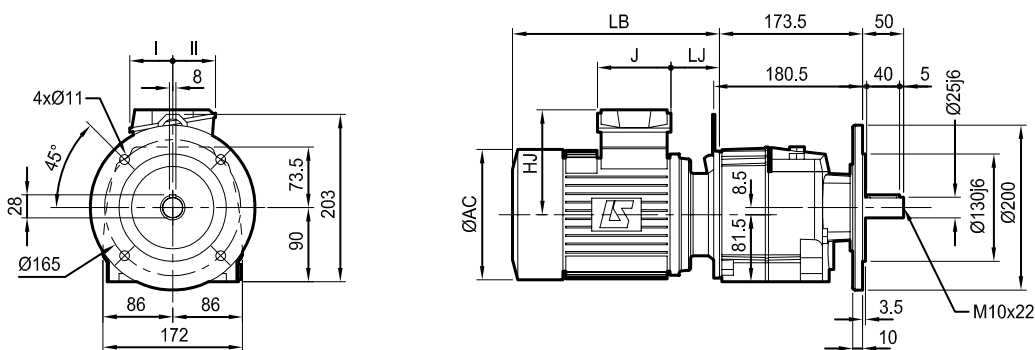
- S foot mounted



 Cb: 13 kg + Motor



- Standard BS flange

 Cb: 13.4 kg + Motor



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26

Compabloc 3000 - LSRPM

D9 - Dimensions

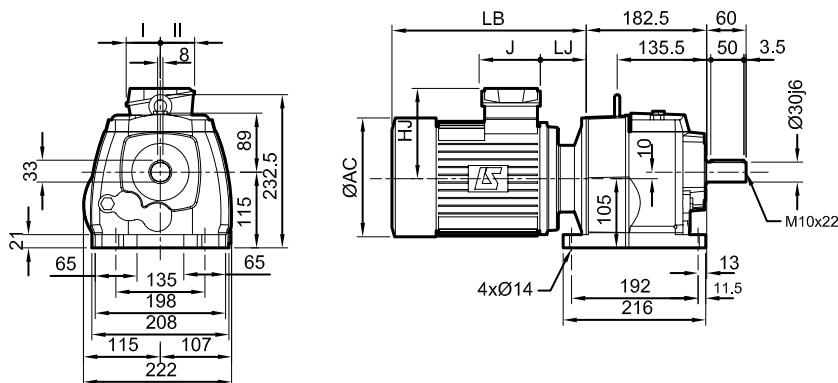
Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3233

Dimensions in millimetres

- S foot mounted



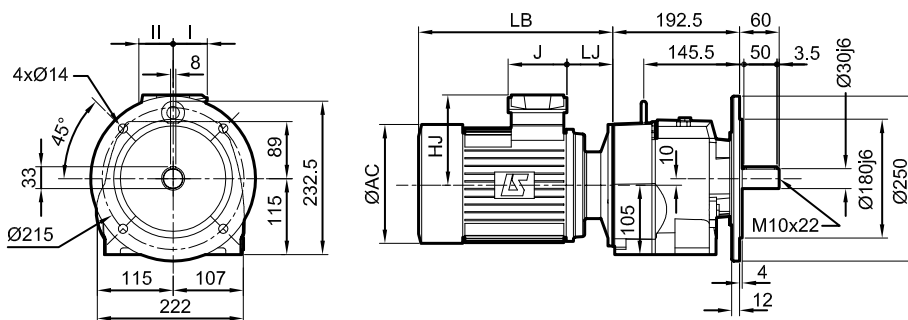
Cb: 18.5 kg + Motor



- Standard BS flange



Cb: 18.8 kg + Motor



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II	
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
100 L	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5
132 M	280	209	186	376	61	112	98	78	280	209	195	457	61	79	78	79


Compabloc 3000 - LSRPM

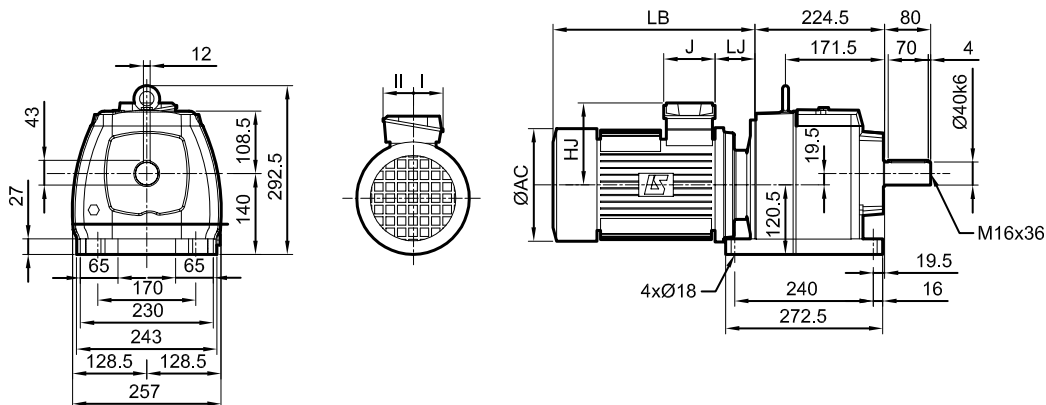
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3333


Dimensions in millimetres

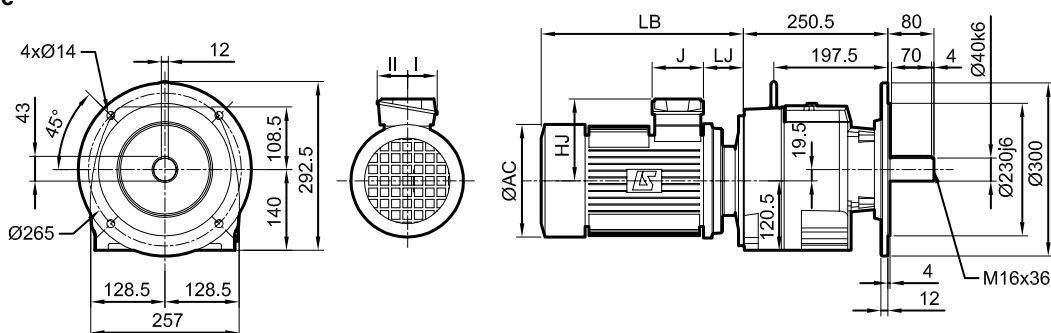
- S foot mounted




 Cb: 30 kg + Motor



- Standard BS flange

 Cb: 34 kg + Motor



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR					LSRPM FCPL											
	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	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	433	73	79	78	49	280	209	195	541	73	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	


Compabloc 3000 - LSRPM

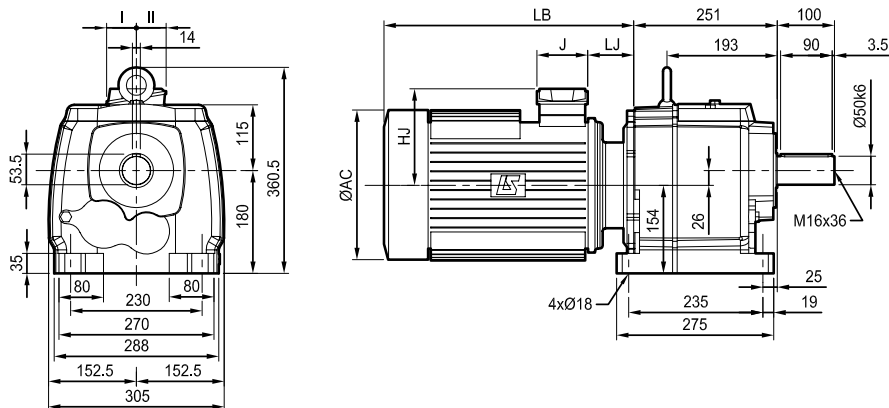
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3433


Dimensions in millimetres

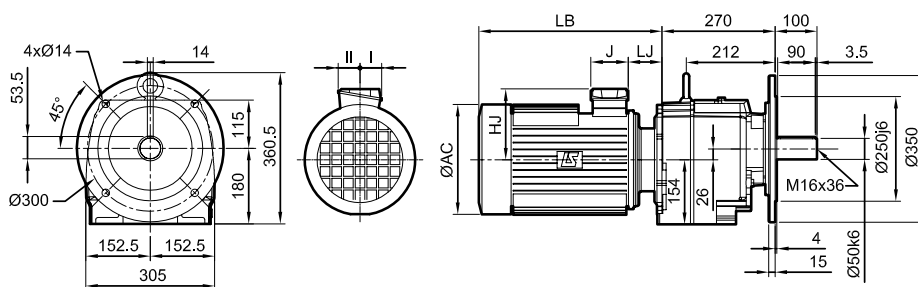
- S foot mounted




 Cb: 50 kg + Motor



- Standard BS flange

 Cb: 56 kg + Motor



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR					LSRPM FCPL											
	AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II		
90 L	200	155	160	286.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	439	77	79	78	49	280	209	195	545	77	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	
200 L	390	276	186	655	97	112	98	180	-	-	-	-	-	-	-	-	410	276	186	908	97	112	98	265	


Compabloc 3000 - LSRPM

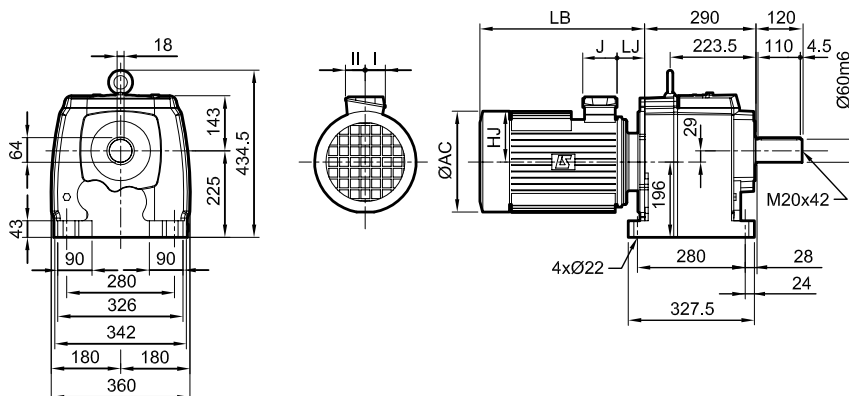
D9 - Dimensions

Dimensions of Compabloc (Cb) gearboxes, MI integral mounting,
Cb 3533


Dimensions in millimetres

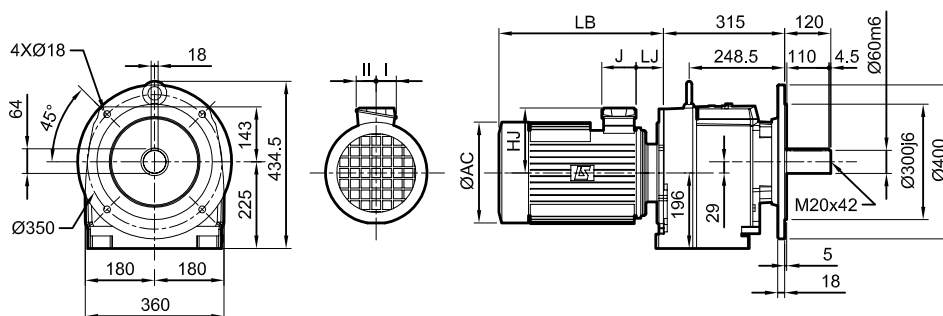
- S foot mounted




 Cb: 90 kg + Motor



- Standard BS flange

 Cb: 97 kg + Motor



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR						LSRPM FCPL										
	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	200	155	160	281.5	50.5	55	55	17	184	177	195	340.5	49.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	326.5	51.5	55	55	26	200	183	195	388.5	50.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	430	66	79	78	49	280	209	195	536	56	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	546	87	112	98	79	316	276	186	611	87	112	98	103	264	227	186	687	87	112	98	209	
200 L	390	276	186	637	92	112	98	180	-	-	-	-	-	-	-	-	410	276	186	905	68	112	98	265	

Orthobloc 3000 - LSRPM

E1 - General



Orthobloc 3000 geared motors with helical bevel 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 eight sizes: 31, 32, 33, 34, 35, 36, 37, 38.

Rated output torque up to 13,500 N.m.

Power ratings: from 4.8 to 100 kW.

Reduction ratios: from 5 to 158.

Two to three reduction stages.

High efficiency: 95% to 98%.

Reversible.

Quiet operation.

Construction

Description of Orthobloc (Ot) gearboxes

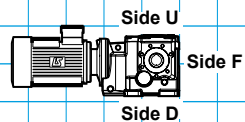
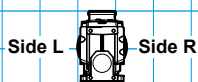
Component	Materials	Remarks
Housing	Cast iron	<ul style="list-style-type: none"> - use of single-component pearlitic ENGJL-200 cast iron (flake graphite: 200 MPa tensile strength) to ensure unit is fully sealed - monobloc ribbed with internal reinforcements to absorb vibrations and noise, and increase its rigidity - S foot mounted, SBT tapped sides. They are compact and meet industrial requirements
Gears	Steel	<ul style="list-style-type: none"> - cut by gear hob, they are heat treated and then undergo final machining. The quality and precision of the gear cutting allow maximum torque with minimum noise level
Shaft	Steel	<ul style="list-style-type: none"> - grinding of sealing surfaces - cylindrical hollow with protective cover or output with key in accordance with ISO R773, or hollow with SD shrink disc - tolerance of diameters in accordance with NFE 22-051 and ISO R 775 - tapped holes at the solid shaft end for fixing connecting devices in accordance with DIN 332 version D
Lipseals	Nitrile	<ul style="list-style-type: none"> - sealing rings between housing and flange - antidust lipseals in accordance with DIN 3760 form AS - gasket under the access cover
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		MI: geared motor with integral motor
Synchronous motor with permanent magnets		LSRPM: 400 V <ul style="list-style-type: none"> - pressed steel ventilation cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - pre-drilled aluminium alloy terminal box without cable glands - IP 55/IK08 standard protection
Brake motors		FCR: failsafe brake synchronous motor, from 4.8 to 36 kW, IP55 protection FCPL: failsafe brake synchronous motor, 25 and 100 kW, IP44 protection
Finish	Paint	Shade: RAL 3005 (burgundy), system Ia Resistance to saline mist: 72 hours (according to NFX 41002)

Orthobloc 3000 - LSRPM

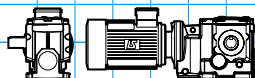
E2 - Mounting form

Standard position: gearbox viewed from side F, motor behind.

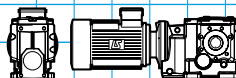
Marking on sides



Mounting



S
Foot mounted

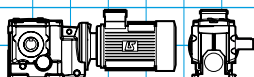


SBT
Foot and face mounted

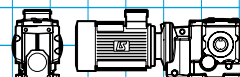
Output shaft



L
Solid shaft coming out on left

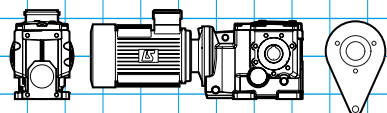


R
Solid shaft coming out on right



H
Hollow shaft

Options: R torque arm



RK
Supplied separately

SD shrink disc



SDR
Hollow shaft with shrink disc on right



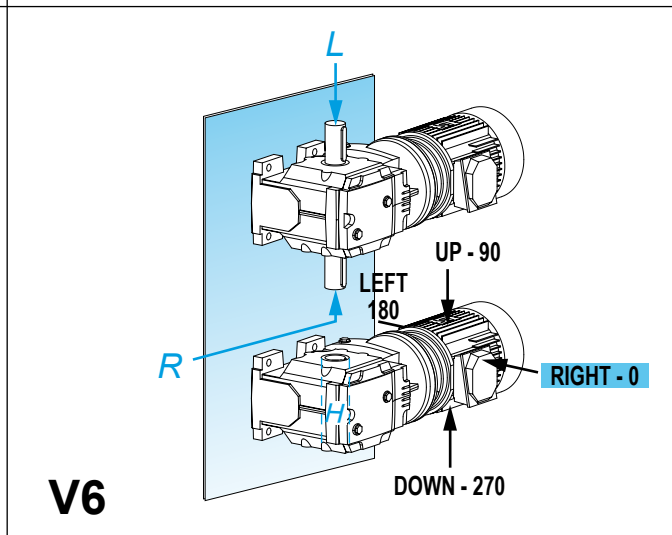
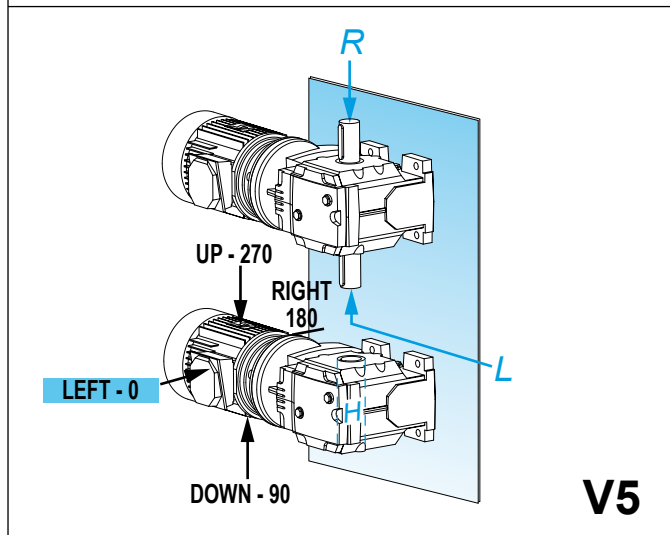
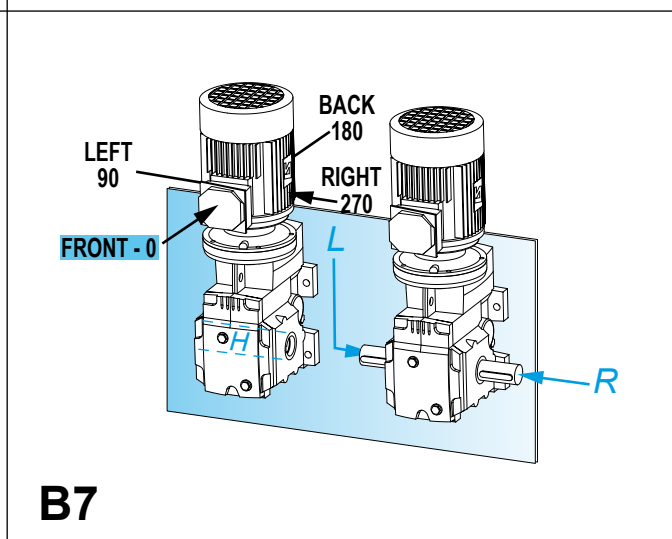
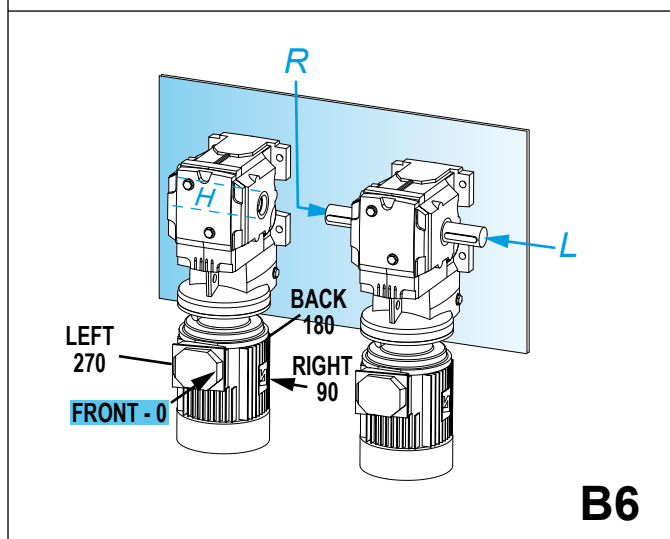
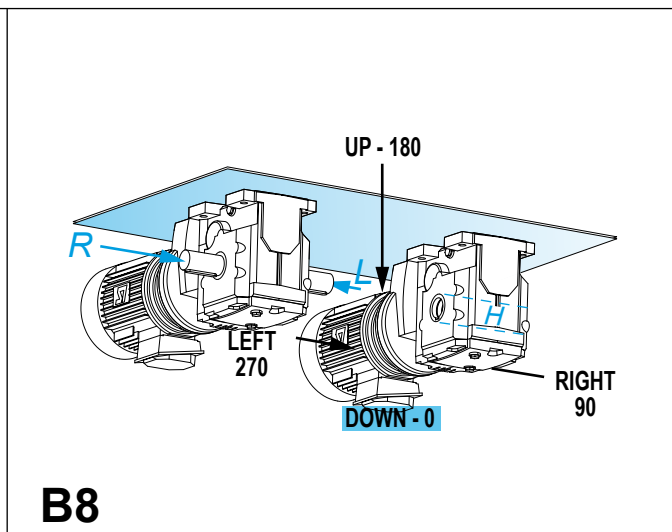
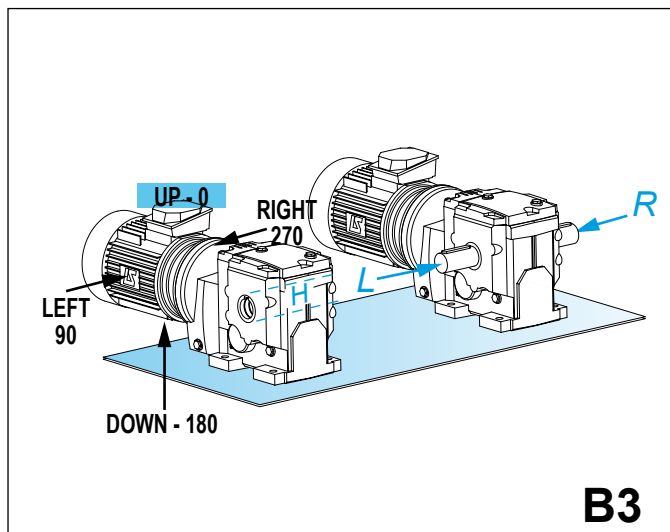
SDL
Hollow shaft with shrink disc on left

Orthobloc 3000 - LSRPM

E3 - Operating positions for Ot S, SBT

The absolute orientation of the connection (TB: Up, Down, Right, Left, Front, Back) is related to the chosen operating position.

The relative orientation (0-90-180-270, in the trigonometric direction), a consequence of the absolute position, is related to the base of the gearbox for an observer, facing the gearbox.

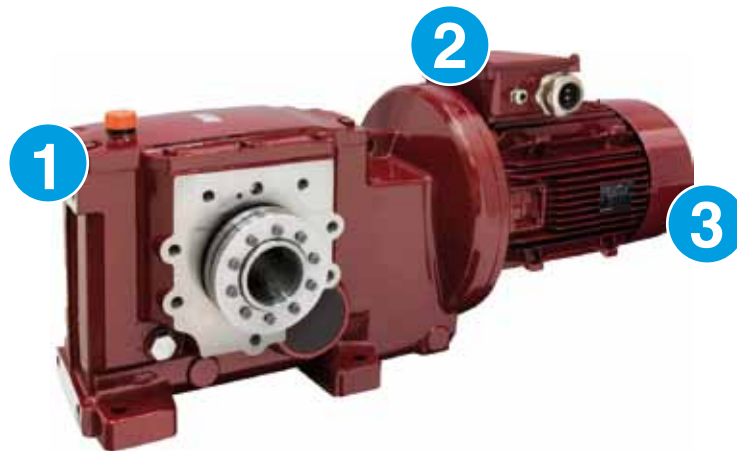


Std terminal box

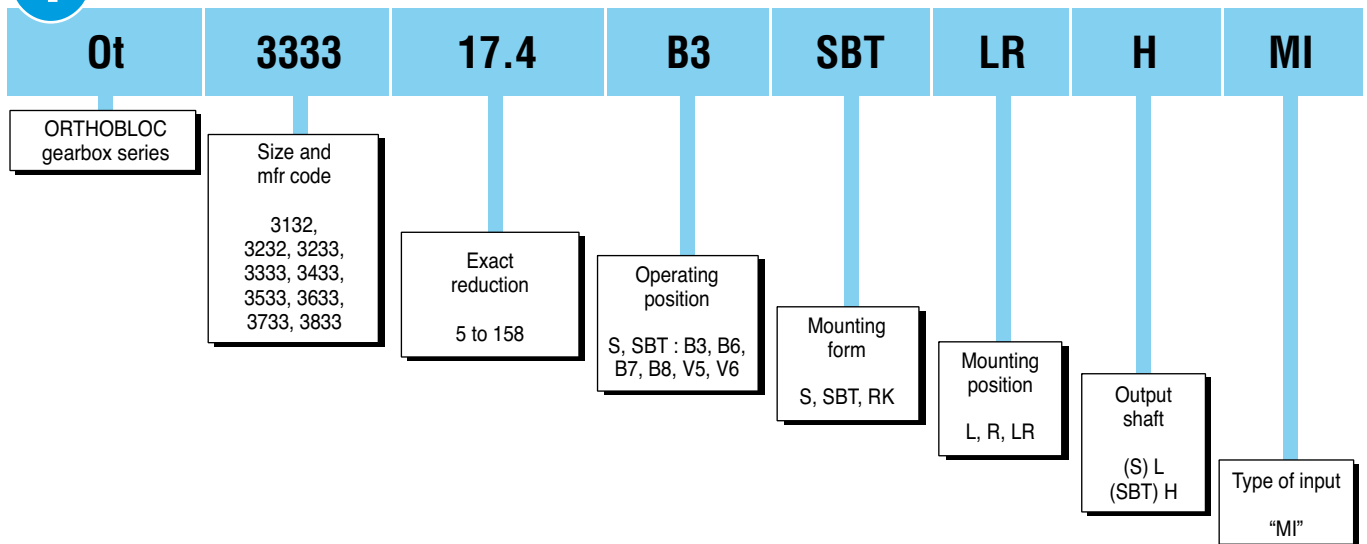
Output shaft on left L, on right R, hollow H.

Orthobloc 3000 - LSRPM

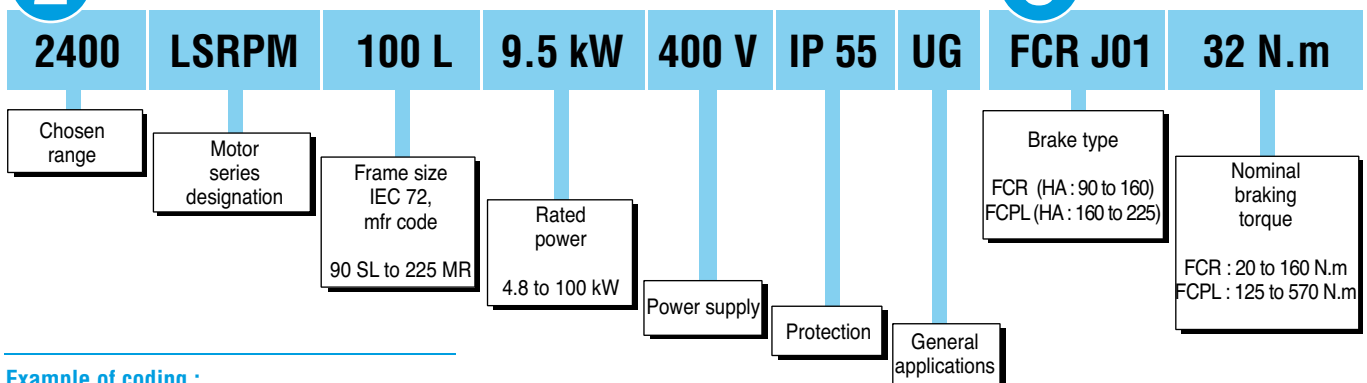
E4 - Designation - Coding



1 GEARBOX



2 MOTOR



Example of coding :
Orthobloc 3333 9.5 kW, 140 min-1, class I brake

Designation :
Ot 3333 i:17.4 B3 SBT LR H
MI 2400 LSRPM 100 L 9.5 kW 400V IP 55 UG
FCR J01

Code :
466 7968

Orthobloc 3000 - LSRPM

E5 - Conditions

Ot: S L, SBT LR H

LSRPM: IP55 - Cl. F - 400 V - from 4.8 to 100 kW

LSRPM FCR brake: IP55 - Cl. F - 400 V - from 4 to 36 kW - U.G.

LSRPM FCPL brake: IP44 - 50 Hz - Cl. F - 400 V - from 25 to 100 kW - U.G.

MI

Delivery date to be agreed

	MI input	Ot 3132	Ot 3232-3233	Ot 3333	Ot 3433	Ot 3533	Ot 3633	Ot 3733	Ot 3833
LSRPM	4.8 --> 9.5 kW								
	13.1 --> 19.2 kW	-	-						
	25 --> 36 kW	-	-	-	-				
	37.5 --> 100 kW	-	-	-	-				
LSRPM FCR	4.8 --> 9.5 kW								
	13.1 --> 19.2 kW	-	-						
LSRPM FCPL	25 --> 36 kW	-	-	-					
	25 --> 100 kW	-	-	-					

Pages of dimensions corresponding to the S mounting form and L (left) R (right) output shaft

Type	Ot forms	
	Foot	
	S L (or R)	
Ot 3132	63	
Ot 3232	65	
Ot 3233	67	
Ot 3333	69	
Ot 3433	71	
Ot 3533	73	
Ot 3633	75	
Ot 3733	77	
Ot 3833	79	

Pages of dimensions corresponding to the SBTLR mounting form and H hollow shaft

Type	Ot forms		
	Faceplate form	Torque arm	Shrink disc
	SBTLR H	RK	SDR / SDL
Ot 3132	62	107	62-108
Ot 3232	64	107	64-108
Ot 3233	66	107	66-108
Ot 3333	68	107	68-108
Ot 3433	70	107	70-108
Ot 3533	72	107	72-108
Ot 3633	74	107	74-108
Ot 3733	76	107	76-108
Ot 3833	78	107	78-108

Options

Input	Electrical options		Mechanical options			Brake options		
	MI	PTO/PTF, etc	Drip cover	2nd shaft ext.	Forced axial ventilation	Encoder	Hand Brake Release	Different Mf
LSRPM	4.8 --> 9.5 kW						-	-
	13.1 --> 19.2 kW						-	-
	25 --> 36 kW						-	-
	37.5 --> 100 kW						-	-
LSRPM FCR	4.8 --> 9.5 kW							
	13.1 --> 19.2 kW							
LSRPM FCPL	25 --> 36 kW							
	25 --> 100 kW							



Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Ot 3132
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

		Ot 3132	
		LSRPM (kW)	
		4.8	
		Triphasé LS 4p	
min ⁻¹	i exact	90 SL	
278	8.62		
315	7.62		
332	7.23		
373	6.43		
471	5.1	1.06	
LSRPM and brake		LSRPM 2400 min ⁻¹ and FCR brake	
FCR		90 L	



Selection example

Required power:	4.8 kW
Required speed:	470 min ⁻¹
Duty factor required by the application:	Kp = 1
Operating position; Mounting form:	Horizontal B3; hollow shaft
Designation: Ot 3132 i:5.1 B3 SBTLR H - MI 2400 LSRPM 90 SL 4.8 kW - 400V	

Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Ot 3233, Ot 3232
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

		Ot 3233, Ot 3232					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	13.1
		2400 min ⁻¹					
min ⁻¹	i exact	90SL	90L	100 L		132 M	
118	20.4	0.97	Ot 3233				
149	16.1	1.15					
122	19.7	0.99					
136	17.7	1.10					
154	15.6	1.25	1.00	Ot 3232			
170	14.1	1.38	1.10				
194	12.4	1.57	1.26	1.05			
207	11.6	1.68	1.34	1.12	0.96		
238	10.1	1.93	1.54	1.29	1.10	0.97	
272	8.83	2.21	1.76	1.47	1.26	1.11	
301	7.97	2.44	1.95	1.63	1.40	1.23	
340	7.05	2.75	2.20	1.83	1.57	1.39	1.01
363	6.61	2.88	2.30	1.92	1.64	1.45	1.05
429	5.6	3.26	2.60	2.17	1.86	1.64	1.19
513	4.68	3.57	2.86	2.38	2.04	1.81	1.31
647	3.71	4.08	3.27	2.72	2.33	2.06	1.50
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L		100 L		132 M	

Selection example

Required power: 8.4 kW
 Required speed: 300 min⁻¹
 Duty factor required by the application: $K_p = 1.4$
 Operating position; Mounting form: Horizontal B3; shaft on left; foot mounted
Designation: Ot 3232 i:7.97 B3 S L - MI 2400 LSPRM 100 L 8.4 kW - 400V



Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Ot 3333
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

		Ot 3333					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	13.1
		2400 min ⁻¹					
min ⁻¹	i exact	90SL	90L	100 L		132 M	
54.9	43.7	0.98					
62.7	38.3	1.09					
69.4	34.6	1.19	0.95				
78.4	30.6	1.31	1.05				
83.6	28.7	1.37	1.09				
98.8	24.3	1.53	1.23	1.02			
103	23.3	1.58	1.27	1.06			
114	21	1.73	1.38	1.15	0.99		
118	20.3	1.74	1.39	1.16	0.99		
129	18.6	1.90	1.52	1.27	1.08	0.96	
138	17.4	1.99	1.59	1.33	1.14	1.01	
149	16.1	2.05	1.64	1.36	1.17	1.03	
162	14.8	2.23	1.78	1.48	1.27	1.12	
195	12.3	2.54	2.03	1.69	1.45	1.28	
245	9.78	2.98	2.38	1.98	1.70	1.50	1.09
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L		100 L		132 M	



Selection example

Required power:	9.5 kW
Required speed:	140 min ⁻¹
Duty factor required by the application:	$k_p = 1$
Operating position; Mounting form:	Horizontal B3; hollow shaft; BT faceplate mounted
Designation:	Ot 3333 i : 17.4 B3 SBTLR H - MI 2400 LSRPM 100 L 9.5 kW - 400V

Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Ot 3433
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

		Ot 3433							
		LSRPM (kW)							
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2
		2400 min ⁻¹							
min ⁻¹	i exact	90 SL	90 L	100 L			132 M		
27.4	87.7	0.98							
31.0	77.5	1.09							
34.8	69	1.20	0.96						
38.8	61.9	1.29	1.04						
42.1	57	1.37	1.10						
47.4	50.6	1.49	1.19	0.99					
54.4	44.1	1.64	1.31	1.09					
60.2	39.9	1.76	1.41	1.17	1.01				
69.0	34.8	1.94	1.55	1.29	1.11	0.98			
76.2	31.5			1.38	1.19	1.05			
77.4	31	2.03	1.63						
83.9	28.6	2.22	1.78	1.48	1.27	1.12			
96.8	24.8	2.45	1.96	1.64	1.40	1.24			
113	21.3	2.64	2.12	1.76	1.51	1.34	0.97		
119	20.1	2.84	2.27						
124	19.3			1.89	1.62	1.43	1.04		
137	17.5	3.03	2.43	2.02	1.73	1.53	1.11		
155	15.5	3.41	2.73	2.28	1.95	1.72	1.25	1.01	
158	15.2	3.35	2.68	2.23	1.91	1.69	1.23	0.99	
195	12.3	3.88	3.11	2.59	2.22	1.96	1.42	1.14	0.97
252	9.51	4.65	3.72	3.10	2.66	2.35	1.70	1.37	1.16
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake							
FCR		90 L		100 L			132 M		

Selection example

Required power: 7.2 kW

Required speed: 90 min⁻¹

Duty factor required by the application: Kp = 1.4

Operating position; Mounting form: Horizontal B3; shaft on left; foot mounted

Designation: Ot 3433 i:28.6 B3 S L - MI 2400 LSRPM 100 L 7.2 kW - 400V



Orthobloc 3000 - LSRPM

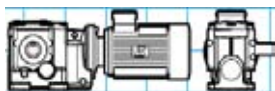
E6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Ot 3533
LSRPM, LSRPM FCR, LSRPM FCPL - IP 55 - CI. F - 400 V

Integral mounting **MI**

Ot 3533														
LSRPM (kW)														
2400 min ⁻¹														
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L	
17.9	134	1.06												
19.8	121	1.18												
22.0	109	1.30	1.04											
23.8	101	1.40	1.12											
27.7	86.5	1.62	1.30	1.08										
29.8	80.6	1.74	1.39	1.16	0.99									
34.0	70.6	1.97	1.58	1.31	1.13	1.00								
38.5	62.4	2.22	1.78	1.48	1.27	1.12								
43.2	55.5	2.48	1.99	1.65	1.42	1.25								
48.2	49.8	2.75	2.20	1.83	1.57	1.39	1.01							
56.3	42.6	3.19	2.55	2.12	1.82	1.61	1.17							
62.2	38.6			2.30	1.98	1.75	1.27	1.02						
62.8	38.2	3.46	2.76											
70.6	34	3.86	3.09	2.56	2.19	1.94	1.41	1.13	0.96					
78.7	30.5	4.27	3.42	2.78	2.38	2.11	1.53	1.23	1.04					
88.6	27.1			3.02	2.59	2.29	1.66	1.34	1.13					
92.0	26.1	4.95	3.96											
98.8	24.3			3.26	2.79	2.47	1.79	1.44	1.22					
102	23.6			3.58	3.07	2.71	1.97	1.58	1.34	1.03				
115	20.8			3.97	3.41	3.01	2.18	1.76	1.49	1.14				
128	18.7			4.31	3.70	3.27	2.37	1.90	1.62	1.24	1.00			
145	16.6			4.69	4.02	3.56	2.58	2.07	1.76	1.35	1.09			
161	14.9			5.05	4.33	3.83	2.78	2.23	1.89	1.46	1.17	1.01	0.97	
195	12.3			5.78	4.95	4.38	3.18	2.55	2.17	1.66	1.34	1.16	1.11	
153	9.47			6.95	5.95	5.26	3.82	3.07	2.60	2.00	1.61	1.39	1.33	1.00
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes												
FCR		90 L		100 L			132 M			160 MP		160LR		
FCPL										160 MP		160LR	200 L	



Selection example

Required power:	16.3 kW
Required speed:	60 min ⁻¹
Duty factor required by the application:	Kp = 1
Operating position; Mounting form:	Horizontal B3; shaft on right; foot mounted
Designation:	Ot 3533 i:38.6 B3 S R - MI 2400 LSRPM 132 M 16.3 kW - 400V

Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Ot 3633
LSRPM, LSRPM FCR, LSRPM FCPL - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Ot 3633												
		LSRPM (kW)												
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50
		2400 min ⁻¹												
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L	
15.3	157	1.55	1.24	1.03										
17.8	135	1.80	1.44	1.20	1.03									
19.4	124	1.96	1.56	1.30	1.12	0.99								
22.2	108	2.24	1.79	1.49	1.28	1.13								
25.2	95.1	2.53	2.03	1.69	1.45	1.28								
28.1	85.3	2.82	2.25	1.88	1.61	1.42	1.03							
31.6	75.9	3.16	2.53	2.10	1.80	1.59	1.16							
34.5	69.6	3.43	2.75	2.29	1.96	1.73	1.26	1.01						
39.9	60.1	3.96	3.17	2.64	2.26	2.00	1.45	1.17	0.99					
44.1	54.4	4.36	3.49	2.91	2.49	2.20	1.60	1.28	1.09					
49.5	48.5	4.31	3.45											
50.2	47.8			3.29	2.82	2.49	1.81	1.45	1.23					
54.4	44.1			3.51	3.01	2.66	1.93	1.55	1.32	1.01				
55.2	43.5	4.72	3.78											
61.2	39.2			3.86	3.31	2.93	2.12	1.71	1.45	1.11				
62.0	38.7	5.20	4.16											
67.6	35.5	5.55	4.44											
68.6	35			4.18	3.58	3.17	2.30	1.85	1.57	1.20	0.97			
76.4	31.4			4.48	3.84	3.40	2.46	1.98	1.68	1.29	1.04			
78.2	30.7	6.10	4.88											
83.9	28.6			4.76	4.08	3.61	2.62	2.10	1.78	1.37	1.11	0.95		
86.6	27.7	6.53	5.22											
96.0	25			5.76	4.94	4.37	3.17	2.55	2.16	1.66	1.34	1.15	1.11	
107	22.5			4.98	4.27	3.77	2.74							
112	21.4							2.69	2.29	1.76	1.42	1.22	1.17	
120	20			5.36	4.60	4.07	2.95	2.37	2.01	1.55	1.25	1.07	1.03	
125	19.2							2.69	2.29	1.76	1.42	1.22	1.17	
133	18.1	5.55	4.44											
134	17.9			5.93	5.08	4.50	3.26	2.62	2.22	1.71	1.38	1.19	1.14	
150	16			6.17	5.29	4.67	3.39	2.72	2.31	1.78	1.43	1.23	1.18	
154	15.6	6.13	4.91											
164	14.6			6.52	5.59	4.94	3.58	2.88	2.45	1.88	1.51	1.30	1.25	
170	14.1	6.55	5.24											
189	12.7			7.11	6.09	5.39	3.91	3.14	2.67	2.05	1.65	1.42	1.36	1.02
209	11.5			4.97	4.26	3.77	2.73							
220	10.9							3.44	2.92	2.24	1.81	1.56	1.49	1.12
235	10.2			5.37	4.60	4.07	2.95	2.37	2.01	1.55	1.25	1.07	1.03	
264	9.1			5.96	5.11	4.52	3.28	2.63	2.23	1.72	1.38	1.19	1.14	
294	8.15			6.18	5.30	4.69	3.40	2.73	2.32	1.78	1.44	1.24	1.19	
323	7.43			7.29	6.25	5.52	4.00	3.22	2.73	2.10	1.69	1.46	1.40	1.05
369	6.5			7.09	6.08	5.38	3.90	3.13	2.66	2.04	1.65	1.42	1.36	1.02
431	5.57							3.43	2.91	2.24	1.80	1.55	1.49	1.12
480	5							3.65	3.10	2.38	1.92	1.65	1.59	1.19

LSRPM and brakes

LSRPM 2400 min⁻¹ and brakes

FCR	90 L	100 L	132 M	160 MP	160LR	
FCPL				160 MP	160LR	200 L

Selection example

Required power: 31 kW

Required speed: 75 min⁻¹

Duty factor required by the application: $K_p = 1$

Operating position; Mounting form: Horizontal B3; hollow shaft; BT faceplate mounted

Designation: Ot 3633 i:31.4 B3 SBTLR H - MI 2400 LSRPM 160 MP 31 kW - 400V



Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Ot 3733
LSRPM, LSRPM FCR, LSRPM FCPL - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Ot 3733														
		LSRPM (kW)														
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80
		2400 min ⁻¹														
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L			
15.8	152	2.98	2.38	1.99	1.70	1.51	1.09									
17.8	135	3.35	2.68	2.23	1.91	1.69	1.23	0.99								
19.5	123	3.66	2.93	2.44	2.09	1.85	1.34	1.08								
22.0	109	4.12	3.30	2.75	2.36	2.08	1.51	1.21	1.03							
24.5	98	4.57	3.66	3.05	2.61	2.31	1.67	1.35	1.14							
27.5	87.4	5.04	4.03	3.36	2.88	2.54	1.84	1.48	1.26	0.97						
29.9	80.4	5.40	4.32	3.60	3.08	2.73	1.98	1.59	1.35	1.04						
34.8	68.9			4.04	3.46	3.06	2.22	1.78	1.52	1.16						
34.9	68.8	4.81	3.85													
38.0	63.2			4.28	3.67	3.24	2.35	1.89	1.60	1.23	0.99					
38.2	62.8	5.12	4.10													
42.9	55.9			4.64	3.98	3.52	2.55	2.05	1.74	1.34	1.08					
43.2	55.5	5.57	4.45													
48.0	50	5.97	4.78													
50.3	47.7			5.15	4.42	3.91	2.83	2.28	1.93	1.48	1.20	1.03	0.99			
53.8	44.6	6.45	5.16													
56.5	42.5			5.55	4.76	4.21	3.05	2.45	2.08	1.60	1.29	1.11	1.07			
58.5	41	6.82	5.46	4.55	3.90	3.45	2.50									
63.0	38.1							2.63	2.23	1.72	1.38	1.19	1.14			
68.2	35.2			5.03	4.31	3.81	2.77									
69.8	34.4							2.81	2.39	1.83	1.48	1.27	1.22			
74.5	32.2			5.34	4.58	4.05	2.93									
78.9	30.4							3.04	2.58	1.98	1.60	1.38	1.3	0.99		
84.2	28.5			5.78	4.96	4.38	3.18									
89.2	26.9							3.28	2.78	2.14	1.72	1.48	1.43	1.07		
98.4	24.4			6.39	5.48	4.84	3.51									
100	24							3.92	3.33	2.55	2.06	1.77	1.70	1.28	0.98	
106	22.6												1.69	1.27	0.98	
111	21.7			6.89	5.91	5.22	3.79	3.04	2.58	1.98	1.6	1.38				
121	19.9												1.71	1.28	0.99	
124	19.4							3.27	2.78	2.13	1.72	1.48	1.42	1.07		
134	17.9			5.04	4.32	3.82	2.77									
136	17.6							3.87	3.28	2.52	2.03	1.75	1.68	1.26	0.97	
146	16.4			5.34	4.58	4.05	2.94									
155	15.5							4.02	3.41	2.62	2.11	1.82	1.75	1.31	1.01	
166	14.5			5.79	4.97	4.39	3.18									
175	13.7							4.06	3.45	2.65	2.13	1.84	1.76	1.32	1.02	
194	12.4			6.41	5.49	4.86	3.52									
195	12.3							4.62	3.92	3.01	2.43	2.09	2.01	1.51	1.16	
209	11.5												2.09	1.57	1.21	0.98
218	11			6.93	5.94	5.25	3.81	3.06	2.60	1.99	1.61	1.39				
238	10.1												2.26	1.70	1.30	1.06
242	9.9							3.27	2.77	2.13	1.72	1.48	1.42	1.07		
268	8.95							3.87	3.29	2.53	2.04	1.75	1.68	1.26	0.97	
304	7.9							4.02	3.41	2.62	2.11	1.82	1.75	1.31	1.01	
343	6.99							4.05	3.44	2.64	2.13	1.84	1.76	1.32	1.02	
384	6.25							4.33	3.68	2.83	2.28	1.96	1.88	1.41	1.09	
410	5.86												1.96	1.47	1.13	
464	5.17												2.11	1.58	1.21	0.99

LSRPM and brakes

LSRPM 2400 min⁻¹ and brakes

FCR	90 L	100 L	132 M	160 MP	160LR	
FCPL				160 MP	160LR	200 L



Selection example

Required power: 50 kW

Required speed: 90 min⁻¹

Duty factor required by the application: Kp = 1

Operating position; Mounting form: Horizontal B3; shaft on left; foot mounted

Designation: Ot 3733 i:26.9 B3 S L - MI 2400 LSRPM 200 L 50 kW - 400V

Orthobloc 3000 - LSRPM

E6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Ot 3833
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Ot 3833													
		LSRPM (kW)													
		7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80	100
		2400 min ⁻¹													
min ⁻¹	i exact	100 L			132 M			160 MP	160 LR	200 L			225 MR		
15.6	154	3.34	2.87	2.54	1.84	1.48	1.25	0.96							
17.5	137	3.97	3.41	3.01	2.18	1.76	1.49	1.14							
18.8	128	4.25	3.64	3.22	2.33	1.88	1.59	1.22	0.99						
20.9	115	4.71	4.04	3.57	2.59	2.08	1.77	1.36	1.09						
23.5	102	5.30	4.54	4.02	2.91	2.34	1.99	1.53	1.23	1.06					
26.4	90.8	5.94	5.09	4.50	3.26	2.62	2.23	1.71	1.38	1.19	1.14				
29.8	80.5	6.67	5.72	5.06	3.67	2.95	2.50	1.92	1.55	1.33	1.28	0.96			
33.2	72.2	7.26	6.22	5.50	3.99	3.21	2.72	2.09	1.69	1.45	1.39	1.04			
37.3	64.3	8.09	6.93	6.13	4.45	3.57	3.03	2.33	1.88	1.62	1.55	1.16			
42.1	57.0	8.66	7.42	6.56	4.76	3.82	3.25	2.49	2.01	1.73	1.66	1.25	0.96		
47.9	50.1		8.43	7.46	5.41	4.35	3.69	2.83	2.29	1.97	1.89	1.42	1.09		
54.3	44.2		9.00	7.95	5.77	4.64	3.94	3.02	2.44	2.10	2.02	1.51	1.16		
61.7	38.9			8.89	6.45	5.18	4.40	3.38	2.73	2.35	2.25	1.69	1.30	1.06	
68.0	35.3				6.77	5.44	4.62	3.55	2.86	2.46	2.36	1.77	1.36	1.11	
77.9	30.8				7.59	6.10	5.18	3.98	3.21	2.76	2.65	1.99	1.53	1.24	0.99
87.0	27.6				8.18	6.57	5.58	4.29	3.46	2.98	2.86	2.14	1.65	1.34	1.07
98.0	24.5				8.90	7.15	6.07	4.66	3.76	3.24	3.11	2.33	1.79	1.46	1.17
108	22.2										3.21	2.40	1.85		
109	22.1				7.51	6.37	4.89	3.95	3.40					1.53	1.22
122	19.6				8.33	7.08	5.43	4.38	3.77	3.62	2.72	2.09		1.70	1.36
124	19.3				8.43	7.16	5.50	4.43	3.82					1.72	1.37
135	17.8				8.64	7.34	5.64	4.55	3.91	3.76	2.82	2.17		1.76	1.41
155	15.5					8.35	6.41	5.17	4.45	4.27	3.20	2.47		2.00	1.60
173	13.9					9.00	6.91	5.57	4.80	4.61	3.46	2.66		2.16	1.73
194	12.4						7.48	6.03	5.20	4.99	3.74	2.88		2.34	1.87
214	11.2									3.19	2.40	1.84			
216	11.1						7.82	6.30	5.43					2.44	1.95
243	9.86				8.33	7.07	5.43	4.38	3.77	3.62	2.72	2.09		1.70	1.36
246	9.75						8.85	7.13	6.14					2.76	2.21
268	8.94				8.65	7.35	5.64	4.55	3.92	3.76	2.82	2.17		1.76	1.41
308	7.8					8.34	6.40	5.16	4.45	4.27	3.20	2.46		2.00	1.60
344	6.98						6.92	5.58	4.81	4.61	3.46	2.66		2.16	1.73
386	6.21						7.51	6.06	5.22	5.01	3.76	2.89		2.35	1.88
429	5.59						7.81	6.30	5.42					2.44	1.95
490	4.9						8.85	7.14	6.15					2.77	2.21

LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes													
FCR		100 L			132 M			160 MP	160 LR	200 L			225 MR		
FCPL								160 MP	160 LR						

Selection example

Required power: 80 kW

Required speed: 68 min⁻¹

Duty factor required by the application: $K_p = 1$

Operating position; Mounting form: Horizontal B3; hollow shaft; BT faceplate mounted

Désignation : Ot 3833 i:35.3 B3 SBTLR H - MI 2400 LSRPM 200 L 80 kW - 400V



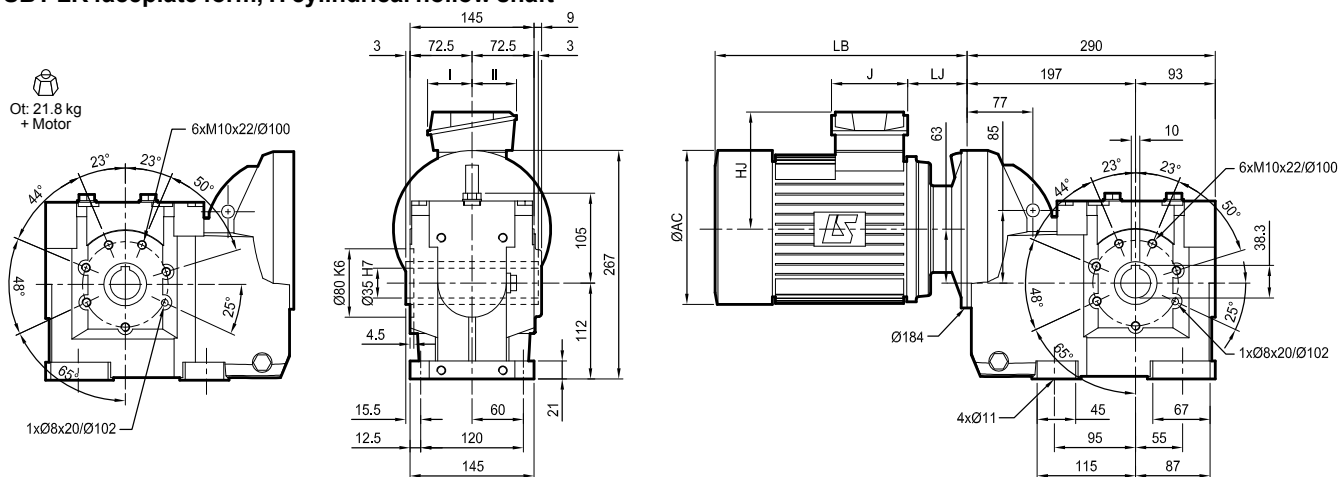
Orthobloc 3000 - LSRPM

E7 - Dimensions

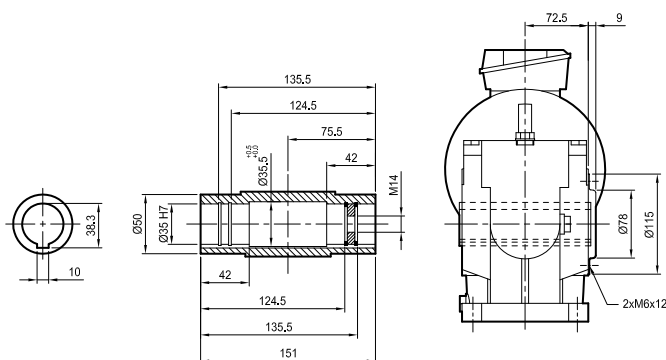
Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3232

Dimensions in millimetres

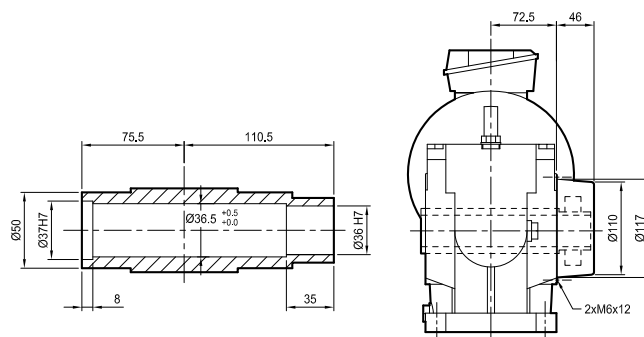
- SBT LR faceplate form, H cylindrical hollow shaft



- Details of the H hollow shaft



- Option : shrink disc on right SDR*



* SDL left

Orthobloc 3000 - LSRPM

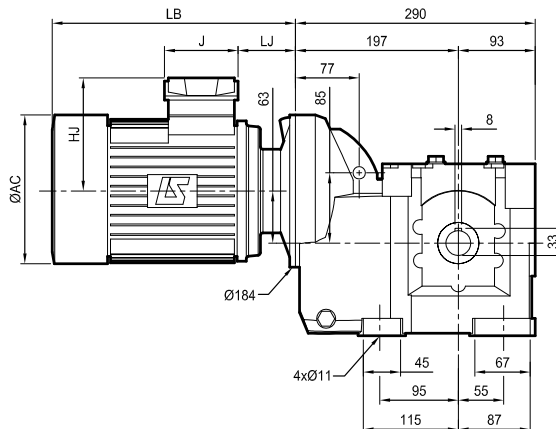
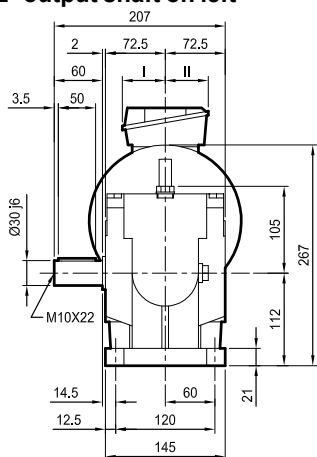
E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3232



Dimensions in millimetres

- S foot mounted form, L* output shaft on left

 Ot: 22 kg
+ Motor



* R shaft on right option

Fr. size	2400 min ⁻¹ motors															
	LSRPM				LSRPM FCR											
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5
132 M	280	209	186	376	61	112	98	78	280	209	195	457	61	79	78	79

Orthobloc 3000 - LSRPM

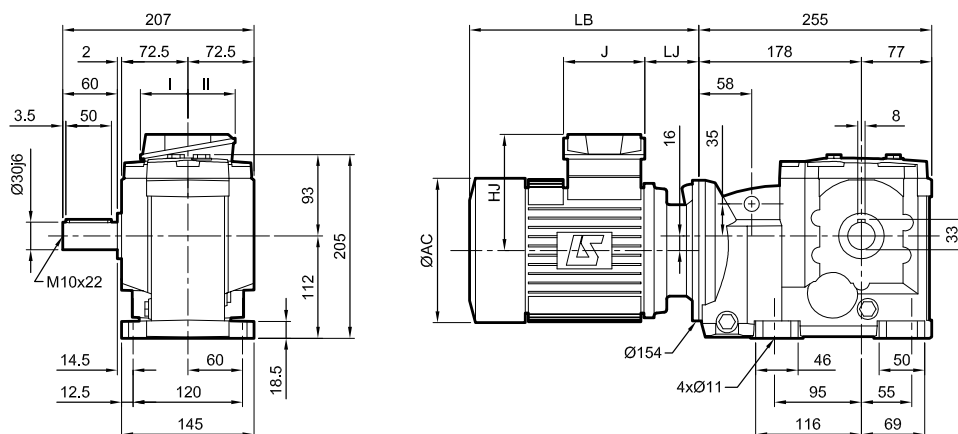
E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3233



Dimensions in millimetres

- S foot mounted form, L* output shaft on left

 Ot: 20.5 kg
+ Motor



* R shaft on right option

Fr. size	2400 min ⁻¹ motors															
	LSRPM				LSRPM FCR											
	AC	HJ	J	LB	LJ	I	II	 kg	AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
100 L	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5
132 M	280	209	186	376	61	112	98	78	280	209	195	457	61	79	78	79

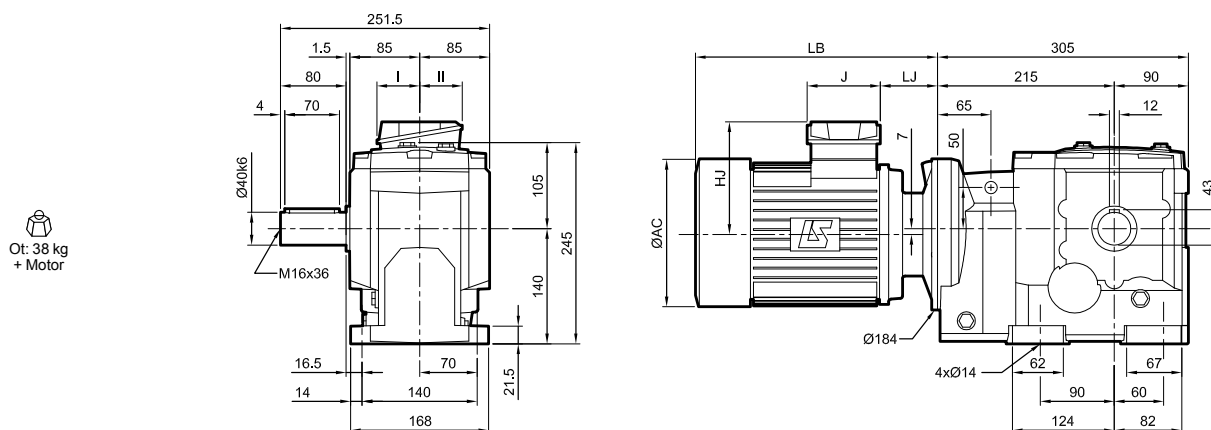
Orthobloc 3000 - LSRPM

E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3333

Dimensions in millimetres

- S foot mounted form, L* output shaft on left



* R shaft on right option

Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
100 L	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5
132 M	280	209	186	376	61	112	98	78	280	209	195	457	61	79	78	79

Orthobloc 3000 - LSRPM

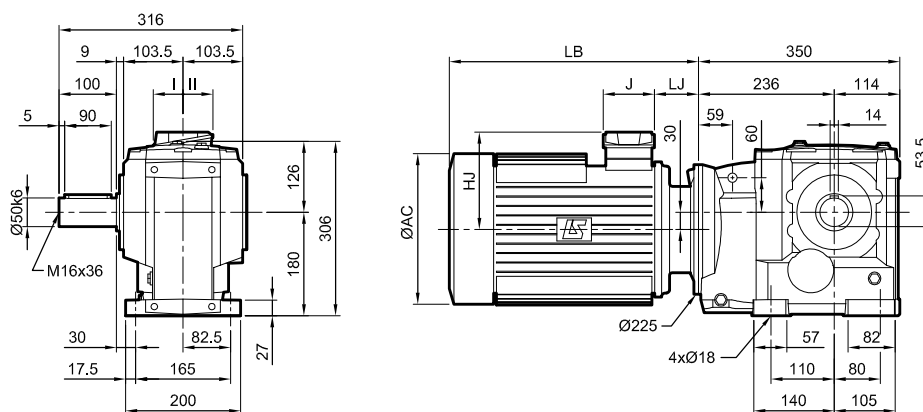
E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3433



Dimensions in millimetres

- S foot mounted form, L* output shaft on left

 Ot: 60 kg
+ Motor



* R shaft on right option

Fr. size	2400 min ⁻¹ motors															
	LSRPM							 kg	LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II	 kg
90 L	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5
132 M	280	209	195	433	73	79	78	49	280	209	195	541	73	79	78	79

Orthobloc 3000 - LSRPM

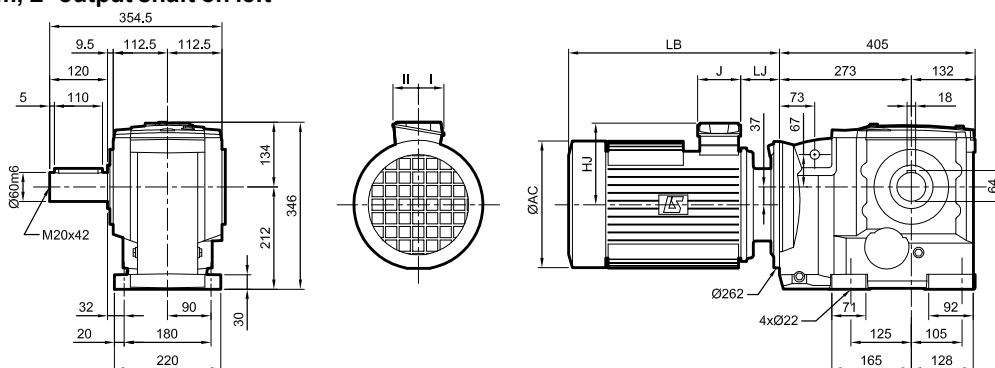
E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3533

Dimensions in millimetres

- S foot mounted form, L* output shaft on left

Ot: 83 kg
+ Motor



* R shaft on right option

Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR						LSRPM FCPL										
	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	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	329.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	437	77	79	78	49	280	209	195	545	77	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	
200 L	390	276	186	655	97	112	98	180	-	-	-	-	-	-	-	-	410	276	186	908	97	112	98	265	

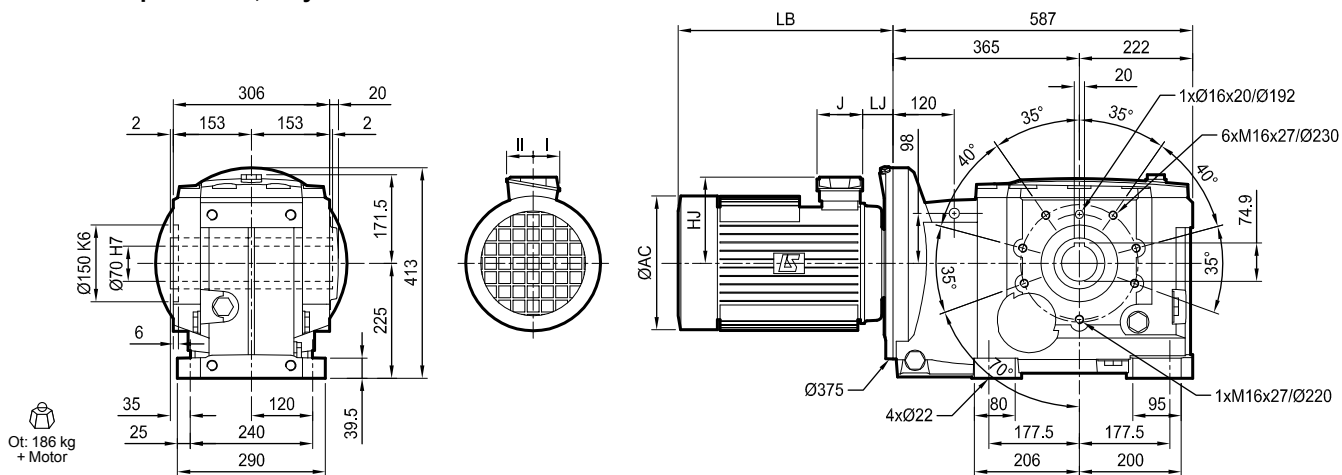
Orthobloc 3000 - LSRPM

E7 - Dimensions

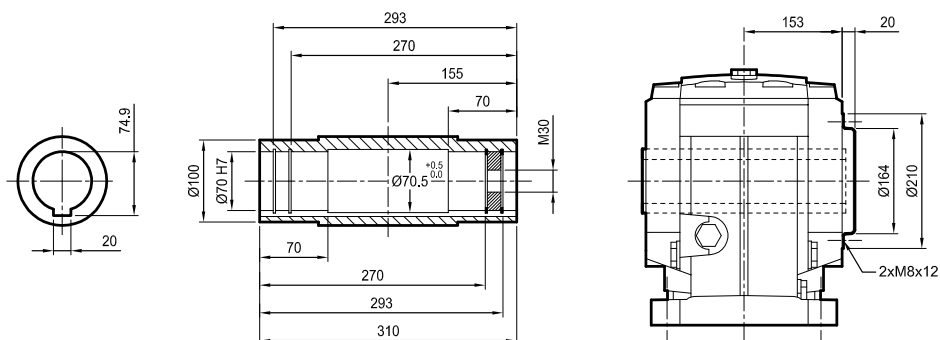
Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3633

Dimensions in millimetres

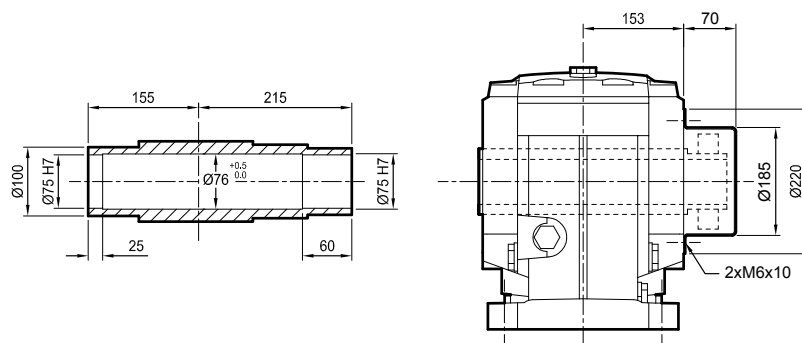
- SBT LR faceplate form, H cylindrical hollow shaft



- Details of the H hollow shaft



- Option : shrink disc on right SDR*



* SDL left

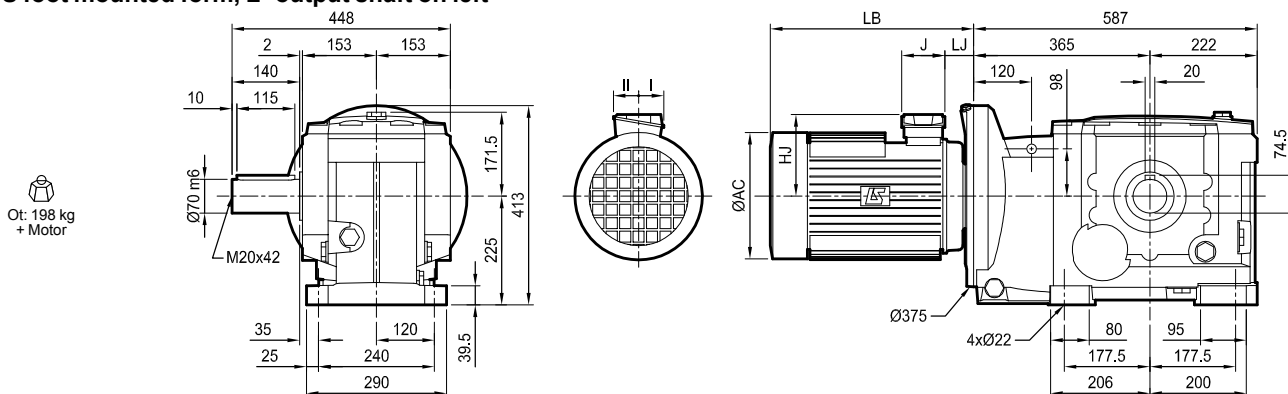
Orthobloc 3000 - LSRPM

E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3633

Dimensions in millimetres

- S foot mounted form, L* output shaft on left



* R shaft on right option

Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR								LSRPM FCPL								
	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	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109	
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265	

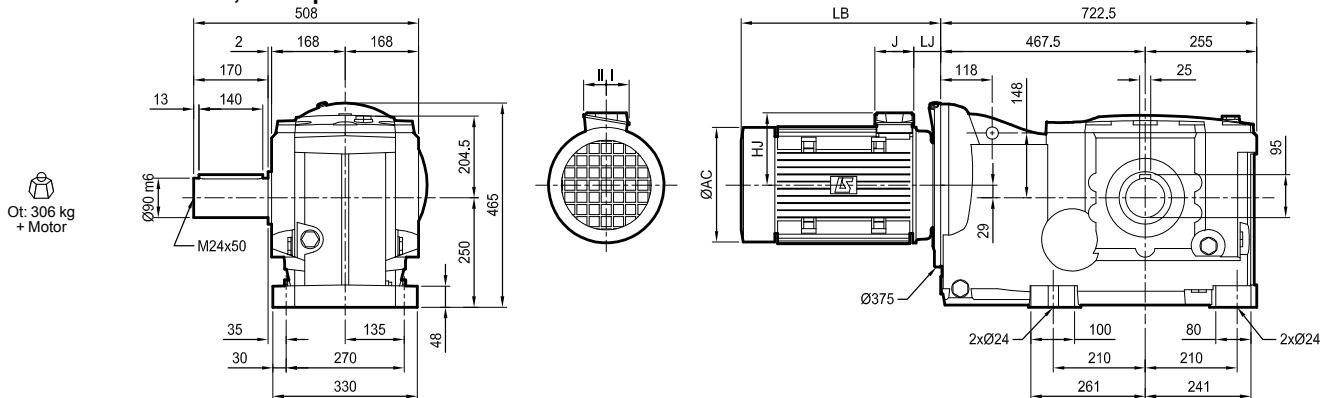
Orthobloc 3000 - LSRPM

E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3733

Dimensions in millimetres

- S foot mounted form, L* output shaft on left



1. Through holes
* R shaft on right option

Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR								LSRPM FCPL								
	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	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109	
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265	

Orthobloc 3000 - LSRPM

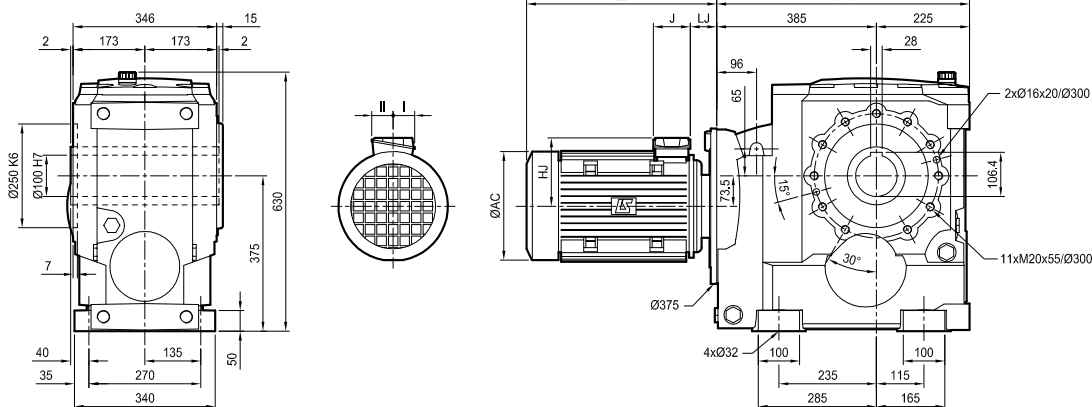
E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3833

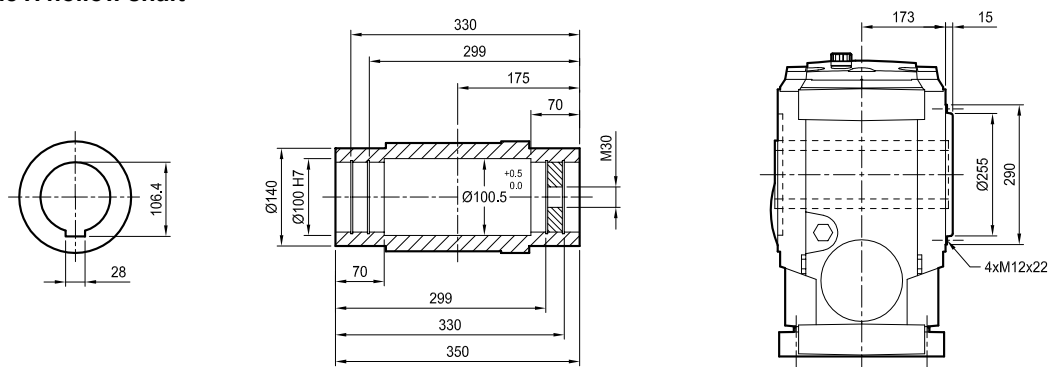
Dimensions in millimetres

- SBT LR faceplate form, H cylindrical hollow shaft

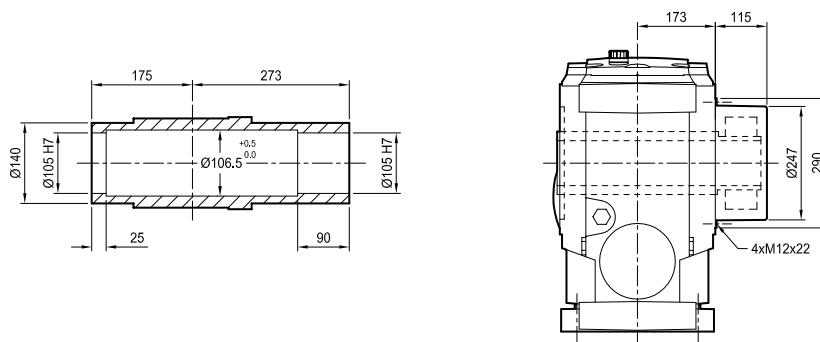
Ot: 347 kg
+ Motor



- Details of the H hollow shaft



- Option : shrink disc on right SDR*



* SDL left

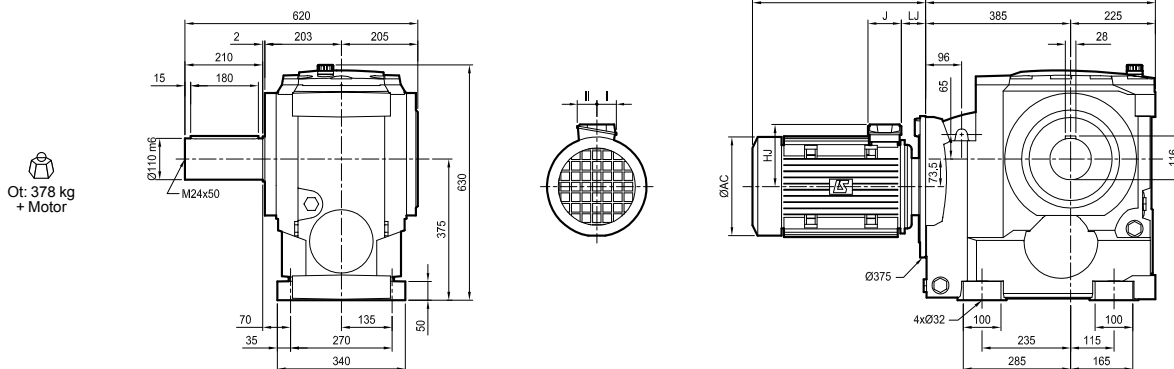
Orthobloc 3000 - LSRPM

E7 - Dimensions

Dimensions of Orthobloc (Ot) gearboxes, MI integral mounting,
Ot 3833

Dimensions in millimetres

- S foot mounted form, L* output shaft on left



* R shaft on right option

Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors															
	LSRPM								LSRPM FCR						LSRPM FCPL									
	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	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	-
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	-
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	-
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265
225 MR	390	276	186	709	82	112	98	215	-	-	-	-	-	-	-	-	410	279	186	984	82	112	98	300

Manubloc 3000 - LSRPM

F1 - 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 speed reducers is the rated output torque (M_{nS}) expressed in Newton-metres (Nm):

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

A range of eight sizes: 31, 32, 33, 34, 35, 36, 37, 38.
 Rated output torque up to 14,500 N.m.
 Power ratings: from 4.8 to 100 kW.
 Reduction ratios: from 3.92 to 252.
 Two to three reduction stages.
 High efficiency: 95% to 97%.
 Reversible.
 Quiet operation.

Construction

Manubloc (Mub) gearbox

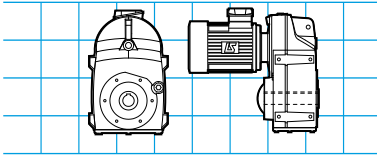
Component	Materials	Remarks
Housing	Cast iron	- use of single-component pearlitic ENGJL-200 cast iron (flake graphite: 200 MPa tensile strength) to ensure unit is fully sealed - monobloc ribbed with internal reinforcements to absorb vibrations and noise, and increase its rigidity - face mounted BT . They are compact and meet industrial requirements
Gears	Steel Ni Cr Mo	- cut by gear hob, they are heat treated and then undergo final machining. The quality and precision of the gear cutting allow maximum torque with minimum noise level
Shaft	Steel	- grinding of sealing surfaces - hollow with key in accordance with ISO R773 or hollow with SDB 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
Lubrication	Oil	- 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		MI: geared motor with integral motor MU: geared motor with IEC motor, manufactured with universal mounting
Synchronous motor with permanent magnets		LSRPM: 400 V - pressed steel ventilation cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - pre-drilled aluminium alloy terminal box without cable glands - IP55 standard protection
Brake motors		FCR: failsafe brake induction motor, from 4.8 to 36 kW, IP55 protection FCPL: failsafe brake induction motor, from 25 to 100 kW, IP44 protection
Finish	Paint	Shade: RAL 3005 (burgundy), system Ia Resistance to saline mist: 72 hours (according to NFX 41002)

Manubloc 3000 - LSRPM

F2 - BT mounting form

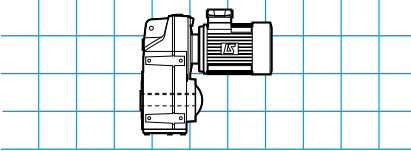
Standard position: gearbox viewed from side F, motor behind.

- Mounting



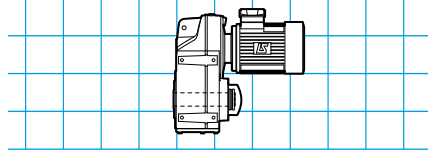
BT
Face mounted

- Output shaft



H
Cylindrical hollow
output shaft
(standard)

- Option : Shrink disc



SDB
Hollow output
shaft with shrink disc

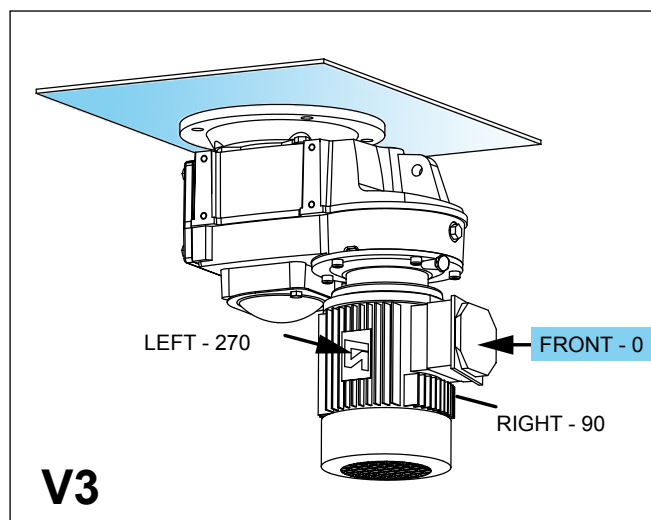
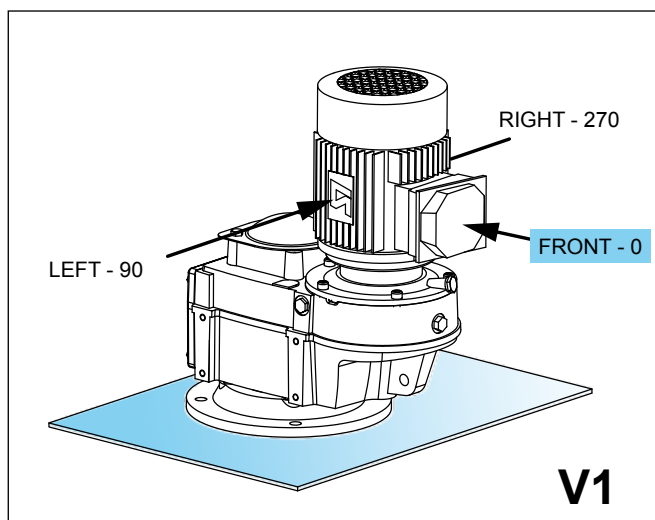
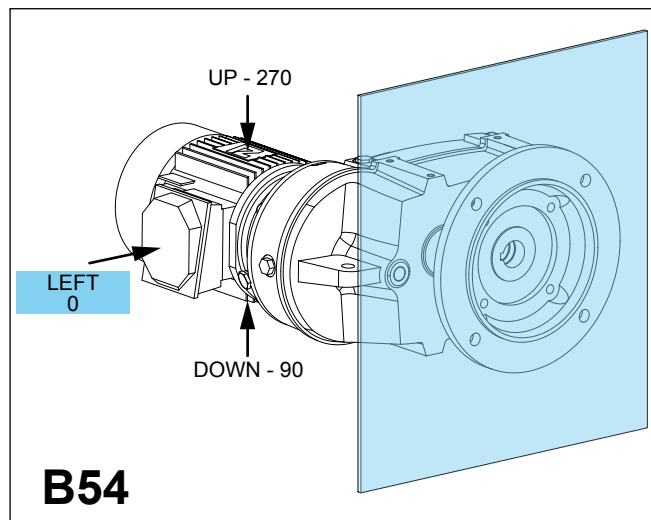
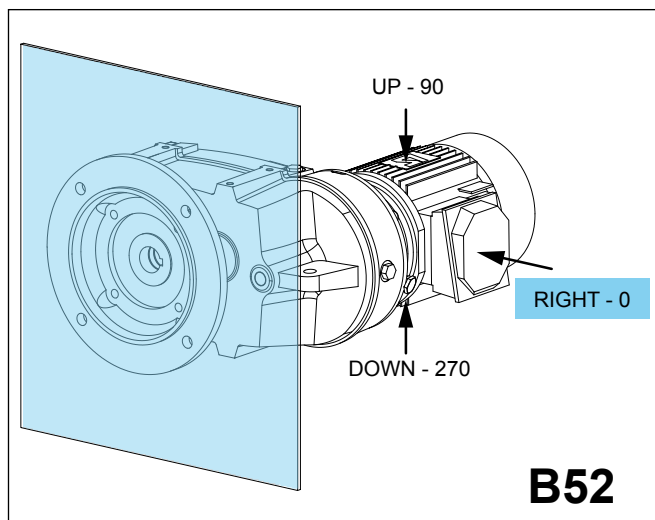
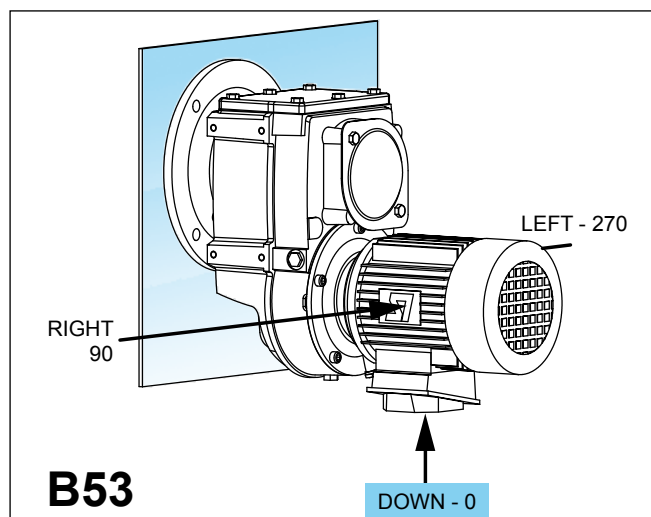
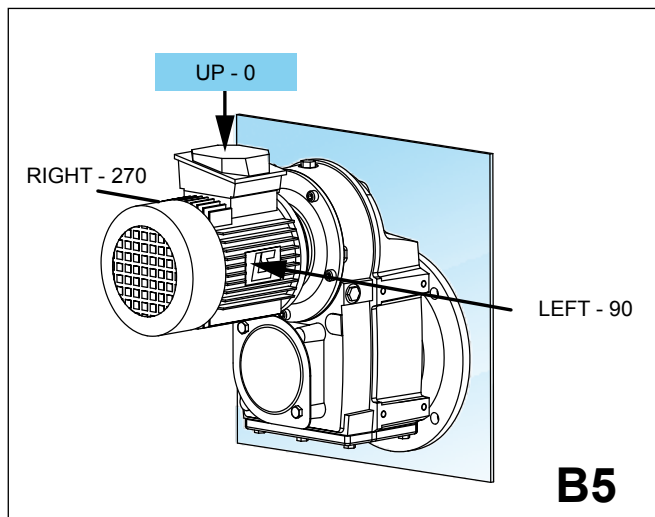


Manubloc 3000 - LSRPM

F3 - Operating positions: BT form

The absolute orientation of the connection (TB: Up, Down, Right, Left, Front, Back) is related to the chosen operating position.

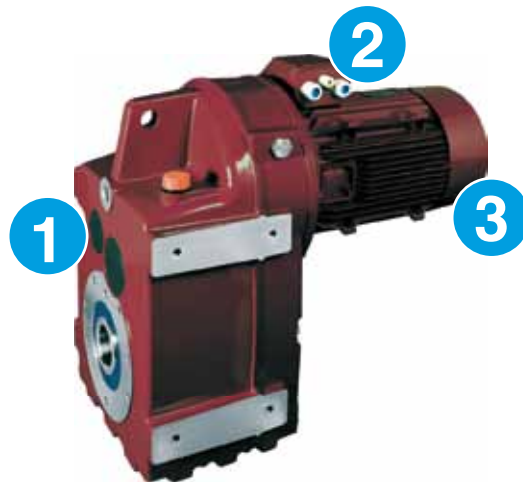
The relative orientation (0-90-180-270, in the trigonometric direction), a consequence of the absolute position, is related to the base of the gearbox for an observer, facing the gearbox.



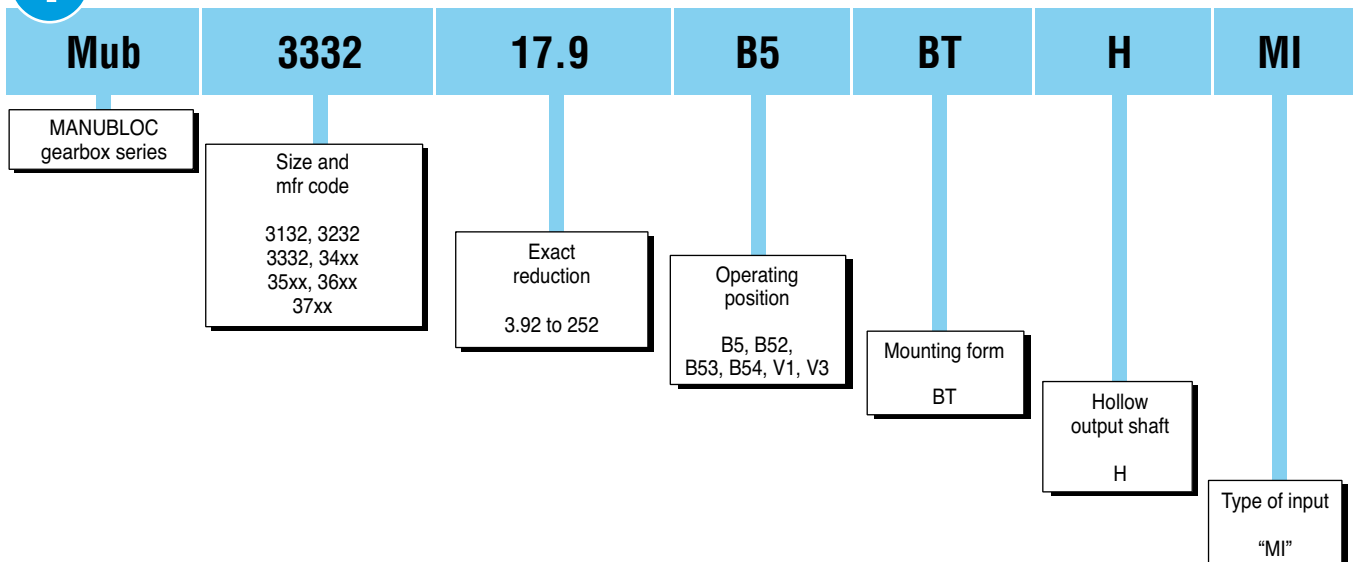
Std terminal box

Manubloc 3000 - LSRPM

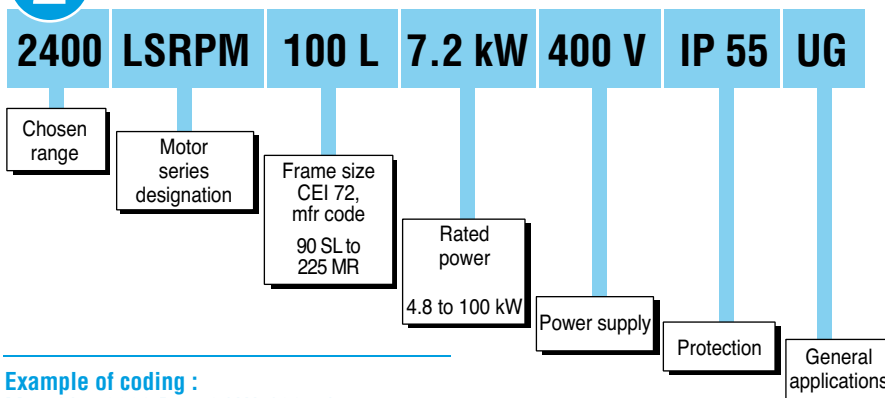
F4 - Designation/Coding



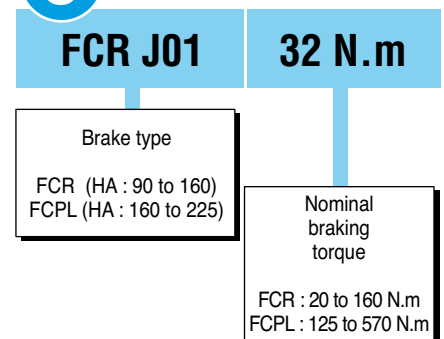
1 GEARBOX



2 MOTOR



3 BRAKE



Example of coding :
Manubloc 3332 B5 7.2 kW, 132 min-1,
class II

Designation :
Mub 3332 i:17.9 B5 BT H MI - 2400 LSRPM 100 L
7.2 kW 400V IP 55 UG FCR J01

Code :
466 7971

Manubloc 3000 - LSRPM

F5 - Conditions

Mub: BT H

LSRPM: IP55 - 50 Hz - Cl. F - 400 V Y - from 4.8 to 100 kW

LSRPM FCR brake: IP55 - 50 Hz - Cl. F - 400 V Y - from 4 to 36 kW

LSRPM FCPL brake: IP44 - 50 Hz - Cl. F - 400 V Y - from 25 to 100 kW

MI

Delivery date to be agreed

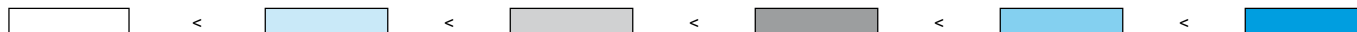
	MI input	Mub 3132	Mub 32--	Mub 33--	Mub 34--	Mub 35--	Mub 36--	Mub 37--	Mub 38--
LSRPM	4.8 --> 9.5 kW								
	13.1 --> 19.2 kW								
	25 --> 36 kW								
	37.5 --> 100 kW								
LSRPM FCR	4.8 --> 9.5 kW								
	13.1 --> 19.2 kW								
	25 --> 36 kW								
LSRPM FCPL	25 --> 100 kW								

Pages of dimensions corresponding to the BT mounting form and H hollow shaft

Type	Mub form	
	Face with tapped holes	Shrink disc
	BT H	SDB
Mub 3132	94	94-111
Mub 32--	95	95-111
Mub 33--	96	96-111
Mub 34--	97	97-111
Mub 35--	98	98-111
Mub 36--	99	99-111
Mub 37--	100	100-111
Mub 38--	101	101-111

Options

Input	Electrical options	Mechanical options			Brake options			
	MI	PTO/PTF, etc	Drip cover	2nd shaft ext.	Forced axial ventilation	Encoder	Hand Brake Release	Different Mf
LSRPM	4.8 --> 9.5 kW						-	-
	13.1 --> 19.2 kW						-	-
	25 --> 36 kW						-	-
	37.5 --> 100 kW						-	-
LSRPM FCR	4.8 --> 9.5 kW							
	13.1 --> 19.2 kW							
	25 --> 36 kW							
LSRPM FCPL	25 --> 100 kW							



Manubloc 3000 - LSRPM

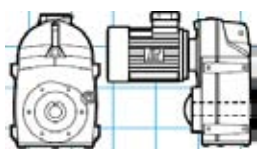
F6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Mub 3132
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

Mub 3132		
LSRPM (kW)		
4.8		
LS 4p three-phase		
min ⁻¹	i exact	90 SL
153	15.7	
173	13.9	
195	12.3	0.96
220	10.9	1.05
330	7.28	0.97
LSRPM and brake LSRPM 2400 min ⁻¹ and FCR brake		
FCR 90 L		



Selection example

Required power:	4.8 kW
Required speed:	220 min ⁻¹
Duty factor required by the application:	$K_p = 1$
Operating position; Mounting form:	B5 horizontal; face with tapped holes
Designation: Mub 3132 i:10.9 B5 BT H - MI 2400 LSRPM 90 SL 4.8 kW - 400V	

Manubloc 3000 - LSRPM

F6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Mub 3232
LSRPM, LSRPM FCR brake - IP 55 - Cl. F - 400 V

Integral mounting **MI**

		Mub 3232					
		LSRPM (kW)					
		4.8	6	7.2	8.4	9.5	13.1
		2400 min ⁻¹					
min ⁻¹	i exact	90SL	90L	100 L		132 M	
102	23.5	0.99					
115	20.9	1.03					
128	18.7	1.11					
145	16.5	1.21	0.97				
161	14.9	1.30	1.04				
183	13.1	1.42	1.14				
195	12.3	1.48	1.19	0.99			
226	10.6	1.64	1.32	1.10			
258	9.32	1.80	1.44	1.20	1.03		
285	8.42	1.92	1.54	1.28	1.10	0.97	
322	7.45	2.09	1.67	1.39	1.19	1.05	
343	6.99	2.14	1.71	1.43	1.22	1.08	
406	5.91	2.32	1.86	1.55	1.33	1.17	
486	4.94	2.50	2.00	1.66	1.43	1.26	
612	3.92	2.77	2.21	1.85	1.58	1.40	1.01
LSRPM and brake		LSRPM 2400 min⁻¹ and FCR brake					
FCR		90 L		100 L		132 M	

Selection example

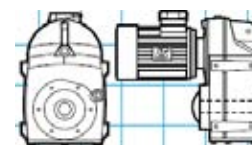
Required power: 8.4 kW

Required speed: 490 min⁻¹

Duty factor required by the application: $K_p = 1.4$

Operating position; Mounting form: B5 horizontal; face with tapped holes

Designation: Mub 3232 i:4.94 B5 BT H - MI 2400 LSRPM 100 L 8.4 kW - 400V



Manubloc 3000 - LSRPM

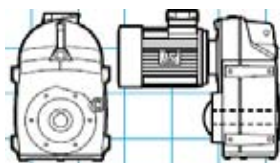
F6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Mub 3332
LSRPM, LSRPM FCR, LSRPM FCPL - IP 55 - CI. F - 400 V

Integral mounting **MI**

		Mub 3332								
		LSRPM (kW)								
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25
		2400 min ⁻¹								
min ⁻¹	i exact	90 SL	90 L	100 L			132 M		160 MP	
63.0	38.1	1.05								
71.2	33.7	1.18								
77.4	31	1.28	1.02							
87.6	27.4	1.44	1.15	0.96						
98.4	24.4	1.61	1.29	1.07						
110	21.9	1.79	1.43	1.19	1.02					
119	20.2	1.93	1.54	1.29	1.10	0.97				
134	17.9	2.16	1.73	1.44	1.24	1.09				
154	15.6	2.47	1.97	1.64	1.41	1.25				
170	14.1	2.72	2.17	1.81	1.55	1.37	1.00			
195	12.3	3.09	2.47	2.06	1.77	1.56	1.13			
216	11.1			2.27	1.95	1.72	1.25			
238	10.1	3.71	2.97	2.48	2.12	1.88	1.36			
274	8.76	4.12	3.29	2.75	2.35	2.08	1.51	1.21	1.03	
339	7.09	4.66	3.73	3.11	2.67	2.36	1.71	1.37	1.17	
437	5.49	5.43	4.34	3.62	3.10	2.74	1.99	1.60	1.36	1.04
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes								
FCR		90 L		100 L			132 M		160 MP	
FCPL		160 MP								



Selection example

Required power:	7.2 kW
Required speed:	135 min ⁻¹
Duty factor required by the application:	$K_p = 1.4$
Operating position; Mounting form:	B5 horizontal; face with tapped holes
Designation:	Mub 3332 i:17.9 B5 BT H - MI 2400 LSRPM 100 L 7.2 kW - 400V

Manubloc 3000 - LSRPM

F6 - Selection

Classes
I, II, III
($k_p = 1, 1.4, 2$)

Mub 3432 - Mub 3433
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - Cl. F - 400 V

Integral mounting **MI**

		Mub 3432-3433										
		LSRPM (kW)										
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36
		2400 min ⁻¹										
min ⁻¹	i exact	90 SL	90 L	100 L			132 M		160 MP		160 LR	
25.3	94.8	0.97										
27.5	87.3	1.04										
31.0	77.5	1.13										
35.6	67.5	1.25	1.00	Mub 3433								
39.3	61.1	1.34	1.07									
45.1	53.2	1.47	1.18	0.98								
48.7	49.3	1.72	1.38									
57.7	41.6	1.93	1.54									
64.2	37.4	2.07	1.66	1.38	1.19	1.05	Mub 3432					
70.8	33.9	2.21	1.77	1.47	1.26	1.12						
76.9	31.2	2.34	1.87	1.56	1.33	1.18						
89.6	26.8	2.58	2.06	1.72	1.47	1.30						
96.0	25	2.70	2.16	1.80	1.54	1.36	0.99					
110	21.9	2.94	2.35	1.96	1.68	1.49	1.08					
124	19.4	3.18	2.55	2.12	1.82	1.61	1.17					
140	17.2	3.44	2.75	2.29	1.96	1.74	1.26	1.01				
156	15.4	3.69	2.95	2.46	2.11	1.86	1.35	1.09				
182	13.2	4.07	3.26	2.71	2.33	2.06	1.49	1.20	1.02			
200	12			2.86	2.45	2.17	1.57	1.26	1.07			
226	10.6			3.09	2.64	2.34	1.70	1.36	1.16			
254	9.46			3.31	2.83	2.51	1.82	1.46	1.24	0.95		
285	8.42			3.53	3.03	2.68	1.94	1.56	1.33	1.02		
319	7.53			3.76	3.22	2.85	2.07	1.66	1.41	1.08		
386	6.22			4.22	3.62	3.20	2.32	1.86	1.58	1.21	0.98	
500	4.8			4.93	4.23	3.74	2.71	2.18	1.85	1.42	1.15	0.99
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes										
FCR		90 L		100 L			132 M		160			
FCPL										160		

Selection example

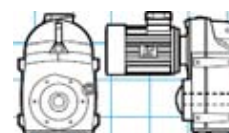
Required power: 16.3 kW

Required speed: 140 min⁻¹

Duty factor required by the application: $K_p = 1$

Operating position; Mounting form: Horizontal B5; BT faceplate

Designation: Mub 3432 i:17.2 B5 BT H - MI 2400 LSRPM 132 M 16.3 kW - 400V



Manubloc 3000 - LSRPM

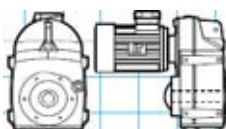
F6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Mub 3532 - Mub 3533
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Mub 3532, Mub 3533														
		LSRPM (kW)														
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80
		2400 min ⁻¹														
min ⁻¹	i exact	90 SL	90 L	100 L		132 M			160 MP		160 LR	200 L				
16.2	148	0.95														
18.5	130	1.08														
20.5	117	1.20	0.96	Mub 3533												
23.1	104	1.35	1.08													
25.2	95.3	1.47	1.17	0.98												
29.1	82.4	1.69	1.35	1.13	0.97											
32.2	74.5	1.86	1.49	1.24	1.07											
36.6	65.5			1.41	1.21	1.07										
39.7	60.4			1.52	1.31	1.16										
44.7	53.7			1.70	1.46	1.29										
50.1	47.9			1.86	1.59	1.41	1.02									
55.8	43			2.00	1.71	1.52	1.10									
61.2	39.2			2.10	1.80	1.59	1.16									
70.2	34.2			2.26	1.94	1.72	1.24	1.00								
74.1	32.4	3.68	2.94	2.45	2.10	1.86	1.35									
86.3	27.8	4.07	3.26	2.71	2.33	2.06	1.49									
93.8	25.6	4.68	3.75	3.12	2.68	2.37	1.72									
108	22.3	5.30	4.24	3.53	3.03	2.68	1.94	1.56	1.33	1.02	Mub 3532					
122	19.7	5.91	4.73	3.94	3.38	2.99	2.17	1.74	1.48	1.14						
136	17.6	6.89	5.51	4.59	3.94	3.48	2.53	2.03	1.72	1.32	1.07					
153	15.7	7.16	5.73	4.78	4.09	3.62	2.62	2.11	1.79	1.38	1.11	0.96				
167	14.4	8.42	6.74	5.62	4.81	4.26	3.09	2.48	2.11	1.62	1.30	1.12				
194	12.4	7.92	6.34	5.28	4.53	4.00	2.90	2.33	1.98	1.52	1.23	1.06				
214	11.2		7.37	6.14	5.26	4.65	3.37	2.71	2.30	1.77	1.43	1.23	1.18			
243	9.89			6.67	5.72	5.06	3.67	2.95	2.50	1.92	1.55	1.33	1.28	0.96		
263	9.12			7.03	6.02	5.33	3.86	3.10	2.64	2.02	1.63	1.41	1.35	1.01		
296	8.11			7.75	6.64	5.87	4.26	3.42	2.90	2.23	1.80	1.55	1.49	1.12		
331	7.24			8.27	7.09	6.27	4.55	3.65	3.10	2.38	1.92	1.65	1.59	1.19		
370	6.48				8.67	7.66	5.56	4.47	3.79	2.91	2.35	2.02	1.94	1.46	1.12	
406	5.91					8.00	5.80	4.67	3.96	3.04	2.45	2.11	2.03	1.52	1.17	0.95
464	5.17					8.50	6.16	4.95	4.20	3.23	2.60	2.24	2.15	1.61	1.24	1.01
542	4.43							5.27	4.48	3.44	2.77	2.39	2.29	1.72	1.32	1.07
603	3.98							4.60	3.90	3.00	2.42	2.08	2.00	1.50	1.15	
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes														
FCR		90 L		100 L		132 M		160 MP		160 LR		200 L				
FCPL																



Selection example

Required power:	50 kW
Required speed:	330 min ⁻¹
Duty factor required by the application:	Kp = 1
Operating position; Mounting form:	B5 horizontal; face with tapped holes
Designation:	Mub 3533 i:7.24 B5 BT H - MI 2400 LSRPM 200 L 50 kW - 400V

Manubloc 3000 - LSRPM

F6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Mub 3632 - Mub 3633
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - Cl. F - 400 V

Integral mounting **MI**

		Mub 3632, Mub 3633															
		LSRPM (kW)															
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80	100
		2400 min ⁻¹															
min ⁻¹	i exact	90 SL	90 L	100 L			132 M			160 MP		160 LR	200 L			225 MR	
9.52	252	1.05															
11.1	216	1.23	0.98														
12.1	199	1.33	1.06														
13.9	173	1.53	1.22	1.02													
15.7	153	1.72	1.38	1.15	0.98												
17.5	137	1.92	1.53	1.28	1.10	0.97	Mub 3633										
19.7	122	2.15	1.72	1.43	1.23	1.08											
21.4	112	2.33	1.87	1.56	1.33	1.18											
24.8	96.6	2.70	2.16	1.80	1.54	1.36	0.99										
27.5	87.3	2.97	2.38	1.98	1.70	1.50	1.09										
31.2	76.9			2.24	1.92	1.70	1.23	0.99									
33.9	70.8			2.43	2.08	1.84	1.34	1.07									
38.1	63			2.72	2.33	2.06	1.50	1.20	1.02								
42.7	56.2			3.00	2.57	2.27	1.65	1.33	1.13								
47.6	50.4							1.45	1.23	0.98							
69.8	34.4							1.92	1.63	1.25	1.01						
49.9	48.1	4.95	3.96	3.30	2.83	2.50	1.81										
56.1	42.8	5.18	4.15	3.46	2.96	2.62	1.90	1.53	1.30	1.00							
61.5	39	6.09	4.87	4.06	3.48	3.08	2.23	1.79	1.52	1.17							
69.6	34.5	6.85	5.48	4.57	3.92	3.46	2.51	2.02	1.71	1.32	1.06						
77.2	31.1	7.97	6.38	5.32	4.56	4.03	2.92	2.35	1.99	1.53	1.23	1.06	Mub 3632				
86.6	27.7	8.45	6.76	5.63	4.83	4.27	3.10	2.49	2.11	1.62	1.31	1.13					
94.1	25.5		7.60	6.33	5.43	4.80	3.48	2.80	2.37	1.82	1.47	1.27					
109	22	5.19	4.15														
110	21.9			6.91	5.93	5.24	3.80	3.05	2.59	1.99	1.61	1.38	1.33	1.00			
119	20.1	6.08	4.86														
120	20			7.39	6.33	5.60	4.06	3.26	2.77	2.13	1.72	1.48	1.42	1.06			
135	17.8	6.84	5.47														
136	17.7			8.04	6.89	6.09	4.42	3.55	3.01	2.31	1.87	1.61	1.54	1.16			
150	16		7.56														
159	15.1			8.17	7.01	6.19	4.49	3.61	3.06	2.35	1.90	1.63	1.57	1.18			
168	14.3	8.43	6.74														
178	13.5			7.94	7.02	5.09	4.09	3.47	2.67	2.15	1.85	1.78	1.33	1.03			
183	13.1			7.54	6.46	5.71	4.14										
198	12.1							4.46	3.79	2.91	2.34	2.02	1.94	1.45	1.12		
212	11.3			6.92	5.93	5.25	3.80										
220	10.9							4.73	4.02	3.09	2.49	2.14	2.06	1.54	1.19	0.96	
233	10.3			7.46	6.40	5.66	4.10										
249	9.63							5.05	4.29	3.30	2.66	2.29	2.20	1.65	1.27	1.03	
263	9.13			8.19	7.02	6.21	4.50										
281	8.53							5.38	4.57	3.51	2.83	2.44	2.34	1.75	1.35	1.10	
308	7.79			8.16	6.99	6.18	4.48										
315	7.62							5.56	4.72	3.63	2.93	2.52	2.42	1.81	1.40	1.13	
336	7.15											2.50	1.87	1.44	1.17		
346	6.93			8.01	7.09	5.14	4.13	3.51	2.69	2.17	1.87						
386	6.22							5.45	4.63	3.56	2.87	2.47	2.37	1.78	1.37	1.11	
427	5.62							6.06	5.15	3.95	3.19	2.75	2.64	1.98	1.52	1.24	0.99
484	4.96							6.49	5.51	4.23	3.41	2.94	2.82	2.12	1.63	1.32	1.06
547	4.39							6.88	5.84	4.49	3.62	3.11	2.99	2.24	1.73	1.40	1.12
612	3.92							5.60	4.76	3.65	2.95	2.54	2.44	1.83	1.41	1.14	
652	3.68												2.52	1.89	1.45	1.18	
738	3.25												2.93	2.20	1.69	1.37	1.10
LSRPM and brakes		LSRPM 2400 min⁻¹ and brakes															
FCR		90 L		100 L			132 M			160 MP		160 LR	200 L			225 MR	
FCPL										160 MP		160 LR					

Selection example

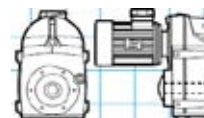
Required power: 50 kW

Required speed: 136 min⁻¹

Duty factor required by the application: Kp = 1

Operating position; Mounting form: B5 horizontal; face with tapped holes

Designation: Mub 3632 i:17.7 B5 BT H - MI 2400 LSRPM 200 L 50 kW - 400V



Manubloc 3000 - LSRPM

F6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

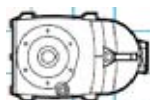
Mub 3732 - Mub 3733
LSRPM, LSRPM FCR IP 55, LSRPM FCPL IP 44 - CI. F - 400 V

Integral mounting **MI**

		Mub 3732, Mub 3733															
		LSRPM (kW)															
		4.8	6	7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80	100
		2400 min ⁻¹															
min ⁻¹	i exact	90 SL	90 L	100 L		132 M			160 MP		160 LR	200 L			225 MR		
9.84	244	1.87	1.50	1.25	1.07												
11.1	217	2.10	1.68	1.40	1.20	1.06											
12.1	198	2.30	1.84	1.53	1.31	1.16											
13.7	175	2.60	2.08	1.73	1.48	1.31	0.95	Mub 3733									
15.2	158	2.87	2.30	1.91	1.64	1.45	1.05										
17.0	141	3.21	2.57	2.14	1.83	1.62	1.17										
18.6	129	3.50	2.80	2.33	2.00	1.77	1.28	1.03									
21.6	111			2.70	2.31	2.05	1.48	1.19	1.01								
23.5	102			2.93	2.51	2.22	1.61	1.29	1.10								
26.7	89.9			3.31	2.84	2.51	1.82	1.46	1.24	0.95							
31.3	76.8			3.85	3.30	2.92	2.12	1.70	1.44	1.11							
35.1	68.3			4.23	3.63	3.21	2.33	1.87	1.59	1.22	0.98						
39.2	61.2							2.04	1.73	1.33	1.07						
43.3	55.4							2.17	1.84	1.41	1.14	0.98					
49.2	48.8												1.02				
55.6	43.2												1.09				
62.0	38.7												1.17				
66.1	36.3												1.21				
75.0	32												1.30	0.97			
50.0	48			6.02	5.16	4.56	3.31	2.66	2.26	1.73	1.40	1.20					
55.8	43			6.69	5.73	5.07	3.68	2.95	2.51	1.93	1.55	1.34					
59.7	40.2			7.13	6.11	5.41	3.92	3.15	2.67	2.05	1.66	1.43					
66.7	36			7.93	6.80	6.01	4.36	3.50	2.97	2.28	1.84	1.59					
75.5	31.8			8.82	7.56	6.69	4.85	3.90	3.31	2.54	2.05	1.76					
84.5	28.4			8.91	7.64	6.75	4.90	3.93	3.34	2.57	2.07	1.78	1.71	1.28	0.99	Mub 3732	
95.2	25.2				8.97	7.93	5.75	4.62	3.93	3.01	2.43	2.09	2.01	1.51	1.16		
106	22.6					8.48	6.15	4.94	4.19	3.22	2.60	2.24	2.15	1.61	1.24	1.01	
119	20.1						6.61	5.31	4.51	3.46	2.79	2.40	2.31	1.73	1.33	1.08	
135	17.8						7.11	5.71	4.85	3.73	3.00	2.59	2.48	1.86	1.43	1.16	
153	15.7						7.63	6.13	5.21	4.00	3.22	2.78	2.67	2.00	1.54	1.25	1.00
174	13.8						8.22	6.60	5.61	4.30	3.47	2.99	2.87	2.15	1.66	1.35	1.08
197	12.2						8.79	7.06	6.00	4.60	3.71	3.20	3.07	2.30	1.77	1.44	1.15
218	11							7.46	6.33	4.86	3.92	3.38	3.24	2.43	1.87	1.52	1.22
249	9.64							8.00	6.79	5.22	4.21	3.62	3.48	2.61	2.01	1.63	1.30
278	8.62							8.46	7.19	5.52	4.45	3.83	3.68	2.76	2.12	1.72	1.38
313	7.68							8.95	7.60	5.83	4.71	4.05	3.89	2.92	2.24	1.82	1.46
341	7.04											3.63	2.72	2.09			
348	6.9							7.99	6.14	4.95	4.26					1.92	1.53
386	6.21							8.91	7.56	5.81	4.68	4.03	3.87	2.90	2.23	1.81	1.45
426	5.63							7.91	6.07	4.90	4.22	4.05	3.04	2.34	1.90	1.52	
489	4.91							8.48	6.51	5.25	4.52	4.34	3.26	2.51	2.04	1.63	
547	4.39							8.93	6.85	5.53	4.76	4.57	3.43	2.64	2.14	1.71	
614	3.91								7.21	5.81	5.00	4.80	3.60	2.77	2.25	1.80	
682	3.52								7.52	6.07	5.22				2.35	1.88	
779	3.08								7.93	6.39	5.50				2.48	1.98	
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes															
FCR		90 L	100 L		132 M			160 MP		160 LR	200 L			225 MR			
FCPL																	

Selection example

Required power:	36 kW
Required speed:	50 min ⁻¹
Duty factor required by the application:	Kp = 1
Operating position; Mounting form:	B52; face with tapped holes
Designation:	Mub 3732 i:48 B52 BT H - MI 2400 LSRPM 160 LR 36 kW - 400V



Manubloc 3000 - LSRPM

F6 - Selection

Classes
I, II, III
(kp = 1, 1.4, 2)

Mub 3832 - Mub 3833
LSRPM, LSRPM FCR, LSRPM FCPL - IP 55 - CI. F - 400 V

Integral mounting

MI

		Mub 3832, Mub 3833														
		LSRPM (kW)														
		7.2	8.4	9.5	13.1	16.3	19.2	25	31	36	37.5	50	65	80	100	
		2400 min ⁻¹														
min ⁻¹	i exact	100 L				132 M				160 MP		160 LR	200 L			225 MR
10.9	220	2.50	2.14	1.89	1.37	1.10										
12.2	196	2.80	2.40	2.12	1.54	1.24	1.05									
13.0	184	2.98	2.55	2.26	1.64	1.32	1.12									
14.6	164	3.33	2.86	2.53	1.83	1.47	1.25	0.96								
16.4	146	3.73	3.20	2.83	2.05	1.65	1.40	1.08								
18.5	130	4.18	3.58	3.17	2.30	1.85	1.57	1.20	0.97	Mub 3833						
20.9	115	4.71	4.04	3.57	2.59	2.08	1.77	1.36	1.09							
23.3	103	5.25	4.50	3.98	2.88	2.32	1.97	1.51	1.22	1.05	1.01					
26.1	92	5.86	5.02	4.44	3.22	2.59	2.20	1.69	1.36	1.17	1.13					
29.4	81.5	6.59	5.65	5.00	3.62	2.91	2.47	1.90	1.53	1.32	1.27					
33.5	71.7	7.47	6.40	5.66	4.11	3.30	2.80	2.15	1.74	1.49	1.43	1.08				
38.0	63.1	8.46	7.25	6.41	4.65	3.74	3.17	2.44	1.97	1.69	1.62	1.22				
43.1	55.7		8.19	7.24	5.25	4.22	3.58	2.75	2.22	1.91	1.83	1.38	1.06			
47.5	50.5			7.97	5.78	4.64	3.94	3.03	2.44	2.10	2.02	1.51	1.16			
54.4	44.1				6.59	5.30	4.50	3.45	2.79	2.40	2.30	1.73	1.33	1.08		
60.9	39.4				7.31	5.88	4.99	3.83	3.09	2.66	2.56	1.92	1.47	1.20	0.96	
68.4	35.1				8.12	6.53	5.54	4.26	3.43	2.96	2.84	2.13	1.64	1.33	1.06	
75.9	31.6				8.80									1.44	1.15	
86.6	27.7													1.55	1.24	
77.9	30.8					4.90	4.16	3.19	2.58	2.22	2.13	1.60	1.23			
87.3	27.5					5.67	4.81	3.70	2.98	2.57	2.46	1.85	1.42			
98.0	24.5					7.91	6.72	5.16	4.16	3.58	3.44	2.58	1.98	1.61	1.29	
110	21.9				Mub 3832	8.89	7.54	5.79	4.67	4.02	3.86	2.90	2.23	1.81	1.45	
123	19.5						7.76	5.96	4.81	4.14	3.97	2.98	2.29	1.86	1.49	
138	17.4						8.90	6.83	5.51	4.75	4.56	3.42	2.63	2.14	1.71	
156	15.4							7.14	5.76	4.96	4.76	3.57	2.75	2.23	1.78	
175	13.7							8.01	6.46	5.56	5.34	4.00	3.08	2.50	2.00	
192	12.5							8.23	6.64	5.72	5.49	4.12	3.17	2.57	2.06	
218	11								7.46	6.42	5.31	3.99	3.07	2.89	2.31	
241	9.96								7.94	6.84				3.08	2.46	
245	9.81										5.00	3.75	2.88			
274	8.75								8.64	7.44				3.35	2.68	
275	8.73										6.29	4.72	3.63			
296	8.11								8.75	7.54				3.39	2.71	
310	7.73										6.00	4.50	3.46			
345	6.95									8.56				3.85	3.08	
349	6.88										7.34	5.50	4.23			
379	6.33													4.09	3.27	
383	6.27										7.46	5.59	4.30			
432	5.55								8.76					3.94	3.15	
479	5.01													4.20	3.36	
545	4.4													4.57	3.65	
588	4.08													4.56	3.65	
688	3.49													5.13	4.10	
755	3.18													5.35	4.28	
833	2.88													5.59	4.47	
LSRPM and brakes		LSRPM 2400 min ⁻¹ and brakes														
FCR		100 L				132 M				160 MP		160 LR	200 L			225 MR
FCPL										160 MP		160 LR				

Selection example

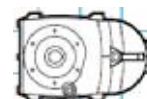
Required power: 65 kW

Required speed: 50 min⁻¹

Duty factor required by the application: Kp = 1

Operating position; Mounting form: B52; face with tapped holes

Designation : Mub 3833 i:50.5 B52 BT - MI 2400 LSRPM 200 L 65 kW - 400V




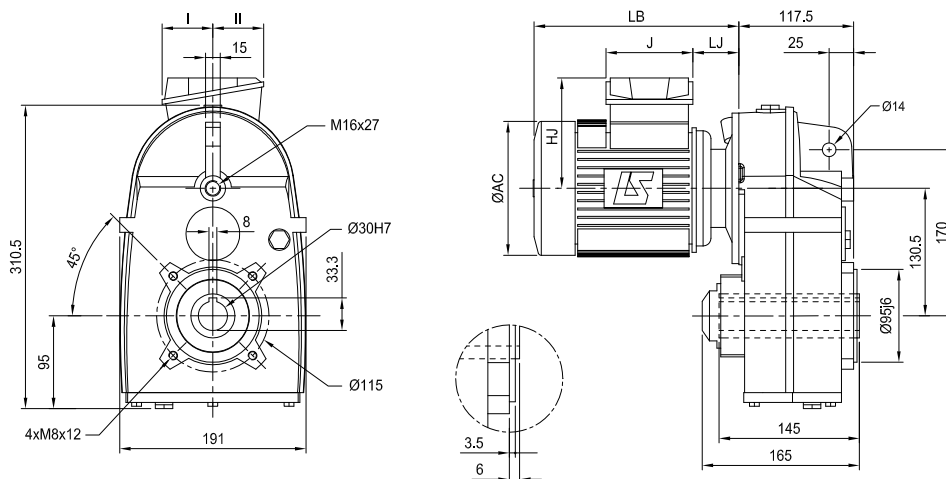
Manubloc 3000 - LSRPM

F7 - Dimensions

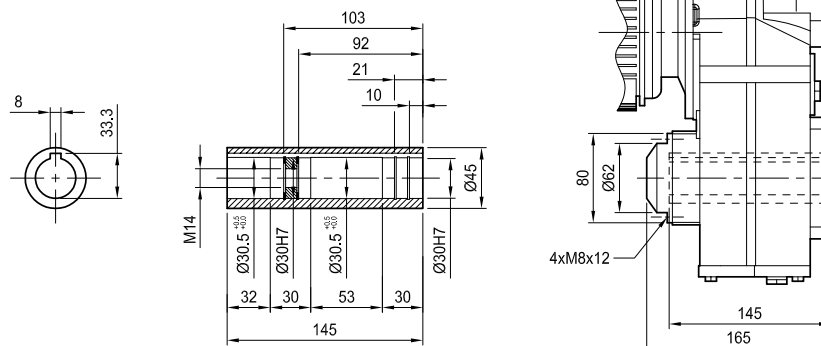
Dimensions of Manubloc (Mub) gearboxes, MI integral mounting,
Mub 3132

- BT flange form, H cylindrical hollow shaft

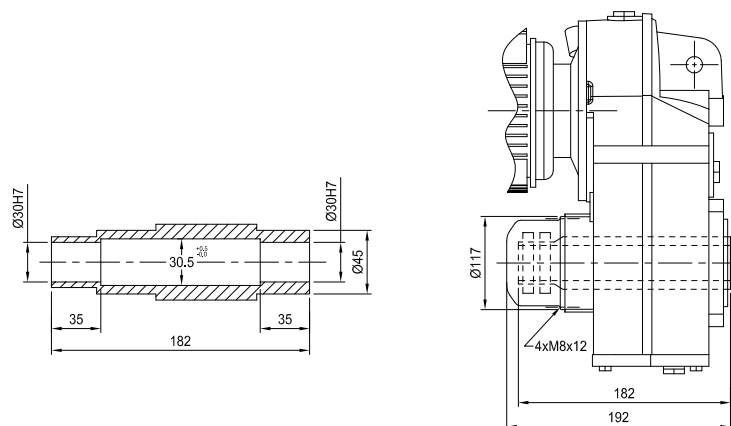
 Mub: 15.5 kg + Motor





- Details of the H standard hollow shaft



- Details of the SDB shrink disc



Fr. size	2400 min ⁻¹ motors								LSRPM FCR							
	LSRPM								kg							
	AC	HJ	J	LB	LJ	I	II		AC	HJ	J	LB	LJ	I	II	
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26

Manubloc 3000 - LSRPM

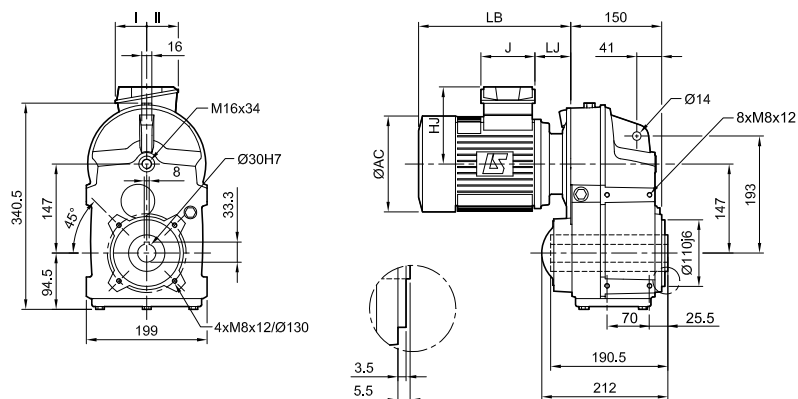
F7 - Dimensions

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

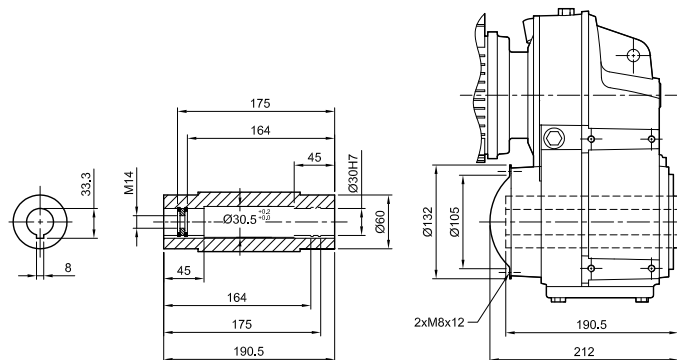
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

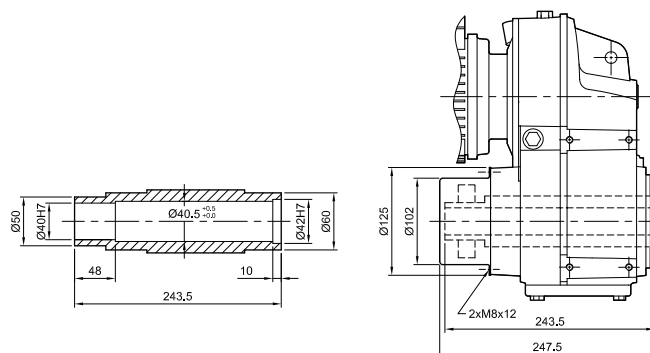
Mub: 26 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size	2400 min ⁻¹ motors															
	LSRPM								LSRPM FCR							
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
90 L	200	155	160	294.5	58.5	55	55	17	184	177	195	349.5	58.5	79	78	26
100 L	200	160	160	335.5	59.5	55	55	26	200	183	195	397.5	59.5	79	78	33.5
132 M	280	209	186	376	61	112	98	78	280	209	195	457	61	79	78	79

Manubloc 3000 - LSRPM

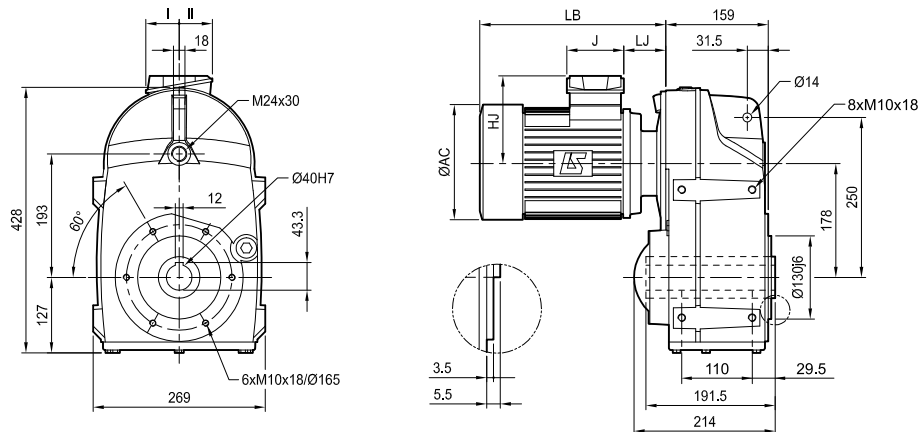
F7 - Dimensions

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

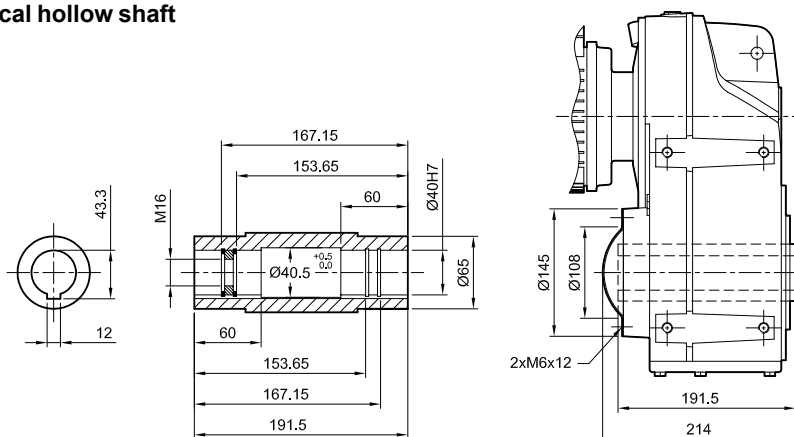
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

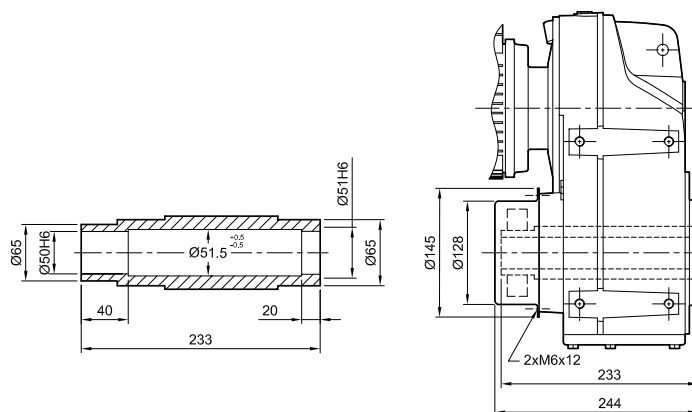
Mub: 43 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM				LSRPM FCR				LSRPM FCPL																
	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	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	331.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	433	73	79	78	49	280	209	195	541	73	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	

Manubloc 3000 - LSRPM

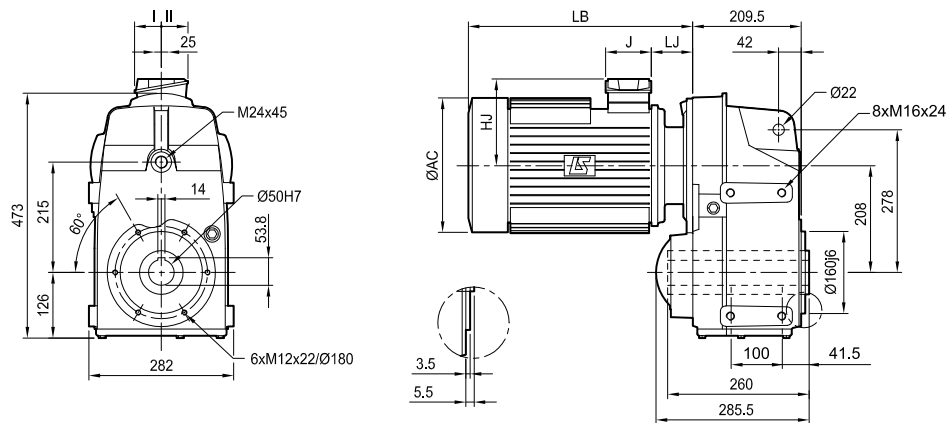
F7 - Dimensions

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

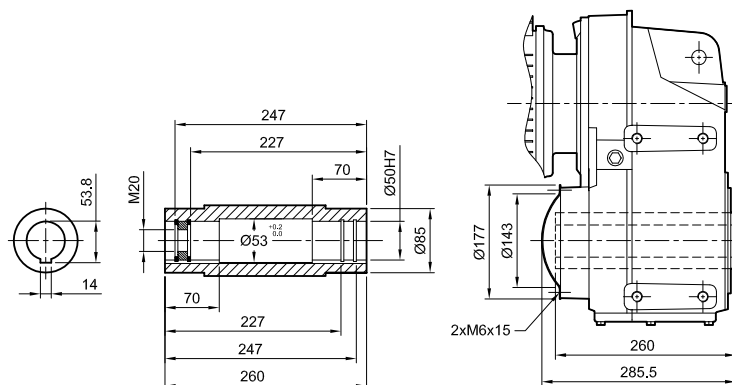
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

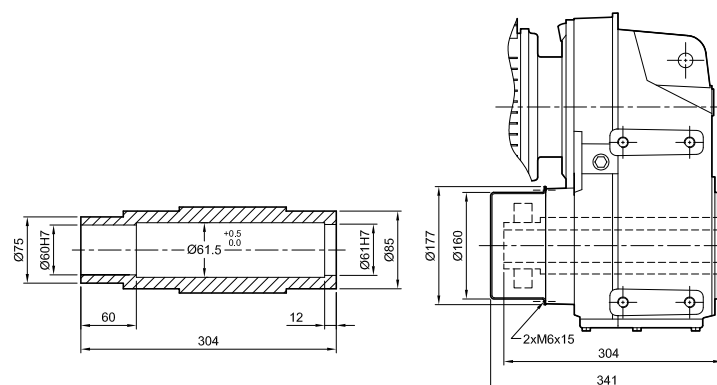
Mub: 69 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size									kg									kg									kg				
	AC	HJ	J	LB	LJ	I	II	AC		HJ	J	LB	LJ	I	II	AC	HJ		J	LB	LJ	I	II								
90 L	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-	-	-	-			
100 L	200	160	160	329.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-	-	-	-			
132 M	280	209	195	437	77	79	78	49	280	209	195	545	77	79	78	79	-	-	-	-	-	-	-	-	-	-	-	-			
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	-	-	-	-	-	-	-
200 L	390	276	186	655	97	112	98	180	-	-	-	-	-	-	-	-	410	276	186	908	97	112	98	265	-	-	-	-	-	-	-

Manubloc 3000 - LSRPM

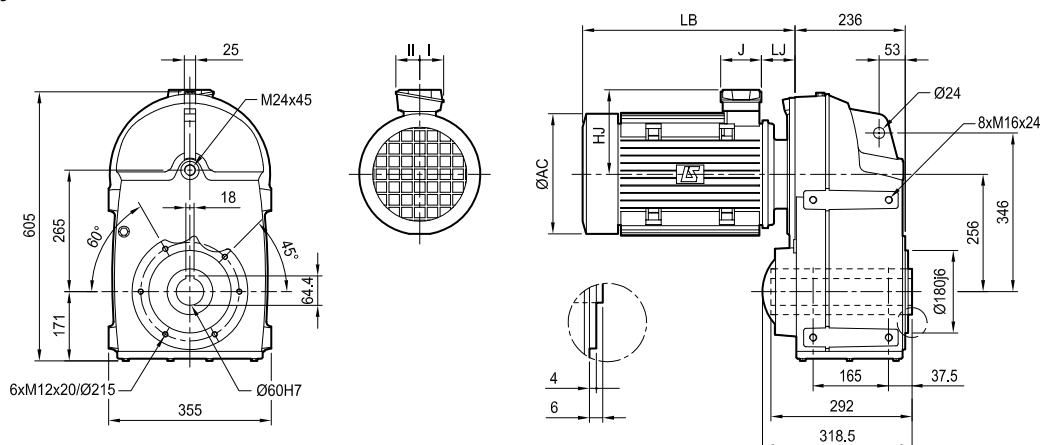
F7 - Dimensions

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

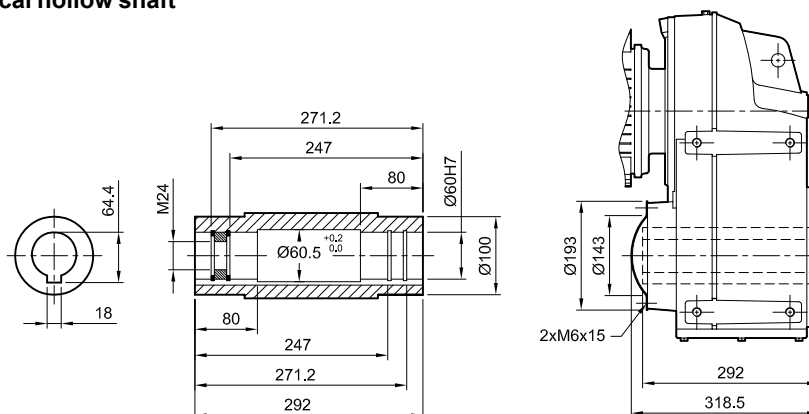
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

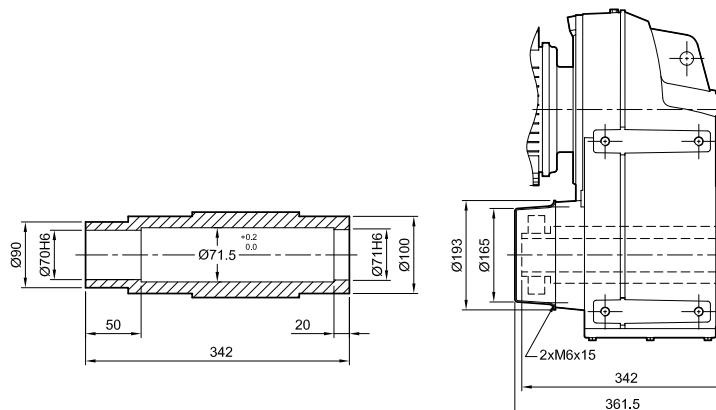
Mub: 115 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors																
	LSRPM								LSRPM FCR				LSRPM FCPL												
	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	200	155	160	290.5	54.5	55	55	17	184	177	195	345.5	54.5	79	78	26	-	-	-	-	-	-	-	-	-
100 L	200	160	160	329.5	55.5	55	55	26	200	183	195	393.5	55.5	79	78	33.5	-	-	-	-	-	-	-	-	-
132 M	280	209	195	437	77	79	78	49	280	209	195	545	77	79	78	79	-	-	-	-	-	-	-	-	-
160 LR	310	227	186	529	96	112	98	79	316	276	186	620	96	112	98	103	264	227	186	696	42	112	98	109	
200 L	390	276	186	655	97	112	98	180	-	-	-	-	-	-	-	-	410	276	186	908	97	112	98	265	

Manubloc 3000 - LSRPM

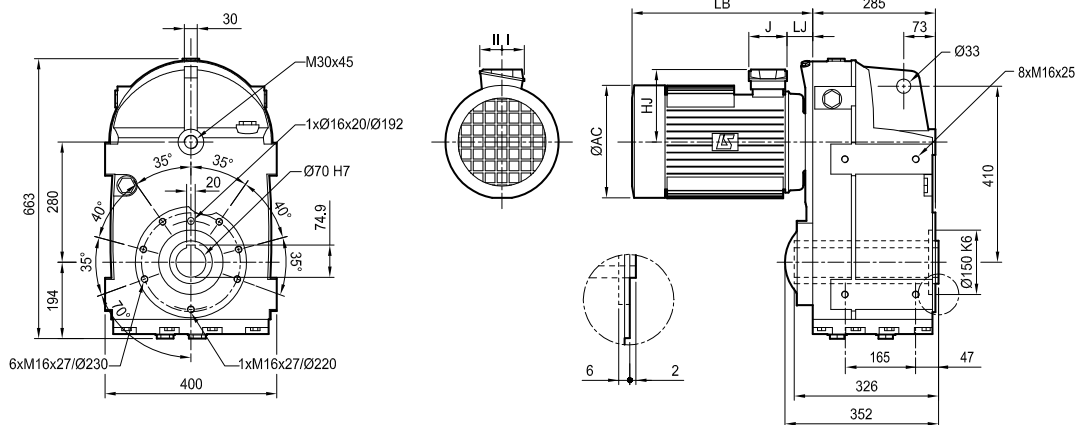
F7 - Dimensions

Dimensions of Manubloc (Mub) gearboxes, MI integral mounting,
Mub 3632 and Mub 3633

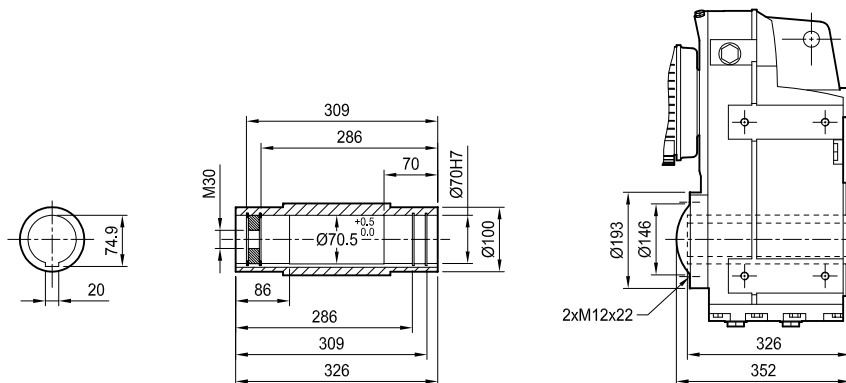
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

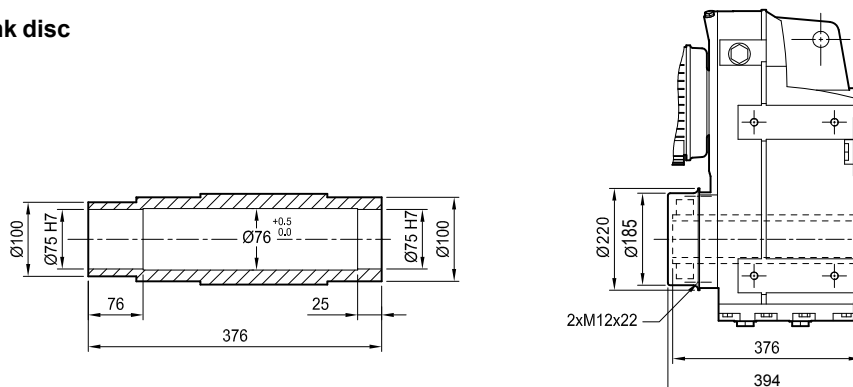
Mub: 195 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size									Kg									Kg						
	AC	HJ	J	LB	LJ	I	II	AC		HJ	J	LB	LJ	I	II	AC	HJ		J	LB	LJ	I	II	
90 L	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265
225 MR	390	276	186	709	82	142	98	215	-	-	-	-	-	-	-	-	410	279	186	984	82	112	98	300

Manubloc 3000 - LSRPM

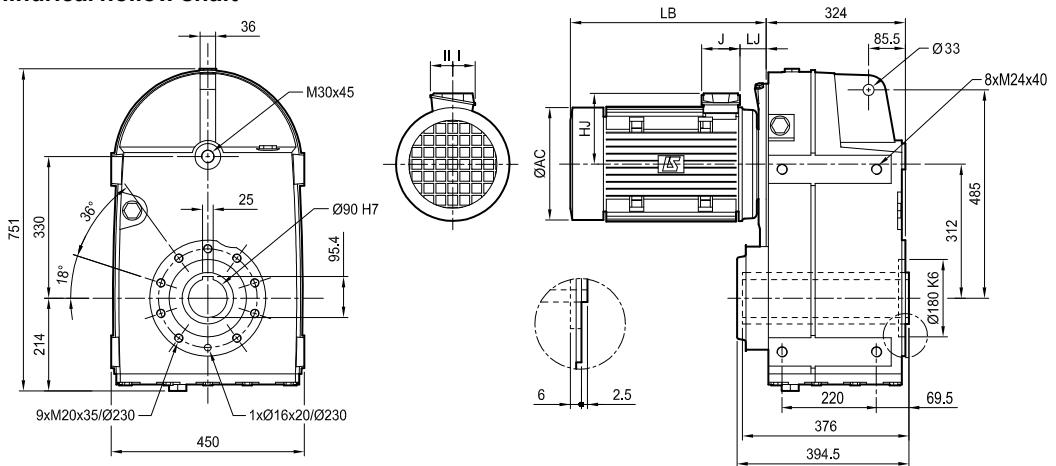
F7 - Dimensions

Dimensions of Manubloc (Mub) gearboxes, MI integral mounting,
Mub 3732 and Mub 3733

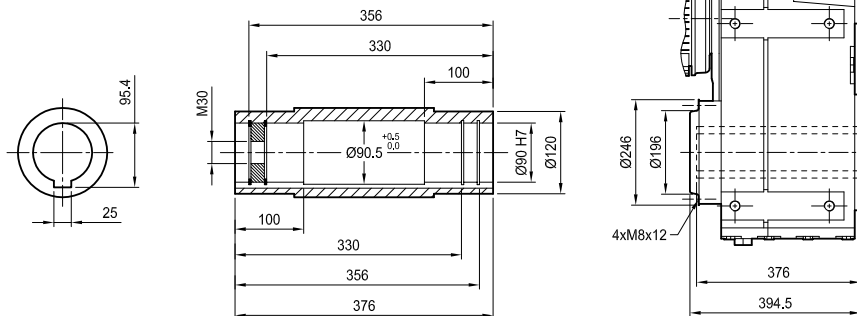
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

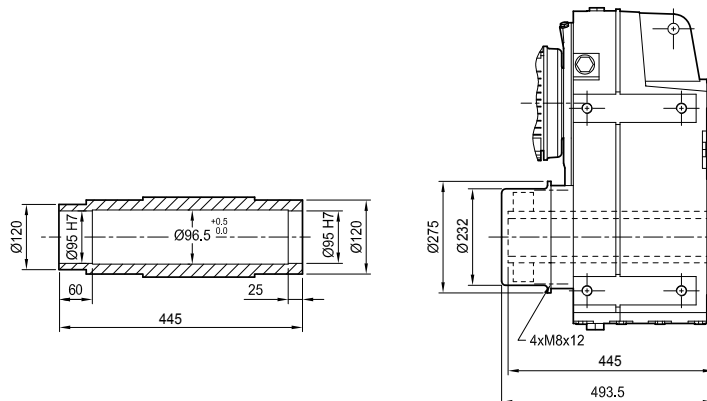
Mub: 280 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors															
	LSRPM								LSRPM FCPL															
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg								
90 L	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265
225 MR	390	276	186	709	82	142	98	215	-	-	-	-	-	-	-	-	410	279	186	984	82	112	98	300

Manubloc 3000 - LSRPM

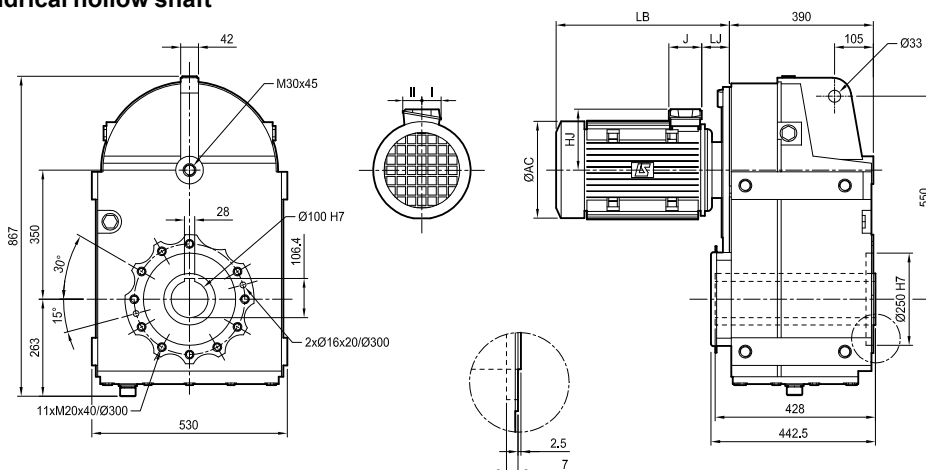
F7 - Dimensions

Dimensions of Manubloc (Mub) gearboxes, MI integral mounting,
Mub 3832 and Mub 3833

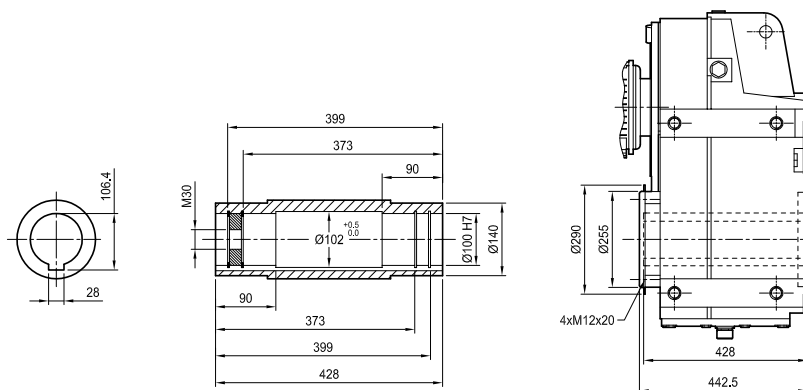
Dimensions in millimetres

- BT flange form, H cylindrical hollow shaft

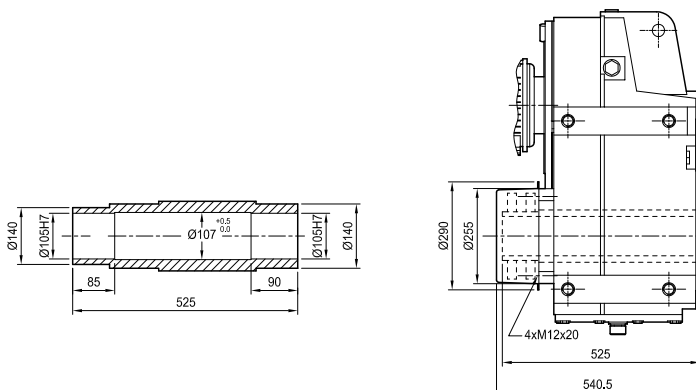
Mub: 332 kg + Motor



- Details of the H cylindrical hollow shaft



- Details of the SDB shrink disc



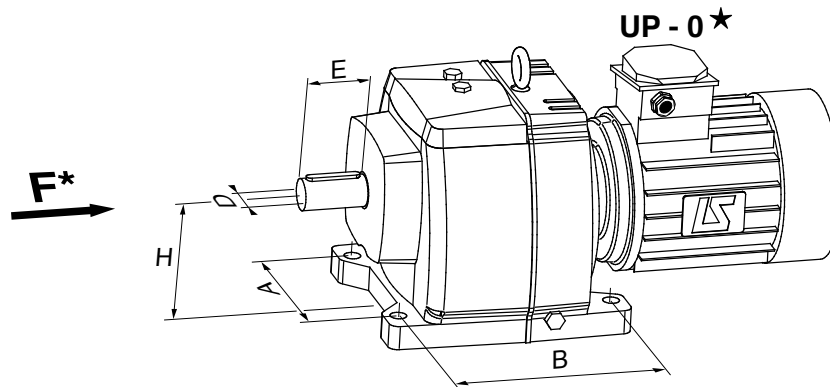
Fr. size	2400 min ⁻¹ motors								2400 min ⁻¹ brake motors															
	LSRPM								LSRPM FCR				LSRPM FCPL											
	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg	AC	HJ	J	LB	LJ	I	II	kg
90 L	200	155	160	276.5	39	55	55	17	184	177	195	331.5	48.5	79	78	26	-	-	-	-	-	-	-	-
100 L	200	160	160	318	44	55	55	26	200	183	195	382	52	79	78	33.5	-	-	-	-	-	-	-	-
132 M	280	209	195	419	57	79	78	49	280	209	195	527	57	79	78	79	-	-	-	-	-	-	-	-
160 LR	310	227	186	491	37	112	98	79	316	276	186	564	37	112	98	103	264	227	186	684	37	112	98	109
200 L	390	276	186	654	58.5	112	98	180	-	-	-	-	-	-	-	-	410	276	186	804	58.5	112	98	265
225 MR	390	276	186	709	82	142	98	215	-	-	-	-	-	-	-	-	410	279	186	984	82	112	98	300

3000 range of geared motors - LSRPM Accessories and options


G1 - Cb S-, BS, BD, BR dimensions


S foot mounted form

Dimensions in millimetres



* The reference is the view from side F, motor behind, side D on the floor, terminal box: UP-0★ (std).

1-stage gearbox						
Compabloc	ØD	E	A	B	H	 kg
Cb 3531	45k6	90	260	160	160	41
Cb 3431	40k6	80	216	125	132	25
Cb 3331	35k6	70	190	100	112	15.5
Cb 3231	25j6	50	140	80	90	8.3
Cb 3131	20j6	40	120	75	80	6.9

Multi-stage gearbox						
Compabloc	ØD	E	A	B	H	 kg
Cb 3533	60m6	120	280	280	225	90
Cb 3433	50k6	100	230	235	180	50
Cb 3333	40k6	80	170	240	140	30
Cb 3233	30j6	60	135	192	115	18.5
Cb 3133	25j6	50	110	165	90	13

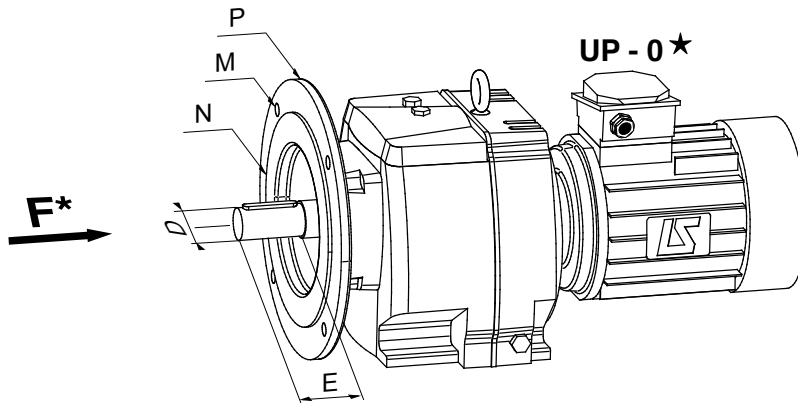


3000 range of geared motors - LSRPM Accessories and options

G1 - Cb S-, BS, BD, BR dimensions

BS, BD, BR flange form

Dimensions in millimetres



* The reference position is the view from side F, motor behind, side D on the floor, terminal box: UP-0★ (std).

Compabloc	1-stage gearbox																	
	BS						BD1				BD2				BD3			
	ØD	E	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg
Cb 3531	45k6	90	300	250	350	48	265	230	300	46	-	-	-	-	-	-	-	-
Cb 3431	40k6	80	265	230	300	31	215	180	250	30	-	-	-	-	-	-	-	-
Cb 3331	35k6	70	215	180	250	19	165	130	200	18	-	-	-	-	-	-	-	-
Cb 3231	25j6	50	165	130	200	10	130	110	160	9.5	-	-	-	-	-	-	-	-
Cb 3131	20j6	40	130	110	160	8.1	115	95	140	7.9	-	-	-	-	-	-	-	-

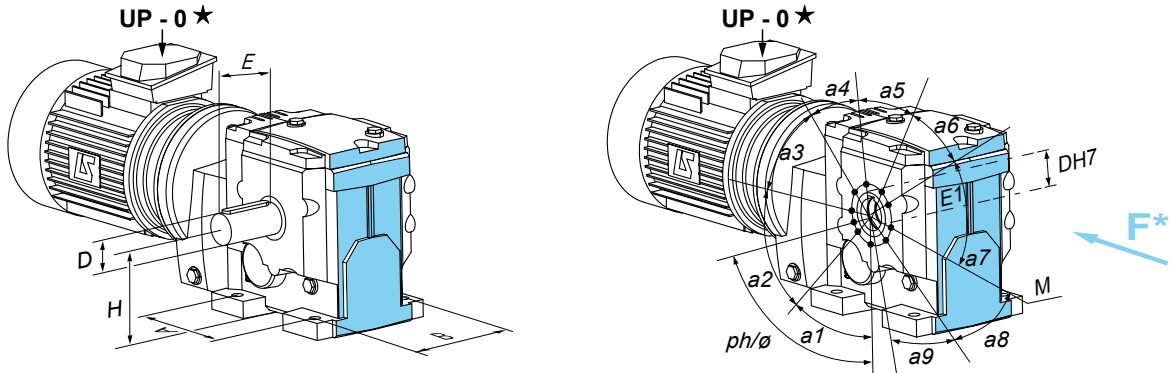
Compabloc	Multi-stage gearbox																	
	BS						BD1				BD2				BD3			
	ØD	E	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg	ØM	ØN	ØP	kg
Cb 3533	60m6	120	350	300	400	97	300	250	350	96	265	230	300	90	-	-	-	-
Cb 3433	50k6	100	300	250	350	56	265	230	300	55	215	180	250	54	-	-	-	-
Cb 3333	40k6	80	265	230	300	34	215	180	250	33	165	130	200	32.5	-	-	-	-
Cb 3233	30j6	60	215	180	250	18.8	165	130	200	18.7	130	110	160	18.6	-	-	-	-
Cb 3133	25j6	50	165	130	200	13.4	130	110	160	13.3	115	95	140	13.2	100	80	120	13.1

3000 range of geared motors - LSRPM Accessories and options

G2 - Ot S, SBT dimensions

S foot mounted form, SBT face mounted form

Dimensions in millimetres



* The reference position is the view from side F, motor behind, side D on the floor, terminal box: UP-0★ (std).

- Foot mounted form, L solid shaft on left, R solid shaft on right, H hollow shaft

Orthobloc	SL					SR					SH					kg
	A	B	H	ØD	E	A	B	H	ØD	E	A	B	H	ØDH7	E1	
Ot 3833 S	350	270	375	110m6	210	350	270	375	110m6	210	350	270	375	100	350	378
Ot 3733 S	420	270	250	90m6	170	420	270	250	90m6	170	420	270	250	90	340	306
Ot 3633 S	355	240	225	70m6	140	355	240	225	70m6	140	355	240	225	70	304	198
Ot 3533 S	230	180	212	60m6	120	230	180	212	60m6	120	230	180	212	60	244	83
Ot 3433 S	190	165	180	50k6	100	190	165	180	50k6	100	190	165	180	50	226	60
Ot 3333 S	150	140	140	40k6	80	150	140	140	40k6	80	150	140	140	40	173	38
Ot 3233 S	150	120	112	30j6	60	150	120	112	30j6	60	150	120	112	35	151	21
Ot 3232 S	150	120	112	30j6	60	150	120	112	30j6	60	150	120	112	35	151	22
Ot 3132 S	100	100	80	25j6	50	100	100	80	25j6	50	100	100	80	30	130	14.5

- Face mounted form on left, L solid shaft on left, R solid shaft on right, H hollow shaft

Orthobloc	Side L													H				kg		
	A	B	H	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	n	ph/ø	øM		øDH7	E1
Ot 3833 SBT	350	270	375	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	11	75°-255°/300	300	100	350	347
Ot 3733 SBT	420	270	250	36°	36°	36°	36°	36°	36°	36°	36°	36°	-	-	9	0°/230	230	90	340	289
Ot 3633 SBT	355	240	225	70°	35°	40°	70°	40°	35°	-	-	-	-	-	6	0°/220	230	70	310	186
Ot 3533 SBT	230	180	212	59°	52°	44°	50°	44°	81°	-	-	-	-	-	6	300°/190	190	60	244	80
Ot 3433 SBT	190	165	180	65°	46°	44°	50°	44°	81°	-	-	-	-	-	6	300°/152	152	50	226	58
Ot 3333 SBT	150	140	140	65°	48°	44°	46°	45°	67°	-	-	-	-	-	6	65°/123	123	40	173	36
Ot 3233 SBT	150	120	112	0°	65°	48°	44°	46°	50°	-	-	-	-	-	6	295°/102	100	35	151	20
Ot 3232 SBT	150	120	112	0°	65°	48°	44°	46°	50°	-	-	-	-	-	6	295°/102	100	35	151	21.8
Ot 3132 SBT	100	100	80	0°	90°	90°	90°	-	-	-	-	-	-	-	4	340°/95	95	30	130	14

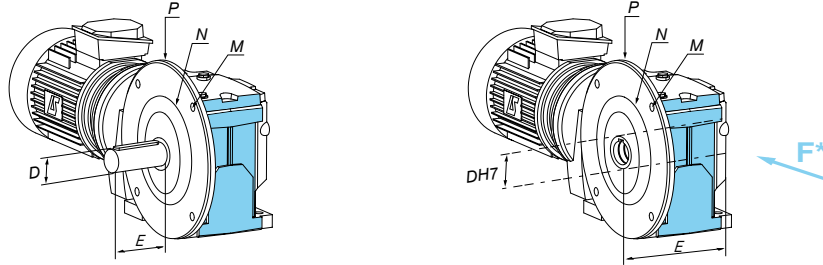
- Face mounted form on right, L solid shaft on left, R solid shaft on right, H hollow shaft

Orthobloc	Side R													H				kg		
	A	B	H	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	n	ph/ø	øM		øDH7	E1
Ot 3833 SBT	350	270	375	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	30°	11	75°-255°/300	300	100	350	347
Ot 3733 SBT	420	270	250	36°	36°	36°	36°	36°	36°	36°	36°	36°	-	-	9	0°/230	230	90	340	289
Ot 3633 SBT	355	240	225	70°	35°	40°	70°	40°	35°	-	-	-	-	-	6	0°/220	230	70	310	186
Ot 3533 SBT	230	180	212	0°	59°	52°	44°	50°	44°	-	-	-	-	-	6	300°/190	190	60	244	80
Ot 3433 SBT	190	165	180	10°	55°	46°	44°	50°	44°	-	-	-	-	-	6	300°/152	152	50	226	58
Ot 3333 SBT	150	140	140	0°	45°	68°	44°	46°	44°	-	-	-	-	-	6	65°/123	123	40	173	36
Ot 3233 SBT	150	120	112	0°	65°	48°	44°	46°	50°	-	-	-	-	-	6	295°/102	100	35	151	20
Ot 3232 SBT	150	120	112	0°	65°	48°	44°	46°	50°	-	-	-	-	-	6	295°/102	100	35	151	21.8
Ot 3132 SBT	100	100	80	0°	90°	90°	90°	-	-	-	-	-	-	-	4	340°/95	95	30	130	14

3000 range of geared motors - LSRPM Accessories and options

G2 - Ot BSL, BDL dimensions

Dimensions in millimetres



* The reference position is the view from side F, motor behind, side D on the floor.

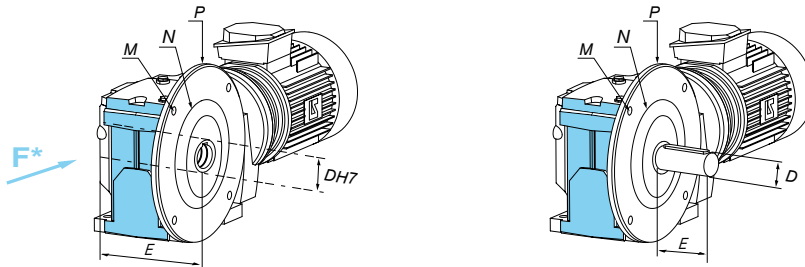
- L solid shaft on left

Orthobloc	BSL L						BDL L					
	ØM	ØNj6	ØP	ØD	E	kg	ØM	ØNj6	ØP	ØD	E	kg
Ot 3833	500	450	550	110m6	210	402	-	-	-	-	-	-
Ot 3733	400	350	450	90m6	170	336	-	-	-	-	-	-
Ot 3633	400	350	450	70m6	140	226	-	-	-	-	-	-
Ot 3533	350	300	400	60m6	120	94	300	250	350	60m6	120	93
Ot 3433	300	250	350	50k6	100	68	265	230	300	50k6	100	67
Ot 3333	265	230	300	40k6	80	42	215	180	250	40k6	80	42
Ot 3233	215	180	250	30j6	60	22	165	130	200	30j6	60	21.7
Ot 3232	215	180	250	30j6	60	23.3	165	130	200	30j6	60	23
Ot 3132	130	110	165	25j6	50	14.8	-	-	-	-	-	-

- H hollow shaft

Orthobloc	BSL H						BDL H					
	ØM	ØNj6	ØP	ØDH7	E	kg	ØM	ØNj6	ØP	ØDH7	E	kg
Ot 3833	500	450	550	100	350	371	-	-	-	-	-	-
Ot 3733	400	350	450	90	340	322	-	-	-	-	-	-
Ot 3633	400	350	450	70	310	216	-	-	-	-	-	-
Ot 3533	350	300	400	60	244	91	300	250	350	60	244	89
Ot 3433	300	250	350	50	226	66	265	230	300	50	226	65
Ot 3333	265	230	300	40	173	40	215	180	250	40	173	40
Ot 3233	215	180	250	35	151	21	165	130	200	35	151	21.7
Ot 3232	215	180	250	35	151	23.3	165	130	200	30	151	23
Ot 3132	130	110	165	30	130	14.8	-	-	-	-	-	-

G2 - Ot BSR, BDR, BRR dimensions



* The reference position is the view from side F, motor behind, side D on the floor.

- R solid shaft on right

Orthobloc	BSR R						BDR R						BRR R						
	ØM	ØNj6	ØP	ØD	E	kg	ØM	ØNj6	ØP	ØD	E	kg	ØM	ØNj6	ØP	ØD	E	kg	
Ot 3833	500	450	550	110m6	210	402	-	-	-	-	-	-	-	-	-	-	-	-	-
Ot 3733	400	350	450	90m6	170	336	-	-	-	-	-	-	-	-	-	-	-	-	-
Ot 3633	400	350	450	70m6	140	226	-	-	-	-	-	-	-	-	-	-	-	-	-
Ot 3533	350	300	400	60m6	120	94	300	250	350	60m6	120	93	300	250	350	65m6	130	120	120
Ot 3433	300	250	350	50k6	100	68	265	230	300	50k6	100	67	265	230	300	55k6	110	72	72
Ot 3333	265	230	300	40k6	80	42	215	180	250	40k6	80	42	215	180	250	45k6	90	51	51
Ot 3233	215	180	250	30j6	60	22	165	130	200	30j6	60	21.7	-	-	-	-	-	-	-
Ot 3232	215	180	250	30j6	60	23.3	165	130	200	30j6	60	23	-	-	-	-	-	-	-
Ot 3132	130	110	165	25j6	50	14.8	-	-	-	-	-	-	-	-	-	-	-	-	-

- Hollow shaft H

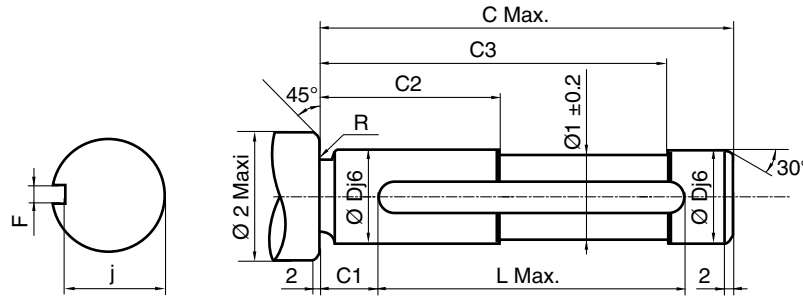
Orthobloc	BSR H						BDR H					
	ØM	ØNj6	ØP	ØDH7	E	kg	ØM	ØNj6	ØP	ØDH7	E	kg
Ot 3833	500	450	550	100	350	371	-	-	-	-	-	-
Ot 3733	400	350	450	90	340	322	-	-	-	-	-	-
Ot 3633	400	350	450	70	310	216	-	-	-	-	-	-
Ot 3533	350	300	400	60	244	91	300	250	350	60	244	89
Ot 3433	300	250	350	50	226	66	265	230	300	50	226	65
Ot 3333	265	230	300	40	173	40	215	180	250	40	173	40
Ot 3233	215	180	250	35	151	21	165	130	200	35	151	21.7
Ot 3232	215	180	250	35	151	23.3	165	130	200	30	151	23
Ot 3132	130	110	165	30	130	14.8	-	-	-	-	-	-

3000 range of geared motors - LSRPM Accessories and options

G3 - Orthobloc 3000 options

Driven shaft

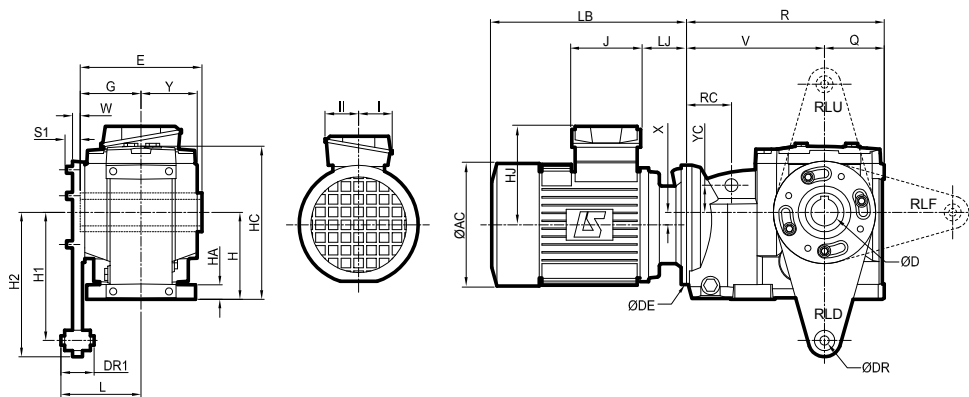
Dimensions in millimetres



Driven shaft											
Type	C	C1	C2	C3	D	F	j	L	Ø1	Ø2	R
Ot 3833	295	20	70	280	100	28	90	265	99.5	130	1.5
Ot 3733	290	20	105	275	90	25	81	260	89.5	120	1.6
Ot 3633	265	20	75	250	70	20	62.5	235	69.5	100	1.6
Ot 3533	200	15	90	179	60	18	53	175	59.5	65	0.8
Ot 3433	185	15	50	176	50	14	44.5	160	49.5	65	0.8
Ot 3333	145	15	40	133	40	12	35	120	39.5	55	0.8
Ot 3233	120	15	42	109	35	10	30	95	34.5	50	0.8
Ot 3232	120	15	42	109	35	10	30	95	34.5	50	0.8
Ot 3132	105	15	32	100	30	8	26	85	29.5	45	0.8

R Torque arm

Dimensions in millimetres



R torque arm																					
Type	Ø D	Ø DE	Ø DR	DR1	E	G	H	H1	H2	HA	HC	L	Q	R	RC	V	W	X	Y	YC	S1
Ot 3833	100H7	375	56	116	346	173	375	550	610	50	630	253	225	610	96	385	28	73.5	173	65	13
Ot 3733	90H7	375	24	96	340	170	250	450	496	48	465	236	255	722.5	118	467.5	24	-29	168	148	12.5
Ot 3633	70H7	375	24	96	310	155	225	350	391.5	39.5	413	215	222	587	120	365	18	0	153	98	10
Ot 3533	60H7	262	16	54	244	122	212	310	340	30	346	139.5	132	405	73	273	15.5	37	112.5	67	-
Ot 3433	50H7	225	16	54	226	113	180	250	280	27	306	128.5	114	350	59	236	13.5	30	103.5	60	-
Ot 3333	40H7	184	16	54	173	86.5	140	200	230	21.5	245	110	90	305	65	215	21.5	7	85	50	-
Ot 3233	35H7	154	10	33	151	75.5	112	130	151	18.5	205	90	77	255	58	178	13	16	72.5	35	-
Ot 3232	35H7	184	10	33	151	75.5	112	130	151	21	267	91.5	93	290	77	197	13	63	72.5	85	-
Ot 3132	30H7	154	10	33	130	65	80	130	151	15	203.5	77.5	80	245	69	165	11	46.5	60	66	-

3000 range of geared motors - LSRPM Accessories and options

G3 - Orthobloc 3000 options

SD shrink disc

Dimensions in millimetres

ADVANTAGE OF THE SHRINK DISC

Specially designed for assembling hollow shafts, it attaches the transmission device securely to the shaft.

The torque (M), radial (F_R) and axial (F_a) 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 table.

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

The tightening torque is maintained for operating temperatures from -50°C to $+250^\circ\text{C}$.

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

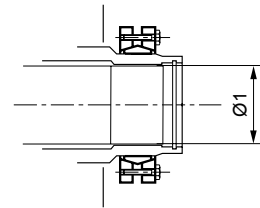
Very high transmissible torque (shrink disc M according to table below).

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

Takes little time to assemble.

Quick to dismantle.

The assembly and dismantling precautions are described in the corresponding manual.

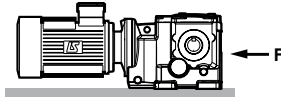


Type	Shrink disc torque M Nm	Shaft $\varnothing 1$	Tightening torque for shrink disc bolts Nm	Dimensions see pages
Ot 3833	26500	105	100	78
Ot 3733	13000	95	59	76
Ot 3633	7500	75	30	74
Ot 3533	6000	62	30	72
Ot 3433	2400	52	12	70
Ot 3333	1380	42	12	68
Ot 3232 - 33	860	36	12	64 - 66
Ot 3132	570	30	12	62

DEFINITION

After the operating position, the following elements must be specified:

- the mounting form and position: these are defined on page 4. The gearbox is viewed from side **F** with the motor behind, operation **B3** or **B5**.



- the side for fixing the **SD** shrink disc on the hollow shaft: **SD R**: shrink disc mounted on the right, **SD L**:

shrink disc mounted on the left.

The two tables below give the mounting options and the positioning of the shrink disc and cover according to the possible mounting forms.

With a flanged gearbox, the shrink disc and its cover are always opposite the flange.

SD R shrink disc and cover on right, client shaft on left: ● = feasibility

Type	Foot mounting form		Flange mounting form		
	NS SDR	S SDR	SBT LR SDR	BS L SDR	BD L SDR
Ot 36 - 37 - 38	NA	●	●	●	-
Ot 33 - 34 - 35	-	●	●	●	●
Ot 32	NA	●	●	●	●
Ot 31	NA	●	●	●	-

NA : not available

SD L shrink disc and cover on left, client shaft on right: ● = feasibility

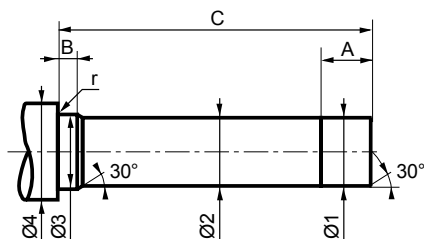
Type	Foot mounting form		Flange mounting form		
	NS SDR	S SDR	SBT LR SDR	BS R SDR	BD R SDR
Ot 36 - 37 - 38	NA	●	●	●	-
Ot 33 - 34 - 35	-	●	●	●	●
Ot 32	NA	●	●	●	●
Ot 31	NA	●	●	●	-

NA : not available

CLIENT SHAFT FOR SHRINK DISC

Type	A min.	B max.	C max.	r max.	$\varnothing 1h6$	$\varnothing 2$	$\varnothing 3$	$\varnothing 4$
Ot 3833	90	24.5	448	1.5	105	104	105	140
Ot 3733	60	24.5	407	0.8	95	94	95	120
Ot 3633	45	24.5	370	0.8	75	74	75	100
Ot 3533	50	11.5	304	0.8	62	61	63	90
Ot 3433	45	9.5	287	0.5	52	51	53	65
Ot 3333	37	9.5	224	0.5	42	41	44	55
Ot 3232 - 33	25	7.5	186	0.8	36	35	37	50
Ot 3132	25	34.5	167	-	30	29	30	45

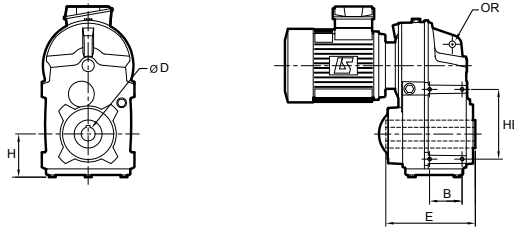
These values are given as a guide only.



3000 range of geared motors - LSRPM Accessories and options

G4 - Mub R, NU, BT, BS, BD dimensions

Dimensions in millimetres

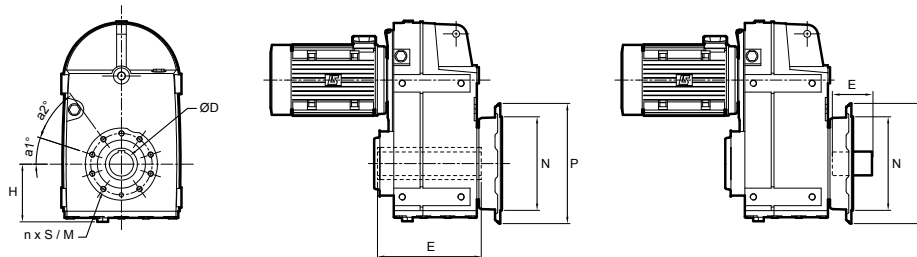


- R form

Manubloc	H hollow shaft				kg	S solid shaft			kg
	ØD	H	OR			OR	ØD	E	
Mub 38--	100H7	263	33		335	33	110m6	210	352
Mub 37--	90H7	214	26		283	26	90m6	170	297
Mub 36--	70H7	194	33		197	33	70m6	140	207
Mub 35--	60H7	171	24		116	-	-	-	-
Mub 34--	50H7	126	22		70	-	-	-	-
Mub 33--	40H7	127	14		43	-	-	-	-
Mub 32--	30H7	94.5	14		26	-	-	-	-
Mub 3132	30H7	95	14		15.5	-	-	-	-

- NU form - L (left), R (right), LR (left and right)

Manubloc	H hollow shaft				kg	S solid shaft			kg
	ØD	H	B	HB		ØD	E		
Mub 38--	100H7	263	270	450	332	110m6	210	348	
Mub 37--	90H7	214	220	425	280	90m6	170	294	
Mub 36--	70H7	194	165	315	195	70m6	140	205	
Mub 35--	60H7	171	165	300	115	-	-	-	
Mub 34--	50H7	126	100	240	69	-	-	-	
Mub 33--	40H7	127	110	200	43	-	-	-	
Mub 32--	30H7	94.5	70	150	26	-	-	-	



- BT form

Manubloc	H hollow shaft													kg		
	ØD	H	a1°	a2°	a3°	a4°	a5°	a6°	a7°	a8°	a9°	a10°	a11°		nxS	ØM
Mub 38--	100H7	263	30	30	30	60	30	30	30	30	30	30	30	11xM20x40	300	332
Mub 37--	90H7	214	18	36	36	36	36	-	36	72	-	-	-	9xM20x35	230	280
Mub 36--	70H7	194	15	40	70	40	35	-	-	-	-	-	-	6xM16x27	230	195
Mub 35--	60H7	171	60	-	-	-	-	-	-	-	-	-	-	6xM12x20	215	115
Mub 34--	50H7	126	60	-	-	-	-	-	-	-	-	-	-	6xM12x22	180	69
Mub 33--	40H7	127	60	-	-	-	-	-	-	-	-	-	-	6xM10x18	165	43
Mub 32--	30H7	94.5	45	-	-	-	-	-	-	-	-	-	-	4xM8x12	130	26
Mub 3132	30H7	95	45	-	-	-	-	-	-	-	-	-	-	4xM8x12	115	15.5

Manubloc	S solid shaft													kg		
	ØD	E	a1°	a2°	a3°	a4°	a5°	a6°	a7°	a8°	a9°	a10°	a11°		nxS	ØM
Mub 38--	110m6	210	30	30	30	30	30	30	30	30	30	30	30	11xM20x40	300	348
Mub 37--	90m6	170	18	36	36	36	36	36	36	75	-	-	-	9xM20x35	230	294
Mub 36--	70m6	140	15	40	70	40	35	160	-	-	-	-	-	6xM16x27	230	205

- BS flange form

Manubloc	H hollow shaft							kg	S solid shaft				kg	
	ØD	E	nxS	ØM	a1°	a2°	ØNj6		ØP	ØD	E	a1°		a2°
Mub 38--	100H7	428	8x17.5	500	22.5	45	450	550	367	110m6	210	22.5	45	384
Mub 37--	90H7	376	8x18	400	22.5	45	350	450	310	90m6	170	22.5	45	324
Mub 36--	70H7	326	8x18	400	22.5	45	350	450	223	70m6	140	22.5	45	233
Mub 35--	60H7	292	4x18	300	45	90	250	350	130	-	-	-	-	-
Mub 34--	50H7	260	4x14	265	45	90	230	300	79	-	-	-	-	-
Mub 33--	40H7	191.5	4x14	265	45	90	230	300	51	-	-	-	-	-
Mub 32--	30H7	190.5	4x14	215	45	90	180	250	31	-	-	-	-	-

- BD flange form

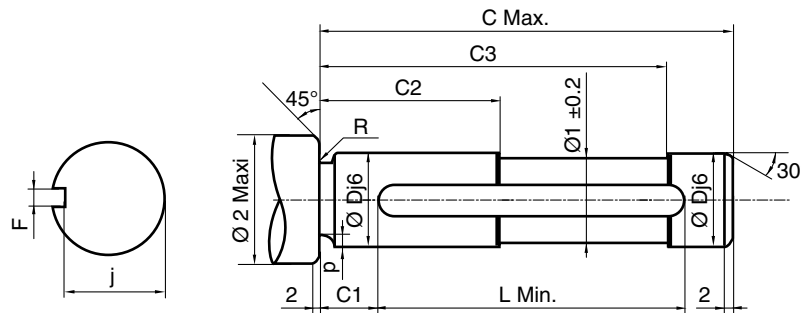
Manubloc	H hollow shaft						kg
	ØD	E	nxS	ØM	Nj6	P	
Mub 34--	50H7	260	4x14	215	180j6	250	78
Mub 33--	40H7	191.5	4x14	215	180j6	250	50
Mub 32--	30H7	190.5	4x12	165	130j6	200	30

3000 range of geared motors - LSRPM Accessories and options

G5 - Manubloc 3000 options

Driven shaft

Dimensions in millimetres



Driven shaft												
Type	C	C1	C2	C3	D	F	j	L	Ø1	Ø2	p	R
Mub 38--	370	20	90	338	100	28	90	180	99	135	-	1
Mub 37--	327	20	100	276	90	25	81	140	89	115	-	1
Mub 36--	283	20	70	256	70	20	62.5	115	69	95	-	1
Mub 35--	244	20	70	212	60	18	53	110	59	95	-	1
Mub 34--	224	15	70	190	50	14	44.5	90	49	90	0.3	0.8
Mub 33--	150	15	60	131	40	12	35	70	39	60	0.3	0.8
Mub 32--	160	15	45	145	30	8	26	50	29	55	0.3	0.8
Mub 3132	91	10	30	83	30	8	26	40	29	40	0.3	0.8

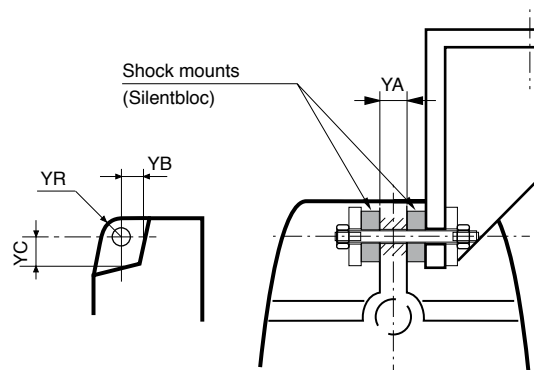
FM flexible mounting

Dimensions in millimetres

The reaction torque of the Manublocs must be absorbed by a suitable torque arm (not supplied).

Play that is too great risks producing dangerous jolts when the running direction is reversed or the speed switched; flexible mountings are therefore recommended: compressed rubber damping components (of the Silentbloc type) as shown in the diagram opposite.

The flat surface of the housing has a transverse hole in it that can be used for mounting such joints as shown in the sketch. The other components are not supplied by Leroy-Somer.



Dimensions FM flexible mounting (Silentbloc)							
Type	YA	YB	YC	YR	internal Ø	external Ø	Thickness
Mub 38--	42	75	166	33	35	100	40
Mub 37--	36	65	110	26	33	80	30
Mub 36--	30	70	90	33	33	80	30
Mub 35--	25	44	42	20	22	60	30
Mub 34--	25	55	32	35	22	60	30
Mub 33--	18	37	23	19	14	40	15
Mub 32--	16	37	23	19	14	40	15
Mub 3132	15	26	19	25	14	40	15

3000 range of geared motors - LSRPM

Accessories and options

G5 - Manubloc 3000 options

SDB shrink disc

Dimensions in millimetres

Description

Specially designed for assembling hollow shafts, it attaches the transmission device securely to the shaft. The torque (M), radial (F_R) and axial (F_a) 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 absence of initial play is retained throughout the life of the gearbox.

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

Surface roughness tolerance

The maximum permissible surface roughness is R_z max = 15 μ 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 F_a).

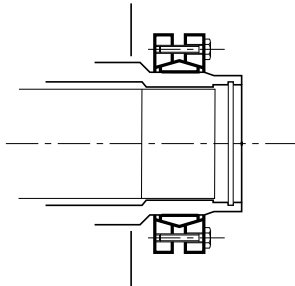
Takes little time to assemble.

Quick to dismantle.

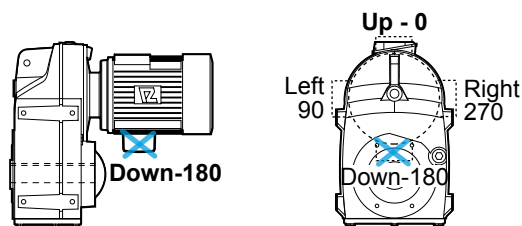
Definition

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

- **NU SDB** : housing with tapped holes on side. L: on left, R: on right
- **BT SDB** : face-mounted housing
- **R SDB** : flexible mounting form

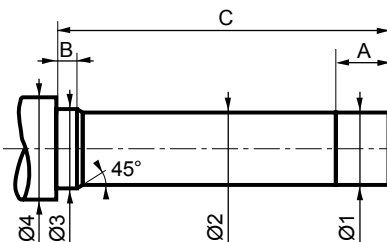


Gearbox type	Shrink disc torque	Tightening torque of shrink disc screws	Dimensions see pages
	M (N.m)	M (N.m)	
Mub 38--	26500	100	101
Mub 37--	13000	59	100
Mub 36--	7500	30	99
Mub 35--	6000	30	98
Mub 34--	3200	30	97
Mub 33--	2200	12	96
Mub 32--	1106	12	95
Mub 3132	570	12	94



Restriction : in the majority of cases, motors cannot be supplied with the terminal box in position Down-180.

Client shaft for shrink disc



Type	Client shaft for shrink disc						
	A min.	B min.	C	Ø1	Ø2	Ø3	Ø4
Mub 38	85	90	525	105	104	105	140
Mub 37	64	30	445	95	94.5	95	115
Mub 36	52	30	356	75	74	75	95
Mub 35	37	25	325	70	69.5	71	95
Mub 34	40	12	310	60	59.5	61	80
Mub 33	37	10	232	50	49.5	51	65
Mub 32	30	8	225	40	39.5	42	55
Mub 31	25	30	172	30	29.5	30	45

These values are given for information only

Selection guide

3000 range of geared motors - LSRPM

Notes

Selection guide

3000 range of geared motors- LSRPM

Notes

I - SPHERE OF APPLICATION

These General Conditions of Sale (GCS) apply to the sale of all products, components, software and provision of services (referred to as "Materials") offered or supplied by the Vendor to the Customer. They also apply to all quotations or offers made by the Vendor, and form an integral part of any order. "Vendor" means any company controlled directly or indirectly by LEROY-SOMER. In addition, the order is also subject to the Inter Trades Union General Conditions of Sale for France for the F.I.E.E.C. (*Federation of Electrical, Electronic and Communication Industries*), latest edition, in that they do not conflict with the GCS. Acceptance of the Vendor's offers and quotations, or any order, implies unqualified acceptance of these GCS and excludes any stipulations to the contrary appearing on all other documents, especially on the Customer's purchase orders and his General Conditions of Purchase. A dispensation from Paragraph 1 above applies to sales concerning foundry parts, which are subject to the General Contractual Conditions of European Foundries, latest edition.

Materials and services sold under these GCS may under no circumstances be intended for applications in the nuclear field, these sales expressly being the subject of special technical specifications and contracts which the Vendor reserves the right to refuse.

II - ORDERS

All orders, including those taken by the Vendor's agents and representatives, by whatever mode of transmission, become valid only after they have been accepted in writing by the Vendor or work on the order has begun.

The Vendor reserves the right to modify the characteristics of his Materials without prior notice. However, the Customer may still specify particular characteristics required for a contract. In the absence of such an express specification, the Customer will not be able to refuse delivery of the new modified Material.

The Vendor will not accept responsibility for an incorrect choice of Material if this incorrect choice results from incomplete and/or erroneous conditions of use, or these have not been conveyed to the Vendor by the Customer.

Unless otherwise specified, offers and quotations submitted by the Vendor are valid for only thirty days from the date of issue.

When the Material has to satisfy standards, particular regulations and/or be inspected by standards or inspection organisations, the price request must be accompanied by a full specification, with which the Vendor must agree. This is mentioned in the quotation or offer. All test and inspection fees are the Customer's responsibility.

III - PRICES

Prices are shown exclusive of tax, and may be revised without prior warning.

Prices are either firm for the duration specified on the quotation, or subject to revision according to a formula accompanying the tender which, according to the regulations, covers a change in the raw materials, products, miscellaneous services and salaries.

All related costs, such as customs clearance and special inspections etc, will be added on.

IV - DELIVERY

Sales are governed by the INCOTERMS published by the International Chamber of Commerce ("*I. C. C. INCOTERMS*"), latest edition.

The Material is dispatched in accordance with the conditions indicated on the order acknowledgement, sent by the Vendor in response to any order for Material.

Unless otherwise specified, prices refer to Material made available in the Vendor's factories, and include standard packaging.

Unless otherwise specified, Materials are always transported at the purchaser's risk. Without exception, it is up to the purchaser to raise with the transporter, in the legal form and time limits, any claim concerning the state or the number of packages received and also to send the Vendor a copy of this declaration. Failure to comply with this procedure will relieve the Vendor of all responsibility. In any case, the Vendor's responsibility cannot exceed the amount received from his insurers.

If the arrangements for dispatch are modified by the Customer after acceptance of the order, the Vendor reserves the right to invoice any additional costs arising from such changes.

Unless stipulated in the contract or due to a legal obligation to the contrary, packages cannot be returned.

Should the delivery of the Material be delayed, for a reason not attributable to the Vendor, Material stored on his premises will be insured at the sole risk of the Customer with a charge for storage costs at a rate of 1% (*one per cent*) of the total amount of the order, per week or part thereof (irrespective of the package) as from the availability date as indicated in the contract. After thirty days from this date, the Vendor will be able, as he wishes, either to dispose of the Material and/or arrange a new delivery date for the said Materials with the Customer, or to invoice the Customer in full in accordance with the delivery schedule and amount specified in the contract. In all instances, all deposits received remain the property of the Vendor by way of indemnity, without prejudice to other actions that the Vendor may institute.

V - DELIVERY DATES

The Vendor is bound only by the delivery dates stated on his order acknowledgement. These dates are counted from the date of the order acknowledgement sent by the Vendor, subject to compliance with the provisions indicated on the order acknowledgement, notably receipt of the deposit for the order, notification of the establishment of an irrevocable letter of credit, conforming to all the Vendor's requirements (*especially as regards the amount, currency, validity, licence, etc*), and acceptance of the various terms of payment as regards setting up any guarantees which may be required, etc.

Late delivery does not automatically entitle the Customer to damages and interest and/or penalties.

Unless otherwise specified, the Vendor reserves the right to make partial deliveries.

Delivery dates are suspended automatically and without legal formality, for any breach of obligations by the Customer.

VI - TESTS - APPROVAL

Materials manufactured by the Vendor are inspected and tested prior to dispatch from the factory. Customers may attend these tests: they simply have to state the wish to do so when the order is placed.

Specific tests and acceptance tests requested by the Customer, whether conducted on the Customer's premises, in the Vendor's factories, on site, or by inspection organisations, must be noted on the order and are to be paid for by the Customer.

Prototypes of Materials specially developed or adapted for a Customer must be approved by the Customer before any delivery of production Materials in order to make sure they are compatible with the other constituent parts of his equipment, and that they are suitable for the Customer's intended use of them. This approval will also enable the Customer to make sure that the Materials comply with the technical specification. To that end, the Customer and the Vendor will sign two copies of a Product Approval Form, one copy to be kept by each.

In the event of the Customer requiring delivery without having previously approved the Materials, these will then be delivered as they are and still considered as prototypes; the Customer will then assume sole responsibility for using them or supplying them to his own Customers. However, the Vendor may also decide not to deliver the Materials until they have been previously approved by the Customer.

VII - TERMS OF PAYMENT

All sales are deemed to be undertaken and payable at the Vendor's registered office, without exception, whatever the method of payment, the place of conclusion of the contract and delivery. When the Customer is based in France, invoices are payable on receipt in cash, by banker's draft or by *Letter of Exchange*, within 30 (*thirty*) days

of the end of the month following the invoice date.

Any payment made in advance of the fixed payment date will lead to a discount of 0.2% (*zero point two per cent*) per month of the amount concerned from the invoice.

Except as otherwise provided, when the Customer is based outside France, invoices are payable upon issue of the dispatch documents in cash, or by irrevocable letter of credit confirmed by a major French bank, all charges paid by the Customer.

Payments mean making funds available in the Vendor's bank account and must be made in the currency of the invoice.

Under French Law 2008-776 of 04/08/2008, non-payment of an invoice by its due date will invoke, after no result from a formal notice, a flat-rate penalty at the date the debt is due, applied to the amount inclusive of tax of the sums due if the invoice is liable to VAT (Value Added Tax), and suspension of orders in progress. This penalty is equal to the rate applied by the European Central Bank to its most recent refinancing operation plus 10 percentage points.

Should steps have to be taken to recover the said amount, a surcharge of 15% (fifteen per cent) of the sum demanded will be payable, with a minimum of €500 excl. tax (five hundred euros excluding tax). Any tax due will be charged to the Customer.

Moreover, with the proviso of complying with any legal measures in force, in the event of non-payment (total or partial) of an invoice or any amount due, whatever the method of payment envisaged, the Customer will be liable immediately for the whole of the outstanding amount owed to the Vendor (*including his subsidiaries, sister or parent companies, whether in France or overseas*) for all deliveries or services, whatever their initial due date.

Notwithstanding any particular settlement conditions arranged between the parties, the Vendor reserves the right to demand, as wished, in the event of deterioration of the Customer's credit, payment incident or compulsory administration of the Customer:

- payment in cash, before the Materials leave the factory, for all orders in progress
- payment of a deposit for the order
- additional or different payment guarantees

VIII - COMPENSATION CLAUSE

Unless prohibited by law, the Vendor and the Customer expressly agree between one another the balance of compensation between their debts and dues arising from their commercial relationship, even if the conditions defined in law for legal compensation are not all satisfied.

In applying this clause, Vendor means any company in the LEROY-SOMER group.

IX - TRANSFER OF RISKS / RESERVATION OF TITLE

Transfer of risks occurs upon the handing over of the Material, according to the delivery conditions agreed at the time of ordering. Transfer to the Customer of ownership of the Material sold occurs upon payment of the whole principal sum, including accessories. In the event of an action to establish title to the delivered Material, deposits paid will remain the property of the Vendor by way of indemnities.

The provision of a document creating an obligation to pay (*letter of exchange or similar*) does not constitute payment in full.

For as long as the price has not been paid in full, the Customer is obliged to inform the Vendor, within twenty-four hours, of the seizure, requisition or confiscation of Materials to the benefit of a third party, and to take all protective measures to inform the Vendor and comply with the Vendor's right of title in the event of intervention by creditors.

X - CONFIDENTIALITY

Each party undertakes to maintain confidentiality of information of a technical, commercial, financial or other nature, received from the other party, orally, in writing, or by any other communication method during negotiations and/or execution of any order.

This confidentiality obligation will apply throughout the period of execution of the order and for 5 (five) years after its completion or cancellation, whatever the reason for this.

XI - INDUSTRIAL AND INTELLECTUAL PROPERTY

Results, whether patentable or not, data, studies, information or software obtained by the Vendor during execution of any order are the exclusive property of the Vendor.

Apart from instructions for use, servicing and maintenance, reports and documents of any type delivered to Customers remain the exclusive property of the Vendor and must be returned to the Vendor on request, even when part of the design fees have been charged to them, and they may not be communicated to third parties or used without the prior written agreement of the Vendor.

XII - CANCELLATION / TERMINATION OF THE SALE

The Vendor reserves the right to cancel or terminate immediately, as wished, as of right and without legal formalities, the sale of his Material in the event of non-payment of any part of the price by the settlement date, or in the event of any breach of any of the contractual obligations to be met by the Customer. Deposits and financial obligations already paid will remain the Vendor's property by way of indemnities, without prejudice to his right to claim damages and interest. In the event of cancellation of the sale, the Material must be returned to the Vendor immediately, irrespective of its location, at the Customer's expense and risk, subject to a penalty of 10% (*ten per cent*) of its value per week late.

XIII - GUARANTEE

The Vendor guarantees the Materials against any operational defect, arising from a material or manufacturing defect, for twelve months starting from the date on which they are made available, unless any other legal measure effected at a later date might apply, according to the conditions defined below.

The guarantee will only apply insofar as the Materials have been stored, used and serviced in accordance with the Vendor's instructions and documentation. It cannot be invoked when the fault results from:

- failure to monitor, maintain or store the goods correctly
- normal wear and tear of the Material
- intervention on or modification to the Material without the Vendor's prior authorisation in writing
- abnormal use or use not conforming to the intended purpose of the Material
- defective installation at the Customer's premises and/or the end user's premises
- non-communication, by the Customer, of the intended purpose or the conditions of use of the Material
- failure to use original manufacturer spare parts
- in the event of Force Majeure or any event beyond the control of the Vendor

In all cases, the guarantee is limited to the replacement or repair of parts or Materials acknowledged as defective by the Vendor's technical departments. If the repair is assigned to a third party, it should be carried out only after acceptance by the Vendor of the estimate for repair.

No Material should be returned without the Vendor's prior authorisation in writing.

Material to be repaired should be sent prepaid, to the address indicated by the Vendor. If the Material has not been repaired under guarantee, the cost of returning it will be invoiced to the Customer or the end purchaser.

This guarantee applies to the Vendor's Material made accessible and therefore does not cover the cost of removal and reinstallation of the said Material in the unit in which it is integrated. Repair, modification or replacement of parts or Materials during the guarantee period will not have the effect of extending the length of the guarantee.

The provisions of this article constitute the only obligation on the part of the Vendor concerning the guarantee for the Materials supplied.

XIV - LIABILITY

The Vendor's liability is strictly limited to the obligations stipulated in these General Conditions of Sale and those expressly agreed to by the Vendor. All penalties and payments specified therein are deemed to be all-inclusive damages and interest, in full discharge and exclusive of any other sanction or compensation.

With the exclusion of serious fault on the Vendor's part and compensation for bodily injury, the Vendor's liability will be limited, all causes combined, to a maximum sum of the contractual amount excluding tax of the supply or service giving rise to the compensation.

Under no circumstances will the Vendor be liable to pay for intangible and/or indirect damages which the Customer might claim; he therefore cannot be held liable in particular for production, operating and other consequential losses or more generally any indemnifiable losses other than physical or material.

The Customer guarantees renunciation of recourse of his insurers or third parties in a contractual situation with him, against the Vendor or his insurers, over and above the limits and for the exclusions laid down above.

XV - SPARE PARTS AND ACCESSORIES

Spare parts and accessories are provided on request insofar as they are available. Related costs (*carriage and any other costs*) are always added to the invoice.

The Vendor reserves the right to demand a minimum quantity or invoice amount per order.

XVI - WASTE MANAGEMENT

The Material covered by the sale does not fall within the scope of European Directive 2002/96/EC (WEEE) of 27 January 2003, and all resulting laws and decrees of the Member States of the EU, relating to the composition of electrical and electronic equipment and the disposal of waste originating from this equipment.

In accordance with Article L 541-2 of the Environmental Code, it is the responsibility of the possessor of the waste to dispose of it, or have it disposed of, at his expense.

XVII - FORCE MAJEURE

Apart from the Customer's obligation to pay the sums due to the Vendor under the order, the Customer and the Vendor cannot be held responsible for the total or partial non-fulfilment of their contractual obligations if this non-fulfilment results from the occurrence of a force majeure situation. The following in particular are considered to be force majeure situations: production delays or disruptions resulting wholly or partially from war (declared or not), an act of terrorism or strikes, riots, accidents, fires, floods, natural disasters, transport delay, shortage of components or materials, or a governmental decision or act (including an export ban or revocation of an export licence).

If one of the parties is delayed or prevented in the fulfilment of his obligations because of the present Article for more than 180 consecutive days, each party may then cancel, automatically and without legal formality, the non-executed part of the order by written notification to the other party, without his liability being sought. However, the Customer will be obliged to pay the agreed price relating to the Materials already delivered at the cancellation date.

XVIII - BAN ON ILLICIT PAYMENTS

The Customer is forbidden any initiative which would expose the Vendor, or any related company, to a risk of sanctions by virtue of the legislation of a State banning illicit payments, in particular bribes and gifts of an obviously unreasonable amount, to the employees of an Administration or public body, to political parties or their members, to those standing for an elective post, or to employees of customers or suppliers.

XIX - CONFORMITY OF SALES WITH INTERNATIONAL LEGISLATION

The Customer agrees that the applicable legislation as regards import and export control, that is to say, that applicable in France, the European Union, the United States of America, in the country where the Customer is based, if this country does not come under the legislation mentioned previously, and in the countries from which the Materials may be delivered, as well as the provisions contained in the licences and permits relating thereto, of general or dispensatory scope (referred to as "conformity of sales with international regulations"), apply to the acceptance and use by the Customer of the Materials and their technology. Under no circumstances must the Customer use, transfer, dispose of, export or re-export the Materials and/or their technology in violation of the provisions on conformity of sales with international regulations.

The Vendor will be under no obligation to deliver the Materials until the licences or permits necessary under the conformity of sales to international regulations have been obtained.

If, for any reason whatsoever, the said licences or permits were refused or withdrawn, or in the event of amendment of the international regulations applicable to the conformity of sales which would prevent the Vendor from fulfilling his contractual obligations or which, according to the Vendor, would expose his liability or that of his related companies, by virtue of the international regulations relating to the conformity of sales, the Vendor would then be released from his contractual obligations without his liability being invoked.

XX - PARTIAL INVALIDITY

Any clause and/or provision of these General Conditions deemed and/or which has become null and void does not render the contract null and void, only the actual clause and/or provision concerned.

XXI - DISPUTES

THIS CONTRACT IS SUBJECT TO FRENCH LAW.

IN THE ABSENCE OF AMICABLE AGREEMENT BETWEEN THE PARTIES, AND NOTWITHSTANDING ANY CLAUSE TO THE CONTRARY, ANY DISPUTE RELATING TO THE INTERPRETATION AND/OR EXECUTION OF AN ORDER MUST BE RESOLVED BY THE COMPETENT COURTS OF ANGOULEME (FRANCE), EVEN IN THE CASE OF INTRODUCTION OF THIRD PARTIES OR MULTIPLE DEFENDANTS. HOWEVER, THE VENDOR RESERVES THE EXCLUSIVE RIGHT TO BRING ANY DISPUTE INVOLVING THE CUSTOMER BEFORE THE COURTS IN THE LOCATION OF THE VENDOR'S REGISTERED OFFICE OR THOSE WITHIN WHOSE JURISDICTION THE LOCATION OF THE CUSTOMER'S REGISTERED OFFICE FALLS.



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