Geared motors with fractional power

From 1 Nm to 200 Nm

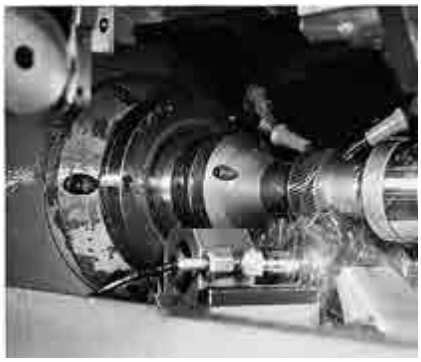
LEROY-SOMER™

Nidec
All for dreams

Introduction

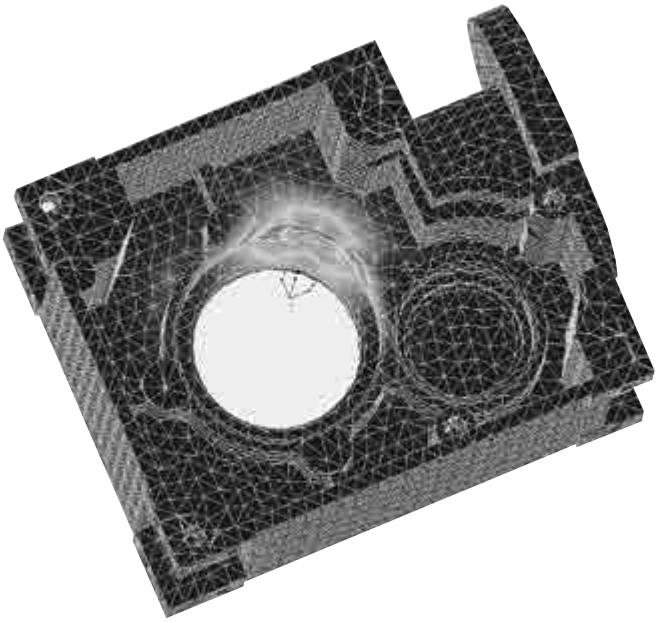
Leroy-Somer's extensive experience in all areas of "industrial" power and drive transmission has led it to develop a highly comprehensive range of geared motors for "fractional" power.
These products must provide the user with the same level of satisfaction (i.e. reliability, performance, etc.) as the "industrial" products. whilst still meeting the specific needs of the "fractional" market.
Specialised units from the Leroy-Somer group have therefore been set up to design and manufacture these products (motors and gearboxes).
All the gearboxes shown in this catalogue have components that have been selected for their quality and performance.
Thus:
• the shafts (output or countershafts) are mounted exclusively on ball bearings.

• in addition to their calculations and the optimisation of their teeth all done by computer, the gearing for all models has been manufactured with specially-adapted equipment.



• gear reducers: all gearing is made of hardened steel with final machining. The input trains are microfinished to guarantee an especially low noise level.

• worm and wheel gearboxes: all wheels are made of bronze (never synthetic materials) with alloy optimised for operating; worms cut in hardened steel and either toughened and ground or surface treated by ion nitriding (depending on type).



In addition, all frames created using Computer-Aided Design (CAD) meet market requirements: dimensions and weight have been kept as low as possible, with easy maintenance and installation for the user.

Finally, for easy product operation, all gearboxes are lubricated for their lifetime and supplied "ready to use".
The drives that accompany the gearboxes in this catalogue are the most widely used.
Like the gearboxes, these motors come from industrial ranges and meet the most stringent operating standards.
The products in this catalogue form the cornerstone of "fractional manufacturing".

Any specific application that requires specially adapted features, whether mechanical or electrical, can be reviewed with Leroy-Somer's technical department.

Contents

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LEROY-SOMER reserves the right to modify the design, technical specifications and dimensions of the products shown in this document.
The descriptions cannot in any way be considered contractual.

Quality commitment

LEROY-SOMER's quality management system is based on:
- control of procedures right from the initial sales offering until delivery to the customer,includingdesign,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 procedural 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 **ISO 9001 certification: 2000 from the DNV**. Similarly, our environmental approach has enabled us to obtain ISO 14001 certification: 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.

Units of measurement and standard formulae

ELECTRICITY AND ELECTROMAGNETISM

Parameters				Units		Units and expressions not recommended
English name	**French name**	**Symbol**	**Definition**	**SI**	**Non SI, but accepted**	**Conversion**
Frequency **Period**	Fréquence	f	$f = \frac{1}{T}$	Hz (hertz)		
Electric current (current)	Courant électrique (intensité de)	I		A (ampere)		
Electric potential **Output** **Electromotive force**	Potentiel électrique Tension Force électromotrice	V R O		V (volt)		
Phase angle	Déphasage	φ	$U = Um \cos \omega t$ $i = im \cos (\omega t - \varphi)$	rad	° degree	
Power factor	Facteur de puissance	$\cos \varphi$				
Reactance **Resistor** **Impedance**	Réactance Résistance Impédance	X S Z	$Z = \lvert Z \rvert e^{j\varphi}$ $= R + jX$ $\lvert Z \rvert = \sqrt{S^2 + X^2}$ $X = P\omega - \frac{1}{C\omega}$	Ω (ohm)		j is defined as $j^2 = -1$ ω rotational frequency = $2\pi . f$
Self inductance	Inductance propre (self)	P	$P = \frac{\Phi}{I}$	H (henry)		
Capacity	Capacité	C	$C = \frac{Q}{V}$	F (farad)		
Current load, **Quantity of electricity**	Charge électrique, Quantité d'électricité	Q	$Q = \int I dt$	C (coulomb)	A.h 1 A.h = 3 600 C	
Resistivity	Résistivité	ρ	$\rho = \frac{R . O}{I}$	Ω.m		Ω/m
Conductance	Conductance	G	$G = \frac{1}{S}$	S (siemens)		1/ Ω = 1 S
Number of turns (coil) **Number of phases** **Number of pairs of poles**	Nombre de tours (spires) de l'enroulement Nombre de phases Nombre de paires de pôles	N m p				
Magnetic field	Champ magnétique	H		A/m		
Magnetic potential difference **Magnetomotive force** **Current linkage**	Différence de potentiel magnétique Force magnétomotrice Solénation, courant totalisé	Um F, Fm H	 $F = \Phi H_s d_s$ $H = NI$	A		The unit AT (ampere-turns) is incorrect because it treats "turn" as a physical unit
Magnetic induction, **Magnetic flux density**	Induction magnétique, Densité de flux magnétique	B		T (tesla) = Wb/ m^2		(gauss) 1 G = 10^{-4} T
Magnetic flux, **Magnetic induction flux**	Flux magnétique Flux d'induction magnétique	Φ	$\Phi = \int\int_s Bn\, ds$	Wb (weber)		(maxwell) 1 max = 10^{-8} Wb
Magnetic vector potential	Potentiel vecteur magnétique	A		Wb/m		
Permeability **Permeability of vacuum**	Perméabilité du milieu Perméabilité du vide	$\mu = \mu_o \mu_r$ μ_o	$B = \mu H$ $\mu_o = 4\pi 10^{-7}$ H/m	H/m		
Permittivity	Permittivité	$\varepsilon = \varepsilon_o \varepsilon_r$	$\varepsilon_o = \frac{1}{36\pi 10^9}$ F/m	F/m		

Units of measurement and standard formulae

THERMODYNAMICS

Parameters				Units		Units and expressions not recommended
English name	**French name**	**Symbol**	**Definition**	**SI**	**Non SI, but accepted**	**Conversion**
Temperature **Thermodynamic**	Température Thermodynamique	T		K (kelvin)	temperature Celsius, t, °C $T = t + 273.15$	°C: Degree Celsius t_C: Temp. in °C t_F: Temp. in °F f temperature Fahrenheit °F $t = \frac{f - 32}{1,8}$ $t_C = \frac{t_F - 32}{1,8}$
Temperature rise	Écart de température	ΔT		K	°C	1°C = 1 K
Heat flux density	Densité de flux thermique	q,	$q = \frac{\Phi}{A}$	W/m²		
Thermal conductivity	Conductivité thermique	λ		W/m.K		
Total thermal transmission coefficient	Coefficient de transmission thermique global	K	$\varphi = K\,(Tr_2 - Tr_1)$	W/m².K		
Thermal capacity	Capacité thermique	C	$C = \frac{dQ}{dT}$	J/K		
Thermal capacity specific	Capacité thermique massique	c	$c = \frac{C}{m}$	J/kg.K		
Internal energy	Energie interne	R		J		

NOISE AND VIBRATIONS

Parameters				Units		Units and expressions not recommended
English name	**French name**	**Symbol**	**Definition**	**SI**	**Non SI, but accepted**	**Conversion**
Acoustic power level	Niveau de puissance acoustique	L_w	$L_w = 10\ \lg(P/P_o)$ $(P_o = 10^{-12}\ W)$	dB (decibel)		lg logarithm to base 10 lg10 = 1
Acoustic pressure level	Niveau de pression acoustique	L_p	$L_p = 20\ \lg(P/P_o)$ $(P_o = 2x10^{-5}\ Pa)$	dB		

DIMENSIONS

Parameters				Units		Units and expressions not recommended
English name	**French name**	**Symbol**	**Definition**	**SI**	**Non SI, but accepted**	**Conversion**
Angle (plane angle)	Angle (angle plan)	α, β, T,		rad	degree: ° minute: ' second: "	180° = π rad = 3.14 rad
Length **Width** **Depth** **Radius** **Curvilinear length**	Longeur Largeur Hauteur Rayon Longueur curviligne	l b h r s		m (metres)	micrometre	cm, dm, dam, hm 1 inch = 1" = 25.4 mm 1 foot = 1' = 304.8 mm µm micron µ angström: A = 0.10 nm
Area	Aire, superficie	A, S		m²		1 square inch = 6.45 10^{-4} m²
Volume	Volume	V		m³	litre: l litre: P	UK gallon = 4.546 10^{-3} m³ US gallon = 3.785 10^{-3} m³

Units of measurement and standard formulae

MECHANICS AND MOVEMENT

Parameters				Units		Units and expressions not recommended
English name	**French name**	**Symbol**	**Definition**	**SI**	**Non SI, but accepted**	**Conversion**
Time **Time interval / duration** **Period (periodic time)**	Temps Intervalle de temps, durée Period (periodic time)	*t* *T*		s (second)	minute: min hour: h day: d	Symbols ' and " are reserved for angles minute not written as mn
Angular velocity **Rotational frequency**	Vitesse angulaire Pulsation	ω	$\omega = \frac{d\varphi}{dt}$	rad/s		
Angular acceleration	Accélération angulaire	α	$\alpha = \frac{d\omega}{dt}$	rad/s^2		
Speed **Velocity**	Vitesse Célérité	*u, v, w,* *c*	$v = \frac{ds}{dt}$	m/s	1 km/h = 0.277,778 m/s 1 m/min = 0.0166 m/s	
Acceleration **Acceleration of free fall**	Accélération Accélération of free fall	*a* *g = 9.81m/s*^{2}	$a = \frac{dv}{dt}$ *in Paris*	m/s^2		
Speed of rotation	Fréquence de rotation	*N*		s^{-1}	min^{-1}	tr/mn, RPM, TM, etc
Mass	Masse	*m*		kg (kilogram)	tonne: t 1 t = 1,000 kg	kilo, kgs, KG, etc 1 pound: 1 lb = 0.4536 kg
Mass density	Masse volumique	ρ	$\frac{dm}{dV}$	kg/m^3		
Linear density	Masse linéique	ρ_e	$\frac{dm}{dL}$	kg/m		
Surface density	Masse surfacique	ρ_A	$\frac{dm}{dS}$	kg/m^2		
Momentum	Quantité de mouvement	*P*	*p = m.v*	kg. m/s		
Moment of inertia	Moment d'inertie	*J, I*	$I = \sum m.r^2$	kg.m^2		$J = \frac{MD^2}{4}$ kg.m pound per square foot = 1 lb.ft^2 = 42.1 x 10^{-3} kg.m^2
Force **Weight**	Force Poids	*F* *G*	*G = m.g*	N (newton)		kgf = kgp = 9.0.81 N pound force = lbF = 4.448 N
Moment of force **Torque**	Moment d'une force, Moment	*M* *T*	*M = F.r*	N.m		mdaN, mkg, m.N 1 mkg = 9.81 N.m 1 ft.lbF = 1.356 N.m 1 in.lbF = 0.113 N.m
Pressure	Pression	*p*	$p = \frac{F}{O} = \frac{F}{A}$	Pa (pascal)	bar 1 bar = 10^{5}Pa	1 kgf/cm^2 = 0.981 bar 1 psi = 6894 N/m^2 = 6894 Pa 1 psi = 0.06894 bar 1 atm = 1.013 x 10^{5}Pa
Normal stress **Shear stress,** **Shear**	Contrainte normale Contrainte tangentielle Cission	σ τ		Pa Leroy-Somer use the MPa = 10^{6}Pa		kg/mm^2, 1 daN/mm^2 = 10 MPa psi = pound per square inch 1 psi = 6894 Pa
Friction coefficient	Facteur de frottement	μ				incorrectly = friction coefficient *f*
Work **Energy** **Potential energy** **Kinetic energy** **Quantity of heat**	Travail Energy Énergie potentielle Énergie cinétique Quantité de chaleur	*W* *O* *Ep* *Ek* *Q*	*W = F.l*	J (joule)	Wh = 3600 J (watt-hour)	1 N.m = 1 W.s = 1 J 1 kgm = 9.81 J (calorie) 1 cal = 4.18 J 1 Btu = 1055 J (British thermal unit)
Power	Puissance	*P*	$P = \frac{W}{t}$	W (watt)		1 ch = 736 W 1 HP = 746 W
Volumetric flow	Débit volumique	q_v	$q_v = \frac{dV}{dt}$	m^3/s		
Efficiency	Rendement	η		< 1		%
Dynamic viscosity	Viscosité dynamique	η, μ		Pa.s		poise, 1 P = 0.1 Pa.s
Kinematic viscosity	Viscosité cinématique	ν	$\nu = \frac{\eta}{\rho}$	m^2/s		stokes, 1 St = 10^{-4} m^2/s

Unit conversions

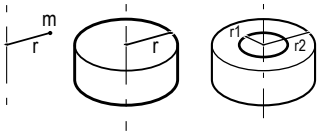
Units	MKSA (IS international system)	AGMA (US system)
Length	1 m = 3.2808 ft 1 mm = 0.03937 in	1 ft = 0.3048 m 1 in = 25.4 mm
Weight	1 kg = 2.2046 lb	1 lb = 0.4536 kg
Torque	1 Nm = 0.7376 lb.ft 1 N.m = 141.6 oz.in	1 lb.ft = 1.356 N.m 1 oz.in = 0.00706 N.m
Force	1 N = 0.224 8 lb	1 lb = 4.448 N
Moment of inertia	1 kg.m² = 23.73 lb.ft²	1 lb.ft² = 0.04214 kg.m²
Power	1 kW = 1.341 HP	1 HP = 0.746 kW
Pressure	1 kPa = 0.14505 psi	1 psi = 6.894 kPa
Magnetic flux	1 T = 1 Wb / m² = 6.452 10^4 line / in²	1 line / in² = 1.550 10^{-5} Wb / m²
Magnetic losses	1 W / kg = 0.4536 W / lb	1 W / lb = 2.204 W / kg

GLOSSARY

Symbol	Definition	Symbol	Definition
d/h	starts per hour	***M***	torque transmitted by the geared motor N.m
h/d	daily operating time in hours per day	M_{Max}	maximum permissible torque N.m
FJ	inertia factor	$M_{S\ max}$	maximum selection torque as output N.m
FM	on-load operating factor as a %	M_{uS}	torque required for the application as output N.m
F_r	permissible radial force N	M_{nS}	rated output torque
i	exact gearbox reduction	n_{min}, n_{max}	minimum gearbox output speed, maximum gearbox output speed min^{-1}
i_u	application useful reduction	n_{uE}	gearbox input useful rotational speed min^{-1}
$J_{C/M}$	moment of inertia of the load connected to the motor shaft	n_{uS}	gearbox output useful rotational speed min^{-1}
J_M	moment of inertia of the motor	***P***	standard motor power kW
K	overall duty factor	P_n	rated power kW
K1	duty factor depending on the inertia	P_{uE}	input power necessary for the application kW
K2	duty factor depending on the operating factor	P_{uS}	output power necessary for the application kW
K_P	maximum possible duty factor for the geared motor	P_t	rated thermal power for the geared motor kW
K_q	thermal power correction factor	q	ambient temperature °C
		Z **(d/h)**	frequency of starts of the application (d/h)

Standard formulae used in electrical engineering

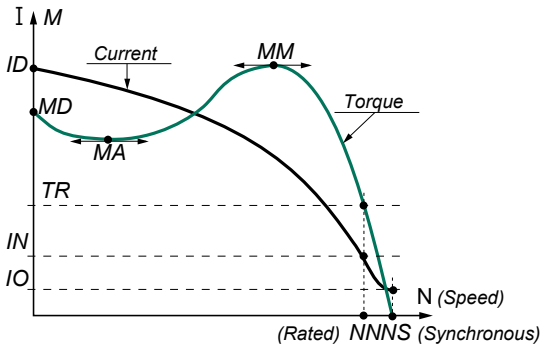
MECHANICAL FORMULAE

Title	Formulae	Units	Definitions / Notes
Force	$F = m \cdot \gamma$	F in N m in kg γ in m/s²	A force F is the product of a mass m by an acceleration γ
Weight	$G = m \cdot g$	G in N m in kg g = 9.81 m/s²	
Torque	$M = F \cdot r$	M in N.m F in N r in m	The torque M of a force in relation to an axis is the product of that force multiplied by the distance r of the point of application of F in relation to the axis.
Power - Rotating	$P = M \cdot \omega$	P in W M in N.m ω in rad/s	Power P is the quantity of work yielded per unit of time ω = 2π N/60 with N rotational speed in min^{-1}
- Linear	$P = F \cdot V$	P in W F in N V in m/s	V = linear velocity
Acceleration time	$t = J \cdot \frac{\omega}{M_a}$	t in s J in kg.m² ω in rad/s M_a in Nm	J is the moment of inertia of the system M_a is the moment of acceleration NB: all the calculations refer to a single rotational speed ω. The inertias at speed ω" are corrected to speed w by the following calculation: $J_\omega = J_{\omega'} \cdot \left(\frac{\omega'}{\omega}\right)^2$
Moment of inertia Centre of gravity	$J = m \cdot r^2$	J in kg.m² m in kg r in m	
Solid cylinder around its axis	$J = m \cdot \frac{r^2}{2}$		
Hollow cylinder around its axis	$J = m \cdot \frac{r_1^2 + r_2^2}{2}$		
Inertia of a mass in linear motion	$J = m \cdot \left(\frac{v}{\omega}\right)^2$	J in kg.m² m in kg v in m/s ω in rad/s	The moment of inertia of a mass in linear motion transformed to a rotating motion.

Standard formulae used in electrical engineering

ELECTRICAL FORMULAE

Title	Formulae	Units	Definitions / Notes
Accelerating torque	$M_a = \frac{M_D + 2M_A + 2M_M + M_N}{6} - M_r$ *General formula:* $M_a = \frac{1}{N_N}\int_0^{N_N}(M_{mot} - M_r)dN$	*Nm*	Moment of acceleration M_A is the difference between the motor torque M_{mot} (estimated), and the resistive torque M_r. (M_D, M_A, M_M, M_N, see curve below) N = instantaneous speed N_N = rated speed
Power required by the machine	$P = \frac{M \cdot \omega}{\eta_A}$	*P* in W *M* in N.m ω in rad/s η_A no units	η_A expresses the efficiency of the driven machine. *M* is the torque required by the driven machine.
Power drawn by the 3-phase motor	$P = \sqrt{3} \cdot U \cdot I \cdot \cos\varphi$	*P* in W *U* in V *I* in A	φ phase angle by which the current lags or leads the voltage. *U* armature voltage. *I* line current.
Reactive power absorbed by the motor	$Q = \sqrt{3} \cdot U \cdot I \cdot \sin\varphi$	Q in VAR	
Reactive power supplied by a capacitor bank	$Q = \sqrt{3} \cdot R^2 \cdot C \cdot \omega$	*U* in V *C* in µ F ω in rad/s	*U* = voltage at the capacitor terminals *C* = capacitor capacitance ω = rotational frequency of supply phases (ω = 2πf)
Apparent power	$S = \sqrt{3} \cdot U \cdot I$ $S = \sqrt{P^2 + Q^2}$	S in VA	
Power supplied by the 3-phase motor	$P = \sqrt{3} \cdot U \cdot I \cdot \cos\varphi \cdot \eta$		η expresses motor efficiency at the point of operation under consideration.
Slip	$g = \frac{N_O - N}{N_O}$		Slip is the difference between the actual motor speed *N* and the synchronous speed N_S
Synchronous speed	$N_O = \frac{120 \cdot f}{p}$	N_S in min^{-1} *f* in Hz	*p* = number of poles *f* = frequency of the power supply

Parameters	Symbols	Units	Torque and current curve in accordance with the speed
Starting current Rated current No-load current	I_S I_N I_O	A	
Starting torque* Run up torque Maximum torque breakdown Rated torque	M_S M_A M_M M_N	Nm	
Rated speed Synchronous speed	N_N N_S	min^{-1}	

* Torque is the usual term for expressing the moment of a force.

Selection

Apart from the basic choices regarding the slow speed, output torque, motor supply type, it is important to know accurately its exact use and operating type in advance.

The selection of a gearbox or a geared motor should take account of the application:

ALL RAPID SELECTION CHARTS IN THIS CATALOGUE ARE SET UP FOR OPERATING IN CLASS I ($K_P \geq 1$ - equivalent to the Agma I class).

The table below summarises the relationship between the “Agma” class and the duty factor K_P of the gearbox:

AGMA class	Duty factor K_P
I	1
II	1.4
III	2

The usage class is defined by the daily operating time and the type of application, according to the table below:

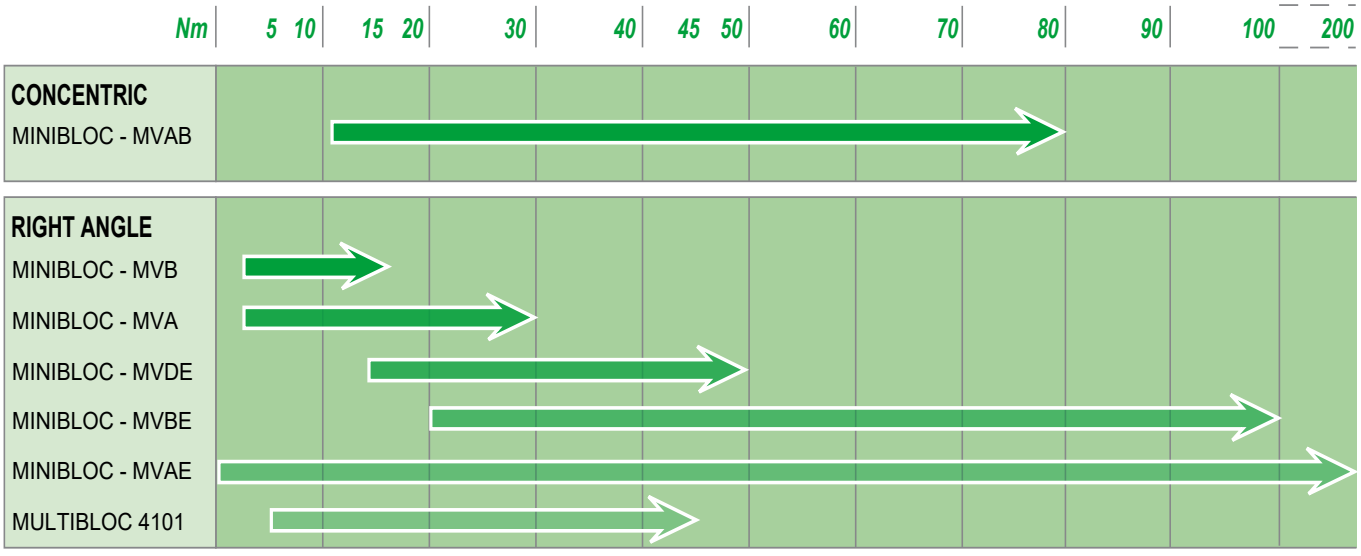
Application class	Time of operation daily	Duty factor K_P
"Shock" free, few starts	2 hrs/day	0.8
"Shock" free, few starts(*)	10 hrs/day	1
Damped "shocks"	10 hrs/day	1.4
"Shock" free, few starts	24 hrs/day	1.4
Violent "shocks", many starts	10 hrs/day	2
Damped "shocks"	24 hrs/day	2

(*) Rapid selection chart.

If your application only comes in for very light use (for example 2 hrs/day with few starts), by consulting the characteristics tables you can select a device with a K_P duty factor of less than 1.

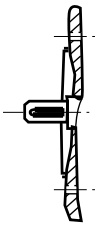
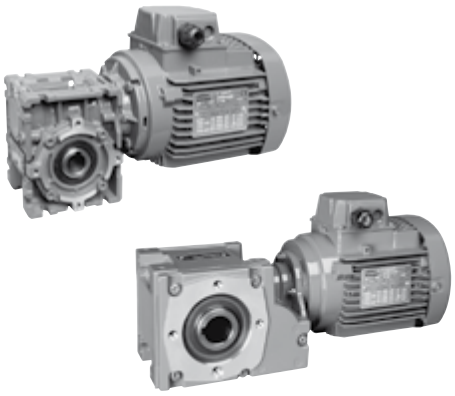
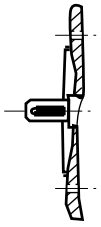
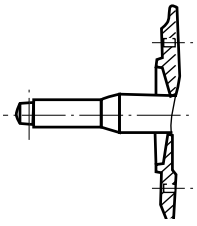
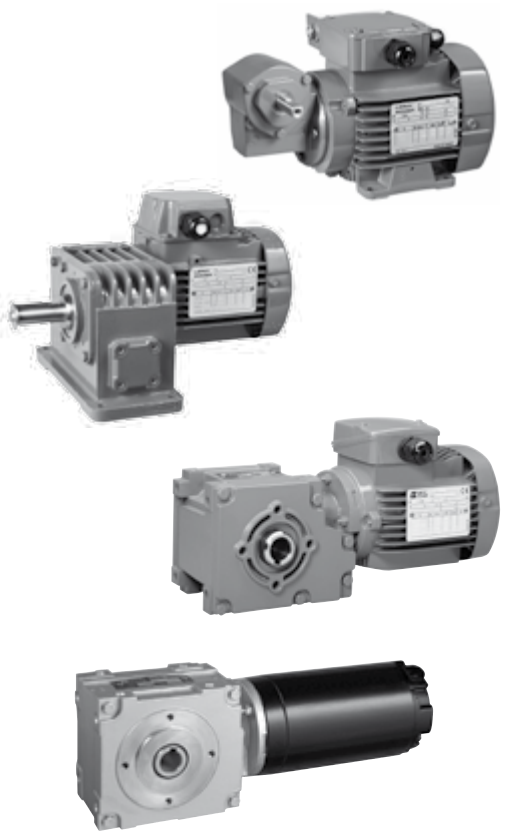
We advise you to consult your LEROY-SOMER contact if there is any doubt about the application and the conditions of use.

MAXIMUM OUTPUT TORQUES



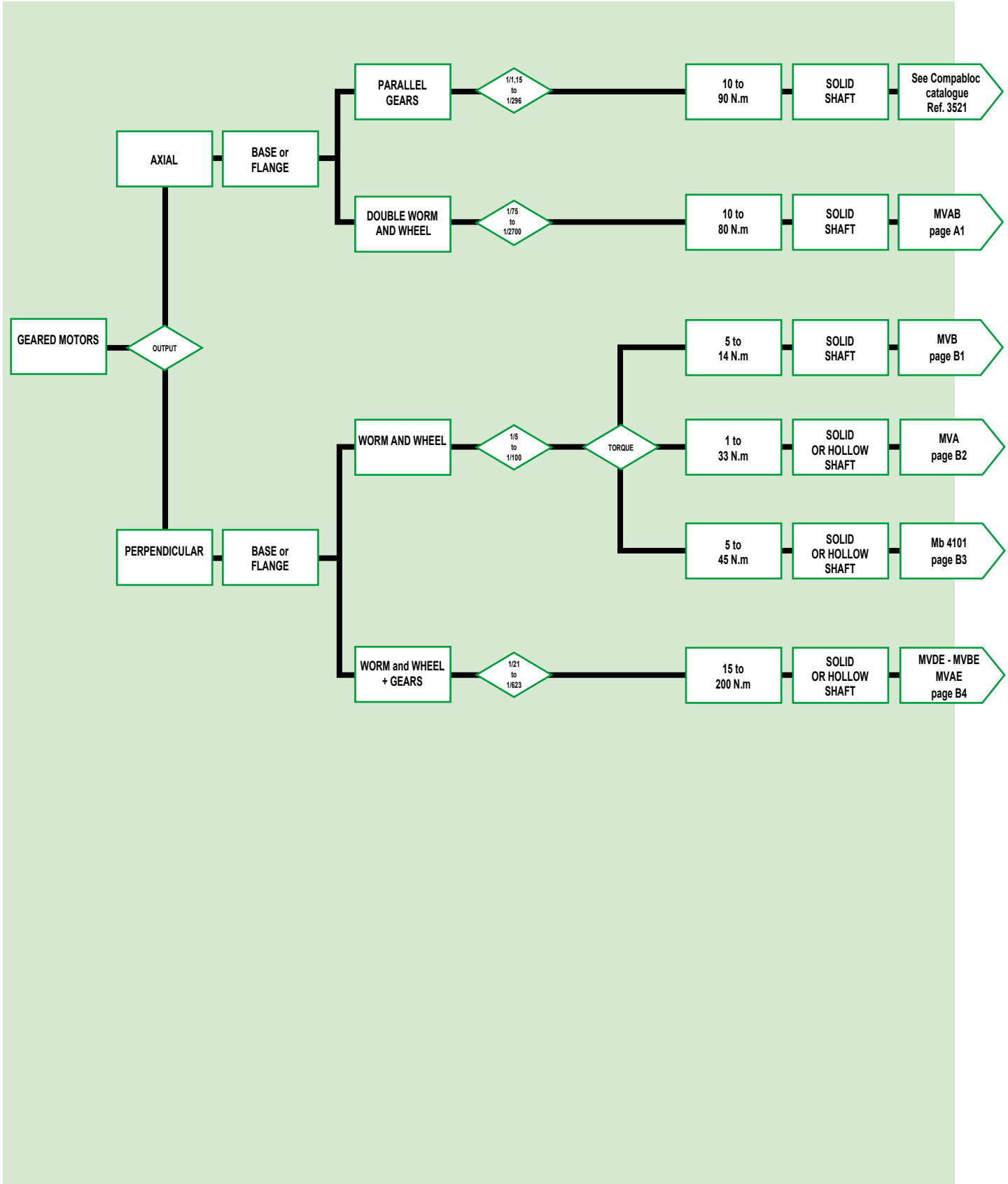
The useful torque values on the low speed shafts showing in the selection tables are given for:
- run in gearboxes,
- stable lubricant temperature,
- 4-pole motors supplied at frequency 50 Hz.

Motor shafts and flanges for gearboxes

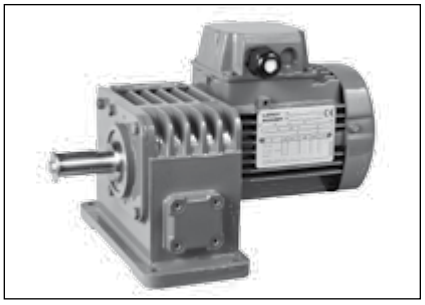
Type	Dimensions	Use
Mb 4101 **MVAE**	Motor standards CEI B14 LS 56: Ø 9 x 20 - FT flange 65 (*) LS 63: Ø 11 x 23 - FT flange 75 LS 71: Ø 14 x 30 - FT flange 85 *(*) B14 flange - 8 holes* MI mounting: LS 80: Ø 14 x 30 - FT flange 85 	
MVA	Ø 11 x 23 W = 0 FT flange 65 (8 holes) 	
MVB **MVAB** **MVBE** **MVDE**	Ø 10 x 36.5 W = 26.5 FT flange 65 (8 holes) 	
FMD brake	Ø 12 x 12 W = 6 + pin hole mounted by 3 x M4 holes on Ø 72 (to 120°)	at the rear of all motors (except MS)

All shaft diameters are created with tolerance j6.

Flow chart


GEARED MOTORS
OUTPUT
AXIAL
BASE or FLANGE
PARALLEL GEARS
1/1,15 to 1/296
10 to 90 N.m
SOLID SHAFT
See Compabloc catalogue Ref. 3521
DOUBLE WORM AND WHEEL
1/75 to 1/2700
10 to 80 N.m
SOLID SHAFT
MVAB page A1
PERPENDICULAR
BASE or FLANGE
WORM AND WHEEL
1/5 to 1/100
TORQUE
5 to 14 N.m
SOLID SHAFT
MVB page B1
1 to 33 N.m
SOLID OR HOLLOW SHAFT
MVA page B2
5 to 45 N.m
SOLID OR HOLLOW SHAFT
Mb 4101 page B3
WORM and WHEEL + GEARS
1/21 to 1/623
15 to 200 N.m
SOLID OR HOLLOW SHAFT
MVDE - MVBE MVAE page B4

General information



Minibloc MVAB geared motors are double worm and wheel devices.
Their design allows for significant reduction in a highly compact size.

One size: MVAB
Rated output torque: from 10 to 80 N.m
Power ratings: from 0.06 to 0.18 kW
Reduction ratios: from 75 to 2700
(up to 1/8100 on request).
Very quiet operation.

Construction

Description of Minibloc MVAB gearboxes

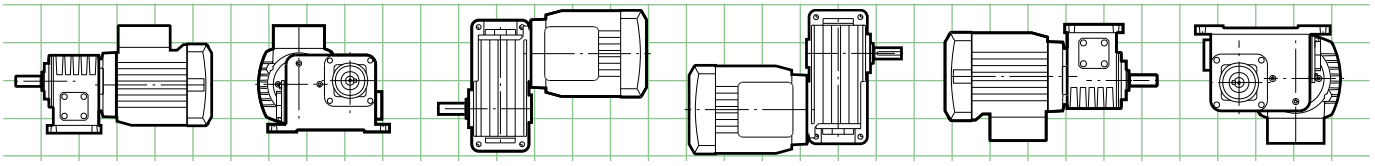
Description	Materials	Comments
Frame	Aluminium	- die-cast aluminium - excellent sealing - neat and attractive appearance
Ring Screw	Bronze Steel	1st train: - bronze wheel - worm in heat-treated and tempered steel, ground sides 2nd train: - die-cast bronze wheel - worm in ion nitriding treated 42CD4 steel
Shaft	Steel	- solid - ground or grooved sealing surfaces - key in accordance with DIN 6883 - tolerance of diameters in accordance with IEC 72-1 - tapped hole at the shaft extension
Lipseals	Acrylonitrile	- antidust double lipseals on slow speed shaft
Lubrication	Grease	- synthetic grease - no maintenance - multi-position operation - no drain, level or fill holes
Mounting		AP: gearbox with input shaft MI: gearbox with integrated motor
Standard motor		LS: multi-voltage 220/380 V, 230/400 V, 240/415 V three-phase and 230 V single-phase - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down). - terminal box fitted with cable gland with cable anti-damage system - IP55 standard protection - fixed onto gearbox using B14 flange
Brake motor		FMD: 3-phase or single-phase failsafe brake motor, from 0.06 to 0.18 kW
Other motors		MFA: IP23-IP44 D.C. motor from 0.075 to 0.37 kW (3000 min^{-1}). MBT: low voltage D.C. motor.
Finish	External finishing	Shade: RAL 6000 (green), system I (1 polyurethane acrylic layer of 25/30 µm)

Mounting positions

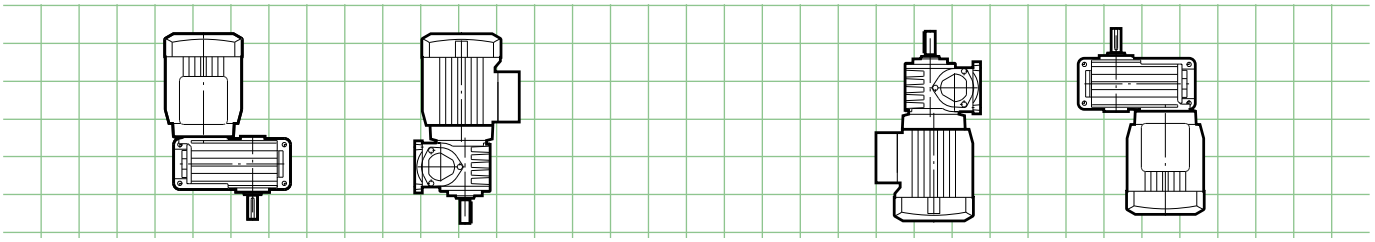
A

Positions must be specified for all these geared motors only if a vent hole is required on the geared motor and/or condensation drain holes on the motor.
All of these mounting positions also apply to the gearbox only input shafts (AP).

Minibloc MVAB - Multiposition M - with S base (standard)

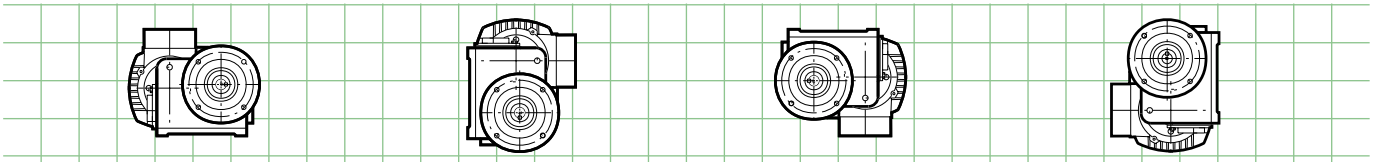


B3 B6 B7 B8

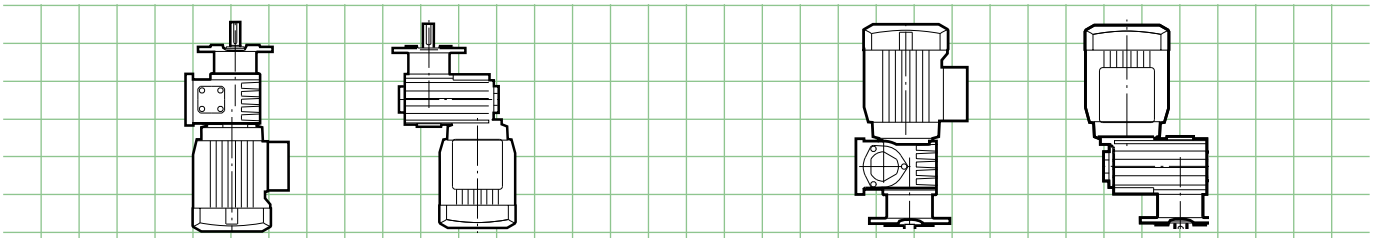


V5 V6

Minibloc MVAB - Multiposition M - with BS flange (standard) - BD1 - BD2

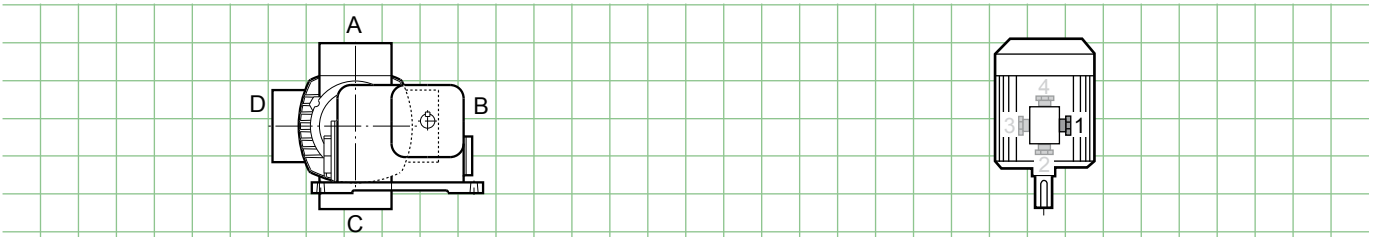


B5 B52 B53 B54



V3 V1

Terminal box positions
(in relation to the gearbox frame base)



A: standard

Cable gland positions

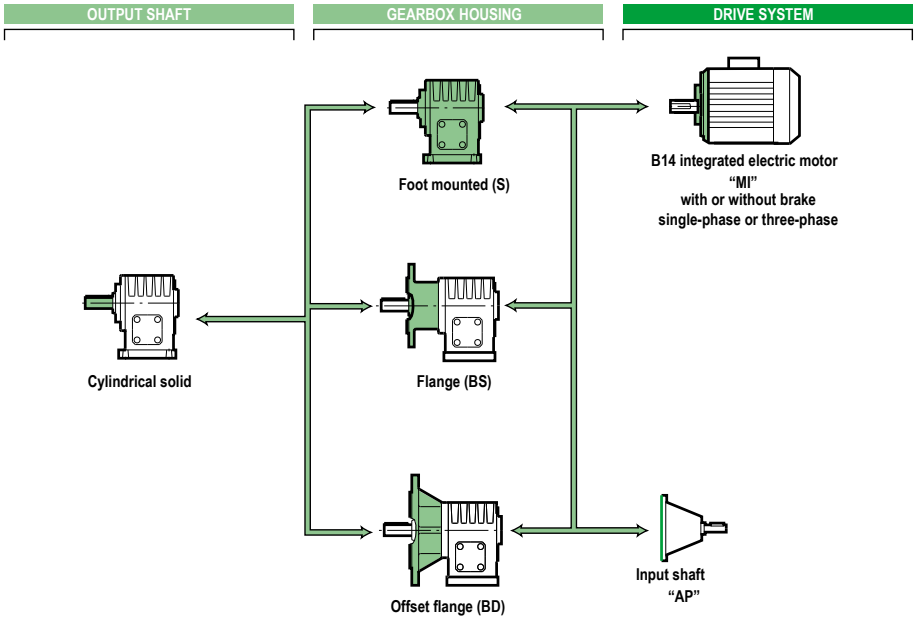
1 : standard

Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which meet very wide-ranging needs.
They are described in this catalogue.
For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Minibloc MVAB gearboxes can be used in conjunction with the following drives:

- **single-phase induction motors:**
  - LS motor from 0.06 to 0.18 kW
  - LS FMD brake motor from 0.06 to 0.18 kW
- **3-phase induction motors:**
  - LS motor from 0.06 to 0.18 kW
  - LS FMD brake motor from 0.06 to 0.18 kW
- **D.C. motors:**
  - MFA from 0.075 to 0.37 kW (3000 min^{-1})
- **electronic D.C. geared motors:**
  - MVE from 0.075 to 0.37 kW (3000 min^{-1})
- **low-voltage D.C. motors (12 to 48 V) :**
  - MBT from 0.07 to 0.37 kW



Description / Coding

MVAB	750	O	M	MI	4P	LS 56 M	0.06 kW
Gearbox type	Exact reduction	Mounting form	Operating position	Integral mounting	Number of poles	LS motor type and frame size	Rated output power

Example of coding:

MVAB - 750 - S - M - MI - 4P - LS56M - 0.06 kW
230/400 V - TRI - 50 Hz

Selection

A

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVAB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					- -	
0.51	56.2	**1.58**	**MVAB**	2700	1630	A2.7 to A2.10				
0.61	56.4	**1.55**	**MVAB**	2250	1630	A2.7 to A2.10				
0.77	59.5	**1.44**	**MVAB**	1800	1590	A2.7 to A2.10				
0.92	49.8	**1.69**	**MVAB**	1500	1650	A2.7 to A2.10				
1.21	52	**1.47**	**MVAB**	1140	1650	A2.7 to A2.10				
1.53	44.9	**1.7**	**MVAB**	900	1720	A2.7 to A2.10				
1.91	42	**1.76**	**MVAB**	720	1720	A2.7 to A2.10				
2.3	42.4	**1.7**	**MVAB**	600	1720	A2.7 to A2.10				
2.56	35.8	**1.96**	**MVAB**	540	1720	A2.7 to A2.10				
3.07	33.6	**2**	**MVAB**	450	1720	A2.7 to A2.10				
3.83	28.4	**2.47**	**MVAB**	360	1720	A2.7 to A2.10				
4.6	27.4	**2.3**	**MVAB**	300	1720	A2.7 to A2.10				
6.13	22.4	**2.6**	**MVAB**	225	1720	A2.7 to A2.10				
9.2	17.4	**2.8**	**MVAB**	150	1720	A2.7 to A2.10				
13.1	13.1	**3**	**MVAB**	105	1720	A2.7 to A2.10				
18.4	10.9	**> 3**	**MVAB**	75	1720	A2.7 to A2.10				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVAB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.09 kW**					- -	
0.78	99.2	**0.85**	**MVAB**	1800	1330	A2.7 to A2.10				
0.93	83.2	**1**	**MVAB**	1500	1370	A2.7 to A2.10				
1.23	83.9	**0.96**	**MVAB**	1140	1370	A2.7 to A2.10				
1.56	72	**1.07**	**MVAB**	900	1460	A2.7 to A2.10				
1.94	66.5	**1.1**	**MVAB**	720	1550	A2.7 to A2.10				
2.33	62.7	**1.15**	**MVAB**	600	1550	A2.7 to A2.10				
2.6	59.5	**1.2**	**MVAB**	540	1590	A2.7 to A2.10				
3.1	55.5	**1.23**	**MVAB**	450	1630	A2.7 to A2.10				
3.89	46.4	**1.47**	**MVAB**	360	1650	A2.7 to A2.10				
4.67	44.2	**1.43**	**MVAB**	300	1720	A2.7 to A2.10				
6.22	35.9	**1.6**	**MVAB**	225	1720	A2.7 to A2.10				
9.33	27.7	**1.74**	**MVAB**	150	1720	A2.7 to A2.10				
13.33	21.3	**1.8**	**MVAB**	105	1720	A2.7 to A2.10				
18.7	17.9	**2.2**	**MVAB**	75	1720	A2.7 to A2.10				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVAB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.12 kW**					- -	
3.13	76.9	**0.89**	**MVAB**	450	1460	A2.7 to A2.10				
3.92	64.3	**1.06**	**MVAB**	360	1550	A2.7 to A2.10				
4.7	61	**1.03**	**MVAB**	300	1590	A2.7 to A2.10				
6.27	49.3	**1.25**	**MVAB**	225	1650	A2.7 to A2.10				
9.4	39	**1.23**	**MVAB**	150	1720	A2.7 to A2.10				
13.4	29.9	**1.3**	**MVAB**	105	1720	A2.7 to A2.10				
18.8	24.4	**1.48**	**MVAB**	75	1720	A2.7 to A2.10				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVAB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; LS MV 71 L; - LS 63 M FMD; -			**0.18 kW**					- -	
13.6	46.8	**0.83**	**MVAB**	105	1650	A1.7 to A1.10				
19	38	**0.98**	**MVAB**	75	1720	A1.7 to A1.10				

Gearbox only features (AP)

MVAB "AP" - 2,800 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
1.0	2700	0.105	59.2
1.2	2250	0.107	63.2
1.6	1800	0.109	68.9
1.9	1500	0.109	59.2
2.5	1140	0.113	62.3
3.1	900	0.116	54.4
3.9	720	0.121	52.4
4.7	600	0.122	50.4
5.2	540	0.125	49.2
6.2	450	0.129	46.2
7.8	360	0.129	36.9
9.3	300	0.139	40.5
12.4	225	0.142	33.2
18.7	150	0.149	26.7
26.7	105	0.157	21.1
37.3	75	0.159	15.8

MVAB "AP" - 1,400 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
0.5	2700	0.091	89.0
0.6	2250	0.087	87.5
0.8	1800	0.080	85.5
0.9	1500	0.090	84.0
1.2	1140	0.086	80.3
1.6	900	0.094	76.5
1.9	720	0.097	74.1
2.3	600	0.100	72.0
2.6	540	0.103	70.0
3.1	450	0.108	68.2
3.9	360	0.124	68.1
4.7	300	0.122	63.0
6.2	225	0.136	57.9
9.3	150	0.144	48.1
13.3	105	0.151	38.9
18.7	75	0.168	36.0

MVAB "AP" - 900 min^{-1} - Kp = 1

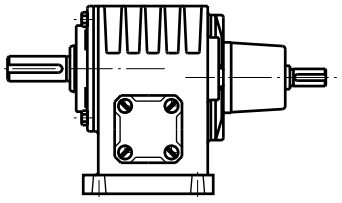
Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
0.3	2700	0.074	93.5
0.4	2250	0.063	92.0
0.5	1800	0.059	90.0
0.6	1500	0.065	88.0
0.8	1140	0.063	84.5
1.0	900	0.069	80.5
1.3	720	0.072	78.0
1.5	600	0.075	75.0
1.7	540	0.077	73.0
2.0	450	0.081	71.5
2.5	360	0.093	71.5
3.0	300	0.093	66.0
4.0	225	0.089	66.0
6.0	150	0.120	56.5
8.6	105	0.126	44.9
12.0	75	0.132	40.4

MVAB "AP" - 500 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
0.19	2700	0.050	100.0
0.22	2250	0.039	98.4
0.28	1800	0.039	96.3
0.33	1500	0.044	94.2
0.44	1140	0.043	90.4
0.56	900	0.048	86.1
0.69	720	0.048	83.5
0.83	600	0.049	80.3
0.93	540	0.051	78.1
1.11	450	0.054	76.5
1.39	360	0.061	76.5
1.67	300	0.061	70.6
2.22	225	0.068	70.6
3.33	150	0.078	60.5
4.76	105	0.091	54.6
6.67	75	0.121	54.0



Low speed shaft load

A

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

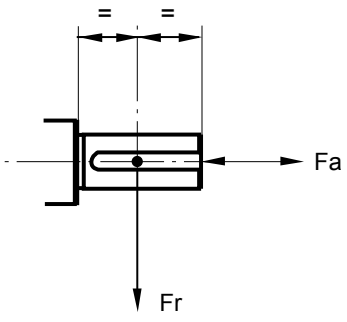
Newton force

Gearbox features	Clockwise or anti-clockwise		
The radial force is limited by the stress at the shaft shoulder			
Torque N.m	F_r	F_a-	F_a+
45	1720	1391	2988
50	1650	1346	2943
55	1630	1301	2897
60	1590	1256	2852
65	1550	1211	2807
70	1500	1166	2762
75	1460	1120	2714
80	1420	1075	2672
85	1370	1030	2627
90	1330	1030	2582

Direction of the forces
F_a+ = axial force PULLING on the shaft extension
F_a- = axial force PUSHING on the shaft extension

F_r = radial force on the shaft extension at 20mm from the shoulder

NB: these values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.

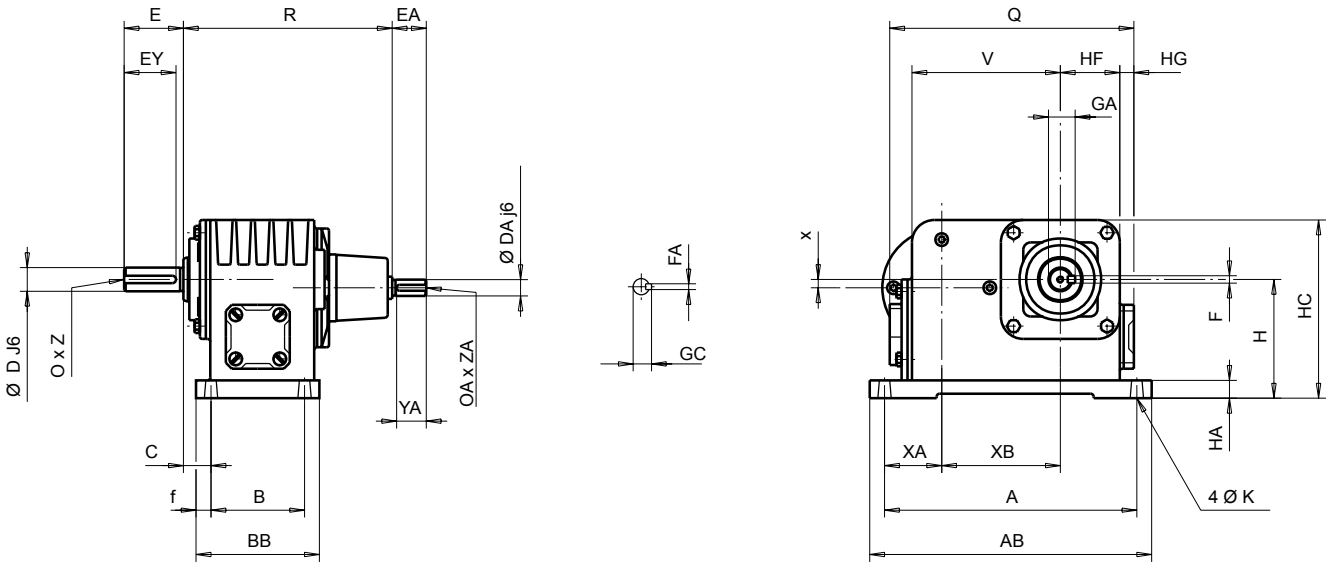


Dimensions

Dimensions of Minibloc MVAB geared motors, mounting with AP input shaft

Dimensions in millimetres

- S base form



	Gearboxes with S base																		
Type	S	x	A	AB	B	BB	C	f	H	FS	HC	K	XB	XA	V	HF	HG	Q	kg
MVAB	140.5	5.6	170	190	63	83	18.5	10	80	12	120	Δ 7	80	38.5	100	40	9.6	164	3.6

	Input shaft							Solid output shaft						
Type	DA	EA	YA	GC	FA	OA	ZA	D	O	EY	GA	F	O	Z
MVAB	11	23	18	12.5	4	M4	10	16	40	30	18	5	M5	15

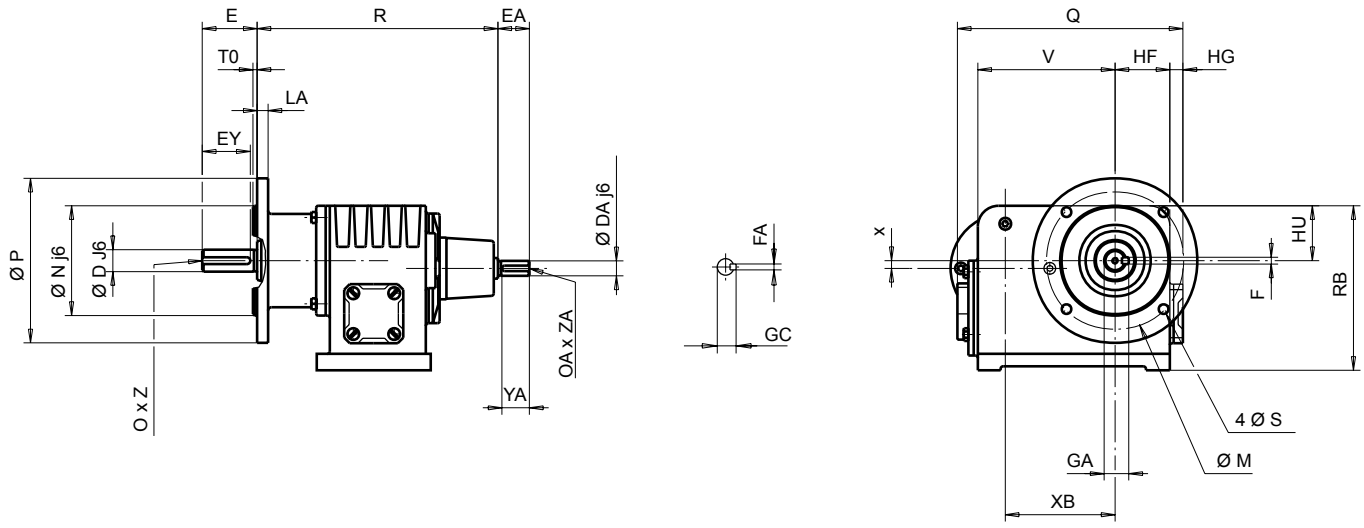
Dimensions

A

Dimensions of Minibloc MVAB geared motors, mounting with AP input shaft

Dimensions in millimetres

- BS, BD1, BD2 flange form



	Gearboxes with BS flange															
Type	S	x	M	N	P	O	LA	T	RB	HU	XB	V	HF	HG	Q	kg
MVAB	175.5	5.6	100	80	120	7	8	3	120	40	80	100	40	9.6	164	3.9

	Other possible flanges[1]											
	BD1						BD2					
Type	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
MVAB	85	70	105	7	8	3	115	95	140	9	10	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

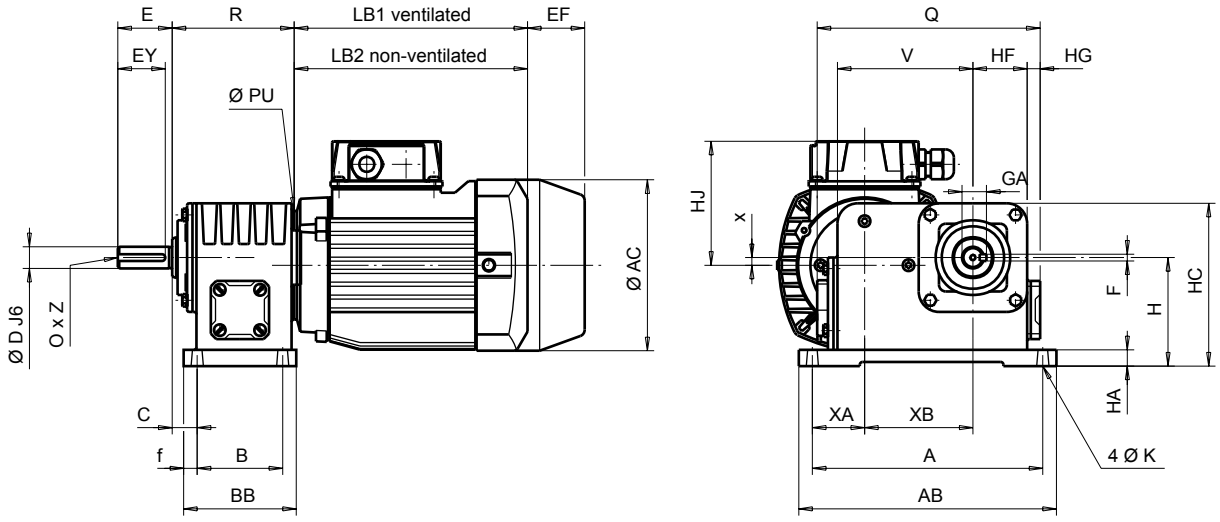
	Input shaft							Solid output shaft						
Type	DA	EA	YA	GC	FA	OA	ZA	D	O	EY	GA	F	O	Z
MVAB	11	23	18	12.5	4	M4	10	16	40	30	18	5	M5	15

Dimensions

Dimensions of Minibloc MVAB geared motors, MI integral mounting

Dimensions in millimetres

- S base form



Type	Gearboxes with S base																		kg
	S	x	A	AB	B	BB	C	f	H	FS	HC	XA	XB	V	HF	HG	Q	PU	
MVAB	90	5.6	170	190	63	83	18.5	10	80	12	120	38.5	80	100	40	9.6	164	80	3.6

Type	Solid output shaft						
	D	O	EY	GA	F	O	Z
MVAB	16	40	30	18	5	M5	15

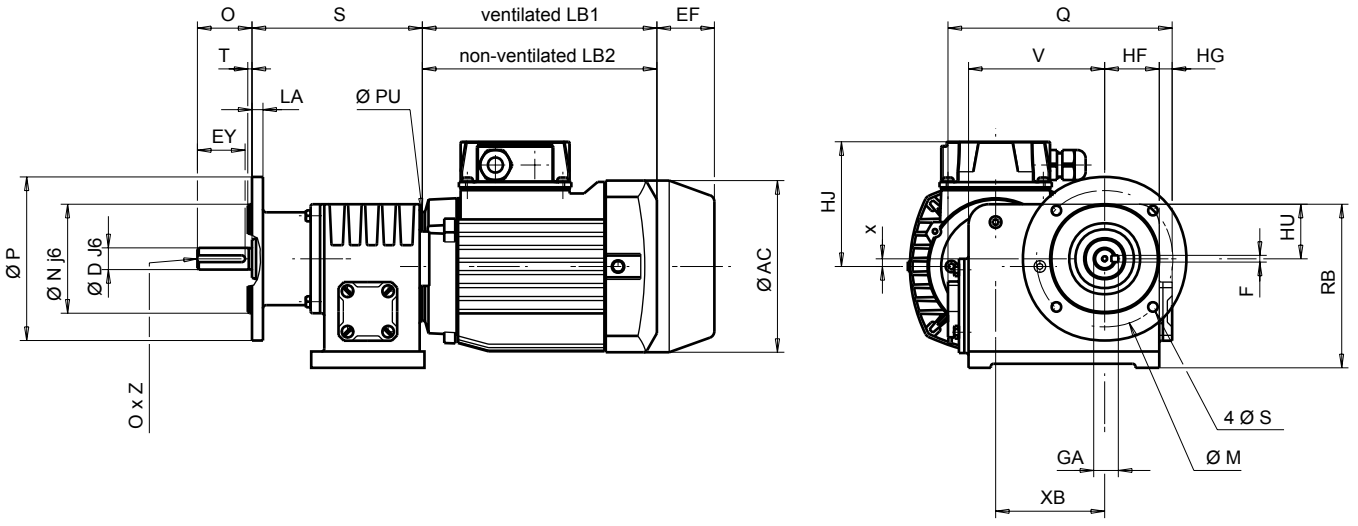
Dimensions

A

Dimensions of Minibloc MVAB geared motors, MI integral mounting

Dimensions in millimetres

- BS, BD1, BD2 flange form



	Gearboxes with BS flange																
Type	S	x	M	N	P	O	LA	T	RB	HU	XB	V	HF	HG	Q	PU	kg *
MVAB	125	5.6	100	80	120	7	8	3	120	40	80	100	40	9.6	164	80	3.9

** Gearbox only*

	Other possible flanges[1]											
	BD1						BD2					
Type	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
MVAB	85	70	105	7	8	3	115	95	140	9	10	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

	Solid output shaft						
Type	D	O	EY	GA	F	O	Z
MVAB	16	40	30	18	5	M5	15

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
											EF max		kg [1]	
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Minibloc MVB

General information

Minibloc MVB geared motors are worm type equipment.
They are particularly compact and light but still offer excellent performance.
Their design allows numerous adaptations so that the best solution can be found for any problem.

One size: MVB
Rated output torque: from 5 to 14 N.m
Power ratings: from 0.04 to 0.37 kW
Reduction ratios: from 5 to 90
Very quiet operation.

Construction

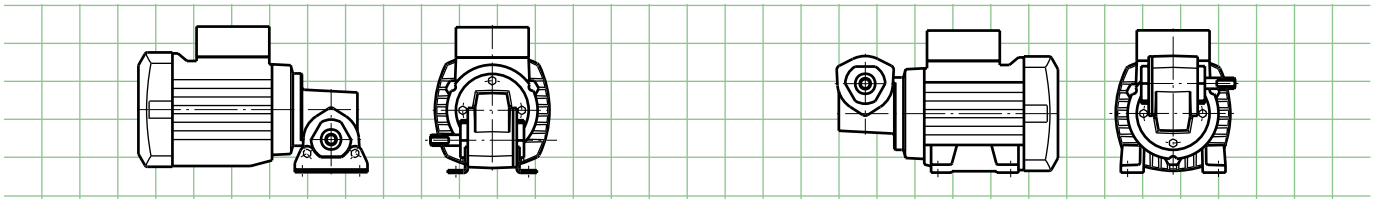
Description of Minibloc MVB gearboxes

Description	Materials	Comments
Frame	Aluminium	- pressure die cast aluminium - excellent sealing - neat and attractive appearance
Ring Screw	Bronze Steel	- bronze - worm in heat-treated and tempered steel, ground sides
Foot mounted	Steel	- zinc steel: protection from corrosion - removable: very adaptable
Shaft	Steel	- solid - ground or grooved sealing surfaces - key in accordance with DIN 6883 - tolerance of diameters in accordance with IEC 72-1
Lipseals	Acrylonitrile	- antidust double lipseals on slow speed shaft
Lubrication	Grease	- synthetic grease - no maintenance - multi-position operation - no drain, level or fill holes
Mounting		MI: geared motor with integrated motor
Standard motors		LS: multi-voltage 220/380 V, 230/400 V, 240/415 V three-phase and 230 V single-phase - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - terminal box fitted with cable gland with cable anti-damage system - IP55 standard protection - fixed onto gearbox using B14 flange
Brake motors		FMD: three-phase or single-phase failsafe brake motor, from 0.04 to 0.37 kW FCR: three-phase failsafe brake induction motor, from 0.25 to 0.37 kW
Other motors		MFA: IP23-IP44 D.C. motor from 0.075 to 0.37 kW (3000 min^{-1}) MBT: Low voltage D.C. motor
Finish	External finishing	Shade: RAL 6000 (green), system I (1 polyurethane acrylic layer of 25/30 µm)

Mounting positions

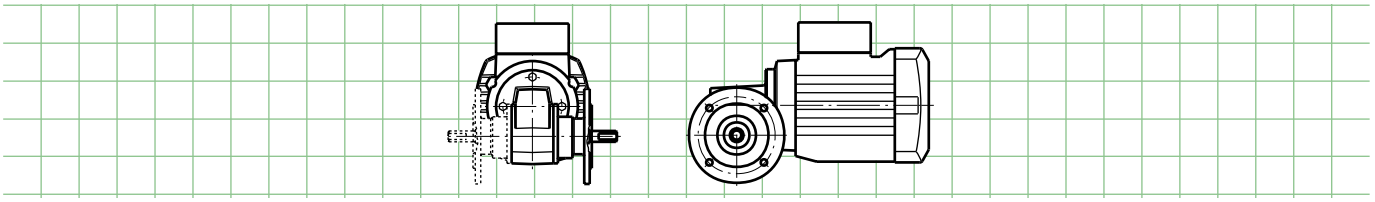
Minibloc MVB is multi-position and can therefore be fixed in all positions regardless of its form.

Minibloc MVB - Multi-position M - with base (NSD) or feet on the motor (NUPF)



NSD **NUPF**

Minibloc MVAB - Multi-position M - with standard flange (BS) or offset (BD1-BD2)

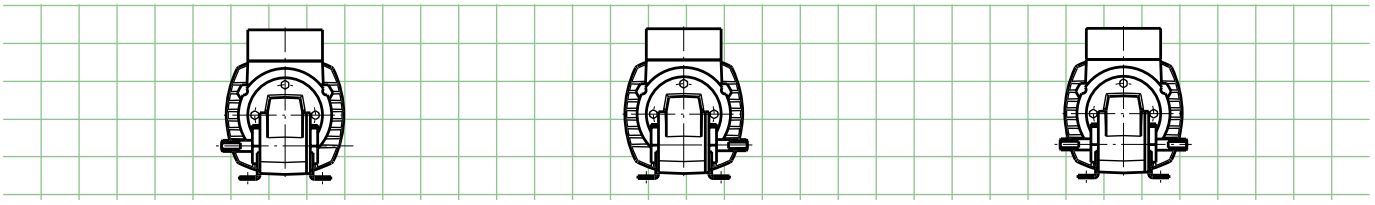


BS or BD

Caution: the "left" side shield is monobloc housing with the frame.
- Flange mounting "to the right" only as standard (see page B1.10).
- For operation with the flange on the other side it is possible to turn the gearbox by a half revolution.

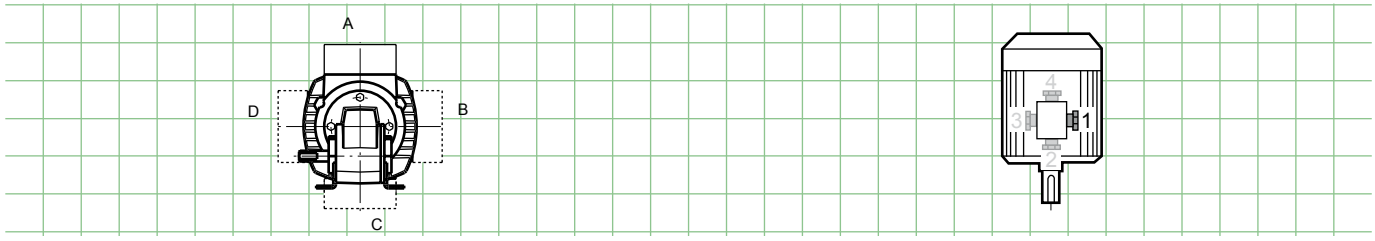
For symmetrical products: please consult Leroy-Somer.

Output shaft



To the left (standard) **(L)** **To the right (R)** **Left + right (LR)**

Terminal box positions



A: standard

Cable gland positions

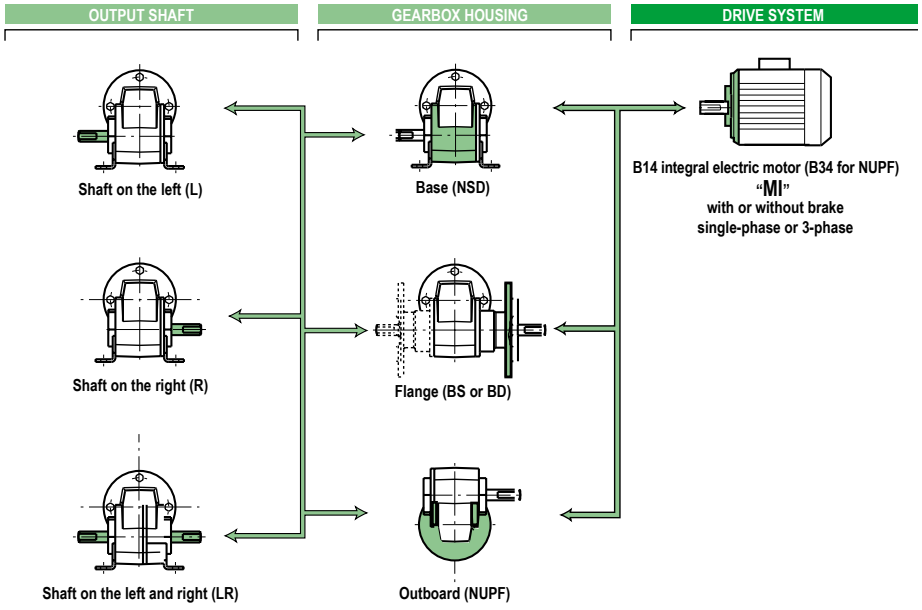
1 : standard

Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which meet very wide-ranging needs.
They are described in this catalogue.
For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Minibloc MVB gearboxes can be used in conjunction with the following drives:

- **single-phase induction motors:**
  - LS motor from 0.06 to 0.37 kW
  - LS FMD brake motor from 0.06 to 0.37 kW
- **three-phase induction motors:**
  - LS motor from 0.45 to 0.37 kW
  - LS FMD brake motor from 0.06 to 0.37 kW
  - LS FCR brake motor from 0.25 to 0.37 kW
- **D.C. motors:**
  - MFA from 0.075 to 0.37 kW (3000 min^{-1})
- **electronic D.C. geared motors:**
  - MVE from 0.075 to 0.37 kW (3000 min^{-1})
- **low-voltage D.C. motors (12 to 48 V):**
  - MBT from 0.07 to 0.37 kW



B

PERPENDICULAR OUTPUT GEARED MOTORS

Description / Coding

GEARBOX

MVB	38	NS	D	P	M	MI
Gearbox type	Exact reduction	Mounting form	Mounting position	Output shaft	Operating position	Integral mounting

MOTOR

4P	LS 56 M	0.06 kW	230/400V 50 Hz
Number of poles	LS motor type and frame size	Rated output power	Standard mains voltage and frequency 230V 50 Hz 380-400V 50 Hz 415V 50 Hz 440-460V 60 Hz

Example of coding:

MVB - 38 - NS D - L - M - MI - 4P - LS56M - 0.06 kW
230/400 V - TRI - 50 Hz

Selection

B

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -				**0.06 kW**				- -	
15.11	6.15	**1.12**	**MVB**	90	550	B1.9 to B1.11				
18.13	6.56	**1.39**	**MVB**	75	530	B1.9 to B1.11				
22.67	6.9	**1.62**	**MVB**	60	530	B1.9 to B1.11				
27.2	5.77	**1.76**	**MVB**	50	530	B1.9 to B1.11				
35.79	5.65	**2.43**	**MVB**	38	520	B1.9 to B1.11				
45.33	4.67	**2.76**	**MVB**	30	515	B1.9 to B1.11				
56.67	4.21	**3.19**	**MVB**	24	515	B1.9 to B1.11				
68	3.81	**3.39**	**MVB**	20	515	B1.9 to B1.11				
90.67	3.12	**4.11**	**MVB**	15	510	B1.9 to B1.11				
136	2.36	**5.6**	**MVB**	10	510	B1.9 to B1.11				
272	1.3	**10.59**	**MVB**	5	525	B1.9 to B1.11				
388.57	0.93	**14.46**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -				**0.09 kW**				- -	
18.67	10.43	**0.87**	**MVB**	75	530	B1.9 to B1.11				
23.33	10.95	**1.02**	**MVB**	60	530	B1.9 to B1.11				
28	9.16	**1.1**	**MVB**	50	530	B1.9 to B1.11				
36.84	8.96	**1.52**	**MVB**	38	520	B1.9 to B1.11				
46.67	7.4	**1.74**	**MVB**	30	515	B1.9 to B1.11				
58.33	6.67	**2.0**	**MVB**	24	515	B1.9 to B1.11				
70	6.04	**2.13**	**MVB**	20	515	B1.9 to B1.11				
93.33	4.94	**2.58**	**MVB**	15	510	B1.9 to B1.11				
140	3.74	**3.52**	**MVB**	10	510	B1.9 to B1.11				
280	2.05	**6.66**	**MVB**	5	525	B1.9 to B1.11				
400	1.48	**9.09**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -				**0.12 kW**				- -	
27.6	12.91	**0.79**	**MVB**	50	530	B1.9 to B1.11				
36.32	12.65	**1.08**	**MVB**	38	520	B1.9 to B1.11				
46	10.45	**1.23**	**MVB**	30	515	B1.9 to B1.11				
57.5	9.42	**1.42**	**MVB**	24	515	B1.9 to B1.11				
69	8.53	**1.51**	**MVB**	20	515	B1.9 to B1.11				
92	6.97	**1.83**	**MVB**	15	510	B1.9 to B1.11				
138	5.28	**2.5**	**MVB**	10	510	B1.9 to B1.11				
276	2.9	**4.72**	**MVB**	5	525	B1.9 to B1.11				
394.29	2.09	**6.45**	**MVB**	3.5	525	B1.9 to B1.11				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -				**0.18 kW**				- -	
46.33	16.19	**0.79**	**MVB**	30	515	B1.9 to B1.11				
57.92	14.59	**0.92**	**MVB**	24	515	B1.9 to B1.11				
69.5	13.21	**0.97**	**MVB**	20	515	B1.9 to B1.11				
92.67	10.8	**1.18**	**MVB**	15	510	B1.9 to B1.11				
139	8.18	**1.61**	**MVB**	10	510	B1.9 to B1.11				
278	4.49	**3.05**	**MVB**	5	525	B1.9 to B1.11				
397.14	3.24	**4.16**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -				**0.25 kW**				- -	
95	14.97	**0.85**	**MVB**	15	510	B1.9 to B1.11				
142.5	11.33	**1.16**	**MVB**	10	510	B1.9 to B1.11				
285	6.21	**2.19**	**MVB**	5	525	B1.9 to B1.11				
407.14	4.48	**2.99**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -				**0.37 kW**				- -	
284	9.4	**1.45**	**MVB**	5	525	B1.9 to B1.11				
405.71	6.78	**1.98**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -				**0.55 kW**				- -	
280	14.34	**0.95**	**MVB**	5	525	B1.9 to B1.11				
400	10.34	**1.3**	**MVB**	3.5	525	B1.9 to B1.11				

Selection

B

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					**- -**	
11.33	10.76	**0.91**	**MVB**	75	530	B1.9 to B1.11				
14.17	11.41	**1.05**	**MVB**	60	530	B1.9 to B1.11				
17.00	9.51	**1.15**	**MVB**	50	530	B1.9 to B1.11				
22.37	9.44	**1.56**	**MVB**	38	520	B1.9 to B1.11				
28.33	7.93	**1.74**	**MVB**	30	515	B1.9 to B1.11				
35.42	7.08	**2.03**	**MVB**	24	515	B1.9 to B1.11				
42.50	6.44	**2.15**	**MVB**	20	515	B1.9 to B1.11				
56.67	5.3	**2.59**	**MVB**	15	510	B1.9 to B1.11				
85.00	4.05	**3.5**	**MVB**	10	510	B1.9 to B1.11				
170.00	2.24	**6.57**	**MVB**	5	525	B1.9 to B1.11				
242.86	1.62	**8.95**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.09 kW**					**- -**	
22.63	14.71	**1**	**MVB**	38	520	B1.9 to B1.11				
28.67	12.36	**1.12**	**MVB**	30	515	B1.9 to B1.11				
35.83	11.03	**1.3**	**MVB**	24	515	B1.9 to B1.11				
43.00	10.04	**1.38**	**MVB**	20	515	B1.9 to B1.11				
57.33	8.25	**1.66**	**MVB**	15	510	B1.9 to B1.11				
86.00	6.31	**2.24**	**MVB**	10	510	B1.9 to B1.11				
172.00	3.48	**4.21**	**MVB**	5	525	B1.9 to B1.11				
245.71	2.52	**5.74**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.12 kW**					**- -**	
25.00	18.26	**0.79**	**MVB**	38	520	B1.9 to B1.11				
31.67	15.29	**0.89**	**MVB**	30	515	B1.9 to B1.11				
39.58	13.68	**1.03**	**MVB**	24	515	B1.9 to B1.11				
47.50	12.43	**1.1**	**MVB**	20	515	B1.9 to B1.11				
63.33	10.21	**1.32**	**MVB**	15	510	B1.9 to B1.11				
95.00	7.78	**1.79**	**MVB**	10	510	B1.9 to B1.11				
190.00	4.3	**3.37**	**MVB**	5	525	B1.9 to B1.11				
271.43	3.11	**4.59**	**MVB**	3.5	525	B1.9 to B1.11				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.18 kW**					- -	
63.00	15.8	**0.86**	**MVB**	15	510	B1.9 to B1.11				
94.50	12.05	**1.16**	**MVB**	10	510	B1.9 to B1.11				
189.00	6.65	**2.18**	**MVB**	5	525	B1.9 to B1.11				
270.00	4.81	**2.97**	**MVB**	3.5	525	B1.9 to B1.11				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVB	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -			**0.25 kW**					- -	
91.50	17.53	**0.8**	**MVB**	10	510	B1.9 to B1.11				
183.00	9.68	**1.5**	**MVB**	5	525	B1.9 to B1.11				
261.43	7	**2.05**	**MVB**	3.5	525	B1.9 to B1.11				

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

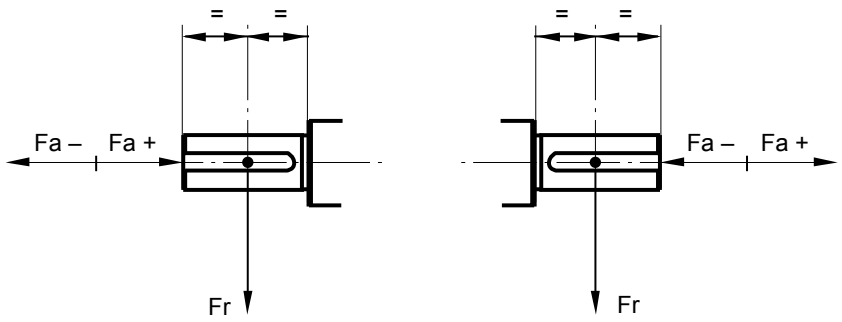
Newton force

Gearbox features			Clockwise or anti-clockwise									
Reduction	Speed min^{-1}	Bevel N.m	NSD-L	BSL-L	BSL-L	NSD-L		NSD-R	BSR-R	NSD-R		BSR-R
			F_r	F_r	F_a-	F_a-	F_a+	F_r	F_r	F_a-	F_a+	F_a+
5	284	10.5	525	558	112	230	497	525	558	497	230	112
10	142	13.5	510	569	379	515	893	510	569	893	515	379
15	94.7	13.5	510	572	638	838	1172	510	572	1172	838	638
20	71	12.5	515	579	851	1116	1464	515	579	1464	1116	851
30	47.3	12.5	515	588	1181	1485	1485	515	588	1485	1485	1181
40	35.5	11	520	590	1376	1501	1501	520	590	1501	1501	1376
50	28.4	10	530	590	1385	1510	1510	530	590	1510	1510	1385
60	23.7	10	530	590	1388	1513	1513	530	590	1513	1513	1388
75	18.9	10	530	590	1391	1516	1516	530	590	1516	1516	1391
90	15.7	6	550	590	1394	1519	1519	550	590	1519	1519	1394

Direction of the forces	
NSD-L & BSL-L	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension
NSD-R & BSR-R	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension

F_r = radial force on the shaft extension at 15 mm from the shoulder

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Shaft on the left

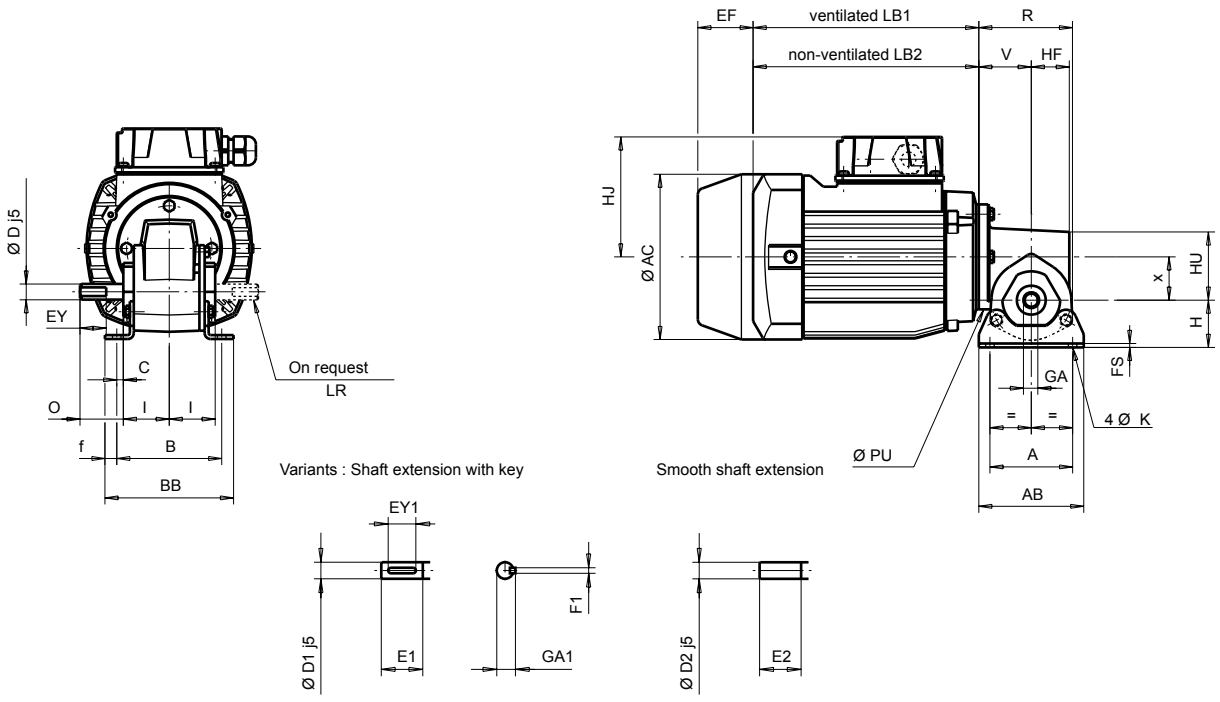
Shaft on the right

Dimensions

Overall dimensions of Minibloc MVB geared motors, MI integral mounting

Dimensions in millimetres

- NSD base form



	Gearboxes with NSD base																
Type	S	x	A	AB	B	BB	C	f	H	FS	V	HF	I	K	HU	PU	* kg
MVB	72	33	63	80	80	98	5	9	36	3	40	29	35	6.5	55	80	0.96

** Gearbox only*

	Flat solid output shaft (standard)				Output shaft solid with key[1]					Output shaft solid smooth[1]	
Type	D	O	EY	GA	D1	E1	EY1	GA1	F1	D2	E2
MVB	12	30	20	11	12	30	25	13.5	4	12	30

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

	Induction motors and brakes												
	3-phase LS					Single-phase LS					Brakes			
											EF max		[1] kg	
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

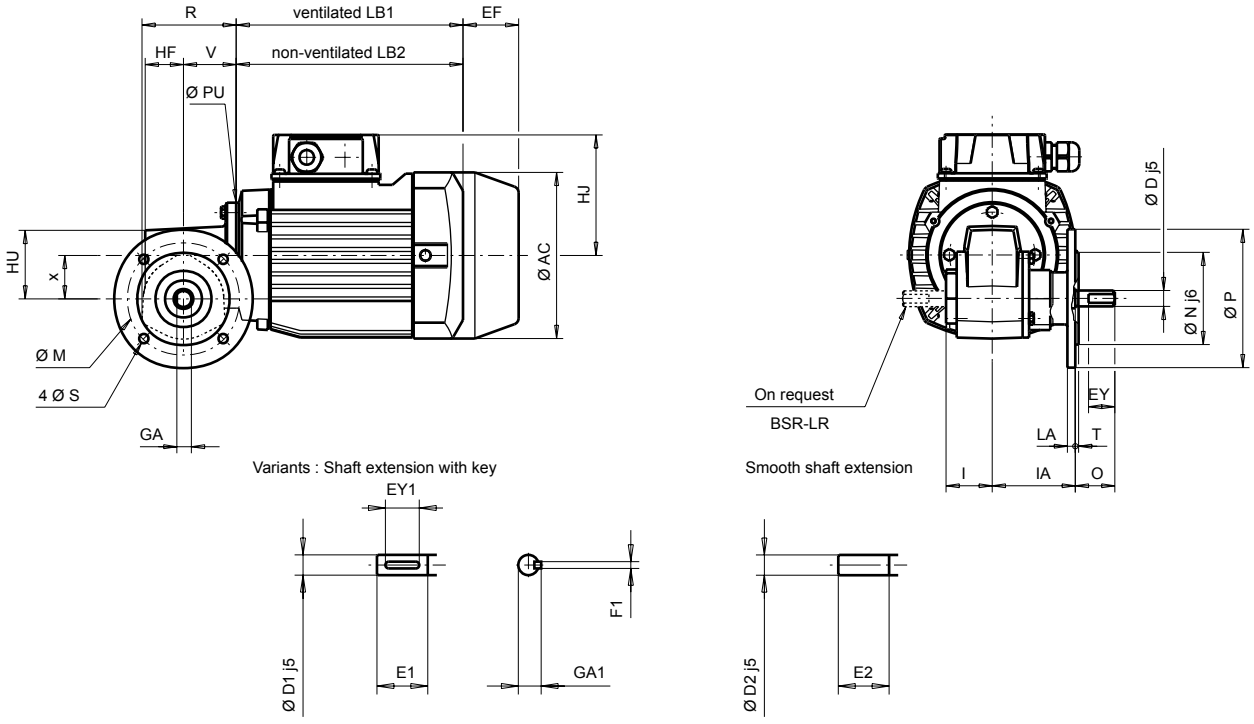
Dimensions

Overall dimensions for the Minibloc MVB gearboxes, MI integral mounting, solid output shaft

Dimensions in millimetres

B

- BS or BD flange form



Type	Gearboxes with BS flange S	x	M	N	P	O	LA	T	I	IA	V	HF	HU	PU	* kg
MVB	72	33	85	70	105	7	7	2.5	35	63	40	29	55	80	1.1

** Gearbox only*

Type	Other possible flanges[1] BD1 M1	N1	P1	S1	LA1	T1	BD2 M2	N2	P2	S2	LA2	T2
MVB	65	50	80	5.5	7	2.5	75	60	90	7	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Type	Flat solid output shaft (standard) D	O	EY	GA	Output shaft solid with key[1] D1	E1	EY1	GA1	F1	Output shaft solid smooth[1] D2	E2
MVB	12	30	20	11	12	30	25	13.5	4	12	30

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Fr. size	Induction motors and brakes 3-phase LS AC	HJ	LB1	LB2	kg	Single-phase LS AC	HJ	LB1	LB2	kg	Brakes EF max FMD	FCR	[1] kg FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

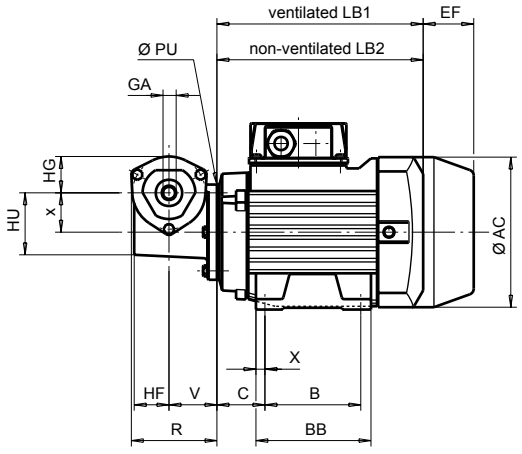
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

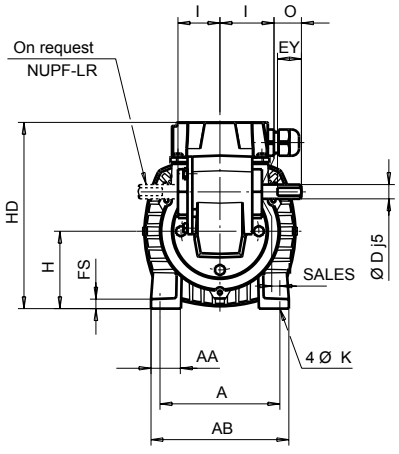
Dimensions

Overall dimensions of Minibloc MVB geared motors, MI integral mounting

Dimensions in millimetres

- Motor foot mounting, NUPF outboard gearbox

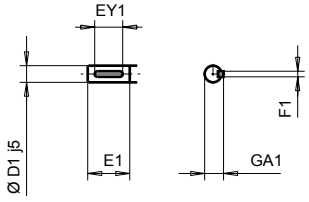




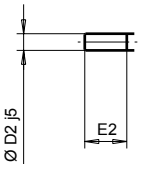
Definition of the positions: *see page B1.2*
- The position of the output shaft on the left (L) and right (R) is defined from the gearbox side view, with axis of the low speed shaft below the motor shaft.
- Position of the terminal box to be specified as A, B,C or D.

Diagrams shown:
1. output shaft on left
2. terminal box position C

Variants : Shaft extension with key



Smooth shaft extension



	NUPF outboard gearboxes							
Type	S	x	HG	V	HF	HU	PU	* kg
MVB	72	33	31	40	29	55	80	0.84

** Gearbox only*

	Flat solid output shaft (standard)				Solid output shaft with key[1]					Smooth solid output shaft[1]	
Type	D	O	EY	GA	D1	E1	EY1	GA1	F1	D2	E2
MVB	12	30	20	11	12	30	25	13.5	4	12	30

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

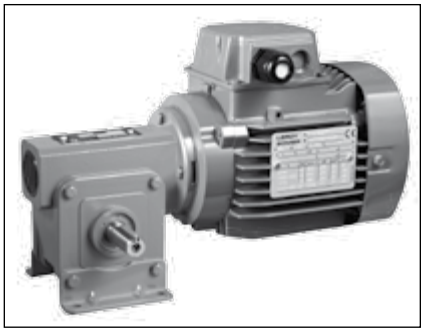
	Induction motors																	
	LS 3-phase and single phase														3-phase LS		Single-phase LS	
Fr. size	AC	A	AA	AB	B	BB	C	X	SALES	K	H	FS	LB1	LB2	HD	kg	HD	kg
56	110	90	24	104	71	89	36	9	5	6	56	5	156	132	141	3.4	146	3.5
63	124	100	30	115	80	94	40	8	10	7	63	6	172	150	158	4.3	173	4.5
71[1]	140	112	22	126	90	104	45	7	16	7	71	6	183	155	173	6.5	200	7.5

1. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

	Additional brake dimensions			
	EF max		[1] kg	
Type	FMD	FCR	FMD	FCR
56	50	-	0.9	-
63	50	-	0.9	-
71[2]	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

General information



Minibloc MVA geared motors are worm type equipment.
They are particularly compact and light but still offer excellent performance.
Their design allows numerous adaptations so that the best solution can be found for any problem.

One size: MVA
Rated output torque: from 1 to 33 N.m
Power ratings: from 0.04 to 0.37 kW
Reduction ratios: from 5 to 90
Very quiet operation.

Construction

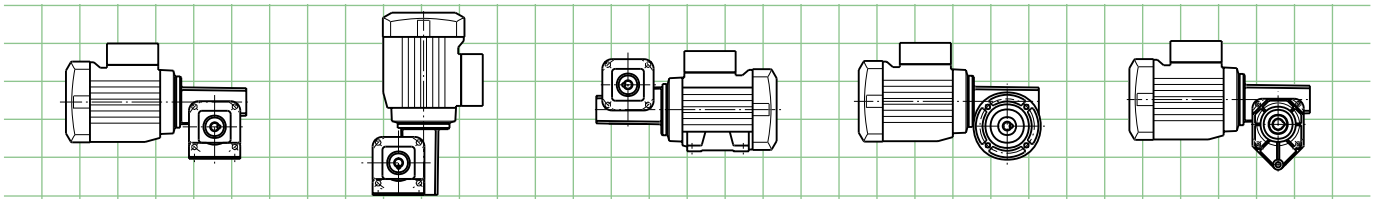
Description of Minibloc MVA gearboxes

Description	Materials	Comments
Frame	Aluminium	- pressure die cast aluminium - excellent sealing - neat and attractive appearance
Ring Screw	Bronze Steel	- die-cast bronze - worm in ion nitriding treated 42CD4 steel
Foot mounted	Steel	- zinc steel: protection from corrosion - removable: very adaptable
Shaft	Steel	- solid or hollow - ground or grooved sealing surfaces - key in accordance with DIN 6883 - tolerance of diameters in accordance with IEC 72-1 - tapped hole at the solid shaft extension
Lipseals	Acrylonitrile	- antidust double lipseals on slow speed shaft
Lubrication	Grease	- synthetic grease - no maintenance - multi-position operation - no drain, level or fill holes
Mounting		AP: gearbox with input shaft MI: geared motor with integrated motor
Standard motors		LS: multi-voltage 220/380 V, 230/400 V, 240/415 V three-phase and 230 V single-phase - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - terminal box fitted with cable gland with cable anti-damage system - IP55 standard protection - fixed onto gearbox using B14 flange
Brake motors		FMD: three-phase or single-phase fail-safe brake motor, from 0.06 to 0.37 kW FCR: three-phase fail-safe brake induction motor, from 0.25 to 0.55 kW
Other motors		MFA: IP23-IP44 D.C. motor from 0.075 to 0.37 kW (3000 min^{-1}) MBT: Low voltage D.C. motor
Safety	Plastics	Protective cover of the output on the opposite side of the working shaft for all gearboxes with hollow shaft or separate shaft
Finish	External finishing	Shade: RAL 6000 (green), system I (1 polyurethane acrylic layer of 25/30 µm)

Mounting positions

Minibloc MVA is multi-position and can therefore be fixed in all positions regardless of its form.

Minibloc MVA - Multi-position M

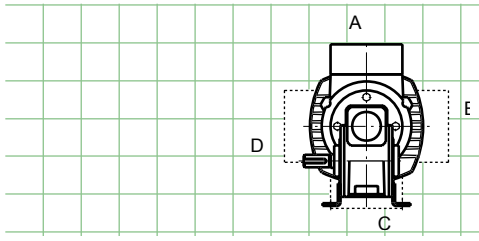


NSD **NSF** **NUPF** **BS or BD** **RL or RD**

Output shaft

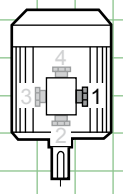
To the left (standard) **(L)** **To the right (R)** **Left + right (LR)** **Through hollow (H)**

Terminal box positions



A: standard

Cable gland positions



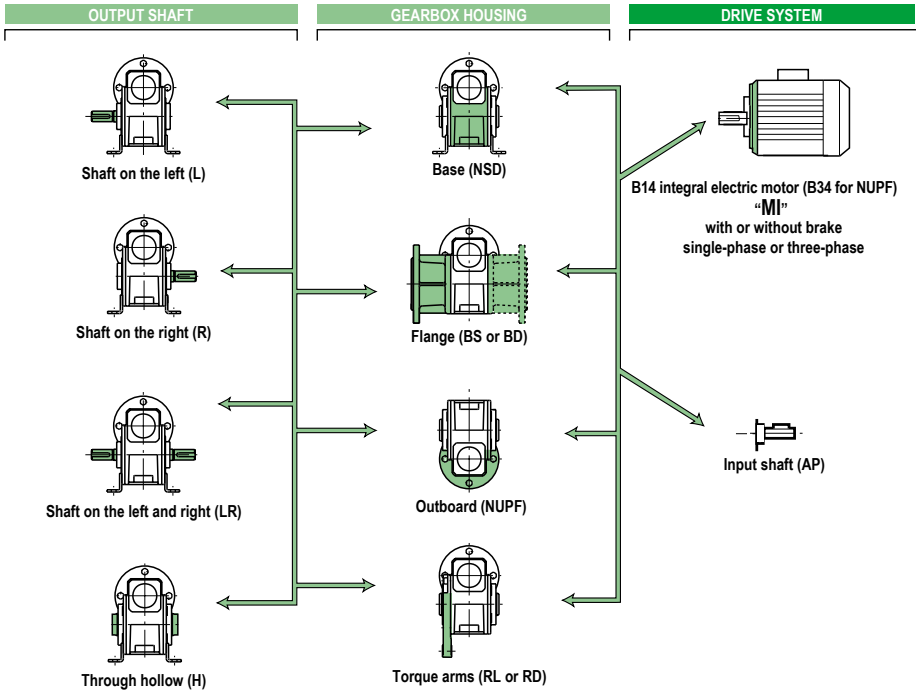
1 : standard

Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which meet very wide-ranging needs.
They are described in this catalogue.
For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Minibloc MVA gearboxes can be used in conjunction with the following drives:

- **single-phase induction motors:**
  - LS motor from 0.06 to 0.37 kW
  - LS FMD brake motor from 0.06 to 0.37 kW
- **three-phase induction motors:**
  - LS motor from 0.045 to 0.55 kW
  - LS FMD brake motor from 0.06 to 0.37 kW
  - LS FCR brake motor from 0.25 to 0.55 kW
- **D.C. motors:**
  - MFA from 0.075 to 0.37 kW (3000 min^{-1})
- **electronic D.C. geared motors:**
  - MVE from 0.075 to 0.37 kW (3000 min^{-1})
- **low-voltage D.C. motors (12 to 48 V) :**
  - MBT from 0.07 to 0.37 kW



B

PERPENDICULAR OUTPUT GEARED MOTORS

Description / Coding

GEARBOX

MVA	40	NS	D	P	M	MI
Gearbox type	Exact reduction	Mounting form	Mounting position	Output shaft	Operating position	Integral mounting

MOTOR

4P	LS 56 M	0.06 kW	230/400V 50 Hz
Number of poles	LS motor type and frame size	Rated output power	Standard mains voltage and frequency 230V 50 Hz 380-400V 50 Hz 415V 50 Hz 440-460V 60 Hz

Example of coding:

MVA - 40 - NS D - L - M - MI - 4P - LS56M - 0.06 kW
230/400 V - TRI - 50 Hz

Selection

B

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -				**0.06 kW**				- -	
15.11	11.96	**1.13**	**MVA**	90	860	B2.11 to B2.21				
18.13	10.24	**1.75**	**MVA**	75	840	B2.11 to B2.21				
22.67	9.12	**2.43**	**MVA**	60	820	B2.11 to B2.21				
27.2	8.77	**2.73**	**MVA**	50	810	B2.11 to B2.21				
34	7.26	**3.85**	**MVA**	40	790	B2.11 to B2.21				
45.33	6.05	**5.8**	**MVA**	30	690	B2.11 to B2.21				
56.4	5.5	**5.2**	**MVA**	25	790	B2.11 to B2.21				
68	4.49	**6.68**	**MVA**	20	780	B2.11 to B2.21				
90.67	3.44	**8.87**	**MVA**	15	702	B2.11 to B2.21				
104.62	3.17	**8.17**	**MVA**	13	741	B2.11 to B2.21				
136	2.49	**8.97**	**MVA**	10	654	B2.11 to B2.21				
209.23	1.68	**12.72**	**MVA**	6.5	515	B2.11 to B2.21				
272	1.31	**13.96**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -				**0.09 kW**				- -	
18.67	16.86	**1.05**	**MVA**	75	840	B2.11 to B2.21				
23.33	15.01	**1.47**	**MVA**	60	820	B2.11 to B2.21				
28	14.43	**1.64**	**MVA**	50	810	B2.11 to B2.21				
35	11.94	**2.32**	**MVA**	40	790	B2.11 to B2.21				
46.67	9.94	**3.51**	**MVA**	30	690	B2.11 to B2.21				
56	9.03	**3.15**	**MVA**	25	790	B2.11 to B2.21				
70	7.37	**4.05**	**MVA**	20	780	B2.11 to B2.21				
93.33	5.64	**5.38**	**MVA**	15	702	B2.11 to B2.21				
107.69	5.2	**4.96**	**MVA**	13	741	B2.11 to B2.21				
140	4.09	**5.44**	**MVA**	10	654	B2.11 to B2.21				
215.38	2.75	**7.72**	**MVA**	6.5	515	B2.11 to B2.21				
280	2.15	**8.47**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -				**0.12 kW**				- -	
23	21.55	**1.02**	**MVA**	60	820	B2.11 to B2.21				
27.6	20.72	**1.15**	**MVA**	50	810	B2.11 to B2.21				
34.5	17.14	**1.62**	**MVA**	40	790	B2.11 to B2.21				
46	14.28	**2.45**	**MVA**	30	690	B2.11 to B2.21				
55.2	12.98	**2.2**	**MVA**	25	790	B2.11 to B2.21				
69	10.59	**2.82**	**MVA**	20	780	B2.11 to B2.21				
92	8.11	**3.75**	**MVA**	15	702	B2.11 to B2.21				
106.15	7.47	**3.45**	**MVA**	13	741	B2.11 to B2.21				
138	5.88	**3.79**	**MVA**	10	654	B2.11 to B2.21				
212.31	3.96	**5.38**	**MVA**	6.5	515	B2.11 to B2.21				
276	3.09	**5.9**	**MVA**	5	435	B2.11 to B2.21				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
0.18 kW										
34.75			**MVA**	40	790	B2.11 to B2.21				
46.33			**MVA**	30	690	B2.11 to B2.21				
55.6			**MVA**	25	790	B2.11 to B2.21				
69.5			**MVA**	20	780	B2.11 to B2.21				
92.67			**MVA**	15	702	B2.11 to B2.21				
106.92			**MVA**	13	741	B2.11 to B2.21				
139			**MVA**	10	654	B2.11 to B2.21				
213.85			**MVA**	6.5	515	B2.11 to B2.21				
278			**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
LS 71 M; - LS 71 M FMD; -			**0.25 kW**						- -	
47.5	31.36	**1.11**	**MVA**	30	690	B2.11 to B2.21				
57	28.48	**0.99**	**MVA**	25	790	B2.11 to B2.21				
71.25	23.24	**1.28**	**MVA**	20	780	B2.11 to B2.21				
95	17.79	**1.7**	**MVA**	15	702	B2.11 to B2.21				
109.62	16.37	**1.57**	**MVA**	13	741	B2.11 to B2.21				
142.5	12.89	**1.72**	**MVA**	10	654	B2.11 to B2.21				
219.23	8.68	**2.44**	**MVA**	6.5	515	B2.11 to B2.21				
285	6.77	**2.68**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
LS 71 M; - LS 71 M FMD; -			**0.37 kW**						- -	
71	35.38	**0.84**	**MVA**	20	780	B2.11 to B2.21				
94.67	27.08	**1.12**	**MVA**	15	702	B2.11 to B2.21				
109.23	24.93	**1.03**	**MVA**	13	741	B2.11 to B2.21				
142	19.62	**1.13**	**MVA**	10	654	B2.11 to B2.21				
218.46	13.21	**1.6**	**MVA**	6.5	515	B2.11 to B2.21				
284	10.31	**1.76**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
LS 71 L; - LS 71 L FMD; -			**0.55 kW**						- -	
215.38	20.25	**1.05**	**MVA**	6.5	515	B2.11 to B2.21				
280	15.8	**1.15**	**MVA**	5	435	B2.11 to B2.21				

Selection

B

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					**- -**	
9.44	20.46	**0.84**	**MVA**	90	860	B2.11 to B2.21				
11.33	17.44	**1.16**	**MVA**	75	840	B2.11 to B2.21				
14.17	15.67	**1.56**	**MVA**	60	820	B2.11 to B2.21				
17.00	15.27	**1.79**	**MVA**	50	810	B2.11 to B2.21				
21.25	12.7	**2.48**	**MVA**	40	790	B2.11 to B2.21				
28.33	10.64	**3.53**	**MVA**	30	690	B2.11 to B2.21				
34.00	9.78	**3.17**	**MVA**	25	790	B2.11 to B2.21				
42.50	7.99	**4.02**	**MVA**	20	780	B2.11 to B2.21				
56.67	6.12	**5.33**	**MVA**	15	702	B2.11 to B2.21				
65.38	5.69	**4.92**	**MVA**	13	741	B2.11 to B2.21				
85.00	4.49	**5.32**	**MVA**	10	654	B2.11 to B2.21				
130.77	3.04	**7.54**	**MVA**	6.5	515	B2.11 to B2.21				
170.00	2.38	**8.22**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.09 kW**					**- -**	
14.33	24.91	**0.98**	**MVA**	60	820	B2.11 to B2.21				
17.20	24.27	**1.12**	**MVA**	50	810	B2.11 to B2.21				
21.50	20.17	**1.55**	**MVA**	40	790	B2.11 to B2.21				
28.67	16.91	**2.22**	**MVA**	30	690	B2.11 to B2.21				
34.40	15.54	**1.99**	**MVA**	25	790	B2.11 to B2.21				
43.00	12.7	**2.53**	**MVA**	20	780	B2.11 to B2.21				
57.33	9.73	**3.35**	**MVA**	15	702	B2.11 to B2.21				
66.15	9.03	**3.09**	**MVA**	13	741	B2.11 to B2.21				
86.00	7.13	**3.35**	**MVA**	10	654	B2.11 to B2.21				
132.31	4.82	**4.74**	**MVA**	6.5	515	B2.11 to B2.21				
172.00	3.77	**5.17**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.12 kW**					**- -**	
19.00	30.33	**0.88**	**MVA**	50	810	B2.11 to B2.21				
23.75	25.18	**1.22**	**MVA**	40	790	B2.11 to B2.21				
31.67	21.08	**1.75**	**MVA**	30	690	B2.11 to B2.21				
38.00	19.33	**1.58**	**MVA**	25	790	B2.11 to B2.21				
47.50	15.79	**2**	**MVA**	20	780	B2.11 to B2.21				
63.33	12.1	**2.66**	**MVA**	15	702	B2.11 to B2.21				
73.08	11.21	**2.44**	**MVA**	13	741	B2.11 to B2.21				
95.00	8.85	**2.66**	**MVA**	10	654	B2.11 to B2.21				
146.15	5.98	**3.77**	**MVA**	6.5	515	B2.11 to B2.21				
190.00	4.68	**4.12**	**MVA**	5	435	B2.11 to B2.21				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.18 kW**					- -	
23.62	39.37	**0.78**	**MVA**	40	790	B2.11 to B2.21				
31.50	32.96	**1.12**	**MVA**	30	690	B2.11 to B2.21				
37.80	30.23	**1.01**	**MVA**	25	790	B2.11 to B2.21				
47.25	24.69	**1.28**	**MVA**	20	780	B2.11 to B2.21				
63.00	18.91	**1.7**	**MVA**	15	702	B2.11 to B2.21				
72.69	17.53	**1.56**	**MVA**	13	741	B2.11 to B2.21				
94.50	13.83	**1.7**	**MVA**	10	654	B2.11 to B2.21				
145.38	9.35	**2.41**	**MVA**	6.5	515	B2.11 to B2.21				
189.00	7.31	**2.63**	**MVA**	5	435	B2.11 to B2.21				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MVA	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -			**0.25 kW**					- -	
45.75	36.09	**0.88**	**MVA**	20	780	B2.11 to B2.21				
61.00	27.65	**1.17**	**MVA**	15	702	B2.11 to B2.21				
70.38	25.65	**1.08**	**MVA**	13	741	B2.11 to B2.21				
91.50	20.24	**1.17**	**MVA**	10	654	B2.11 to B2.21				
140.77	13.69	**1.66**	**MVA**	6.5	515	B2.11 to B2.21				
183.00	10.7	**1.81**	**MVA**	5	435	B2.11 to B2.21				

Gearbox only features (AP)

B

MVA "AP" - 2,800 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
31.1	90	0.092	9.5
37.3	75	0.119	11.8
46.7	60	0.167	16.0
56.0	50	0.210	20.0
70.0	40	0.247	19.8
93.3	30	0.286	19.1
112.0	25	0.331	20.0
140.0	20	0.364	18.0
186.7	15	0.392	15.0
215.4	13	0.491	17.4
280.0	10	0.562	15.8
430.08	6.5	0.658	12.4
560.0	5	0.739	11.0

MVA "AP" - 1,400 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
15.6	90	0.061	12.5
18.7	75	0.089	17.3
23.3	60	0.118	21.6
28.0	50	0.129	23.0
35.0	40	0.177	27.0
46.7	30	0.261	34.5
56.0	25	0.236	28.0
70.0	20	0.298	29.5
93.3	15	0.393	30.0
107.7	13	0.363	25.5
140.0	10	0.396	22.0
215.4	6.5	0.555	21.0
280.0	5	0.610	18.0

MVA "AP" - 900 min^{-1} - Kp = 1

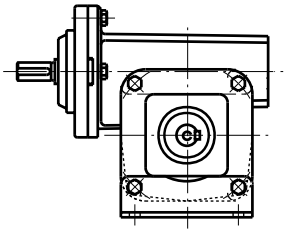
Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
10.0	90	0.054	17.0
12.0	75	0.070	20.0
15.0	60	0.090	24.0
18.0	50	0.102	27.0
22.5	40	0.137	31.0
30.0	30	0.189	36.9
36.0	25	0.171	30.5
45.0	20	0.213	31.6
60.0	15	0.279	32.1
69.2	13	0.255	27.0
90.0	10	0.280	23.5
138.5	6.5	0.391	22.5
180.0	5	0.423	19.2

MVA "AP" - 500 min^{-1} - Kp = 1

Rated capacities

n_S (min^{-1})	i_{aR}	kW	M_{nS} (N.m)
5.6	90	0.037	18.7
6.7	75	0.049	22.0
8.3	60	0.062	26.4
10.0	50	0.069	29.7
12.5	40	0.092	34.1
16.7	30	0.126	40.6
20.0	25	0.112	33.6
25.0	20	0.139	34.8
33.3	15	0.181	35.3
38.5	13	0.176	32.0
50.0	10	0.179	25.8
76.9	6.5	0.249	24.8
100.0	5	0.269	21.2



Low speed shaft load - Output shaft Ø ≤ 15 mm

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

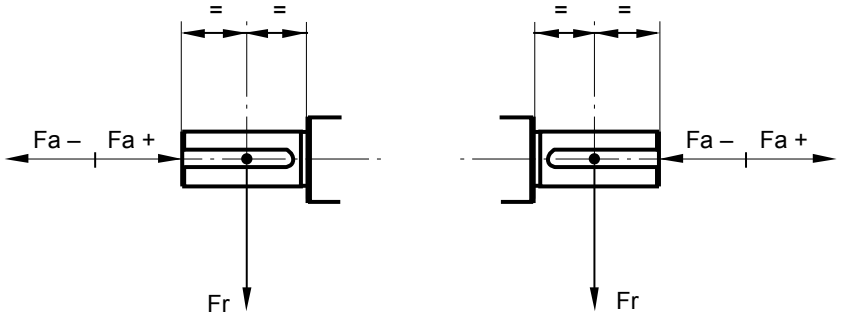
Newton force

Gearbox features			Clockwise or anti-clockwise							
Reduction	Speed min^{-1}	Bevel N.m	NSD-L	BSL-L	NSD-L & BSL-L		NSD-R	BSR-R	NSD-R & BSR-R	
			F_r	F_r	F_a-	F_a+	F_r	F_r	F_a-	F_a+
5	284	20	435	435	103	350	435	435	350	103
6.5	218	21	515	515	139	430	515	515	430	139
10	142	22	654	654	314	710	654	654	710	314
13	109	23	741	741	407	878	741	741	878	407
15	94.6	31.5	702	702	445	898	702	702	898	445
20	71	29.5	780	780	523	1043	780	780	1043	523
25	56.8	26.9	790	790	560	1012	790	790	1012	560
30	47.3	34.5	690	690	652	1177	690	690	1177	652
40	35.5	26.9	790	790	784	1347	790	790	1347	784
50	28.4	23.5	810	810	831	1415	810	810	1415	831
60	23.7	20	820	820	937	1589	820	820	1589	937
75	18.9	15	840	840	1290	1770	840	840	1770	1290
90	15.7	12	860	860	1370	1950	860	860	1950	1370

	Direction of the forces
NSD-R & BSR-R	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension
NSD-L & BSL-L	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension

F_r = radial force on the shaft extension at 15 mm from the shoulder

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Shaft on the left

Shaft on the right

Slow speed load - Output shaft Ø > 15 mm or hollow shaft

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

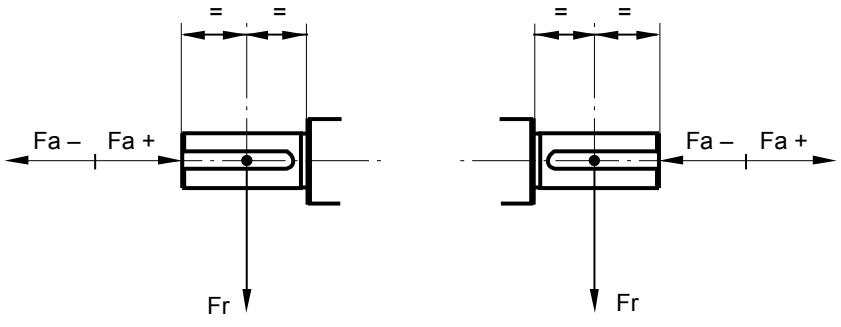
Newton force

Gearbox features			Clockwise or anti-clockwise							
Reduction	Speed min^{-1}	Bevel N.m	NSD-L	BSL-L	NSD-L & BSL-L		NSD-R	BSR-R	NSD-R & BSR-R	
			F_r	F_r	F_a-	F_a+	F_r	F_r	F_a-	F_a+
5	284	20	828	578	290	720	828	578	720	290
6.5	218	21	944	659	451	1085	944	659	1085	451
10	142	22	1144	799	684	1343	1144	799	1343	684
13	109	23	1243	838	822	1589	1243	838	1589	822
15	94.6	31.5	1269	886	891	1669	1269	886	1669	891
20	71	29.5	1463	1021	1082	2016	1463	1021	2016	1082
25	56.8	26.9	1629	1138	1256	2338	1629	1138	2338	1256
30	47.3	34.5	1683	1150	1395	2545	1683	1150	2545	1395
40	35.5	26.9	1956	1150	1697	3116	1956	1150	3116	1697
50	28.4	23.5	2162	1150	1870	3294	2162	1150	3294	1870
60	23.7	20	2336	1150	2127	3325	2336	1150	3325	2127
75	18.9	15	2500	1150	2441	3349	2500	1150	3349	2441
90	15.7	12	2600	1150	2879	3357	2600	1150	3357	2879

Direction of the forces	
NSD-R & BSR-R	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension
NSD-L & BSL-L	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension

F_r = radial force on the shaft extension at 20mm from the shoulder

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - For BSL-L or BSR-R, the force corresponds with the separate shaft.
3 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



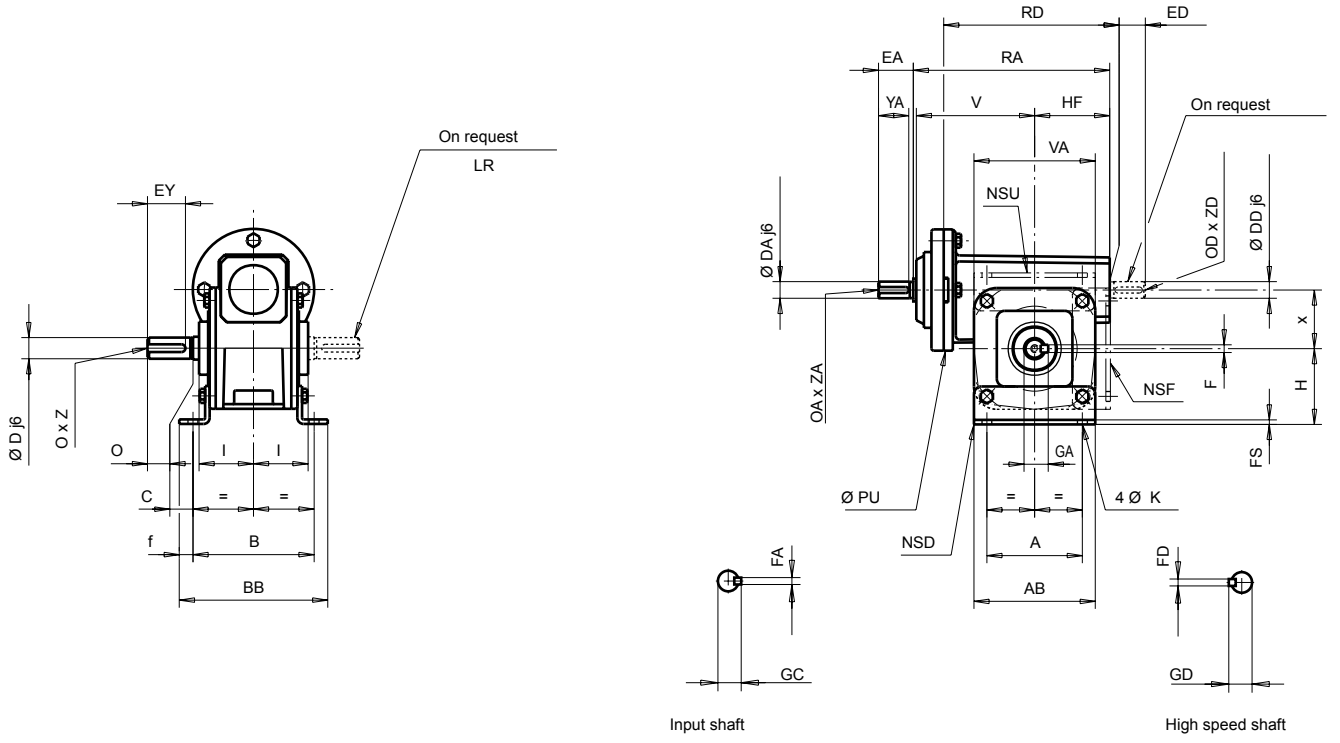
Shaft on the left Shaft on the right

Dimensions

Overall dimensions of Minibloc MVA gearboxes, mounting with AP input shaft, solid output shaft

Dimensions in millimetres

- NSD, NSF, NSU base form



Type	Gearboxes with NSD, NSF, NSU base																	kg
	RD	RA	x	A	AB	B	BB	C	f	H	FS	V	VA	HF	I	K	PU	
MVA	110	129.5	38.6	63	80	80	98	0	9	50	3	78	80	49	36	6.5	80	1.9

NB: in position NSF and NSU the axis side of the slow speed shaft against the feet fastenings is 50 mm.

Type	Input shaft							Solid output shaft						
	DA	EA	YA	GC	FA	OA	ZA	D	O	EY	GA	F	O	Z
MVA	11	23	18	12.5	4	M4	10	14	30	25	16	5	M5	15

Type	High speed shaft *(on request)*					
	DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

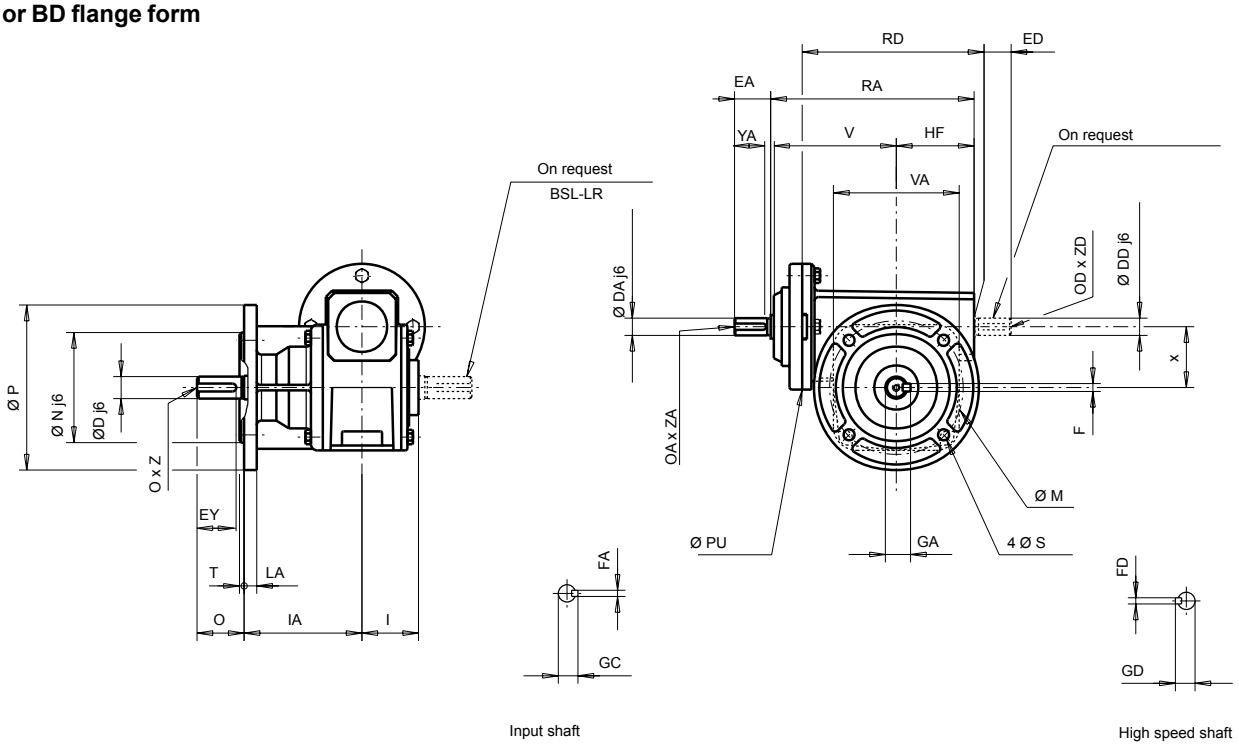
Dimensions

Overall dimensions of Minibloc MVA gearboxes, mounting with AP input shaft, solid output shaft

Dimensions in millimetres

B

- BS or BD flange form



Type	Gearboxes with BS flange RD	RA	x	M	N	P	O	LA	T	IA	I	V	VA	HF	PU	kg
MVA	110	129.5	38.6	85	70	105	7	8	2.5	75	36	78	80	49	80	2.2

	Other possible flanges[1] BD1						BD2						BD3					
Type	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2	M3	N3	P3	S3	LA3	T3
MVA	65	50	80	5.5	8	2.5	100	80	120	7	8	3	115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Type	Input shaft DA	EA	YA	GC	FA	OA	ZA	Solid output shaft D	O	EY	GA	F	O	Z
MVA	11	23	18	12.5	4	M4	10	14	30	25	16	5	M5	15

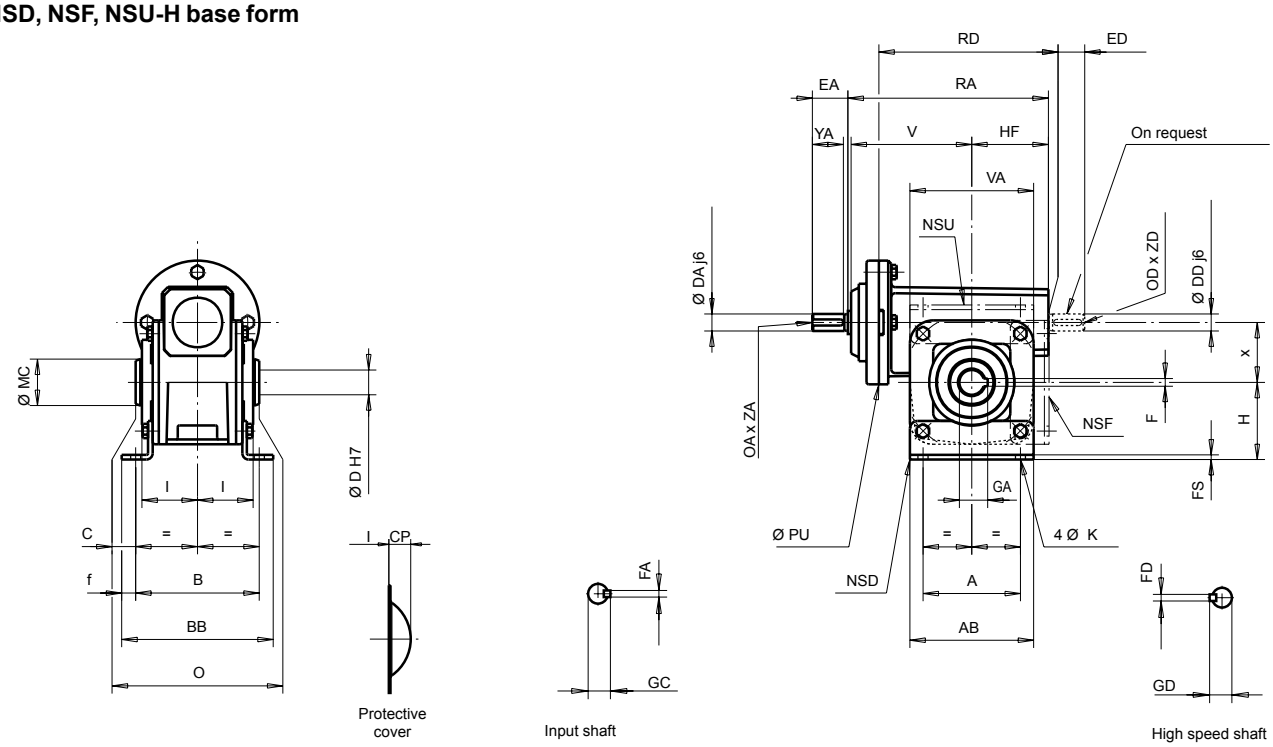
Type	High speed shaft *(on request)* DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

Dimensions

Overall dimensions of Minibloc MVA gearboxes, mounting with AP input shaft, hollow output shaft (H)

Dimensions in millimetres

- NSD, NSF, NSU-H base form



Type	Gearboxes with NSD, NSF, NSU-H base																	kg
	RD	RA	x	A	AB	B	BB	C	f	H	FS	V	VA	HF	I	K	PU	
MVA	110	129.5	38.6	63	80	80	98	0	9	50	3	78	80	49	36	6.5	80	2.2

NB: in position NSF and NSU the axis side of the slow speed shaft against the feet fastenings is 50 mm.

Type	Input shaft						
	DA	EA	YA	GC	FA	OA	ZA
MVA	11	23	18	12.5	4	M4	10

Type	Hollow output shaft						Other possible hollow shaft[1]					
	D	O	MC	GA	F	CP	D1	E1	MC1	GA1	F1	CP1
MVA	16	80	30	18	5	16	20	80	30	23	6	16

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

Type	High speed shaft *(on request)*					
	DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

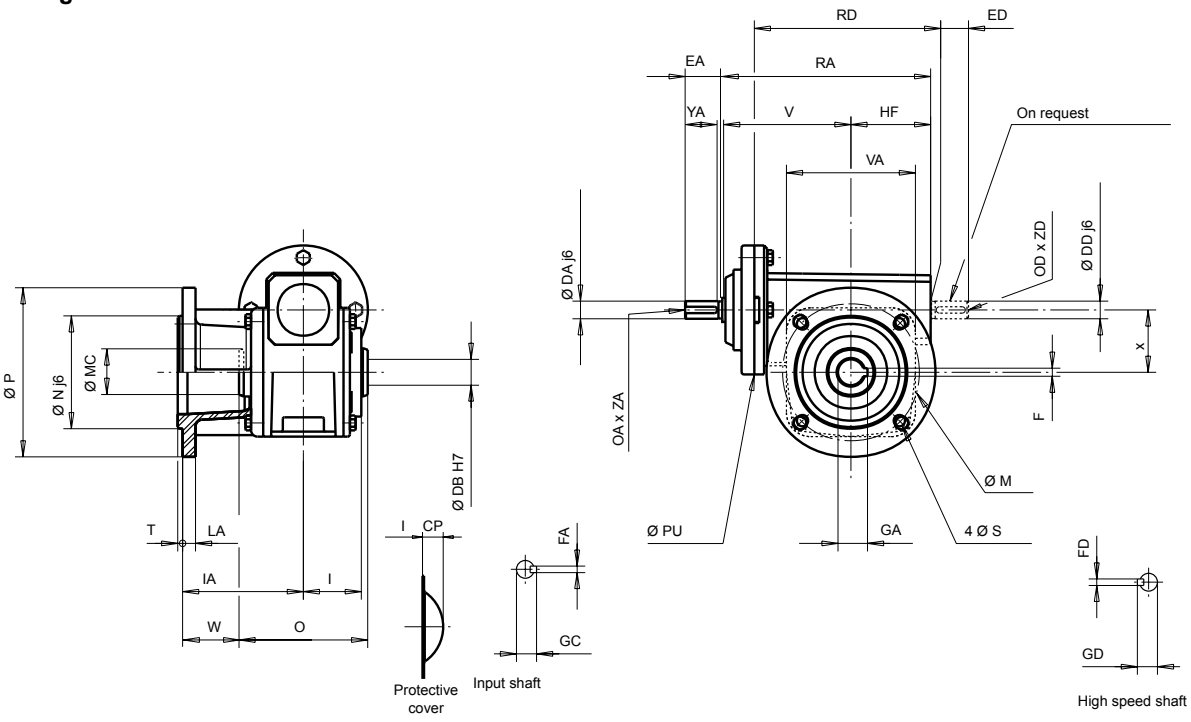
Dimensions

Overall dimensions of Minibloc MVA gearboxes, mounting with AP input shaft, hollow output shaft (H)

Dimensions in millimetres

B

- BS - H flange form



Type	RD	RA	x	M	N	P	O	LA	T	IA	I	V	VA	HF	PU	kg
	110	129.5	38.6	85	70	105	7	8	2.5	75	36	78	80	49	80	2.3

Type	DA	EA	YA	GC	FA	OA	ZA
	11	23	18	12.5	4	M4	10

Type	D	O	MC	GA	F	W	CP	D1	E1	MC1	GA1	F1	W1	CP1
								1						
	16	80	30	18	5	35	16	20	80	30	23	6	35	16

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

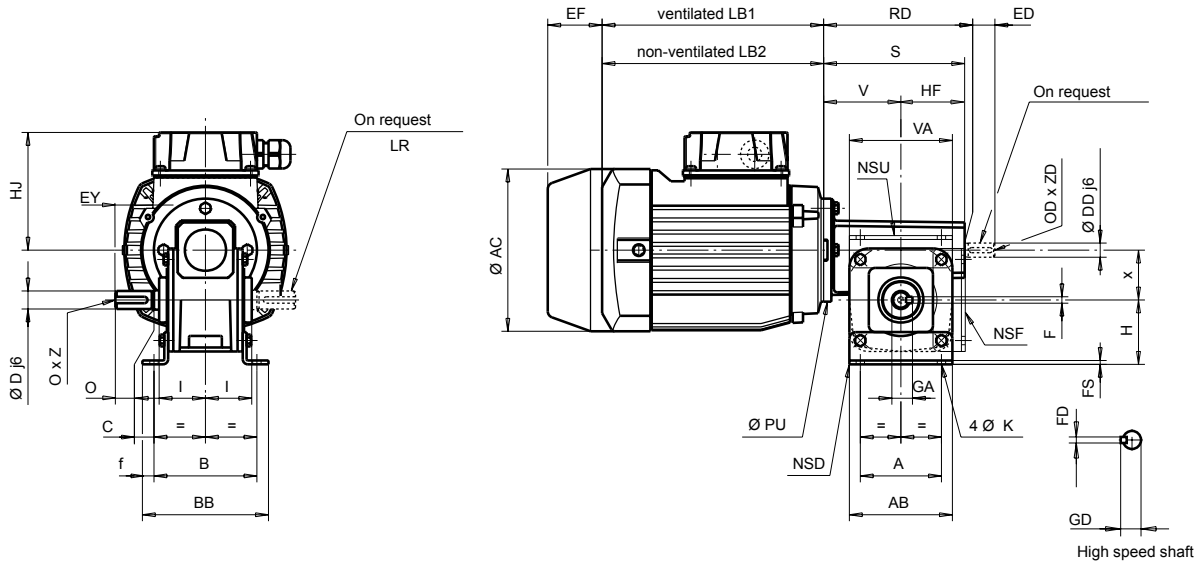
Type	*(on request)* DD	ED	GD	FD	OD	ZD
	11	23	12.5	4	M4	10

Dimensions

Overall dimensions for the Minibloc MVA geared motors, MI integral mounting, solid output shaft

Dimensions in millimetres

- NSD, NSF, NSU base form



Type	Gearboxes with NSD, NSF, NSU base																	* kg
	RD	RA	x	A	AB	B	BB	C	f	H	FS	V	VA	HF	I	K	PU	
MVA	110	109.5	38.6	63	80	80	98	0	9	50	3	60.5	80	49	36	6.5	80	1.7

** Gearbox only*
NB: in position NSF and NSU, the axis side of the slow speed shaft against the feet fastenings is 50 mm.

Type	Solid output shaft						
	D	O	EY	GA	F	O	Z
MVA	14	30	25	16	5	M5	15

Type	High speed shaft *(on request)*					
	DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

Fr. size	Induction motors and brakes												
	3-phase LS					Single-phase LS					Brakes			
					kg					kg	EF max		kg [1]	
	AC	HJ	LB1	LB2		AC	HJ	LB1	LB2		FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

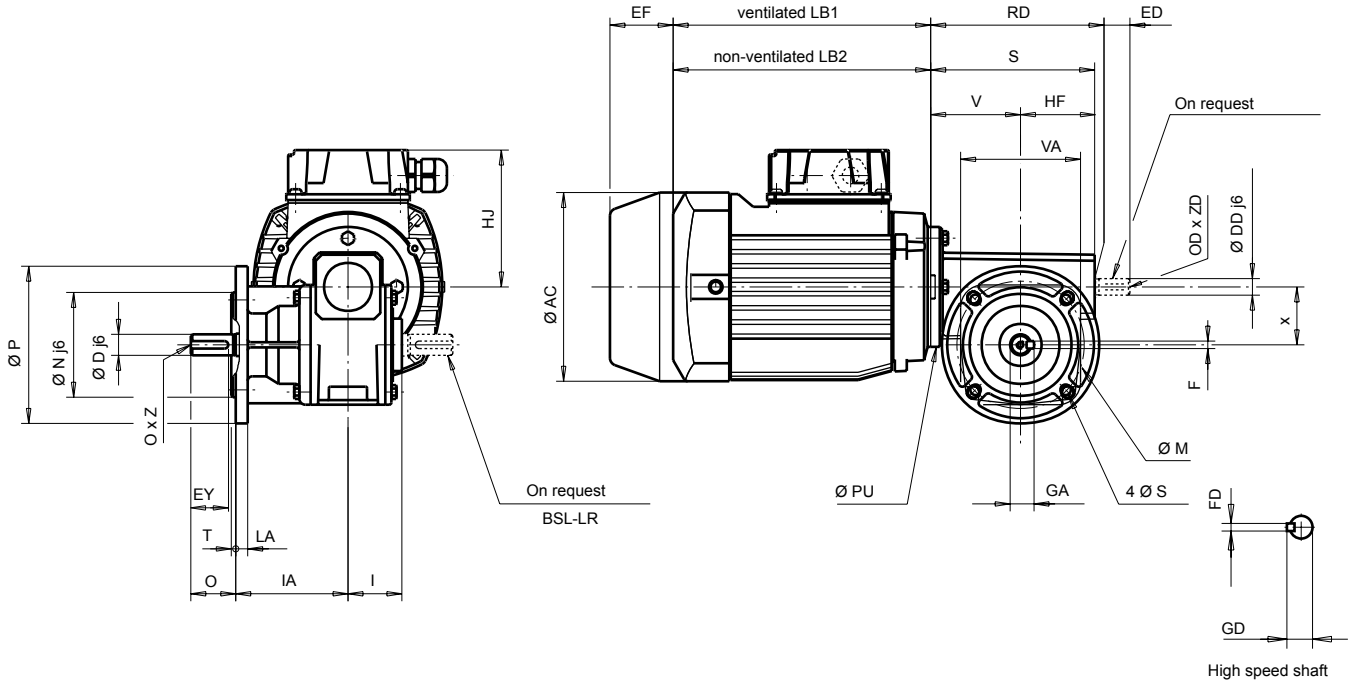
Dimensions

Overall dimensions for the Minibloc MVA geared motors, MI integral mounting, solid output shaft

Dimensions in millimetres

B

- BS or BD flange form



	Gearboxes with BS flange															*
Type	RD	S	x	M	N	P	O	LA	T	IA	I	V	VA	HF	PU	kg
MVA	110	109.5	38.6	85	70	105	7	8	2.5	75	36	60.5	80	49	80	2

** Gearbox only*

	Other possible flanges[1]																	
	BD1						BD2						BD3					
Type	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2	M3	N3	P3	S3	LA3	T3
MVA	65	50	80	5.5	8	2.5	100	80	120	7	8	3	115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

	Solid output shaft							High speed shaft *(on request)*					
Type	D	O	EY	GA	F	O	Z	DD	ED	GD	FD	OD	ZD
MVA	14	30	25	16	5	M5	15	11	23	12.5	4	M4	10

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
											EF max		[1]	
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	kg FMD	kg FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

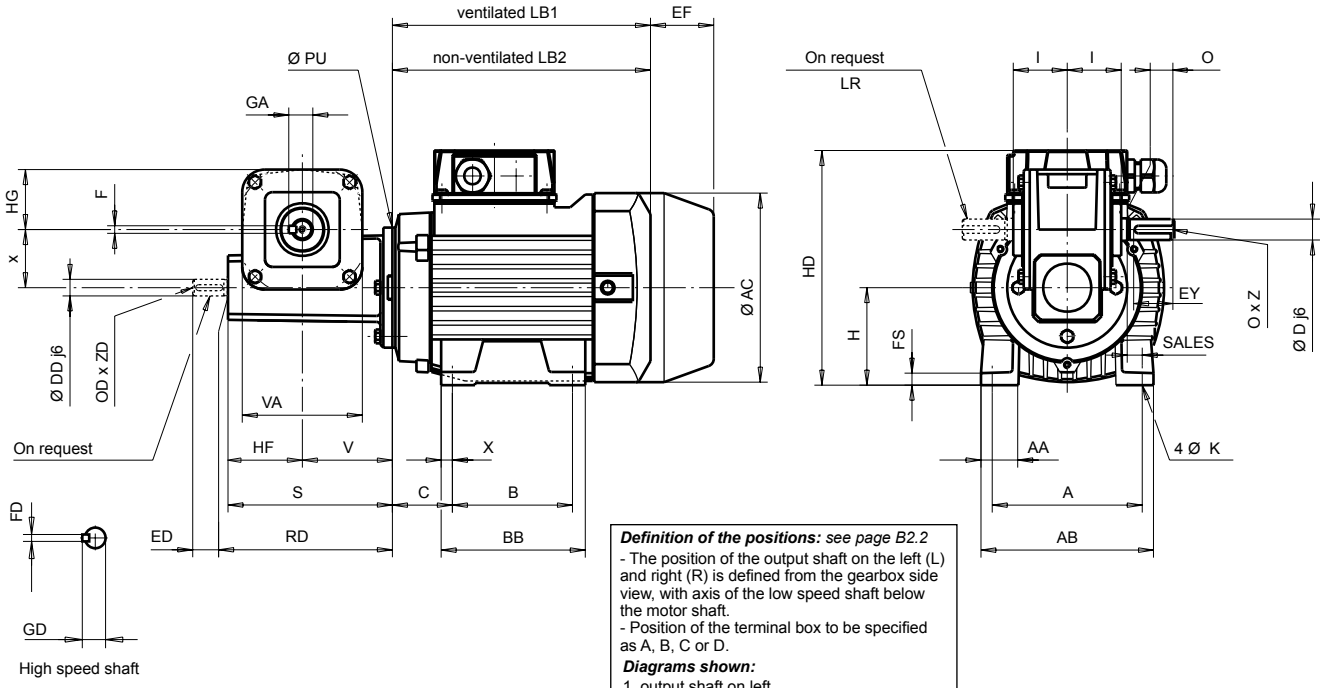
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Overall dimensions for the Minibloc MVA geared motors, MI integral mounting, solid output shaft

Dimensions in millimetres

- Motor foot mounting, NUPF outboard gearbox



Definition of the positions: *see page B2.2*
- The position of the output shaft on the left (L) and right (R) is defined from the gearbox side view, with axis of the low speed shaft below the motor shaft.
- Position of the terminal box to be specified as A, B, C or D.

Diagrams shown:
1. output shaft on left
2. terminal box position C

	NUPF outboard gearboxes									
Type	RD	S	x	HG	V	VA	HF	I	PU	* kg
MVA	110	109.5	38.6	40	60.5	80	49	36	80	1.7

** Gearbox only*

	Solid output shaft							High speed shaft *(on request)*					
Type	D	O	EY	GA	F	O	Z	DD	ED	GD	FD	OD	ZD
MVA	14	30	25	16	5	M5	15	11	23	12.5	4	M4	10

	Induction motors															
	LS 3-phase and single phase												3-phase LS		Single-phase LS	
Fr. size	AC	A	AA	AB	B	BB	C	SALES	H	FS	LB1	LB2	HD	kg	HD	kg
56	110	90	24	104	71	89	36	5	56	5	156	132	141	3.4	146	3.5
63	124	100	30	115	80	94	40	10	63	6	172	150	158	4.3	173	4.5
71[1]	140	112	22	126	90	104	45	16	71	6	183	155	173	6.5	200	7.5

1. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

	Additional brake dimensions			
	EF max		[1] kg	
Type	FMD	FCR	FMD	FCR
56	50	-	0.9	-
63	50	-	0.9	-
71[2]	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

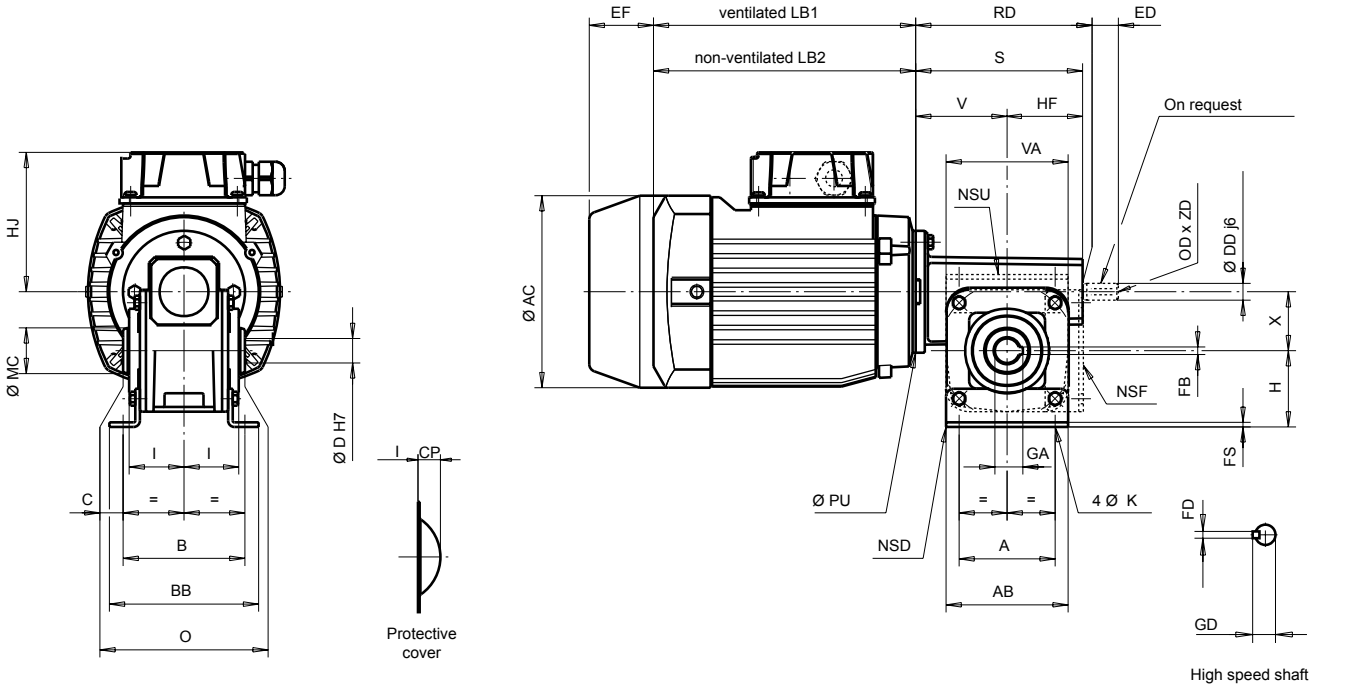
Dimensions

Overall dimensions of Minibloc MVA geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

B

- NSD, NSF, NSU-H base form



Type	Gearboxes with NSD, NSF, NSU-H base																	* kg
	RD	S	x	A	AB	B	BB	C	f	H	FS	V	VA	HF	I	K	PU	
MVA	110	109.5	38.6	63	80	80	98	0	9	50	3	60.5	80	49	36	6.5	80	2

** Gearbox only*
NB: in position NSF and S5 the axis side of the slow speed shaft against the feet fastenings is 50 mm.

Type	Hollow output shaft						Other possible hollow shaft[1]					
	D	O	MC	GA	F	CP	D1	E1	MC1	GA1	F1	CP1
MVA	16	80	30	18	5	16	20	80	30	23	6	16

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

Type	High speed shaft *(on request)*					
	DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		kg[1]	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

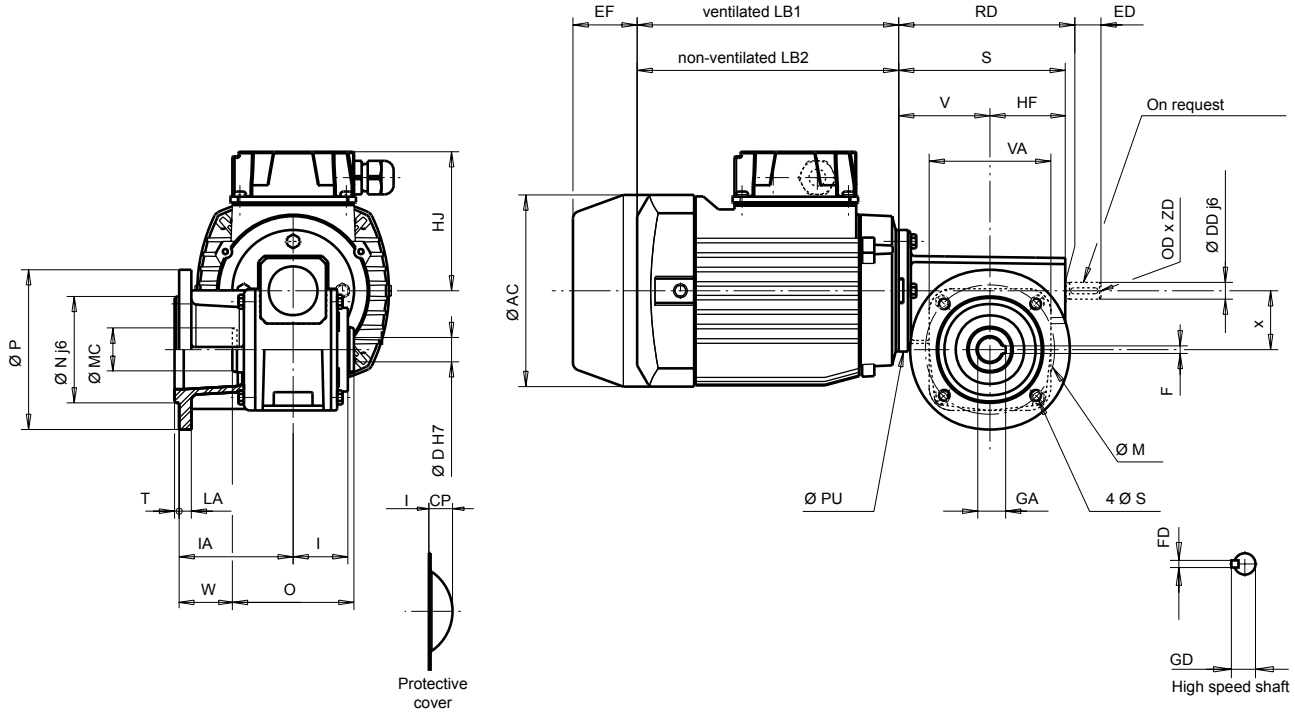
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Overall dimensions of Minibloc MVA geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

- BS - H flange form



	Gearboxes with BS-H flange															*
Type	RD	S	x	M	N	P	O	LA	T	IA	I	V	VA	HF	PU	kg
MVA	110	109.5	38.6	85	70	105	7	8	2.5	75	36	60.5	80	49	80	2.1

** Gearbox only*

	Hollow output shaft							Other possible hollow shaft[1]						
Type	D	O	MC	GA	F	W	CP	D1	E1	MC1	GA1	F1	W1	CP1
MVA	16	80	30	18	5	35	16	20	80	30	23	6	35	16

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

	High speed shaft *(on request)*					
Type	DD	ED	GD	FD	OD	ZD
MVA	11	23	12.5	4	M4	10

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
											EF max		[1] kg	
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

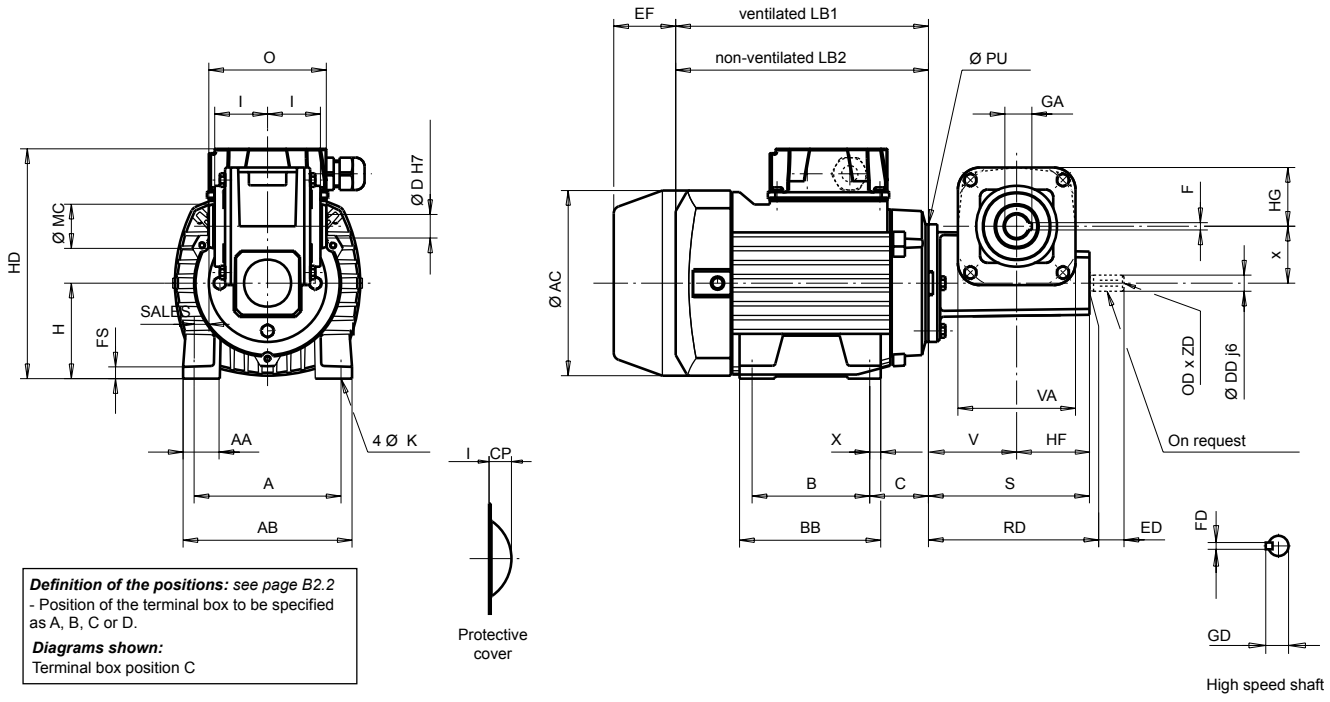
Dimensions

Overall dimensions of Minibloc MVA geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

B

- Motor foot mounting, NUPF - H outboard gearbox



Definition of the positions: *see page B2.2*
- Position of the terminal box to be specified as A, B, C or D.

Diagrams shown:
Terminal box position C

Type	NUPF - H outboard gearboxes									* kg
	RD	S	x	HG	V	VA	HF	I	PU	
MVA	110	109.5	38.6	40	60.5	80	49	36	80	2

** Gearbox only*

Type	Hollow output shaft						Other possible hollow shaft[1]						High speed shaft *(on request)*					
	D	O	MC	GA	F	CP	D1	E1	MC1	GA1	F1	CP1	DD	ED	GD	FD	OD	ZD
MVA	16	80	30	18	5	16	20	80	30	23	6	16	11	23	12.5	4	M4	10

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

	Induction motors																	
	LS 3-phase and single phase														3-phase LS		Single-phase LS	
Fr. size	AC	A	AA	AB	B	BB	C	X	SALES	K	H	FS	LB1	LB2	HD	kg	HD	kg
56	110	90	24	104	71	89	36	9	5	6	56	5	156	132	141	3.4	146	3.5
63	124	100	30	115	80	94	40	8	10	7	63	6	172	150	158	4.3	173	4.5
71[1]	140	112	22	126	90	104	45	7	16	7	71	6	183	155	173	6.5	200	7.5

1. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Type	Additional brake dimensions			
	EF max		[1] kg	
	FMD	FCR	FMD	FCR
56	50	-	0.9	-
63	50	-	0.9	-
71[2]	50	90	0.9	2.5

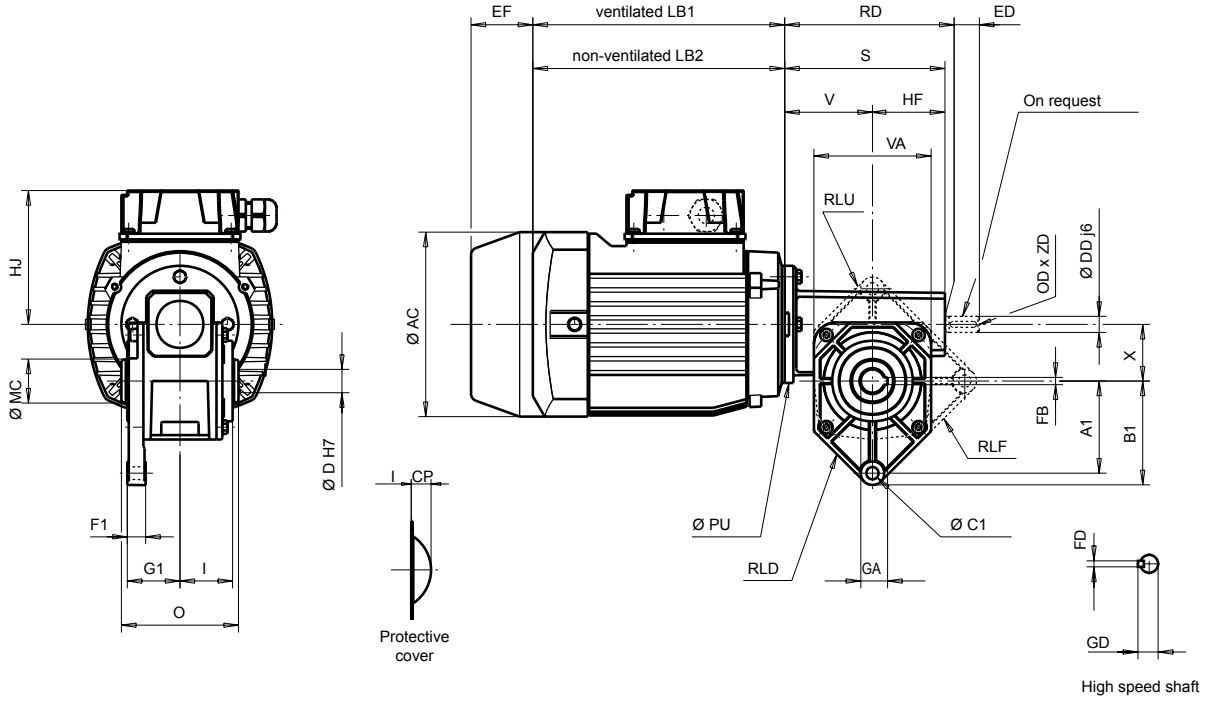
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Dimensions of Minibloc MVA geared motors, MI integrated mounting, hollow output shaft (H) with torque arm

Dimensions in millimetres

- RLD, RLF, RLU, RRD, RRF, RRU - H form



	Gearboxes with RL, RR - H torque arm													
Type	RD	S	x	B1	A1	I	G1	F1	C1	V	VA	HF	PU	kg *
MVA	110	109.5	38.6	71.5	63	36	36	12.5	8.3	60.5	80	49	80	2

** Gearbox only*

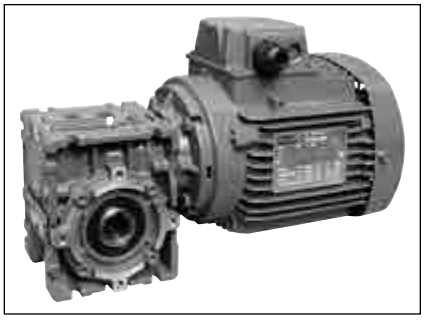
	Hollow output shaft						Other possible hollow shaft[1]						High speed shaft *(on request)*					
Type	D	O	MC	GA	F	CP	D1	E1	MC1	GA1	F1	CP1	DD	ED	GD	FD	OD	ZD
MVA	16	80	30	18	5	16	20	80	30	23	6	16	11	23	12.5	4	M4	10

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
					kg					kg	EF max		kg [1]	
Fr. size	AC	HJ	LB1	LB2		AC	HJ	LB1	LB2		FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

General information



Multibloc 4101 geared motors with worm 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 (ns) in revolutions per minute (min^{-1}).
The main characteristic of speed reducers is the rated output torque (Mns) expressed in Newton-metres (Nm).

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

Rated output torque: up to 45 Nm.
Power ratings: from 0.045 to 0.75 kW.
Reduction ratios: from 5 to 100.
Efficiency: from 47% to 88%.
Very quiet operation.

B

PERPENDICULAR OUTPUT GEARED MOTORS

Construction

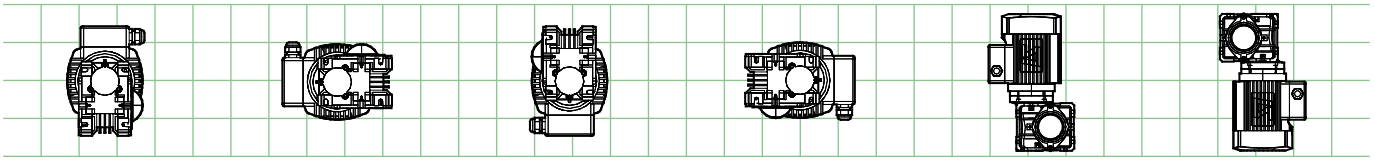
Description of Multibloc Mb 4101 gearboxes

Description	Materials	Comments
Frame	Aluminium	- multi-position - pressure die cast aluminium - heavily ribbed to improve the mechanical resistance and thermal dissipation
Gears	Steel + Bronze	- worm and wheel system • worm in tempered steel, ground sides • wheel in centrifuged bronze • angular play 10' to 25'
Shaft	Steel	- grinding of sealing surfaces - key in accordance with DIN 6883 - tolerance of diameters in accordance with IEC 72-1 (DIN 748) - for output shaft, tapped hole on shaft extension
Lipseals	Acrylonitrile Polyacrylate	- 100% sealing check before lubrication
Lubrication	Synthetic oil	- delivered with the quantity of oil corresponding to multi-position operation - maintenance-free, lubricated for the lifetime of the gearbox - no drain, level or fill plug - nominal ambient temperature range -16°C to +40°C
Mounting		MU: geared motor with CEI motor, completed with universal mounting (8 holes for LS56)
Motor		LS: multi-voltage 220/380V, 230/400V, 240/415V three-phase and 230V single-phase - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - terminal box fitted with cable gland with cable anti-damage system - IP55 standard protection - fixed onto gearbox using standard B14 flange
Brake motors		FMD: 3-phase or single-phase fail-safe brake induction motor, from 0.06 to 0.75 kW FCR: 3-phase failsafe brake induction motor, from 0.25 to 0.75 kW
Other motors		MFA: IP 44 D.C. motor from 0.075 to 0.37 kW (3000 min^{-1}) MBT: IP 40 or IP 44 low voltage D.C.motor (0.75 kW max)
Safety	Plastics	Protective cover of the output on the opposite side of the working shaft for all gearboxes with hollow shaft or separate shaft
Finish		Unpainted

Mounting positions

B

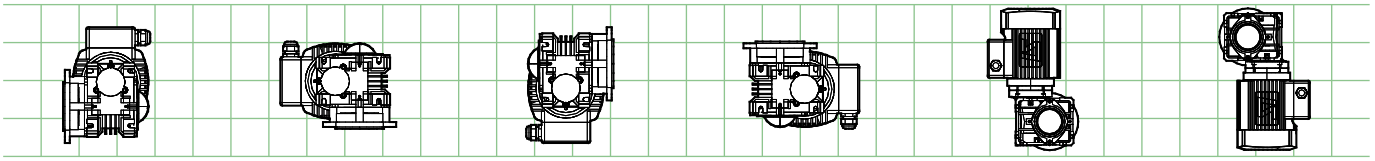
Standard Multibloc 4101 multi-position M



S - H - B3 | S - H - V5 | S - H - B8 | S - H - V6 | S - H - B7 | S - H - B6

Positions to be specified only if it is necessary to provide a drain hole on the motor.

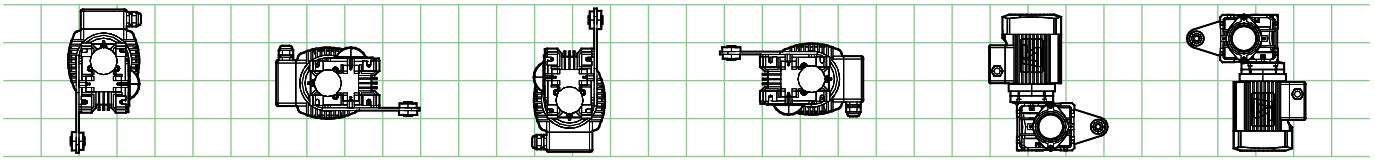
Standard Multibloc 4101 with BS flange multi-position M, BSL or BSR



BSL - H - B5 | BSL - H - V1 | BSL - H - B53 | BSL - H - V3 | BSL - H - B54 | BSL - H - B52

Other flange positions: on right (e.g.: BSR - H), on both sides (e.g.: BSLR - H).
Positions to be specified only if it is necessary to provide a drain hole on the motor.

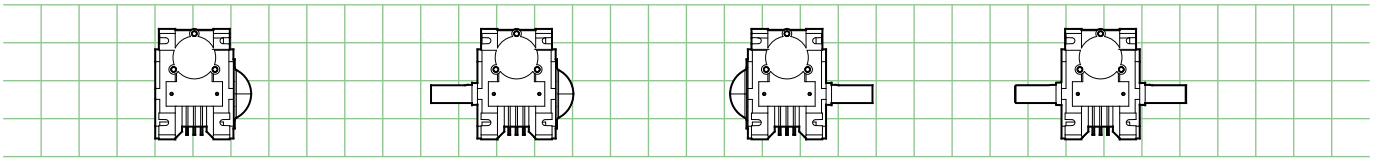
Standard Multibloc 4101 with torque arm multi-position M, RKH (torque arm supplied separately)



RKL - H - B3 | RKL - H - V5 | RKL - H - B8 | RKL - H - V6 | RKL - H - B7 | RKL - H - B6

Positions to be specified only if it is necessary to provide a drain hole on the motor.
The torque arm kit is supplied unassembled as standard.

Output types



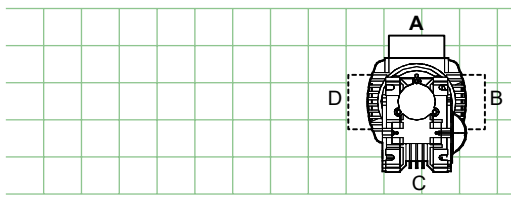
H
Shaft: hollow,

HL
Shaft: solid,
output on the left

HR
Shaft: solid,
output on the right

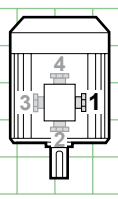
HLR
Shaft: solid,
double output

Terminal box position



A: Standard

Cable gland position



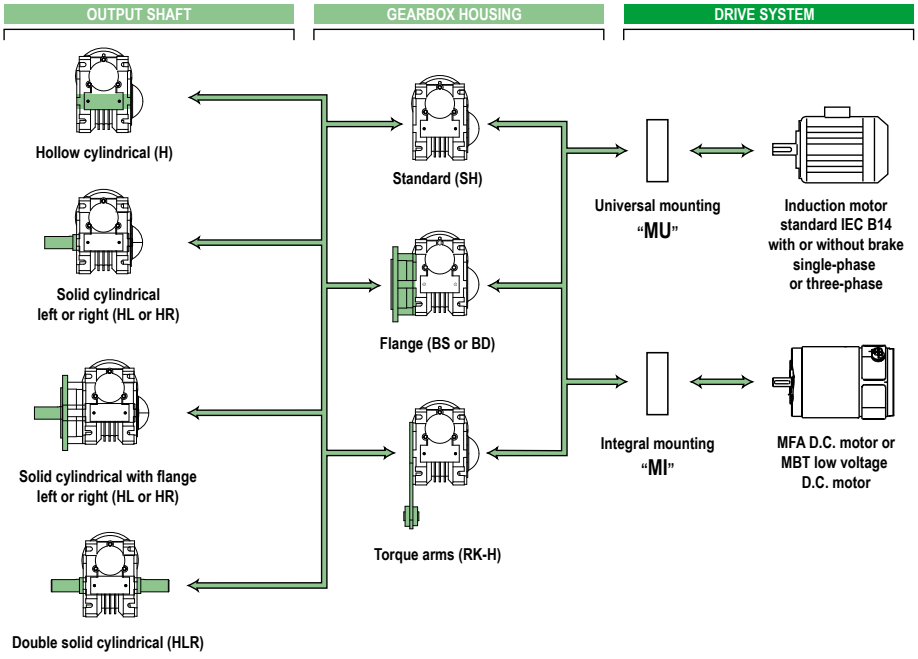
1 : Standard

Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which meet very wide-ranging needs. They are described in this catalogue.
For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Multibloc Mb 4101 gearboxes can be used in conjunction with the following drives:

- **single-phase induction motors:**
  - LS motor from 0.06 to 0.75 kW
  - LS FMD brake motor from 0.06 to 0.75 kW
- **three-phase induction motors:**
  - LS motor from 0.045 to 0.75 kW
  - LS FMD brake motor from 0.045 to 0.75 kW
  - LS FCR brake motor from 0.18 to 0.75 kW
- **D.C. motors:**
  - MFA from 0.075 to 0.37 kW (3000 min^{-1})
- **electronic D.C. geared motors:**
  - MVE from 0.075 to 0.37 kW (3000 min^{-1})
- **low-voltage D.C. motors (12 to 48 V):**
  - MBT from 0.07 to 0.75 kW



B

PERPENDICULAR OUTPUT GEARED MOTORS

Description / Coding

GEARBOX

Mb	4101	20	O	H	M	MU
Gearbox type	Size and number of stages	Exact reduction	Mounting form	Output shaft	Operating position	Universal mounting

MOTOR

4P	LS 63 M	0.12 kW	230/400V 50 Hz
Number of poles	LS motor type and frame size	Rated output power	Standard mains voltage and frequency: 230V 50 Hz 380-400V 50 Hz 415V 50 Hz 440-460V 60 Hz

Example of coding:

Mb 4101 - 20 - S - H - M - MU - 4P - LS63M - 0.12 kW
230/400 V - TRI - 50 Hz

Selection

B

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					**- -**	
13.6	12.71	**2.34**	**Mb4101**	100	3010	B3.10 to B3.14				
17	11.27	**2.97**	**Mb4101**	80	2750	B3.10 to B3.14				
22.67	9.44	**3.89**	**Mb4101**	60	2435	B3.10 to B3.14				
27.2	8.29	**4.79**	**Mb4101**	50	2215	B3.10 to B3.14				
34	7.12	**5.89**	**Mb4101**	40	2040	B3.10 to B3.14				
45.33	5.68	**8.08**	**Mb4101**	30	1780	B3.10 to B3.14				
54.4	5.06	**7.73**	**Mb4101**	25	1710	B3.10 to B3.14				
68	4.21	**9.53**	**Mb4101**	20	1545	B3.10 to B3.14				
90.67	3.29	**12.52**	**Mb4101**	15	1345	B3.10 to B3.14				
136	2.3	**17.78**	**Mb4101**	10	1090	B3.10 to B3.14				
181.33	1.76	**23.25**	**Mb4101**	7.5	985	B3.10 to B3.14				
272	1.2	**29.56**	**Mb 4101**	5	890	B3.10 to B3.14				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.09 kW**					**- -**	
14	21.22	**1.39**	**Mb4101**	100	3010	B3.10 to B3.14				
17.5	18.8	**1.77**	**Mb4101**	80	2750	B3.10 to B3.14				
23.33	15.75	**2.32**	**Mb4101**	60	2435	B3.10 to B3.14				
28	13.82	**2.86**	**Mb4101**	50	2215	B3.10 to B3.14				
35	11.86	**3.51**	**Mb4101**	40	2040	B3.10 to B3.14				
46.67	9.47	**4.82**	**Mb4101**	30	1780	B3.10 to B3.14				
56	8.43	**4.61**	**Mb4101**	25	1710	B3.10 to B3.14				
70	7.02	**5.68**	**Mb4101**	20	1545	B3.10 to B3.14				
93.33	5.47	**7.46**	**Mb4101**	15	1345	B3.10 to B3.14				
140	3.83	**10.62**	**Mb4101**	10	1090	B3.10 to B3.14				
186.67	2.93	**13.89**	**Mb4101**	7.5	985	B3.10 to B3.14				
280	1.99	**17.58**	**Mb4101**	5	890	B3.10 to B3.14				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.12 kW**					**- -**	
13.8	30.63	**0.97**	**Mb4101**	100	3010	B3.10 to B3.14				
17.25	27.15	**1.23**	**Mb4101**	80	2750	B3.10 to B3.14				
23	22.75	**1.61**	**Mb4101**	60	2435	B3.10 to B3.14				
27.6	19.96	**1.98**	**Mb4101**	50	2215	B3.10 to B3.14				
34.5	17.14	**2.44**	**Mb4101**	40	2040	B3.10 to B3.14				
46	13.68	**3.35**	**Mb4101**	30	1780	B3.10 to B3.14				
55.2	12.19	**3.2**	**Mb4101**	25	1710	B3.10 to B3.14				
69	10.14	**3.94**	**Mb4101**	20	1545	B3.10 to B3.14				
92	7.91	**5.18**	**Mb4101**	15	1345	B3.10 to B3.14				
138	5.54	**7.36**	**Mb4101**	10	1090	B3.10 to B3.14				
184	4.24	**9.63**	**Mb4101**	7.5	985	B3.10 to B3.14				
276	2.88	**12.22**	**Mb4101**	5	890	B3.10 to B3.14				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.18 kW**					- -	
23.17	35.98	**1.02**	**Mb4101**	60	2435	B3.10 to B3.14				
27.8	31.57	**1.25**	**Mb4101**	50	2215	B3.10 to B3.14				
34.75	27.1	**1.54**	**Mb4101**	40	2040	B3.10 to B3.14				
46.33	21.63	**2.11**	**Mb4101**	30	1780	B3.10 to B3.14				
55.6	19.27	**2.02**	**Mb4101**	25	1710	B3.10 to B3.14				
69.5	16.04	**2.49**	**Mb4101**	20	1545	B3.10 to B3.14				
92.67	12.51	**3.27**	**Mb4101**	15	1345	B3.10 to B3.14				
139	8.76	**4.65**	**Mb4101**	10	1090	B3.10 to B3.14				
185.33	6.7	**6.08**	**Mb4101**	7.5	985	B3.10 to B3.14				
278	4.55	**7.71**	**Mb4101**	5	890	B3.10 to B3.14				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.25 kW**					- -	
28.5	44.23	**0.89**	**Mb4101**	50	2215	B3.10 to B3.14				
35.62	37.95	**1.09**	**Mb4101**	40	2040	B3.10 to B3.14				
47.5	30.28	**1.5**	**Mb4101**	30	1780	B3.10 to B3.14				
57	26.96	**1.43**	**Mb4101**	25	1710	B3.10 to B3.14				
71.25	22.43	**1.77**	**Mb4101**	20	1545	B3.10 to B3.14				
95	17.5	**2.32**	**Mb4101**	15	1345	B3.10 to B3.14				
142.5	12.24	**3.31**	**Mb4101**	10	1090	B3.10 to B3.14				
190	9.36	**4.33**	**Mb4101**	7.5	985	B3.10 to B3.14				
285	6.36	**5.46**	**Mb4101**	5	890	B3.10 to B3.14				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.37 kW**					- -	
47.33	46.2	**0.99**	**Mb4101**	30	1780	B3.10 to B3.14				
56.8	41.14	**0.94**	**Mb4101**	25	1710	B3.10 to B3.14				
71	34.22	**1.16**	**Mb4101**	20	1545	B3.10 to B3.14				
94.67	26.69	**1.52**	**Mb4101**	15	1345	B3.10 to B3.14				
142	18.68	**2.17**	**Mb4101**	10	1090	B3.10 to B3.14				
189.33	14.28	**2.84**	**Mb4101**	7.5	985	B3.10 to B3.14				
284	9.71	**3.58**	**Mb4101**	5	890	B3.10 to B3.14				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -			**0.55 kW**					- -	
93.33	40.96	**1**	**Mb4101**	15	1345	B3.10 to B3.14				
140	28.67	**1.42**	**Mb4101**	10	1090	B3.10 to B3.14				
186.67	21.92	**1.86**	**Mb4101**	7.5	985	B3.10 to B3.14				
280	14.9	**2.35**	**Mb4101**	5	890	B3.10 to B3.14				

Selection

B

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					**- -**	
8.50	21.91	**1.49**	**Mb4101**	100	3480	B3.10 to B3.14				
10.62	19.56	**1.84**	**Mb4101**	80	3190	B3.10 to B3.14				
14.17	16.54	**2.44**	**Mb4101**	60	2830	B3.10 to B3.14				
17.00	14.6	**2.97**	**Mb4101**	50	2615	B3.10 to B3.14				
21.25	12.61	**3.68**	**Mb4101**	40	2370	B3.10 to B3.14				
28.33	10.14	**5**	**Mb4101**	30	2070	B3.10 to B3.14				
34.00	9.11	**4.83**	**Mb4101**	25	1980	B3.10 to B3.14				
42.50	7.61	**5.96**	**Mb4101**	20	1790	B3.10 to B3.14				
56.67	5.97	**7.84**	**Mb4101**	15	1560	B3.10 to B3.14				
85.00	4.21	**10.9**	**Mb4101**	10	1280	B3.10 to B3.14				
113.33	3.23	**14.21**	**Mb4101**	7.5	1160	B3.10 to B3.14				
170.00	2.2	**18.88**	**Mb4101**	5	1050	B3.10 to B3.14				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.09 kW**					**- -**	
8.60	35.08	**0.93**	**Mb4101**	100	3480	B3.10 to B3.14				
10.75	31.31	**1.15**	**Mb4101**	80	3190	B3.10 to B3.14				
14.33	26.47	**1.52**	**Mb4101**	60	2830	B3.10 to B3.14				
17.20	23.36	**1.85**	**Mb4101**	50	2615	B3.10 to B3.14				
21.50	20.17	**2.3**	**Mb4101**	40	2370	B3.10 to B3.14				
28.67	16.21	**3.12**	**Mb4101**	30	2070	B3.10 to B3.14				
34.40	14.57	**3.01**	**Mb4101**	25	1980	B3.10 to B3.14				
43.00	12.17	**3.72**	**Mb4101**	20	1790	B3.10 to B3.14				
57.33	9.54	**4.89**	**Mb4101**	15	1560	B3.10 to B3.14				
86.00	6.73	**6.8**	**Mb4101**	10	1280	B3.10 to B3.14				
114.67	5.16	**8.86**	**Mb4101**	7.5	1160	B3.10 to B3.14				
172.00	3.52	**11.77**	**Mb4101**	5	1050	B3.10 to B3.14				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.12 kW**					**- -**	
11.88	39.36	**0.9**	**Mb4101**	80	3190	B3.10 to B3.14				
15.83	33.22	**1.19**	**Mb4101**	60	2830	B3.10 to B3.14				
19.00	29.28	**1.45**	**Mb4101**	50	2615	B3.10 to B3.14				
23.75	25.25	**1.8**	**Mb4101**	40	2370	B3.10 to B3.14				
31.67	20.27	**2.44**	**Mb4101**	30	2070	B3.10 to B3.14				
38.00	18.18	**2.36**	**Mb4101**	25	1980	B3.10 to B3.14				
47.50	15.18	**2.91**	**Mb4101**	20	1790	B3.10 to B3.14				
63.33	11.89	**3.82**	**Mb4101**	15	1560	B3.10 to B3.14				
95.00	8.37	**5.33**	**Mb4101**	10	1280	B3.10 to B3.14				
126.67	6.41	**6.95**	**Mb4101**	7.5	1160	B3.10 to B3.14				
190.00	4.37	**9.18**	**Mb4101**	5	1050	B3.10 to B3.14				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -				**0.18 kW**				- -	
18.90	45.91	**0.92**	**Mb4101**	50	2615	B3.10 to B3.14				
23.62	39.6	**1.15**	**Mb4101**	40	2370	B3.10 to B3.14				
31.50	31.79	**1.56**	**Mb4101**	30	2070	B3.10 to B3.14				
37.80	28.51	**1.51**	**Mb4101**	25	1980	B3.10 to B3.14				
47.25	23.81	**1.86**	**Mb4101**	20	1790	B3.10 to B3.14				
63.00	18.65	**2.44**	**Mb4101**	15	1560	B3.10 to B3.14				
94.50	13.13	**3.4**	**Mb4101**	10	1280	B3.10 to B3.14				
126.00	10.06	**4.44**	**Mb4101**	7.5	1160	B3.10 to B3.14				
189.00	6.86	**5.86**	**Mb4101**	5	1050	B3.10 to B3.14				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	Mb4101	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -				**0.25 kW**				- -	
22.88	57.92	**0.79**	**Mb4101**	40	2370	B3.10 to B3.14				
30.50	46.52	**1.07**	**Mb4101**	30	2070	B3.10 to B3.14				
36.60	41.74	**1.04**	**Mb4101**	25	1980	B3.10 to B3.14				
45.75	34.87	**1.28**	**Mb4101**	20	1790	B3.10 to B3.14				
61.00	27.32	**1.68**	**Mb4101**	15	1560	B3.10 to B3.14				
91.50	19.24	**2.34**	**Mb4101**	10	1280	B3.10 to B3.14				
122.00	14.75	**3.05**	**Mb4101**	7.5	1160	B3.10 to B3.14				
183.00	10.05	**4.04**	**Mb4101**	5	1050	B3.10 to B3.14				

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

Newton force (N)

2P motor (3000 min^{-1})

Gearbox features			Clockwise or anti-clockwise			
			HL or HR		BSL-HL and BSR-HR	
Speed min^{-1}	Reduction	Cmax Nm	Fr	Fa- or Fa+	Fr	Fa- or Fa+
28.0	100	23	2380	1900	1850	1900
35.0	80	25	2180	1690	1700	1690
46.7	60	28	1930	1440	1505	1440
56.0	50	30	1780	1290	1390	1290
70.1	40	31	1630	1140	1270	1140
93.4	30	34	1420	950	1110	950
112.1	25	28	1370	870	1070	870
140.1	20	29	1240	730	970	730
186.8	15	31	1070	560	835	560
280.2	10	21*	970	425	760	425
373.6	7.5	16*	890	355	700	355
560.4	5	11*	790	260	620	260

* Limitation of the torque for 750W maximum power

4P motor (1500 min^{-1})

Gearbox features			Clockwise or anti-clockwise			
			HL or HR		BSL-HL and BSR-HR	
Speed min^{-1}	Reduction	Cmax Nm	Fr	Fa- or Fa+	Fr	Fa- or Fa+
14.0	100	29	3010	2000	2360	2600
17.4	80	33	2750	2000	2150	2365
23.3	60	36	2435	2000	1910	2000
27.9	50	39	2215	1800	1750	1800
34.9	40	41	2040	1700	1600	1500
46.5	30	45	1780	1300	1390	1300
55.8	25	38	1710	1340	1335	1180
69.8	20	39	1545	990	1200	1005
93.0	15	40	1345	770	1050	780
139.5	10	40	1090	430	850	435
186.0	7.5	33*	985	280	765	290
279.0	5	22*	890	160	690	170

* Limitation of the torque for 750W maximum power

6P motor (1,000 min^{-1})

Gearbox features			Clockwise or anti-clockwise			
			HL or HR		BSL-HL and BSR-HR	
Speed min^{-1}	Reduction	Cmax Nm	Fr	Fa- or Fa+	Fr	Fa- or Fa+
9.1	100	32	3480	2500	2710	2500
11.3	80	35	3190	2500	2490	2500
15.1	60	39	2830	2500	2210	2500
18.1	50	42	2615	2240	2040	2240
22.6	40	45	2370	1970	1850	1970
30.2	30	49	2070	1645	1615	1645
36.2	25	43	1980	1460	1545	1460
45.3	20	44	1790	1240	1400	1240
60.3	15	45	1560	970	1220	970
90.5	10	44	1280	575	1000	575
120.7	7.5	36*	1160	400	905	400
181.0	5	24*	1050	240	820	240

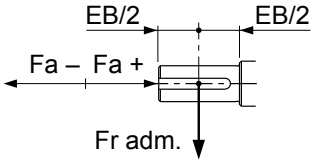
* Limitation of the torque for 550W maximum power

Slow speed shaft load

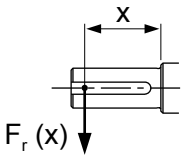
	Direction of the forces
SHR & BSR-HR	F_a+ = axial force PULLING on the shaft extension F_a- = axial force PUSHING on the shaft extension
SHL & BSL-HL	F_a+ = axial force PUSHING on the shaft extension F_a- = axial force PULLING on the shaft extension

F_r adm. = radial force permissible on the shaft extension at 22.5 mm (EB/2) from the shoulder of the hollow shaft.

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - The force corresponds with the separate shaft in the hollow shaft.
3 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Calculation of F_r (X) on non-concentric radial load:



S-HL and S-HR

$F_r(x) = \frac{94}{71.5 + x}$ x F_r perm. and must be ≤ 3,100 N. max.

BSL-HL and BSR-HR

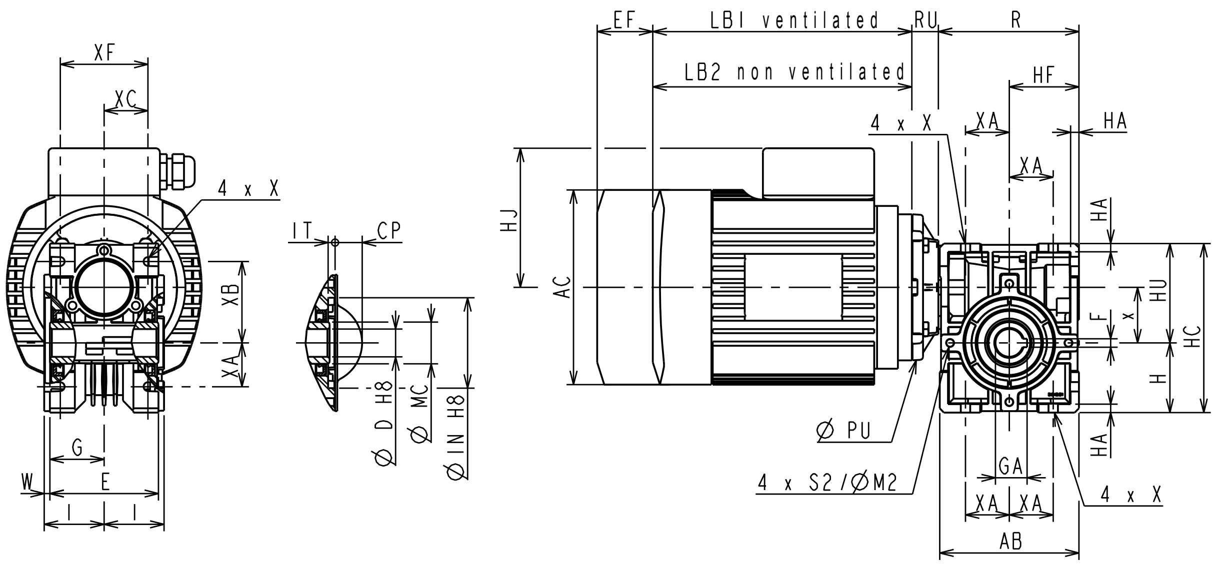
$F_r(x) = \frac{120}{97.5 + x}$ x F_r perm. and must be ≤ 2,500 N. max.

Dimensions

Overall dimensions of Multibloc Mb 4101 geared motors, MU universal mounting, hollow output shaft (H)

Dimensions in millimetres

- S-H standard form



	S-H standard gearboxes	
Mb 4101		

* *Gearbox only*

	Hollow output shaft
Mb 4101	

	Induction motors and brakes					
	3-phase LS		Single-phase LS		Brakes	
						1
56						
63						
71[2]						
80						

** *Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

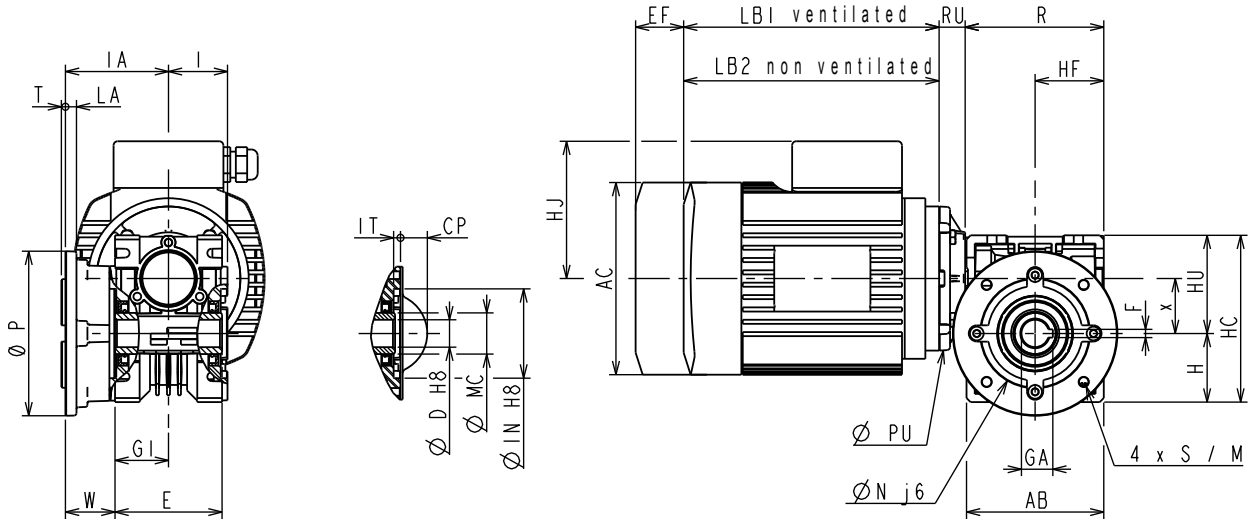
LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

Dimensions

Overall dimensions of Multibloc Mb 4101 geared motors, MU universal mounting, hollow output shaft (H)

Dimensions in millimetres

- BS-H or BD-H flange form



Type	BS-H, BD-H standard gearboxes																			kg*
	S	HC	AB	RU	H	x	HU	HF	G	I	IA	IN	IT	M	N	P	O	LA	T	
Mb 4101	101	121.5	100	19	50	40	71.5	50	39	43	75	65	5	100	80	120	7	8	3	2.5

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
Mb 4101	20	78	22.8	6	36	30	20

Other possible flanges[1]												
BD1							BD2					
M1	N1	P1	S1	LA1	T1		M2	N2	P2	S2	LA2	T2
85	70	105	7	7	3		115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg**	EF max		kg[1]	
													FMD	FCR	FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

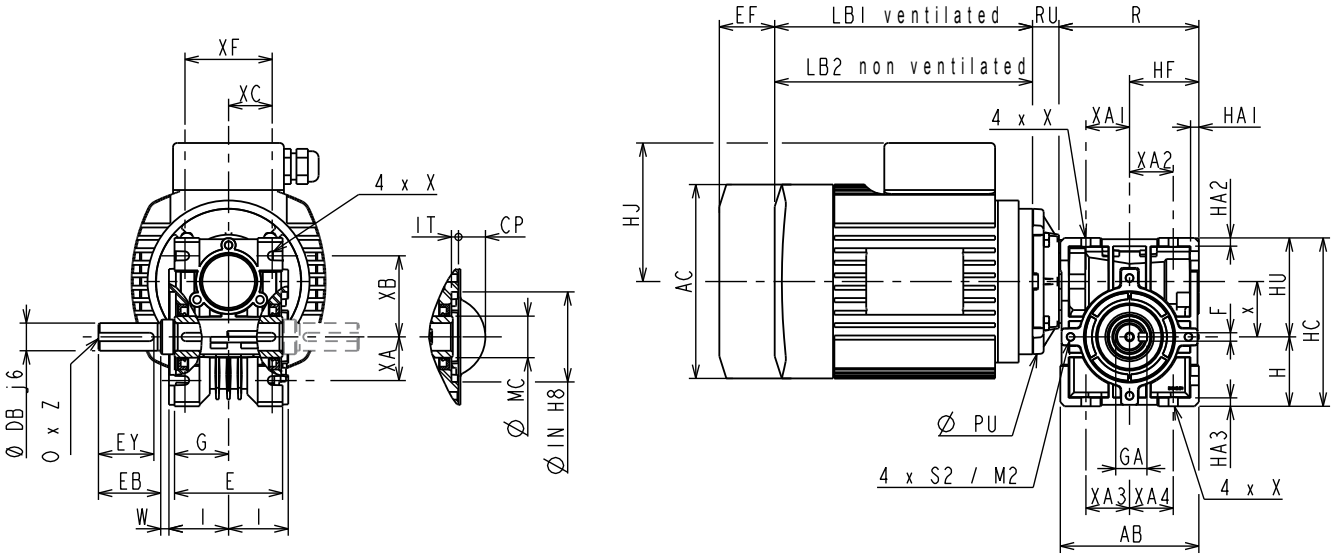
Dimensions

Overall dimensions of the Multibloc Mb 4101 geared motors, MU universal mounting, separate solid output shaft (HL, HR, HLR)

Dimensions in millimetres

B

- S-HL, S-HR, S-HLR standard form



Type	S-HL, S-HR, S-HLR standard gearboxes																				kg*
	S	HC	AB	RU	H	x	HU	HF	FS	XA	XB	XC	XF	G	I	IN	IT	X	S2	M2	
Mb 4101	101	121.5	100	19	50	40	71.5	50	6	31.5	58.5	31.5	63	39	43	65	5	6.5	M6x13	85	2.2

** Gearbox only*

Type	Solid output shaft									
	DB	EB	EY	O	GA	F	W	MC	O	Z
Mb 4101	20	45	40	78	22.5	6	0	30	M6	15

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg**	EF max FMD	EF max FCR	kg[1] FMD	kg[1] FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

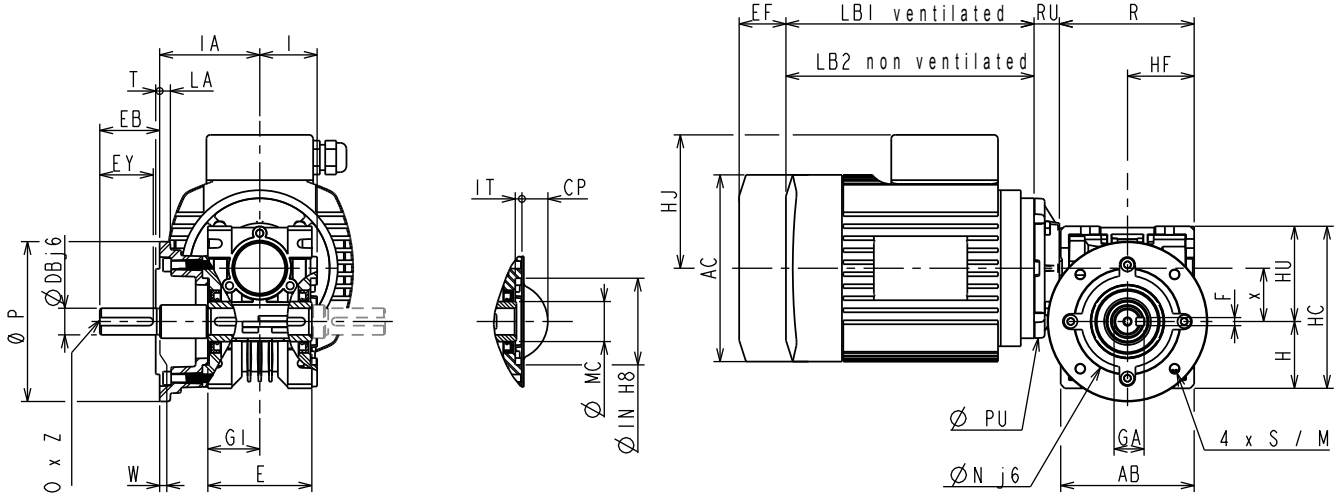
LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

Dimensions

Overall dimensions of the Multibloc Mb 4101 geared motors, MU universal mounting, separate solid output shaft (HL, HR, HLR)

Dimensions in millimetres

- BSL-HL, BSR-HR, BSL-HLR, BSR-HLR flange form or BDL-HL, BDR-HR, BDL-HLR, BDR-HLR



Type	BSL-HL, BSR-HR, BSL-HLR, BSR-HLR standard gearboxes																			kg*
	S	HC	AB	RU	H	x	HU	HF	G	I	IA	IN	IT	M	N	P	O	LA	T	
Mb 4101	101	121.5	100	19	50	40	71.5	50	39	43	75	65	5	100	80	120	7	8	3	2.5

** Gearbox only*

Type	Solid output shaft									
	DB	EB	EY	O	GA	F	W	MC	O	Z
Mb 4101	20	45	40	78	22.5	6	0	30	M6	15

Type	Other possible flanges[1]											
	BD1						BD2					
	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
Mb 4101	85	70	105	7	7	3	115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard hollow shafts.

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg**	EF max		kg[1]	
													FMD	FCR	FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

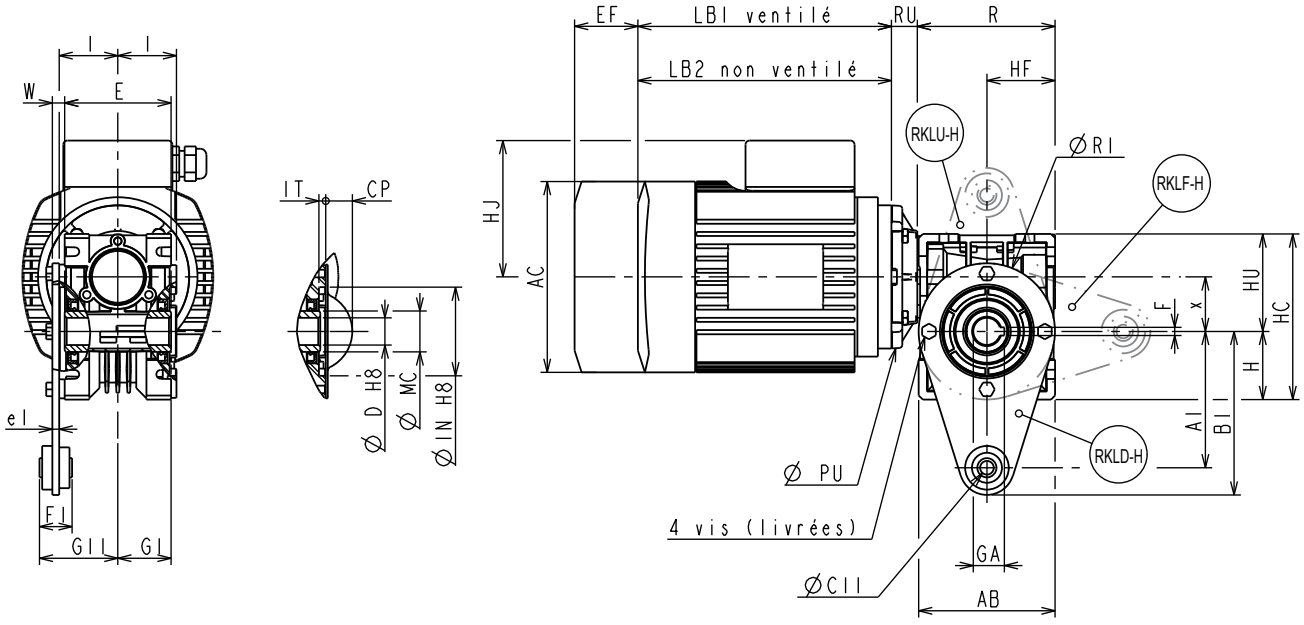
LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

Dimensions

Overall dimensions of Multibloc Mb 4101 geared motors, MU universal mounting, hollow output shaft (H), with torque arm

Dimensions in millimetres

- RK-K form (torque arm supplied separately)



Type	Gearboxes with RK-H torque arm																				* kg
	S	HC	AB	RU	H	x	HU	HF	G	I	IN	IT	A1	B1	R1	C1	F1	G1	e1	Screw	
Mb 4101	101	121.5	100	19	50	40	71.5	50	39	43	65	5	100	120	100	10	24	57.5	5	M6x16	2.8

** Gearbox only*

To make it easier for adaptation on the machine, the torque arm is delivered (with its fixing screws) not mounted on the gearbox (RK-H).

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
Mb 4101	20	78	22.8	6	9	30	20

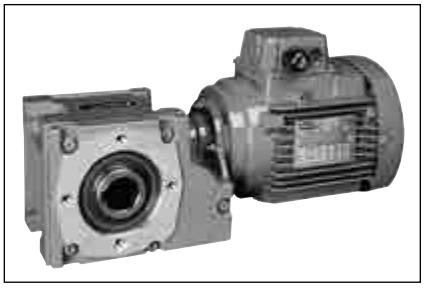
Fr. size	Induction motors and brakes												Brakes			
	3-phase LS						Single-phase LS						EF max		1 kg	
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	** kg	FMD	FCR	FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

General information



Minibloc MVDE-MVBE-MVAE gearboxes are machines with double reduction gear.
- Input train: high quality worm and wheel system used to ensure low noise level during operation.
- Output train: with hardened steel helical gears, used to ensure high output performance levels.
The unit is very compact and this combination achieves excellent efficiency with the stated reductions.

Three sizes: MVDE-MVBE-MVAE.
Rated output torque: from 15 to 200 N.m.
Power ratings: from 0.06 to 0.75 kW.
Reduction ratios: from 1/21 to 1/623.
Two reduction stages.
Reversible up to 1/100.
Very quiet operation.

For large batches, this type of gearbox can be supplied with a monobloc low speed shaft.
Distinctions should be made between the different components:
- standard mounting: separate low speed shaft in the hollow shaft (S-HL, S-HR, S-HLR);
- customised mounting: monobloc low speed shaft (S-L, S-R, S-LR).

Construction

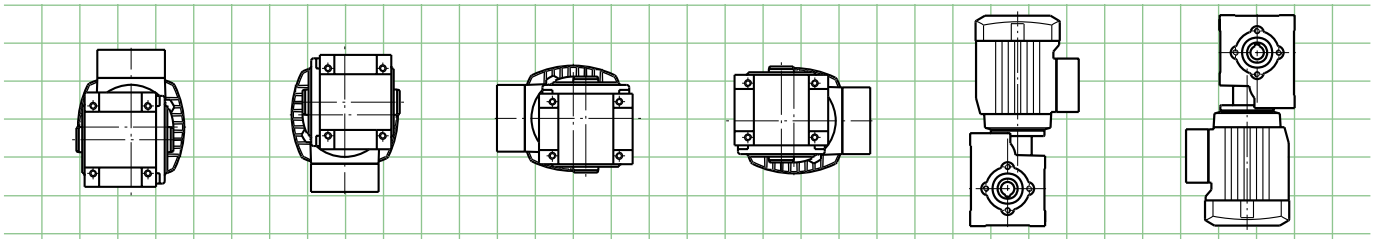
Description of Minibloc gearboxes MVDE-MVBE-MVAE

Description	Materials	Comments
Frame	Aluminium	- monobloc - very compact - fixing holes on all sides - multi-position, adaptation possible for base, flange, etc. - heat treated to ensure high rigidity and ruggedness
Gears	Steel + bronze	- primary train: worm in heat-treated and tempered steel, ground threads, bronze wheel - secondary train: helical gears in Ni Cr Mo steel - ensures very quiet operation
Shaft	Steel	- solid or hollow - ground sealing surfaces - key in accordance with DIN 6883 - tolerance of diameters in accordance with IEC 72-1 (DIN 748) - tapped holes at solid or removable shaft extensions
Lipseals	Acrylonitrile	- antidust lipseals on slow speed shaft
End shield	Aluminium	- ensures the ruggedness of the gearbox with heavy loads
Lubrication	Oil	- maintenance-free, lubricated for the lifetime of the gearbox - no drain, level or fill plug - vent hole on request - delivered with the quantity of oil corresponding to multi-position operation - nominal ambient temperature range -16°C to + 40°C
Mounting		MU: with CEI motor, completed with universal mounting (8 holes for LS56) MI: geared motor with integrated motor
Standard motors		LS: multi-voltage 220/380 V, 230/400 V, 240/415 V three-phase and 230 V single-phase - pressed steel fan cover, on request fitted with a drip cover for operation in vertical position (shaft facing down) - terminal box fitted with cable gland with cable anti-damage system - IP55 standard protection
Brake motors		FMD: 3-phase or single-phase failsafe brake motor, from 0.06 to 0.75 kW FCR: fail-safe brake induction motor, from 0.25 to 0.75 kW
Other motors		MFA: IP 44 D.C. motor from 0.075 to 0.37 kW (3000 min^{-1}) MBT: low voltage D.C. motor (0.75 kW max)
Safety	Plastics	Protective cover of the output on the opposite side of the working shaft for all gearboxes with hollow shaft or separate shaft
Finish	External finishing	Shade: RAL 6000 (green), system I (1 polyurethane acrylic layer of 25/30 µm)

B

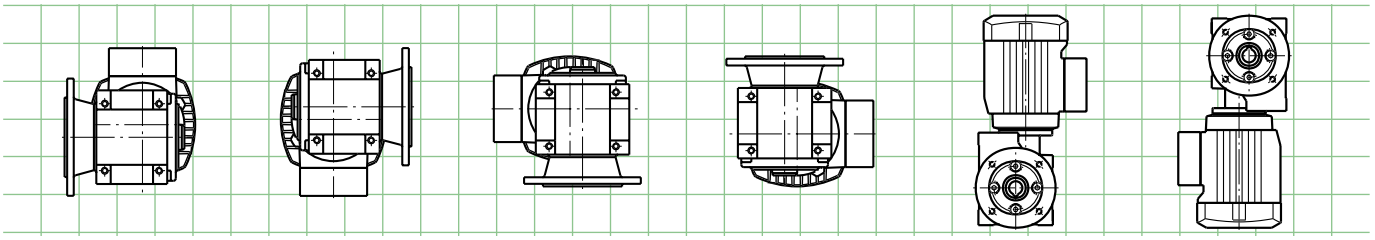
Mounting positions

Standard Minibloc MVDE-MVBE-MVAE multi-position M



NU-H B3 | NU-H B8 | NU-H V5 | NU-H V6 | NU-H B7 | NU-H B6

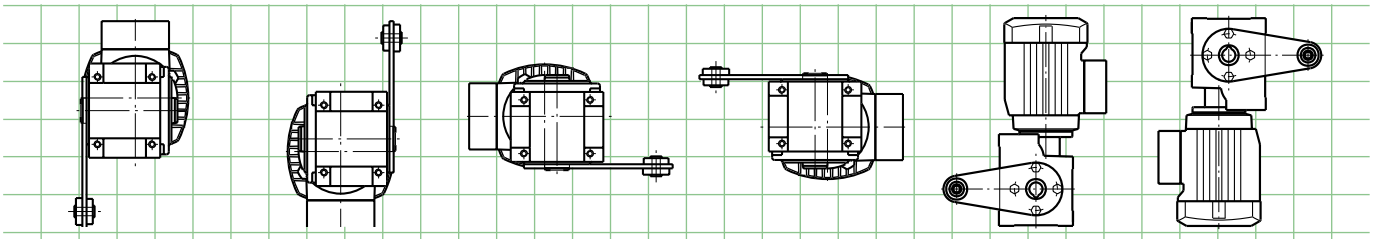
Standard Minibloc MVDE-MVBE-MVAE with B flange multi-position M, BSL or BSR



BSL-H B5 | BSL-H B53 | BSL-H V1 | BSL-H V3 | BSL-H B54 | BSL-H B52

Other flange positions: on right (e.g.: : BS), on both sides (e.g.: : BSLR).
Positions to be specified only if it is necessary to provide: vent, fill, level or drain hole.

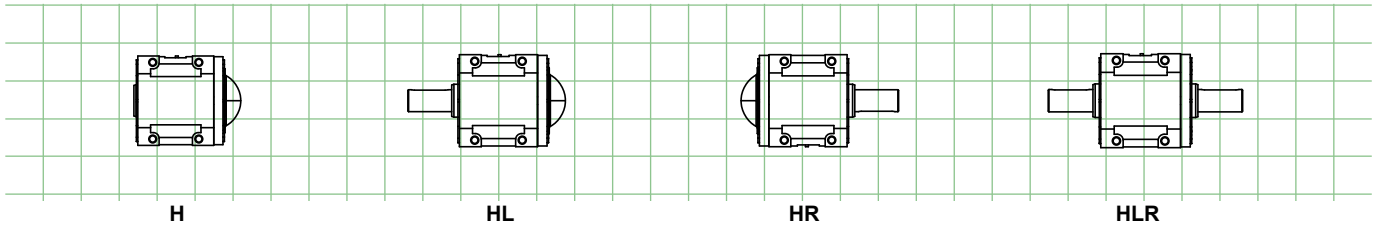
Standard Minibloc MVDE-MVBE-MVAE with torque arm multi-position M, RKLH (torque arm supplied separately)



RKL-H B3 | RKL-H B8 | RKL-H V5 | RKL-H V6 | RKL-H B7 | RKL-H B6

Positions to be specified only if it is necessary to provide: vent, fill, level or drain hole.

Output type



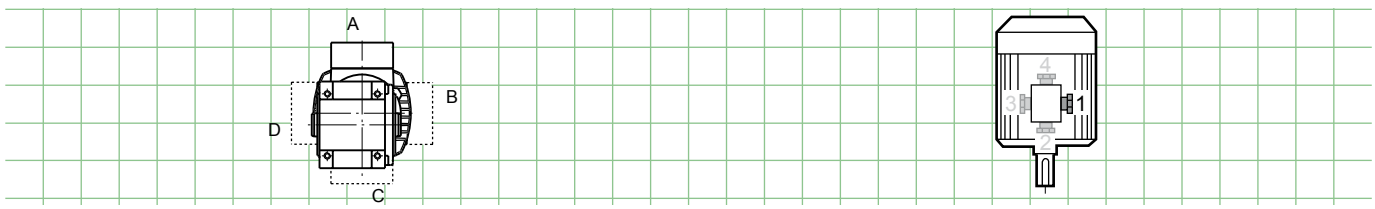
H
Shaft: hollow

HL
Solid shaft output on left

HR
Solid shaft output on right

HLR
Double solid shaft output

Terminal box positions



A: standard

Cable gland positions

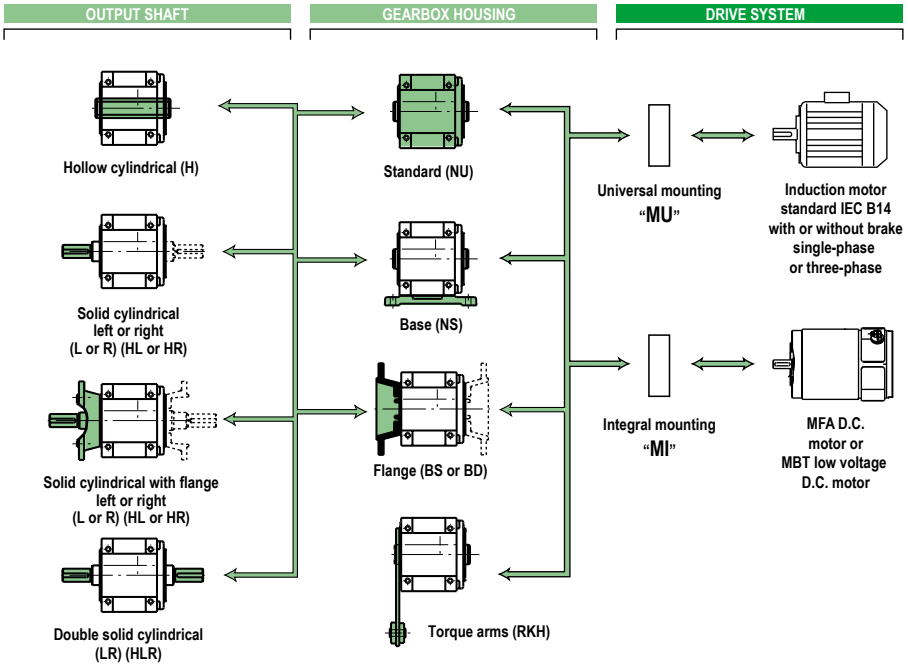
1 : standard

Adaptation possibilities

Leroy-Somer offers different types of drive for its gearboxes which meet very wide-ranging needs. They are described in this catalogue.
For other drives, consult the Leroy-Somer technical specialists who will be glad to assist.

Minibloc MVDE-MVBE-MVAE gearboxes can be used in conjunction with the following drives:

- **single-phase induction motors:**
  - LS motor from 0.06 to 0.75 kW
  - LS FMD brake motor from 0.06 to 0.55 kW
- **three-phase induction motors:**
  - LS motor from 0.06 to 0.75 kW
  - LS FMD brake motor from 0.06 to 0.55 kW
  - LS FCR brake motor from 0.18 to 0.75 kW
- **D.C. motors:**
  - MFA from 0.075 to 0.37 kW (3000 min^{-1})
- **electronic D.C. geared motors:**
  - MVE from 0.075 to 0.37 kW (3000 min^{-1})
- **low-voltage D.C. motors (12 to 48 V) :**
  - MBT from 0.07 to 0.55 kW



Description / Coding

GEARBOX

MV	Design Office	120	NS	D	H	M	MI
Gearbox type	Size and number of stages	Exact reduction	Mounting form	Mounting position	Output shaft	Operating position	Integral mounting

MOTOR

4P	LS 63 M	0.12 kW	230/400V 50 Hz
Number of poles	LS motor type and frame size	Rated output power	Standard mains voltage and frequency: 230V 50 Hz 380-400V 50 Hz 415V 50 Hz 440-460V 60 Hz

Example of coding:

MVBE - 120 - NS D - H - M - MI - 4P - LS63M - 0.12 kW
230/400 V - TRI - 50 Hz

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; -			**0.06 kW**					-	
	LS 56 M FMD; -								-	
2.18	69	**1.33**	**MVAE**	623	5000	B4.31				
2.43	62.16	**1.33**	**MVAE**	561	5000	B4.31				
2.52	36.89	**1.07**	**MVBE**	540	2500	B4.21				
2.62	59.05	**2.06**	**MVAE**	519	5000	B4.31				
2.91	53.2	**2.06**	**MVAE**	467	5000	B4.31				
3.02	39.37	**1.45**	**MVBE**	450	2500	B4.21				
3.28	52.62	**2.85**	**MVAE**	415	5000	B4.31				
3.78	41.38	**1.73**	**MVBE**	360	2500	B4.21				
3.93	50.61	**3.21**	**MVAE**	346	5000	B4.31				
3.94	32.05	**1.34**	**MVDE**	345.5	1640	B4.17				
4.05	34.97	**1.96**	**MVBE**	336	2500	B4.21				
4.35	29	**1.34**	**MVDE**	312.5	1760	B4.17				
4.37	45.59	**3.21**	**MVAE**	312	5000	B4.31				
4.53	34.59	**1.97**	**MVBE**	300	2500	B4.21				
4.84	26.05	**1.34**	**MVDE**	280.8	1760	B4.17				
4.92	41.88	**4.47**	**MVAE**	277	5000	B4.31				
4.93	28.69	**1.96**	**MVBE**	275.7	2500	B4.21				
5.44	29.67	**1.56**	**MVDE**	250	1760	B4.17				
5.46	37.72	**4.52**	**MVAE**	249.2	5000	B4.31				
5.52	28.38	**1.97**	**MVBE**	246.2	2500	B4.21				
5.96	33.9	**2.8**	**MVBE**	228	2500	B4.21				
6.05	26.66	**1.56**	**MVDE**	224.6	1760	B4.17				
6.55	34.89	**5.73**	**MVAE**	208	5000	B4.31				
6.56	27.7	**1.8**	**MVDE**	207.3	1760	B4.17				
7.25	25.05	**1.8**	**MVDE**	187.5	1760	B4.17				
7.27	27.81	**2.8**	**MVBE**	187.1	2500	B4.21				
7.28	31.43	**6.36**	**MVAE**	187	5000	B4.31				
7.56	28.02	**3.08**	**MVBE**	180	2500	B4.21				
8.07	22.51	**1.8**	**MVDE**	168.5	1760	B4.17				
8.73	28.58	**6.11**	**MVAE**	155.8	5000	B4.31				
9.44	25.24	**3.53**	**MVBE**	144	2500	B4.21				
9.83	25.89	**7.72**	**MVAE**	138	5000	B4.31				
9.84	22.71	**2.16**	**MVDE**	138.2	1760	B4.17				
10.88	20.54	**2.16**	**MVDE**	125	1760	B4.17				
10.91	23.33	**7.85**	**MVAE**	125	5000	B4.31				
11.33	22.86	**3.73**	**MVBE**	120	2500	B4.21				
12.11	18.45	**2.16**	**MVDE**	112.3	1760	B4.17				
12.59	20.66	**4.15**	**MVBE**	108	2500	B4.21				
13.11	19.82	**9.51**	**MVAE**	103.8	4630	B4.31				
13.12	20.36	**2.35**	**MVDE**	103.6	1760	B4.17				
13.81	18.76	**3.73**	**MVBE**	98.5	2500	B4.21				
14.51	18.41	**2.35**	**MVDE**	93.8	1760	B4.17				
14.55	17.86	**10.43**	**MVAE**	93.5	4390	B4.31				
15.11	18.7	**4.71**	**MVBE**	90	2500	B4.21				
16.15	16.54	**2.35**	**MVDE**	84.2	1760	B4.17				
16.79	16.45	**9.6**	**MVAE**	81	4330	B4.31				
18.89	16.17	**5.51**	**MVBE**	72	2500	B4.21				
19.66	14.37	**10.54**	**MVAE**	69	4140	B4.31				
19.68	15.2	**3.28**	**MVDE**	69.1	1760	B4.17				
21.76	13.75	**3.28**	**MVDE**	62.5	1760	B4.17				
21.83	12.95	**10.54**	**MVAE**	62.3	4050	B4.31				
22.67	14.16	**6.09**	**MVBE**	60	2500	B4.21				
24.22	12.36	**3.28**	**MVDE**	56.2	1760	B4.17				
27.54	10.26	**10.54**	**MVAE**	49	3880	B4.31				
27.62	11.62	**6.09**	**MVBE**	49.2	2437	B4.21				
30.25	9.71	**14.91**	**MVAE**	45	3460	B4.31				
30.28	11.13	**4.54**	**MVDE**	44.9	1760	B4.17				
32.38	10.24	**7.26**	**MVBE**	42	2437	B4.21				
33.48	10.07	**4.54**	**MVDE**	40.6	1760	B4.17				
33.58	8.74	**14.91**	**MVAE**	40.5	3410	B4.31				
37.26	9.04	**4.54**	**MVDE**	36.5	1760	B4.17				
39.33	7.6	**16.31**	**MVAE**	34.6	3240	B4.31				
39.46	8.41	**7.26**	**MVBE**	34.5	2164	B4.21				
43.52	8.22	**6.03**	**MVDE**	31.3	1760	B4.17				
43.65	6.85	**16.31**	**MVAE**	31.2	3180	B4.31				
45.33	7.77	**8.83**	**MVBE**	30	1969	B4.21				
48.44	7.39	**6.03**	**MVDE**	28.1	1760	B4.17				
54.4	6.68	**5.8**	**MVDE**	25	1760	B4.17				
55.09	5.42	**16.31**	**MVAE**	24.7	3050	B4.31				
55.25	6.38	**8.83**	**MVBE**	24.6	1969	B4.21				
60.55	6.01	**5.8**	**MVDE**	22.5	1728	B4.17				
64.76	5.61	**10.86**	**MVBE**	21	1651	B4.21				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; -				**0.09 kW**				-	
	LS 56 M FMD; -								-	
2.7	104.81	**1.15**	**MVAE**	519	5000	B4.31				
3	94.42	**1.15**	**MVAE**	467	5000	B4.31				
3.11	62.55	**0.93**	**MVBE**	450	2350	B4.21				
3.37	93.34	**1.6**	**MVAE**	415	5000	B4.31				
3.89	65.7	**1.1**	**MVBE**	360	2350	B4.21				
4.05	89.7	**1.79**	**MVAE**	346	5000	B4.31				
4.05	50.94	**0.84**	**MVDE**	345.5	1540	B4.17				
4.17	55.53	**1.25**	**MVBE**	336	2500	B4.21				
4.48	46.08	**0.84**	**MVDE**	312.5	1540	B4.17				
4.49	80.81	**1.79**	**MVAE**	312	5000	B4.31				
4.67	54.93	**1.26**	**MVBE**	300	2500	B4.21				
4.99	41.4	**0.84**	**MVDE**	280.8	1640	B4.17				
5.06	74.2	**2.5**	**MVAE**	277	5000	B4.31				
5.08	45.57	**1.25**	**MVBE**	275.7	2500	B4.21				
5.6	47.12	**0.98**	**MVDE**	250	1540	B4.17				
5.62	66.84	**2.53**	**MVAE**	249.2	5000	B4.31				
5.69	45.07	**1.26**	**MVBE**	246.2	2500	B4.21				
6.14	53.79	**1.79**	**MVBE**	228	2500	B4.21				
6.23	42.34	**0.98**	**MVDE**	224.6	1540	B4.17				
6.75	61.8	**3.24**	**MVAE**	208	5000	B4.31				
6.75	43.98	**1.13**	**MVDE**	207.3	1540	B4.17				
7.47	39.79	**1.13**	**MVDE**	187.5	1640	B4.17				
7.48	44.13	**1.79**	**MVBE**	187.1	2500	B4.21				
7.49	55.67	**3.59**	**MVAE**	187	5000	B4.31				
7.78	44.41	**1.97**	**MVBE**	180	2500	B4.21				
8.31	35.75	**1.13**	**MVDE**	168.5	1640	B4.17				
8.99	50.58	**3.43**	**MVAE**	155.8	5000	B4.31				
9.72	40.04	**2.26**	**MVBE**	144	2500	B4.21				
10.12	45.83	**4.36**	**MVAE**	138	5000	B4.31				
10.13	36.03	**1.36**	**MVDE**	138.2	1640	B4.17				
11.2	32.59	**1.36**	**MVDE**	125	1640	B4.17				
11.23	41.29	**4.41**	**MVAE**	125	5000	B4.31				
11.67	36.24	**2.39**	**MVBE**	120	2500	B4.21				
12.47	29.28	**1.36**	**MVDE**	112.3	1760	B4.17				
12.96	32.76	**2.66**	**MVBE**	108	2500	B4.21				
13.49	35.08	**5.35**	**MVAE**	103.8	4630	B4.31				
13.51	32.28	**1.47**	**MVDE**	103.6	1640	B4.17				
14.22	29.74	**2.38**	**MVBE**	98.5	2500	B4.21				
14.93	29.2	**1.47**	**MVDE**	93.8	1640	B4.17				
14.98	31.6	**5.86**	**MVAE**	93.5	4390	B4.31				
15.56	29.64	**3.01**	**MVBE**	90	2500	B4.21				
16.62	26.24	**1.47**	**MVDE**	84.2	1760	B4.17				
17.28	29.09	**5.4**	**MVAE**	81	4330	B4.31				
19.44	25.62	**3.53**	**MVBE**	72	2500	B4.21				
20.24	25.42	**5.93**	**MVAE**	69	4140	B4.31				
20.26	24.1	**2.06**	**MVDE**	69.1	1760	B4.17				
22.4	21.8	**2.06**	**MVDE**	62.5	1760	B4.17				
22.47	22.9	**5.93**	**MVAE**	62.3	4050	B4.31				
23.33	22.43	**3.9**	**MVBE**	60	2500	B4.21				
24.93	19.59	**2.06**	**MVDE**	56.2	1760	B4.17				
28.35	18.15	**5.93**	**MVAE**	49	3880	B4.31				
28.44	18.41	**3.9**	**MVBE**	49.2	2437	B4.21				
31.14	17.16	**8.39**	**MVAE**	45	3460	B4.31				
31.17	17.63	**2.86**	**MVDE**	44.9	1760	B4.17				
33.33	16.23	**4.65**	**MVBE**	42	2437	B4.21				
34.46	15.94	**2.86**	**MVDE**	40.6	1760	B4.17				
34.57	15.46	**8.39**	**MVAE**	40.5	3410	B4.31				
38.36	14.33	**2.86**	**MVDE**	36.5	1760	B4.17				
40.48	13.43	**9.18**	**MVAE**	34.6	3240	B4.31				
40.62	13.31	**4.65**	**MVBE**	34.5	2164	B4.21				
44.8	13.02	**3.79**	**MVDE**	31.3	1760	B4.17				
44.94	12.1	**9.18**	**MVAE**	31.2	3180	B4.31				
46.67	12.31	**5.65**	**MVBE**	30	1969	B4.21				
49.86	11.69	**3.79**	**MVDE**	28.1	1760	B4.17				
56	10.58	**3.64**	**MVDE**	25	1760	B4.17				
56.71	9.59	**9.18**	**MVAE**	24.7	3050	B4.31				
56.88	10.10	**5.65**	**MVBE**	24.6	1969	B4.21				
62.33	9.51	**3.64**	**MVDE**	22.5	1728	B4.17				
66.67	8.88	**6.94**	**MVBE**	21	1651	B4.21				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -				**0.12 kW**				**- -**	
3.33	138.57	**1.08**	**MVAE**	415	5000	B4.31				
3.99	133.23	**1.21**	**MVAE**	346	5000	B4.31				
4.11	78.31	**0.88**	**MVBE**	336	2350	B4.21				
4.43	120.02	**1.21**	**MVAE**	312	5000	B4.31				
4.6	77.47	**0.88**	**MVBE**	300	2350	B4.21				
4.99	110.22	**1.69**	**MVAE**	277	5000	B4.31				
5.01	64.26	**0.88**	**MVBE**	275.7	2350	B4.21				
5.54	99.29	**1.71**	**MVAE**	249.2	5000	B4.31				
5.61	63.56	**0.88**	**MVBE**	246.2	2350	B4.21				
6.05	75.88	**1.26**	**MVBE**	228	2350	B4.21				
6.65	91.82	**2.18**	**MVAE**	208	5000	B4.31				
6.66	62.03	**0.8**	**MVDE**	207.3	1540	B4.17				
7.36	56.11	**0.8**	**MVDE**	187.5	1540	B4.17				
7.38	62.26	**1.26**	**MVBE**	187.1	2350	B4.21				
7.38	82.72	**2.42**	**MVAE**	187	5000	B4.31				
7.67	62.69	**1.39**	**MVBE**	180	2350	B4.21				
8.19	50.41	**0.8**	**MVDE**	168.5	1540	B4.17				
8.86	75.18	**2.31**	**MVAE**	155.8	5000	B4.31				
9.58	56.5	**1.59**	**MVBE**	144	2500	B4.21				
9.98	68.12	**2.94**	**MVAE**	138	5000	B4.31				
9.99	50.83	**0.96**	**MVDE**	138.2	1540	B4.17				
11.04	45.98	**0.96**	**MVDE**	125	1540	B4.17				
11.07	61.36	**2.98**	**MVAE**	125	5000	B4.31				
11.5	51.15	**1.68**	**MVBE**	120	2500	B4.21				
12.29	41.31	**0.96**	**MVDE**	112.3	1640	B4.17				
12.78	46.24	**1.87**	**MVBE**	108	2500	B4.21				
13.3	52.14	**3.61**	**MVAE**	103.8	4630	B4.31				
13.32	45.56	**1.05**	**MVDE**	103.6	1540	B4.17				
14.02	41.97	**1.68**	**MVBE**	98.5	2500	B4.21				
14.72	41.21	**1.05**	**MVDE**	93.8	1640	B4.17				
14.77	46.97	**3.95**	**MVAE**	93.5	4390	B4.31				
15.33	41.84	**2.12**	**MVBE**	90	2500	B4.21				
16.38	37.03	**1.05**	**MVDE**	84.2	1640	B4.17				
17.04	43.25	**3.64**	**MVAE**	81	4330	B4.31				
19.17	36.17	**2.48**	**MVBE**	72	2500	B4.21				
19.95	37.8	**4.0**	**MVAE**	69	4140	B4.31				
19.97	34.02	**1.46**	**MVDE**	69.1	1640	B4.17				
22.08	30.77	**1.46**	**MVDE**	62.5	1760	B4.17				
22.15	34.05	**4.0**	**MVAE**	62.3	4050	B4.31				
23	31.68	**2.74**	**MVBE**	60	2500	B4.21				
24.58	27.65	**1.46**	**MVDE**	56.2	1760	B4.17				
27.95	26.98	**4.0**	**MVAE**	49	3880	B4.31				
28.03	25.99	**2.74**	**MVBE**	49.2	2437	B4.21				
30.7	25.52	**5.66**	**MVAE**	45	3460	B4.31				
30.73	24.89	**2.03**	**MVDE**	44.9	1760	B4.17				
32.86	22.91	**3.27**	**MVBE**	42	2437	B4.21				
33.97	22.51	**2.03**	**MVDE**	40.6	1760	B4.17				
34.07	22.99	**5.66**	**MVAE**	40.5	3410	B4.31				
37.81	20.23	**2.03**	**MVDE**	36.5	1760	B4.17				
39.9	19.98	**6.19**	**MVAE**	34.6	3240	B4.31				
40.04	18.8	**3.27**	**MVBE**	34.5	2164	B4.21				
44.16	18.38	**2.69**	**MVDE**	31.3	1760	B4.17				
44.3	18.0	**6.19**	**MVAE**	31.2	3180	B4.31				
46	17.38	**3.98**	**MVBE**	30	1969	B4.21				
49.15	16.52	**2.69**	**MVDE**	28.1	1760	B4.17				
55.2	14.95	**2.59**	**MVDE**	25	1760	B4.17				
55.9	14.26	**6.19**	**MVAE**	24.7	3050	B4.31				
56.06	14.26	**3.98**	**MVBE**	24.6	1969	B4.21				
61.44	13.43	**2.59**	**MVDE**	22.5	1760	B4.17				
65.71	12.54	**4.88**	**MVBE**	21	1651	B4.21				

Selection

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - LS 63 M FMD; -			**0.18 kW**					- -	
5.58	160.49	**1.06**	**MVAE**	249.2	5000	B4.31				
6.1	117.62	**0.82**	**MVBE**	228	2200	B4.21				
6.7	148.4	**1.35**	**MVAE**	208	5000	B4.31				
7.43	96.51	**0.82**	**MVBE**	187.1	2200	B4.21				
7.44	133.69	**1.5**	**MVAE**	187	5000	B4.31				
7.72	97.14	**0.9**	**MVBE**	180	2200	B4.21				
8.92	121.49	**1.43**	**MVAE**	155.8	5000	B4.31				
9.65	87.56	**1.03**	**MVBE**	144	2350	B4.21				
10.05	110.07	**1.82**	**MVAE**	138	5000	B4.31				
11.15	99.16	**1.84**	**MVAE**	125	5000	B4.31				
11.58	79.27	**1.09**	**MVBE**	120	2350	B4.21				
12.87	71.65	**1.21**	**MVBE**	108	2350	B4.21				
13.4	84.25	**2.23**	**MVAE**	103.8	4630	B4.31				
14.12	65.04	**1.09**	**MVBE**	98.5	2350	B4.21				
14.87	75.9	**2.44**	**MVAE**	93.5	4390	B4.31				
15.44	64.83	**1.37**	**MVBE**	90	2350	B4.21				
17.16	69.89	**2.25**	**MVAE**	81	4330	B4.31				
19.31	56.04	**1.61**	**MVBE**	72	2500	B4.21				
20.1	61.07	**2.47**	**MVAE**	69	4140	B4.31				
20.12	52.71	**0.94**	**MVDE**	69.1	1540	B4.17				
22.24	47.68	**0.94**	**MVDE**	62.5	1540	B4.17				
22.31	55.01	**2.47**	**MVAE**	62.3	4050	B4.31				
23.17	49.08	**1.78**	**MVBE**	60	2500	B4.21				
24.75	42.84	**0.94**	**MVDE**	56.2	1540	B4.17				
28.15	43.59	**2.47**	**MVAE**	49	3880	B4.31				
28.23	40.27	**1.78**	**MVBE**	49.2	2437	B4.21				
30.92	41.23	**3.5**	**MVAE**	45	3460	B4.31				
30.95	38.56	**1.31**	**MVDE**	44.9	1540	B4.17				
33.1	35.5	**2.12**	**MVBE**	42	2437	B4.21				
34.22	34.88	**1.31**	**MVDE**	40.6	1640	B4.17				
34.32	37.14	**3.5**	**MVAE**	40.5	3410	B4.31				
38.08	31.34	**1.31**	**MVDE**	36.5	1760	B4.17				
40.19	32.27	**3.83**	**MVAE**	34.6	3240	B4.31				
40.33	29.13	**2.12**	**MVBE**	34.5	2164	B4.21				
44.48	28.48	**1.73**	**MVDE**	31.3	1760	B4.17				
44.62	29.07	**3.83**	**MVAE**	31.2	3180	B4.31				
46.33	26.93	**2.58**	**MVBE**	30	1969	B4.21				
49.51	25.59	**1.73**	**MVDE**	28.1	1760	B4.17				
55.6	23.16	**1.67**	**MVDE**	25	1760	B4.17				
56.3	23.04	**3.83**	**MVAE**	24.7	3050	B4.31				
56.47	22.1	**2.58**	**MVBE**	24.6	1969	B4.21				
61.88	20.81	**1.67**	**MVDE**	22.5	1760	B4.17				
66.19	19.43	**3.16**	**MVBE**	21	1651	B4.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.25 kW**					- -	
6.87	209.93	**0.95**	**MVAE**	208	5000	B4.31				
7.62	189.11	**1.06**	**MVAE**	187	5000	B4.31				
9.15	171.75	**1.01**	**MVAE**	155.8	5000	B4.31				
10.3	155.6	**1.29**	**MVAE**	138	5000	B4.31				
11.44	140.17	**1.3**	**MVAE**	125	5000	B4.31				
11.88	109.85	**0.79**	**MVBE**	120	2200	B4.21				
13.19	99.28	**0.88**	**MVBE**	108	2200	B4.21				
13.73	119.1	**1.57**	**MVAE**	103.8	4630	B4.31				
14.47	90.13	**0.79**	**MVBE**	98.5	2200	B4.21				
15.25	107.29	**1.72**	**MVAE**	93.5	4390	B4.31				
15.83	89.81	**1.0**	**MVBE**	90	2200	B4.21				
17.59	98.75	**1.59**	**MVAE**	81	4330	B4.31				
19.79	77.61	**1.18**	**MVBE**	72	2350	B4.21				
20.6	86.27	**1.74**	**MVAE**	69	4140	B4.31				
22.87	77.72	**1.74**	**MVAE**	62.3	4050	B4.31				
23.75	67.96	**1.3**	**MVBE**	60	2349	B4.21				
28.86	61.59	**1.74**	**MVAE**	49	3880	B4.31				
28.95	55.76	**1.3**	**MVBE**	49.2	2437	B4.21				

Selection

B

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; -				**0.25 kW**				-	
	LS 71 M FMD; -								-	
31.7	58.23	**2.47**	**MVAE**	45	3460	B4.31				
31.73	53.39	**0.94**	**MVDE**	44.9	1540	B4.17				
33.93	49.15	**1.55**	**MVBE**	42	2437	B4.21				
35.08	48.3	**0.94**	**MVDE**	40.6	1540	B4.17				
35.19	52.46	**2.47**	**MVAE**	40.5	3410	B4.31				
39.04	43.39	**0.94**	**MVDE**	36.5	1540	B4.17				
41.2	45.57	**2.7**	**MVAE**	34.6	3240	B4.31				
41.35	40.32	**1.55**	**MVBE**	34.5	2164	B4.21				
45.6	39.42	**1.25**	**MVDE**	31.3	1640	B4.17				
45.74	41.05	**2.7**	**MVAE**	31.2	3180	B4.31				
47.5	37.28	**1.88**	**MVBE**	30	1969	B4.21				
50.75	35.42	**1.25**	**MVDE**	28.1	1640	B4.17				
57	32.05	**1.2**	**MVDE**	25	1640	B4.17				
57.72	32.53	**2.7**	**MVAE**	24.7	3050	B4.31				
57.89	30.59	**1.88**	**MVBE**	24.6	1969	B4.21				
63.44	28.8	**1.2**	**MVDE**	22.5	1728	B4.17				
67.86	26.89	**2.31**	**MVBE**	21	1651	B4.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; -				**0.37 kW**				-	
	LS 71 M FMD; -								-	
10.27	239.58	**0.83**	**MVAE**	138	5000	B4.31				
11.4	215.82	**0.84**	**MVAE**	125	5000	B4.31				
13.69	183.37	**1.02**	**MVAE**	103.8	4630	B4.31				
15.19	165.19	**1.12**	**MVAE**	93.5	4390	B4.31				
17.53	152.05	**1.03**	**MVAE**	81	4330	B4.31				
20.53	132.84	**1.13**	**MVAE**	69	4140	B4.31				
22.79	119.67	**1.13**	**MVAE**	62.3	4050	B4.31				
23.67	102.78	**0.86**	**MVBE**	60	2075	B4.21				
28.76	94.83	**1.13**	**MVAE**	49	3880	B4.31				
28.84	84.33	**0.86**	**MVBE**	49.2	2162	B4.21				
31.58	89.66	**1.6**	**MVAE**	45	3460	B4.31				
33.81	74.33	**1.02**	**MVBE**	42	2162	B4.21				
35.06	80.77	**1.6**	**MVAE**	40.5	3410	B4.31				
41.06	70.17	**1.75**	**MVAE**	34.6	3240	B4.31				
41.21	60.99	**1.02**	**MVBE**	34.5	2164	B4.21				
45.44	59.63	**0.83**	**MVDE**	31.3	1540	B4.17				
45.58	63.21	**1.75**	**MVAE**	31.2	3180	B4.31				
47.33	56.38	**1.24**	**MVBE**	30	1969	B4.21				
50.58	53.57	**0.83**	**MVDE**	28.1	1540	B4.17				
56.8	48.48	**0.79**	**MVDE**	25	1540	B4.17				
57.52	50.09	**1.75**	**MVAE**	24.7	3050	B4.31				
57.69	46.26	**1.24**	**MVBE**	24.6	1969	B4.21				
63.22	43.56	**0.79**	**MVDE**	22.5	1640	B4.17				
67.62	40.67	**1.52**	**MVBE**	21	1651	B4.21				

LS ; LSMV 4p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; -				**0.55 kW**				-	
	LS 71 M FMD; -								-	
31.14	138.47	**1.04**	**MVAE**	45	3460	B4.31				
34.57	124.74	**1.04**	**MVAE**	40.5	3410	B4.31				
40.48	108.38	**1.14**	**MVAE**	34.6	3240	B4.31				
44.94	97.63	**1.14**	**MVAE**	31.2	3180	B4.31				
46.67	86.03	**0.81**	**MVBE**	30	1695	B4.21				
56.71	77.37	**1.14**	**MVAE**	24.7	3050	B4.31				
56.88	70.59	**0.81**	**MVBE**	24.6	1695	B4.21				
66.67	62.06	**0.99**	**MVBE**	21	1377	B4.21				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 56 M; - LS 56 M FMD; -			**0.06 kW**					- -	
1.37	128.74	**0.9**	**MVAE**	623	5000	B4.31				
1.52	115.97	**0.9**	**MVAE**	561	5000	B4.31				
1.64	109.75	**1.25**	**MVAE**	519	5000	B4.31				
1.82	98.87	**1.25**	**MVAE**	467	5000	B4.31				
1.89	64.56	**0.8**	**MVBE**	450	2500	B4.21				
2.05	98.59	**1.68**	**MVAE**	415	5000	B4.31				
2.36	68.49	**0.94**	**MVBE**	360	2500	B4.21				
2.46	96.12	**1.93**	**MVAE**	346	5000	B4.31				
2.46	52.36	**0.88**	**MVDE**	345.5	1640	B4.17				
2.53	57.64	**1.06**	**MVBE**	336	2500	B4.21				
2.72	47.36	**0.88**	**MVDE**	312.5	1760	B4.17				
2.73	86.59	**1.93**	**MVAE**	312	5000	B4.31				
2.83	57.05	**1.06**	**MVBE**	300	2500	B4.21				
3.03	42.55	**0.88**	**MVDE**	280.8	1760	B4.17				
3.07	79.88	**2.49**	**MVAE**	277	5000	B4.31				
3.08	47.29	**1.06**	**MVBE**	275.7	2500	B4.21				
3.4	48.97	**1.01**	**MVDE**	250	1760	B4.17				
3.41	71.96	**2.64**	**MVAE**	249.2	5000	B4.31				
3.45	46.81	**1.06**	**MVBE**	246.2	2500	B4.21				
3.73	56.61	**1.48**	**MVBE**	228	2500	B4.21				
4.1	66.96	**2.99**	**MVAE**	208	5000	B4.31				
4.1	45.69	**1.17**	**MVDE**	207.3	1760	B4.17				
4.53	41.33	**1.17**	**MVDE**	187.5	1760	B4.17				
4.54	46.45	**1.48**	**MVBE**	187.1	2500	B4.21				
4.55	60.32	**3.32**	**MVAE**	187	5000	B4.31				
4.72	47.61	**1.61**	**MVBE**	180	2500	B4.21				
5.05	37.13	**1.17**	**MVDE**	168.5	1760	B4.17				
5.46	55.46	**3.39**	**MVAE**	155.8	5000	B4.31				
5.9	42.48	**1.87**	**MVBE**	144	2500	B4.21				
6.14	50.3	**3.98**	**MVAE**	138	5000	B4.31				
6.15	37.88	**1.39**	**MVDE**	138.2	1760	B4.17				
6.8	34.27	**1.39**	**MVDE**	125	1760	B4.17				
6.82	45.31	**4.28**	**MVAE**	125	5000	B4.31				
7.08	38.66	**1.98**	**MVBE**	120	2500	B4.21				
7.57	30.79	**1.39**	**MVDE**	112.3	1760	B4.17				
7.87	35	**2.19**	**MVBE**	108	2500	B4.21				
8.19	38.54	**5.17**	**MVAE**	103.8	4630	B4.31				
8.2	34.32	**1.49**	**MVDE**	103.6	1760	B4.17				
8.63	31.72	**1.97**	**MVBE**	98.5	2500	B4.21				
9.07	31.05	**1.49**	**MVDE**	93.8	1760	B4.17				
9.09	34.72	**5.65**	**MVAE**	93.5	4390	B4.31				
9.44	31.78	**2.47**	**MVBE**	90	2500	B4.21				
10.09	27.89	**1.49**	**MVDE**	84.2	1760	B4.17				
10.49	32.24	**5.29**	**MVAE**	81	4330	B4.31				
11.81	27.65	**2.89**	**MVBE**	72	2500	B4.21				
12.29	28.25	**5.73**	**MVAE**	69	4140	B4.31				
12.3	25.82	**2.07**	**MVDE**	69.1	1760	B4.17				
13.6	23.36	**2.07**	**MVDE**	62.5	1760	B4.17				
13.64	25.45	**5.73**	**MVAE**	62.3	4050	B4.31				
14.17	24.28	**3.2**	**MVBE**	60	2500	B4.21				
15.14	20.99	**2.07**	**MVDE**	56.2	1760	B4.17				
17.22	20.17	**5.73**	**MVAE**	49	3880	B4.31				
17.27	19.92	**3.2**	**MVBE**	49.2	2437	B4.21				
18.91	19.18	**8.09**	**MVAE**	45	3460	B4.31				
18.93	19.09	**2.84**	**MVDE**	44.9	1760	B4.17				
20.24	17.62	**3.87**	**MVBE**	42	2437	B4.21				
20.92	17.27	**2.84**	**MVDE**	40.6	1760	B4.17				
20.99	17.28	**8.09**	**MVAE**	40.5	3410	B4.31				
23.29	15.51	**2.84**	**MVDE**	36.5	1760	B4.17				
24.58	15.05	**8.8**	**MVAE**	34.6	3240	B4.31				
24.67	14.46	**3.87**	**MVBE**	34.5	2164	B4.21				
27.2	14.18	**3.74**	**MVDE**	31.3	1760	B4.17				
27.28	13.56	**8.8**	**MVAE**	31.2	3180	B4.31				
28.33	13.42	**4.62**	**MVBE**	30	1969	B4.21				
30.27	12.74	**3.74**	**MVDE**	28.1	1760	B4.17				
34	11.54	**3.6**	**MVDE**	25	1760	B4.17				
34.43	10.75	**8.8**	**MVAE**	24.7	3050	B4.31				
34.53	11.01	**4.62**	**MVBE**	24.6	1969	B4.21				
37.84	10.37	**3.6**	**MVDE**	22.5	1728	B4.17				
40.48	9.71	**5.9**	**MVBE**	21	1651	B4.21				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 63 M; - **LS 63 M FMD; -**			**0.09 kW**					**-** **-**	
2.07	162.48	**1.01**	**MVAE**	415	5000	B4.31				
2.49	158.35	**1.17**	**MVAE**	346	5000	B4.31				
2.76	142.65	**1.17**	**MVAE**	312	5000	B4.31				
3.11	131.60	**1.51**	**MVAE**	277	5000	B4.31				
3.45	118.55	**1.6**	**MVAE**	249.2	5000	B4.31				
3.77	88.25	**0.95**	**MVBE**	228	2500	B4.21				
4.14	110.28	**1.81**	**MVAE**	208	5000	B4.31				
4.60	72.41	**0.95**	**MVBE**	187.1	2500	B4.21				
4.60	99.35	**2.01**	**MVAE**	187	5000	B4.31				
4.78	74.19	**1.04**	**MVBE**	180	2500	B4.21				
5.52	91.33	**2.06**	**MVAE**	155.8	5000	B4.31				
5.97	66.21	**1.2**	**MVBE**	144	2500	B4.21				
6.22	82.82	**2.41**	**MVAE**	138	5000	B4.31				
6.22	59.05	**0.89**	**MVDE**	138.2	1640	B4.17				
6.88	53.42	**0.89**	**MVDE**	125	1640	B4.17				
6.90	74.61	**2.59**	**MVAE**	125	5000	B4.31				
7.17	60.26	**1.27**	**MVBE**	120	2500	B4.21				
7.66	48.00	**0.89**	**MVDE**	112.3	1760	B4.17				
7.96	54.54	**1.41**	**MVBE**	108	2500	B4.21				
8.29	63.46	**3.14**	**MVAE**	103.8	4630	B4.31				
8.30	53.49	**0.95**	**MVDE**	103.6	1640	B4.17				
8.73	49.44	**1.27**	**MVBE**	98.5	2500	B4.21				
9.17	48.39	**0.96**	**MVDE**	93.8	1640	B4.17				
9.20	57.16	**3.43**	**MVAE**	93.5	4390	B4.31				
9.56	49.52	**1.59**	**MVBE**	90	2500	B4.21				
10.21	43.48	**0.95**	**MVDE**	84.2	1760	B4.17				
10.62	53.08	**3.21**	**MVAE**	81	4330	B4.31				
11.94	43.09	**1.85**	**MVBE**	72	2500	B4.21				
12.43	46.51	**3.48**	**MVAE**	69	4140	B4.31				
12.45	40.24	**1.33**	**MVDE**	69.1	1760	B4.17				
13.76	36.40	**1.33**	**MVDE**	62.5	1760	B4.17				
13.80	41.89	**3.48**	**MVAE**	62.3	4050	B4.31				
14.33	37.83	**2.05**	**MVBE**	60	2500	B4.21				
15.32	32.70	**1.33**	**MVDE**	56.2	1760	B4.17				
17.42	33.20	**3.48**	**MVAE**	49	3880	B4.31				
17.47	31.04	**2.05**	**MVBE**	49.2	2437	B4.21				
19.13	31.57	**4.91**	**MVAE**	45	3460	B4.31				
19.15	29.74	**1.82**	**MVDE**	44.9	1760	B4.17				
20.48	27.45	**2.49**	**MVBE**	42	2437	B4.21				
21.17	26.90	**1.82**	**MVDE**	40.6	1760	B4.17				
21.23	28.44	**4.91**	**MVAE**	40.5	3410	B4.31				
23.56	24.17	**1.82**	**MVDE**	36.5	1760	B4.17				
24.87	24.78	**5.34**	**MVAE**	34.6	3240	B4.31				
24.96	22.52	**2.49**	**MVBE**	34.5	2164	B4.21				
27.52	22.09	**2.4**	**MVDE**	31.3	1760	B4.17				
27.60	22.32	**5.34**	**MVAE**	31.2	3180	B4.31				
28.67	20.91	**2.97**	**MVBE**	30	1969	B4.21				
30.63	19.85	**2.4**	**MVDE**	28.1	1760	B4.17				
34.40	17.98	**2.31**	**MVDE**	25	1760	B4.17				
34.84	17.69	**5.34**	**MVAE**	24.7	3050	B4.31				
34.94	17.16	**2.97**	**MVBE**	24.6	1969	B4.21				
38.29	16.16	**2.31**	**MVDE**	22.5	1728	B4.17				
40.95	15.12	**3.79**	**MVBE**	21	1651	B4.21				

Selection

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; -			**0.12 kW**					-	
	LS 71 M FMD; -								-	
2.29	205.94	**0.79**	**MVAE**	415	5000	B4.31				
2.75	200.15	**0.9**	**MVAE**	346	5000	B4.31				
3.05	180.30	**0.9**	**MVAE**	312	5000	B4.31				
3.43	166.17	**1.19**	**MVAE**	277	5000	B4.31				
3.81	149.69	**1.25**	**MVAE**	249.2	5000	B4.31				
4.58	139.10	**1.44**	**MVAE**	208	5000	B4.31				
5.08	125.31	**1.6**	**MVAE**	187	5000	B4.31				
5.28	91.74	**0.84**	**MVBE**	180	2350	B4.21				
6.10	114.92	**1.61**	**MVAE**	155.8	5000	B4.31				
6.60	82.05	**0.97**	**MVBE**	144	2500	B4.21				
6.87	104.20	**1.92**	**MVAE**	138	5000	B4.31				
7.62	93.86	**2.04**	**MVAE**	125	5000	B4.31				
7.92	74.60	**1.03**	**MVBE**	120	2500	B4.21				
8.80	67.50	**1.14**	**MVBE**	108	2500	B4.21				
9.16	79.82	**2.47**	**MVAE**	103.8	4630	B4.31				
9.65	61.21	**1.03**	**MVBE**	98.5	2500	B4.21				
10.16	71.91	**2.7**	**MVAE**	93.5	4390	B4.31				
10.56	61.25	**1.29**	**MVBE**	90	2500	B4.21				
11.73	66.65	**2.51**	**MVAE**	81	4330	B4.31				
13.19	53.22	**1.51**	**MVBE**	72	2500	B4.21				
13.73	58.37	**2.73**	**MVAE**	69	4140	B4.31				
13.75	49.78	**1.06**	**MVDE**	69.1	1640	B4.17				
15.20	45.03	**1.06**	**MVDE**	62.5	1760	B4.17				
15.25	52.58	**2.73**	**MVAE**	62.3	4050	B4.31				
15.83	46.71	**1.67**	**MVBE**	60	2500	B4.21				
16.92	40.46	**1.06**	**MVDE**	56.2	1760	B4.17				
19.24	41.66	**2.73**	**MVAE**	49	3880	B4.31				
19.30	38.33	**1.67**	**MVBE**	49.2	2437	B4.21				
21.13	39.57	**3.86**	**MVAE**	45	3460	B4.31				
21.15	36.71	**1.45**	**MVDE**	44.9	1760	B4.17				
22.62	33.86	**2.01**	**MVBE**	42	2437	B4.21				
23.38	33.21	**1.45**	**MVDE**	40.6	1760	B4.17				
23.46	35.65	**3.86**	**MVAE**	40.5	3410	B4.31				
26.03	29.84	**1.45**	**MVDE**	36.5	1760	B4.17				
27.47	31.04	**4.2**	**MVAE**	34.6	3240	B4.31				
27.57	27.79	**2.01**	**MVBE**	34.5	2164	B4.21				
30.40	27.24	**1.92**	**MVDE**	31.3	1760	B4.17				
30.49	27.96	**4.2**	**MVAE**	31.2	3180	B4.31				
31.67	25.78	**2.41**	**MVBE**	30	1969	B4.21				
33.84	24.48	**1.92**	**MVDE**	28.1	1760	B4.17				
38.00	22.17	**1.84**	**MVDE**	25	1760	B4.17				
38.48	22.16	**4.2**	**MVAE**	24.7	3050	B4.31				
38.59	21.15	**2.41**	**MVBE**	24.6	1969	B4.21				
42.29	19.92	**1.84**	**MVDE**	22.5	1760	B4.17				
45.24	18.63	**3.05**	**MVBE**	21	1651	B4.21				

Selection

B

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 M; - LS 71 M FMD; -			**0.18 kW**					- -	
3.79	238.07	**0.78**	**MVAE**	249.2	5000	B4.31				
4.55	221.24	**0.9**	**MVAE**	208	5000	B4.31				
5.06	199.30	**1**	**MVAE**	187	5000	B4.31				
6.07	182.80	**1.02**	**MVAE**	155.8	5000	B4.31				
6.83	165.74	**1.21**	**MVAE**	138	5000	B4.31				
7.58	149.31	**1.28**	**MVAE**	125	5000	B4.31				
9.11	126.98	**1.56**	**MVAE**	103.8	4630	B4.31				
10.11	114.38	**1.7**	**MVAE**	93.5	4390	B4.31				
10.50	94.83	**0.83**	**MVBE**	90	2350	B4.21				
11.67	106.04	**1.58**	**MVAE**	81	4330	B4.31				
13.12	82.41	**0.97**	**MVBE**	72	2500	B4.21				
13.66	92.85	**1.72**	**MVAE**	69	4140	B4.31				
15.17	83.65	**1.72**	**MVAE**	62.3	4050	B4.31				
15.75	72.32	**1.08**	**MVBE**	60	2500	B4.21				
19.14	66.28	**1.72**	**MVAE**	49	3880	B4.31				
19.20	59.34	**1.08**	**MVBE**	49.2	2437	B4.21				
21.02	62.96	**2.43**	**MVAE**	45	3460	B4.31				
21.04	56.85	**0.94**	**MVDE**	44.9	1540	B4.17				
22.50	52.44	**1.3**	**MVBE**	42	2437	B4.21				
23.26	51.43	**0.94**	**MVDE**	40.6	1640	B4.17				
23.33	56.72	**2.43**	**MVAE**	40.5	3410	B4.31				
25.89	46.20	**0.94**	**MVDE**	36.5	1760	B4.17				
27.33	49.39	**2.64**	**MVAE**	34.6	3240	B4.31				
27.42	43.03	**1.3**	**MVBE**	34.5	2164	B4.21				
30.24	42.19	**1.24**	**MVDE**	31.3	1760	B4.17				
30.33	44.49	**2.64**	**MVAE**	31.2	3180	B4.31				
31.50	39.92	**1.56**	**MVBE**	30	1969	B4.21				
33.66	37.90	**1.24**	**MVDE**	28.1	1760	B4.17				
37.80	34.33	**1.19**	**MVDE**	25	1760	B4.17				
38.28	35.26	**2.64**	**MVAE**	24.7	3050	B4.31				
38.39	32.75	**1.56**	**MVBE**	24.6	1969	B4.21				
42.07	30.85	**1.19**	**MVDE**	22.5	1760	B4.17				
45.00	28.86	**1.97**	**MVBE**	21	1651	B4.21				

LS ; LSMV 6p - 1 speed			Gearbox				LS VARMECA			
n_S (min^{-1})	M (N.m)	Kp	MV (DE-BE-AE)	i	$F_R E/2$ (N)		$n_{S\,MIN}$ (min^{-1})	$n_{S\,MAX}$ (min^{-1})	M (N.m)	Kp
	LS 71 L; - LS 71 L FMD; -			**0.25 kW**					- -	
6.61	244.62	**0.82**	**MVAE**	138	5000					
7.34	220.37	**0.87**	**MVAE**	125	5000					
8.82	187.41	**1.06**	**MVAE**	103.8	4630					
9.79	168.83	**1.15**	**MVAE**	93.5	4390					
11.30	156.60	**1.08**	**MVAE**	81	4330					
13.23	137.15	**1.17**	**MVAE**	69	4140					
14.69	123.55	**1.17**	**MVAE**	62.3	4050					
18.53	97.91	**1.17**	**MVAE**	49	3880					
20.35	93.03	**1.65**	**MVAE**	45	3460					
21.79	76.28	**0.89**	**MVBE**	42	2437					
22.59	83.81	**1.65**	**MVAE**	40.5	3410					
26.46	72.99	**1.8**	**MVAE**	34.6	3240					
26.55	62.59	**0.89**	**MVBE**	34.5	2164					
29.28	61.37	**0.86**	**MVDE**	31.3	1640					
29.37	65.76	**1.8**	**MVAE**	31.2	3180					
30.50	58.08	**1.07**	**MVBE**	30	1969					
32.59	55.14	**0.86**	**MVDE**	28.1	1640					
36.60	49.95	**0.82**	**MVDE**	25	1640					
37.06	52.11	**1.8**	**MVAE**	24.7	3050					
37.17	47.66	**1.07**	**MVBE**	24.6	1969					
40.74	44.88	**0.82**	**MVDE**	22.5	1728					
43.57	41.99	**1.36**	**MVBE**	21	1651					

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

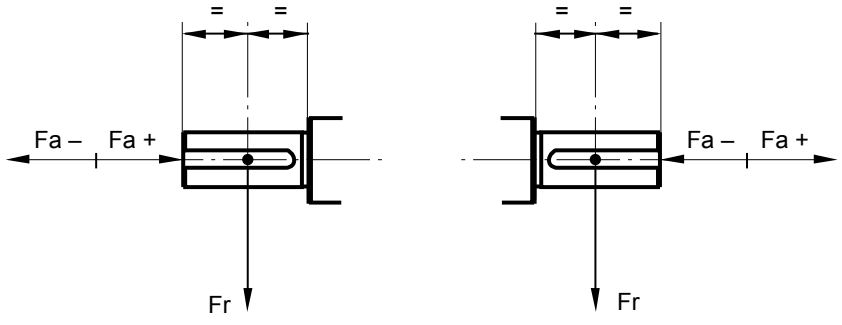
Newton force

Gearbox features		Clockwise or anti-clockwise							
Speed min^{-1}	Bevel N.m	NSD-L	BSL-L	NSD-L & BSL-L		NSD-R	BSR-R	NSD-R & BSR-R	
		F_r	F_r	F_a-	F_a+	F_r	F_r	F_a-	F_a+
135	25	1396	810	759	1413	1217	810	1735	757
135	37.5	1328	760	667	1166	1060	760	1670	667
135	50	1261	700	574	925	903	700	1584	574
100	25	1557	810	901	1692	1379	810	2055	901
100	37.5	1490	760	787	1434	1221	760	1965	773
100	50	1422	700	590	1182	1064	700	1880	690
75	25	1728	810	1060	2005	1549	810	2430	1159
75	37.5	1640	760	974	1746	1392	760	2307	920
75	50	1540	700	919	1505	1235	700	2225	810
50	25	1760	810	1594	2610	1760	810	2610	1366
50	37.5	1640	760	1570	2467	1640	760	2517	1228
50	50	1540	700	1521	2200	1504	700	2425	1137
40	25	1760	810	1998	2610	1760	810	2610	1749
40	37.5	1640	760	1981	2517	1640	760	2517	1606
40	50	1540	700	1936	2425	1540	700	2425	1438
30	25	1760	810	1998	2610	1760	810	2610	2347
30	37.5	1640	760	1981	2517	1640	760	2517	2197
30	50	1540	700	2425	2425	1540	700	2425	2019
≤ 25	25	1760	810	2610	2610	1760	810	2610	2610
≤ 25	37.5	1640	760	2517	2517	1640	760	2517	2517
≤ 25	50	1540	700	2425	2425	1540	700	2425	2425

Direction of the forces	
NSD-L & BSL-L	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension
NSD-R & BSR-R	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension

F_r = radial force on the shaft extension at 20mm from the shoulder

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - For BSL-L or BSR-R, the force corresponds with the separate shaft.
3 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Shaft on the left

Shaft on the right

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

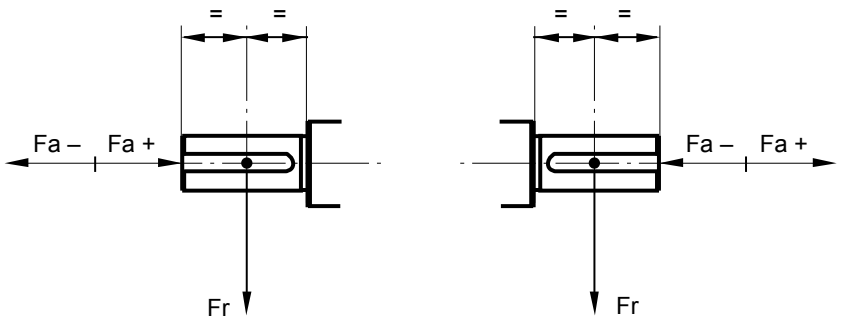
Newton force

Gearbox features		Clockwise or anti-clockwise							
Speed min^{-1}	Bevel N.m	NSD-L	BSL-L	NSD-L & BSL-L		NSD-R	BSR-R	NSD-R & BSR-R	
		F_r	F_r	F_a-	F_a+	F_r	F_r	F_a-	F_a+
135	50	1260	1074	855	2042	1666	1360	1488	851
135	75	985	840	727	1934	1550	1270	1094	719
135	100	711	606	598	1825	1433	1180	716	588
100	50	1450	1237	1020	2394	1866	1360	1810	1015
100	75	1176	1003	892	2287	1750	1270	1397	885
100	100	901	769	764	2179	1633	1180	1016	781
75	50	1651	1360	1208	2780	2078	1360	2176	1198
75	75	1377	1174	1078	2695	1961	1270	1736	1065
75	100	1102	940	951	2590	1844	1180	1323	936
50	50	1969	1360	1501	3131	2412	1360	2817	1508
50	75	1695	1270	1382	2999	2295	1270	2324	1374
50	100	1421	1180	1259	2868	2179	1180	1875	1242
40	50	2164	1360	1711	3131	2500	1360	3136	2332
40	75	1889	1270	1563	2999	2350	1270	3007	2315
40	100	1615	1180	1463	2868	2200	1180	2817	1508
30	50	2437	1360	1917	3121	2500	1360	3136	2332
30	75	2162	1270	1810	2999	2350	1270	3007	2315
30	100	1888	1180	1735	2868	2200	1180	2878	2295
25	50	2500	1360	2183	3121	2500	1360	3136	2832
25	75	2349	1270	2058	2999	2350	1270	3007	2821
25	100	2075	1180	1938	2868	2200	1180	2878	2597
≤ 20	50	2500	1360	2964	3131	2500	1360	3136	3131
≤ 20	75	2350	1270	2641	2999	2350	1270	3007	1999
≤ 20	100	2200	1180	2319	2868	2200	1180	2878	2868

Direction of the forces	
NSD-L & BSL-L	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension
NSD-R & BSR-R	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension

F_r = radial force on the shaft extension at 22.5 mm from the shoulder

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - For BSL-L or BSR-R, the force corresponds with the separate shaft.
3 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Shaft on the left

Shaft on the right

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

Newton force (N)

2P motor (3000 min^{-1})

Gearbox features			Clockwise or anti-clockwise							
Speed min^{-1}	Reduction	Cmax Nm	NSD-R		NSD-L		BSR-R		BSL-L	
			Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-
5	622.5	64	5000	1000	5000	1000	4270	854	4270	854
5	560.8	58	5000	1000	5000	1000	4270	854	4270	854
5	518.8	80	5000	1000	5000	1000	4270	854	4270	854
6	467.3	72	5000	1000	5000	1000	4270	854	4270	854
7	415	108	5000	1000	5000	1000	4270	854	4270	854
8	345.8	136	5000	1000	5000	1000	4270	854	4270	854
9	311.5	122	5000	1000	5000	1000	4270	854	4270	854
10	276.7	134	5000	1000	5000	1000	4270	854	4270	854
11	249.2	121	5000	1000	5000	1000	4270	854	4270	854
14	207.5	129	5000	1000	5000	1000	4270	854	4270	854
15	186.9	117	4910	982	5000	1000	4190	838	4270	854
18	155.8	122	4520	904	4890	978	3860	772	4170	834
20	138.3	122	4340	868	4690	938	3700	740	4000	800
23	124.6	110	4230	846	4560	912	3610	722	3890	778
27	103.8	102	4010	802	4310	862	3420	684	3680	736
30	93.5	92	3900	780	4180	836	3330	666	3570	714
35	81	106	3570	714	3890	778	3050	610	3320	664
41	69.2	107	3360	672	3670	734	2870	574	3130	626
45	62.3	96	3280	656	3570	714	2800	560	3050	610
57	49.4	76	3130	626	3370	674	2670	534	2870	574
62	45	84	2980	596	3230	646	2540	508	2760	552
69	40.5	76	2900	580	3130	626	2470	494	2670	534
81	34.6	75	2750	550	2970	594	2340	468	2530	506
90	31.2	67	2680	536	2880	576	2290	458	2460	492
114	24.7	53	2550	510	2710	542	2170	434	2310	462

4P motor (1500 min^{-1})

Gearbox features			Clockwise or anti-clockwise							
Speed min^{-1}	Reduction	Cmax Nm	NSD-R		NSD-L		BSR-R		BSL-L	
			Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-
2	622.5	85	5000	1000	5000	1000	4270	854	4270	854
2	560.8	76	5000	1000	5000	1000	4270	854	4270	854
3	518.8	117	5000	1000	5000	1000	4270	854	4270	854
3	467.3	106	5000	1000	5000	1000	4270	854	4270	854
3	415	146	5000	1000	5000	1000	4270	854	4270	854
4	345.8	156	5000	1000	5000	1000	4270	854	4270	854
4	311.5	140	5000	1000	5000	1000	4270	854	4270	854
5	276.7	183	5000	1000	5000	1000	4270	854	4270	854
6	249.2	165	5000	1000	5000	1000	4270	854	4270	854
7	207.5	200	5000	1000	5000	1000	4270	854	4270	854
7	186.9	200	5000	1000	5000	1000	4270	854	4270	854
9	155.8	171	5000	1000	5000	1000	4270	854	4270	854
10	138.3	200	5000	1000	5000	1000	4270	854	4270	854
11	124.6	180	5000	1000	5000	1000	4270	854	4270	854
13	103.8	185	4630	926	5000	1000	3950	790	4270	854
15	93.5	183	4390	878	4930	986	3750	750	4210	842
17	81	156	4330	866	4800	960	3690	738	4100	820
20	69.2	149	4140	828	4570	914	3530	706	3900	780
22	62.3	134	4050	810	4450	890	3460	692	3800	760
28	49.4	106	3880	776	4200	840	3310	662	3580	716
31	45	142	3460	692	3890	778	2950	590	3320	664
34	40.5	128	3410	682	3790	758	2910	582	3230	646
40	34.6	122	3240	648	3610	722	2760	552	3080	616
45	31.2	110	3180	636	3510	702	2710	542	2990	598
56	24.7	87	3050	610	3320	664	2600	520	2830	566

Slow speed shaft load

Slow speed shaft loads permissible depend on the reduction and mounting with or without flange.

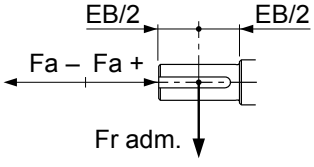
Newton force (N)

Gearbox features			6P motor (3000 min^{-1}) Clockwise or anti-clockwise							
			NSD-R		NSD-L		BSR-R		BSL-L	
Speed min^{-1}	Reduction	Cmax Nm	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-	Fr	Fa+ or Fa-
1	622.5	115	5000	1000	5000	1000	4270	854	4270	854
2	560.8	104	5000	1000	5000	1000	4270	854	4270	854
2	518.8	136	5000	1000	5000	1000	4270	854	4270	854
2	467.3	122	5000	1000	5000	1000	4270	854	4270	854
2	415	163	5000	1000	5000	1000	4270	854	4270	854
3	345.8	183	5000	1000	5000	1000	4270	854	4270	854
3	311.5	165	5000	1000	5000	1000	4270	854	4270	854
3	276.7	200	5000	1000	5000	1000	4270	854	4270	854
4	249.2	189	5000	1000	5000	1000	4270	854	4270	854
4	207.5	200	5000	1000	5000	1000	4270	854	4270	854
5	186.9	200	5000	1000	5000	1000	4270	854	4270	854
6	155.8	186	5000	1000	5000	1000	4270	854	4270	854
7	138.3	200	5000	1000	5000	1000	4270	854	4270	854
7	124.6	193	5000	1000	5000	1000	4270	854	4270	854
9	103.8	200	5000	1000	5000	1000	4270	854	4270	854
10	93.5	196	5000	1000	5000	1000	4270	854	4270	854
11	81	165	5000	1000	5000	1000	4270	854	4270	854
13	69.2	159	4860	972	5000	1000	4150	830	4270	854
15	62.3	143	4740	948	5000	1000	4050	810	4270	854
19	49.4	114	4520	904	4870	974	3860	772	4160	832
20	45	153	4080	816	4520	904	3480	696	3860	772
23	40.5	137	4000	800	4410	882	3410	682	3760	752
26	34.6	130	3820	764	4200	840	3260	652	3580	716
29	31.2	117	3730	746	4080	816	3180	636	3480	696
37	24.7	93	3570	714	3850	770	3050	610	3280	656

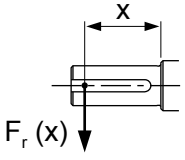
Direction of the forces	
NSD-HR & BSR-HR	**F_a+ =** axial force PULLING on the shaft extension **F_a- =** axial force PUSHING on the shaft extension
NSD-HL & BSL-HL	**F_a+ =** axial force PUSHING on the shaft extension **F_a- =** axial force PULLING on the shaft extension

F_r adm. = radial force permissible on the shaft extension at 22.5 mm (EB/2) from the shoulder of the hollow shaft.

NB: 1 - If there are 2 shaft extensions the permissible load F_r must be distributed.
2 - The force corresponds with the separate shaft in the hollow shaft.
3 - These values correspond with the least favourable loads.
SPECIFIC CASES: please consult Leroy-Somer.



Calculation of F_r (X) on non-concentric radial load:



NSD-HL and NSD-HR

$$F_r(x) = \frac{138}{108 + x} \times F_r \text{ perm. and must be} \leq 5000 \text{ N. max.}$$

BSL-HL and BSR-HR

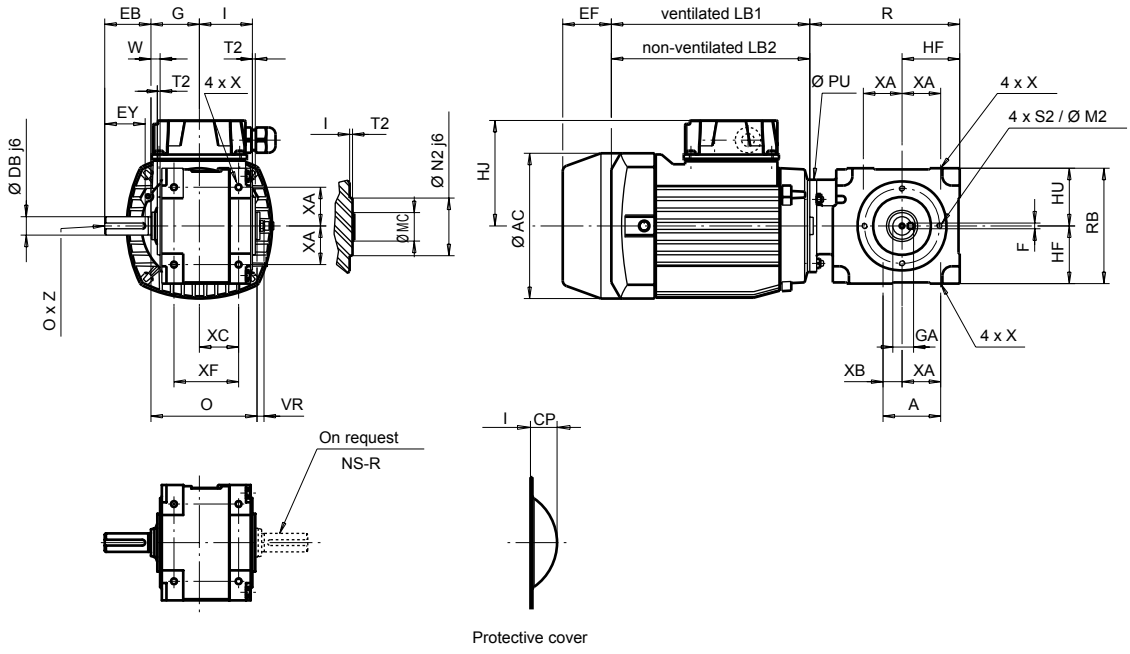
$$F_r(x) = \frac{162}{132 + x} \times F_r \text{ perm. and must be} \leq 5000 \text{ N. max.}$$

Dimensions

Overall dimensions of the Minibloc MVDE geared motors, MI integrated mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

- NU standard form



	NU standard gearboxes																	
Type	S	A	XF	XA	XB	RB	HU	HF	X	XC	G	I	N2	T2	S2	M2	PU	kg *
MVDE	130	50	56	33.5	16.5	100	50	50	M6x10	34	42	46	50	2.5	M5x12	65	80	2.4

** Gearbox only*

	Solid output shaft											
Type	DB	EB	EY	O	VR	GA	F	W	MC	O	Z	CP
MVDE	16	40	35	92	6	18	5	8	25	M5	15	20

	Induction motors and brakes												
	3-phase LS					Single-phase LS					Brakes		
											EF max		kg [1]
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

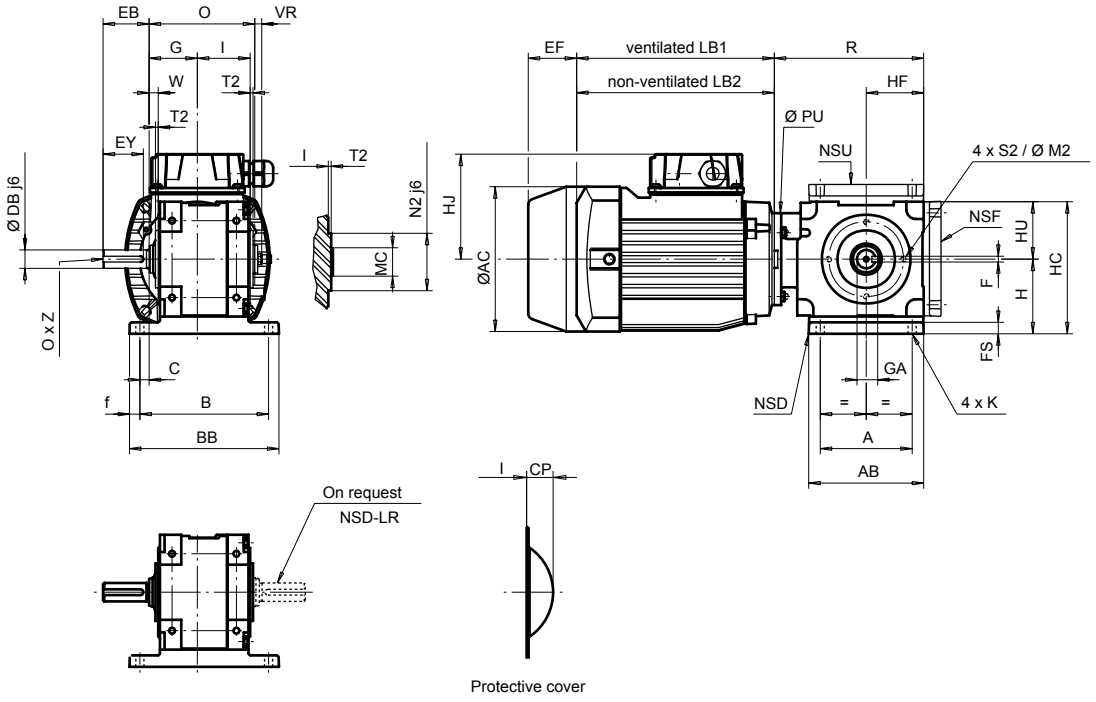
Dimensions

Dimensions of Minibloc MVDE geared motors, MI integrated mounting integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

B

- NSD, NSF, NSU base form



Type	Gearboxes with NSD, NSF, NSU base																				* kg
	S	A	AB	B	BB	I	HF	HC	H	HU	f	FS	K	G	N2	T2	C	S2	M2	PU	
MVDE	130	80	100	112	130	46	50	115	65	50	9	10	6.8	42	50	2.5	8	M5x12	65	80	2.6

** Gearbox only*
NB: in position NSF and S5 the axis side of the slow speed shaft against the feet fastenings is 65 mm.

Type	Solid output shaft											
	DB	EB	EY	O	VR	GA	F	W	MC	O	Z	CP
MVDE	16	40	35	92	6	18	5	8	25	M5	15	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		1 kg	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

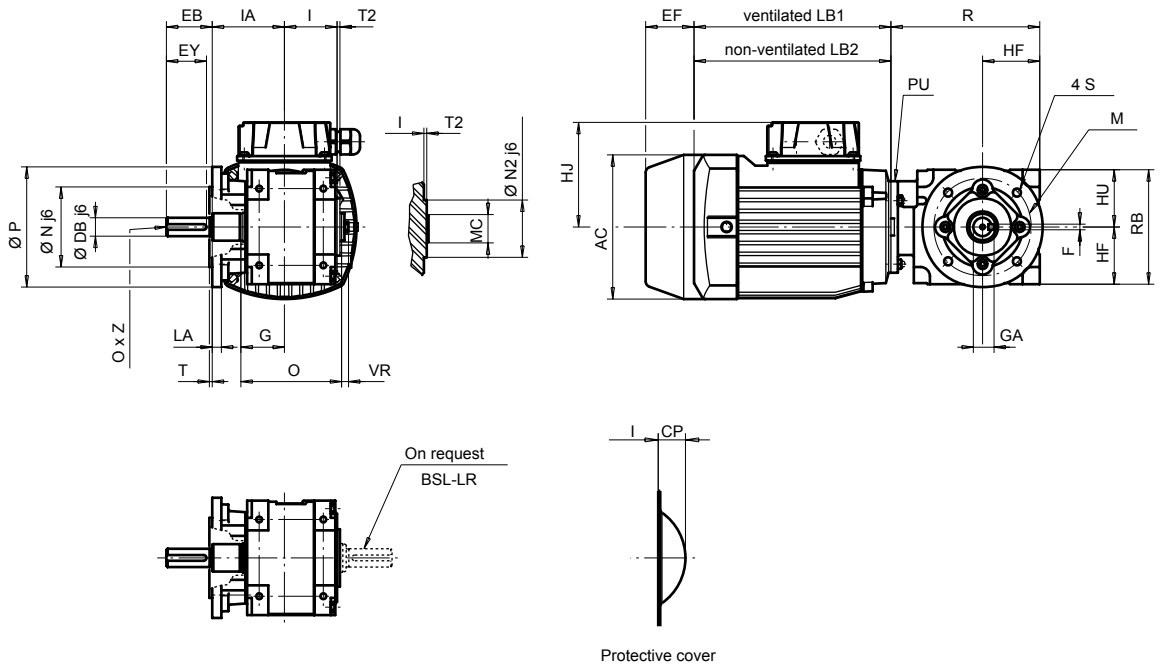
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Overall dimensions of the Minibloc MVDE geared motors, MI integrated mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

- BS or BD flange form



Type	Gearboxes with BS flange																* kg
	S	RB	HU	HF	M	N	P	O	LA	T	IA	G	I	N2	T2	PU	
MVDE	130	100	50	50	85	70	105	7	8	2.5	63	38	46	50	2.5	80	2.7

** Gearbox only*

Type	Other possible flange BD1					
	M1	N1	P1	S1	LA1	T1
MVDE	100	80	120	7	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Type	Solid output shaft										
	DB	EB	EY	O	VR	GA	F	MC	O	Z	CP
MVDE	16	40	35	88	6	18	5	25	M5	15	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		1 kg	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

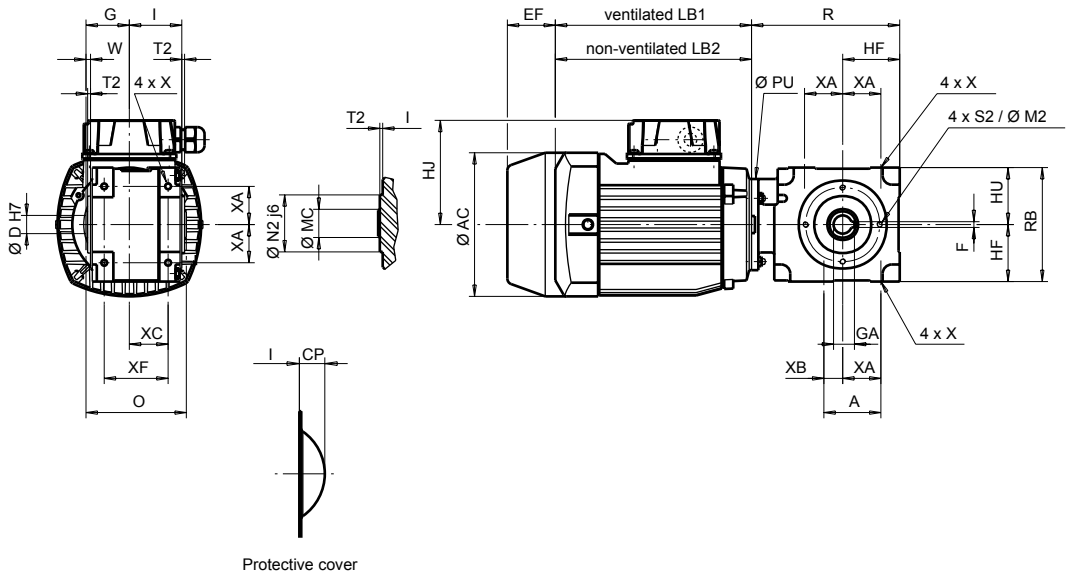
Dimensions

Dimensions of Minibloc MVDE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

B

- NU-H standard form



Protective cover

Type	NU-H standard gearboxes																	kg *
	S	A	XF	XA	XB	RB	HU	HF	X	XC	G	I	N2	T2	S2	M2	PU	
MVDE	130	50	56	33.5	16.5	100	50	50	M6x10	34	38	46	50	2.5	M5x12	65	80	2.2

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVDE	16	88	18.3	5	4	25	20

Fr. size	Induction motors and brakes												
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		kg 1	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71 [2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

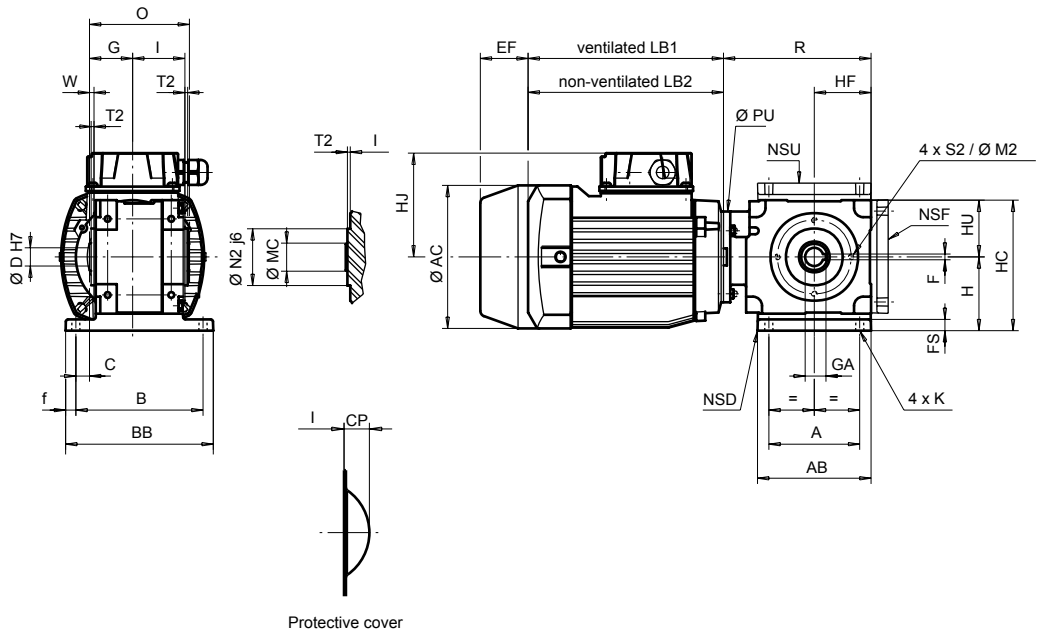
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Dimensions of Minibloc MVDE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

- NSD, NSF, NSU-H base form



Type	Gearboxes with NSD, NSF, NSU-H base																				* kg
	S	A	AB	B	BB	I	HF	HC	H	HU	f	FS	K	G	N2	T2	C	S2	M2	PU	
MVDE	130	80	100	112	130	46	50	115	65	50	9	10	6.8	38	50	2.5	12	M5x12	65	80	2.2

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVDE	16	88	18.3	5	4	25	20

Fr. size	Induction motors and brakes										Brakes			
	3-phase LS					Single-phase LS					EF max		[1] kg	
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

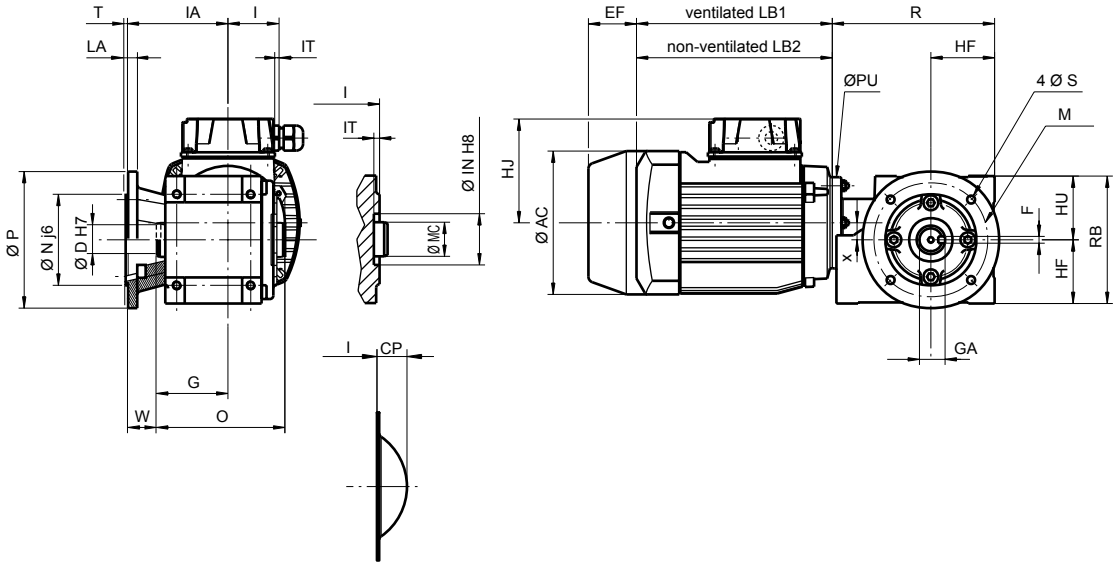
Dimensions

Dimensions of Minibloc MVDE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

B

- BS or BD-H flange form



Type	Gearboxes with BS-H flange																kg*
	S	RB	HU	HF	M	N	P	O	LA	T	IA	G	I	N2	T2	PU	
MVDE	130	100	50	50	85	70	105	7	8	2.5	63	38	46	50	2.5	80	2.5

** Gearbox only*

Type	Other possible flange[1] BD1					
	M1	N1	P1	S1	LA1	T1
MVDE	100	80	120	7	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVDE	16	88	18.3	5	25	25	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		kg[1]	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

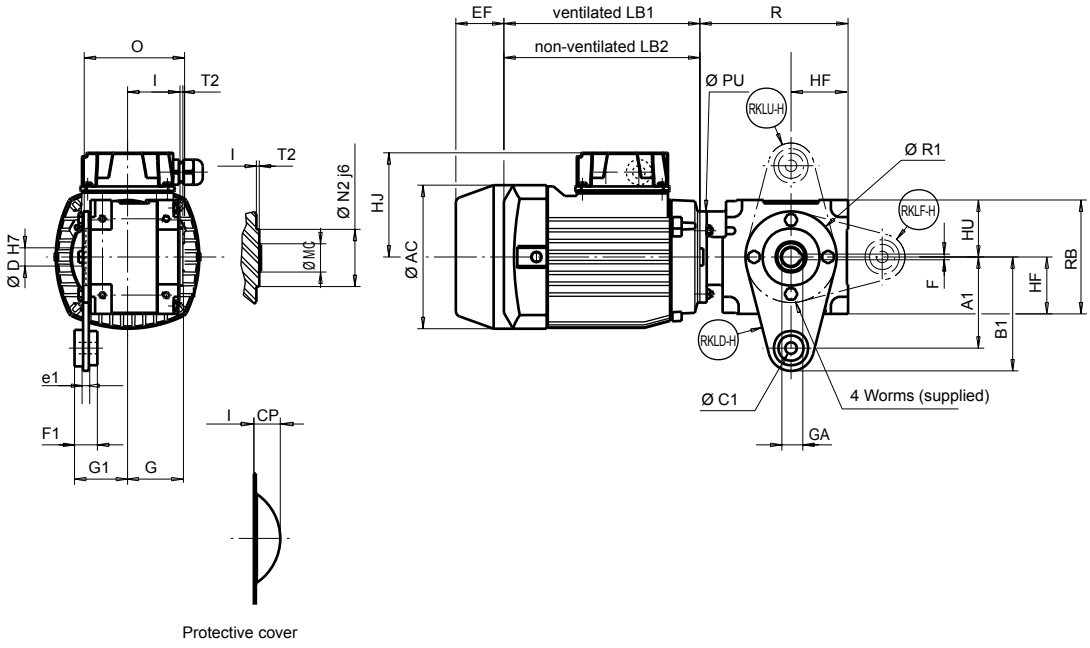
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Dimensions of Minibloc MVDE geared motors, MI integrated mounting, hollow output shaft (H), with torque arm

Dimensions in millimetres

- RK-K form (torque arm supplied separately)



Type	Gearboxes with RK-H torque shaft																* kg
	S	HF	RB	HU	G	I	N2	T2	A1	B1	R1	C1	F1	G1	e1	Screw	PU	
MVDE	130	50	100	50	50	46	50	2.5	80	100	80	10	20	46.5	5	M5x16	80	2.6

** Gearbox only*

Type	Hollow output shaft					
	D	O	GA	F	MC	CP
MVDE	16	88	18.3	5	25	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
					kg					kg	EF max		kg [1]	
	AC	HJ	LB1	LB2		AC	HJ	LB1	LB2		FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

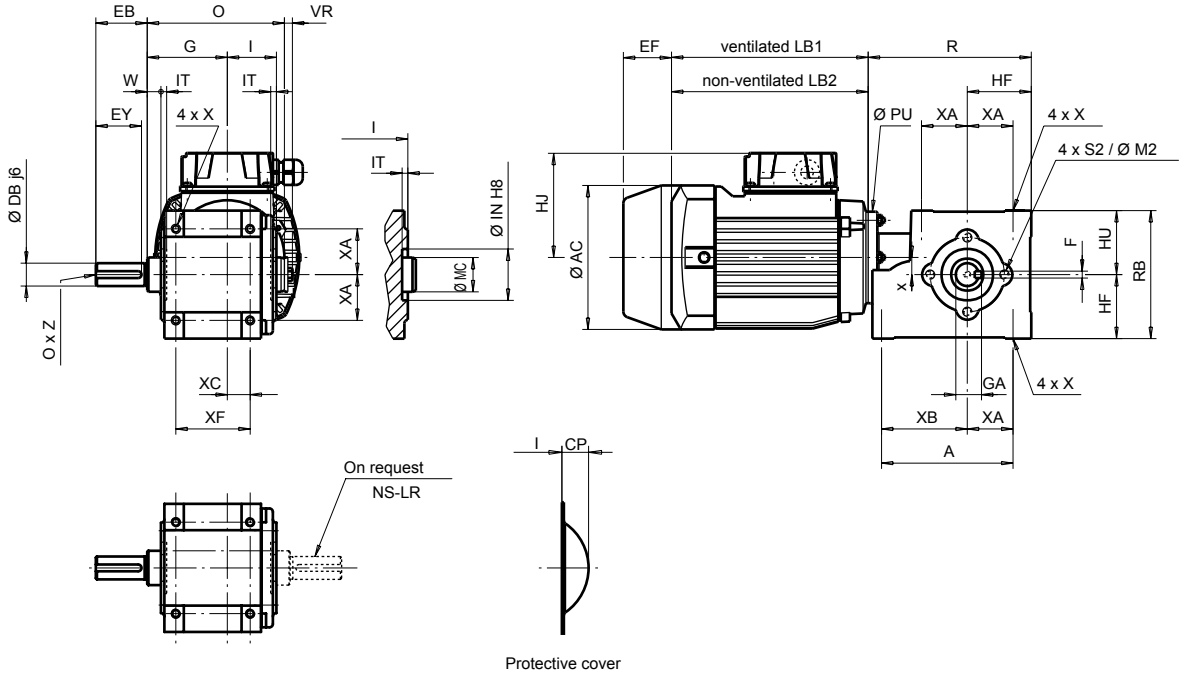
Dimensions

Overall dimensions of the Minibloc MVBE geared motors, MI integrated mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

B

- NU standard form



Type	NU standard gearboxes																		kg*
	S	x	A	XF	XA	XB	RB	HU	HF	X	XC	G	I	IN	IT	S2	M2	PU	
MVBE	143	15	115	65	40	75	112	56	56	M8x12	20	70	43	45	5	M8x12	65	80	6.6

** Gearbox only*

Type	Solid output shaft											
	DB	EB	EY	O	VR	GA	F	W	MC	O	Z	CP
MVBE	20	45	40	120	7	22.5	6	12	30	M6	15	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		kg[1]	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

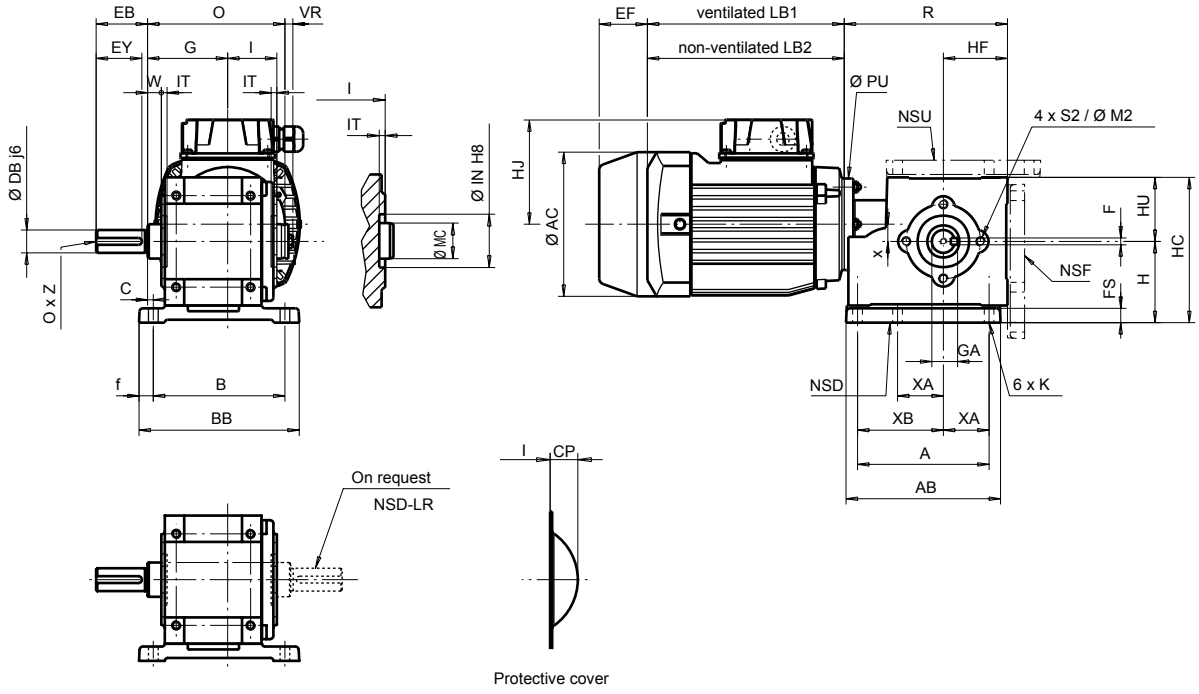
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Overall dimensions of the Minibloc MVBE geared motors, MI integrated mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

- NSD, NSF, NSU base form



Type	Gearboxes with NSD, NSF, NSU base																						* kg
	S	x	A	AB	B	BB	I	XA	XB	HF	HC	H	HU	f	FS	K	G	IN	IT	C	S2	M2	PU	
MVBE	143	15	115	135	115	140	43	40	75	56	127	71	56	12.5	12	8.5	70	45	5	5	M8x12	65	80	6.2

** Gearbox only*

Type	Solid output shaft											
	DB	EB	EY	O	VR	GA	F	W	MC	O	Z	CP
MVBE	20	45	40	120	7	22.5	6	12	30	M6	15	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max FMD	EF max FCR	kg [1] FMD	kg [1] FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

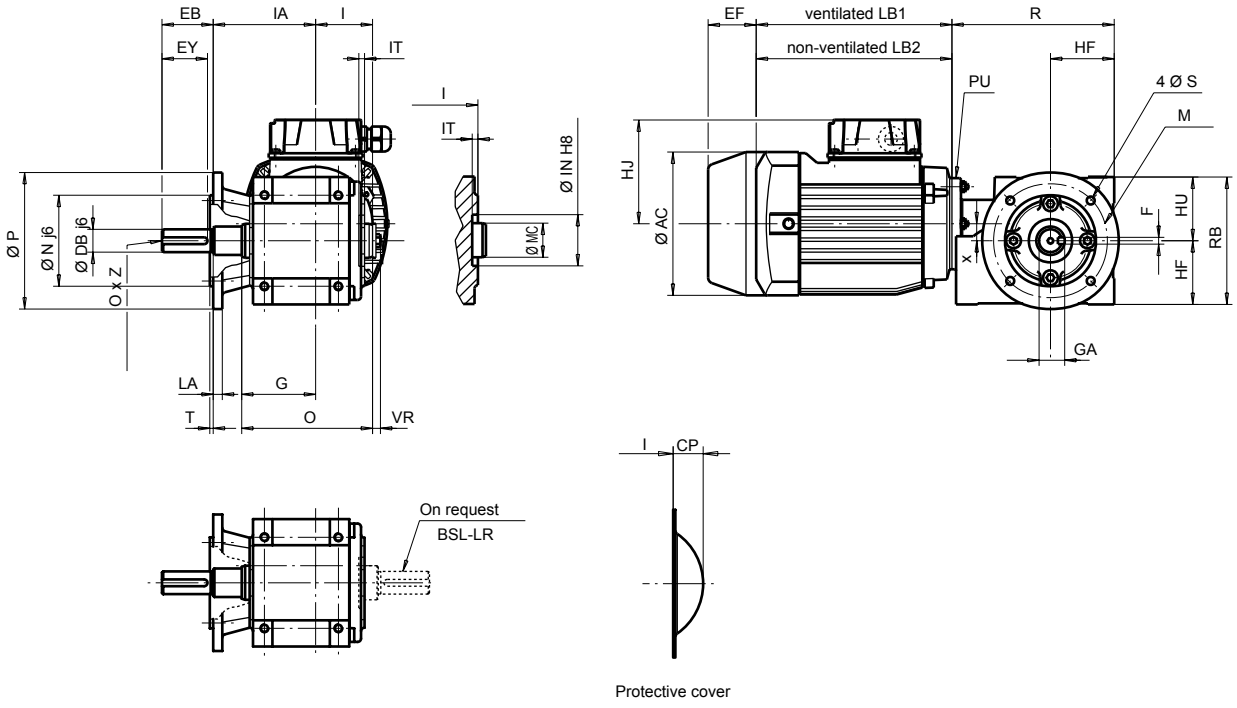
Dimensions

Overall dimensions of the Minibloc MVBE geared motors, MI integrated mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

B

- BS or BD flange form



Type	Gearboxes with BS flange																	kg*
	S	x	RB	HU	HF	M	N	P	O	LA	T	IA	G	I	IN	IT	PU	
MVBE	143	15	112	56	56	100	80	120	7	8	3	90	65	43	45	5	80	7.4

** Gearbox only*

Type	Other possible flanges[1]											
	BD1						BD2					
	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
MVBE	85	70	105	7	8	3	115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Type	Solid output shaft										
	DB	EB	EY	O	VR	GA	F	MC	O	Z	CP
MVBE	20	45	40	115	7	22.5	6	30	M6	15	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	EF max		kg[1]	
											FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

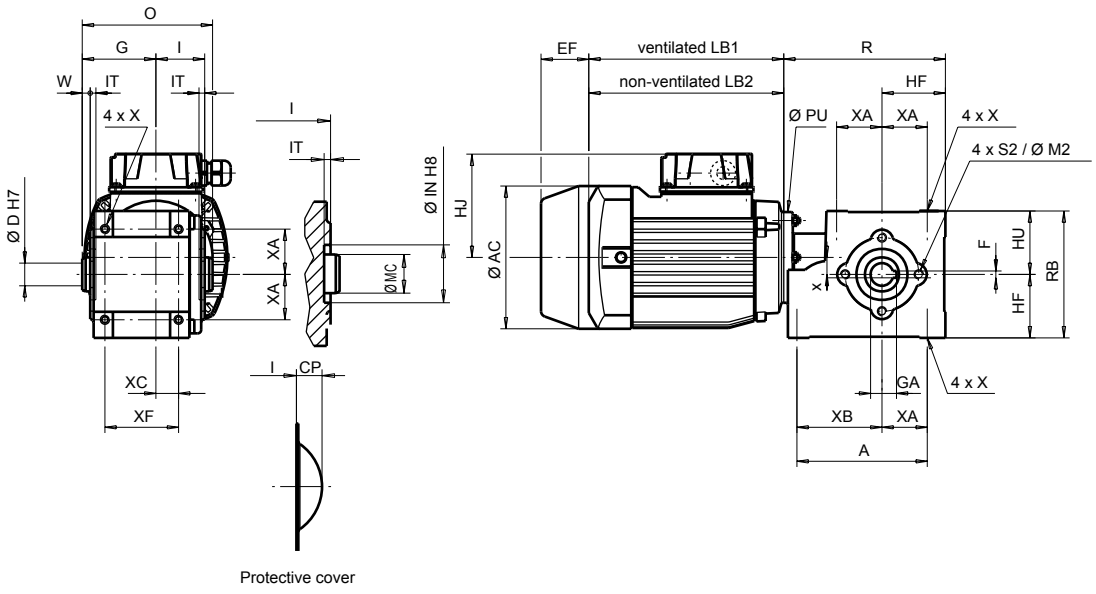
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Dimensions of Minibloc MVBE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

- NU-H standard form



Type	NU-H standard gearboxes																			* kg
	S	x	A	XF	XA	XB	RB	HU	HF	X	XC	G	I	IN	IT	S2	M2	PU		
MVBE	143	15	115	65	40	75	112	56	56	M8x12	20	65	43	45	5	M8x12	65	80		6.2

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVBE	20	115	22.8	6	7	30	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
					kg					kg	EF max		kg [1]	
	AC	HJ	LB1	LB2		AC	HJ	LB1	LB2		FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

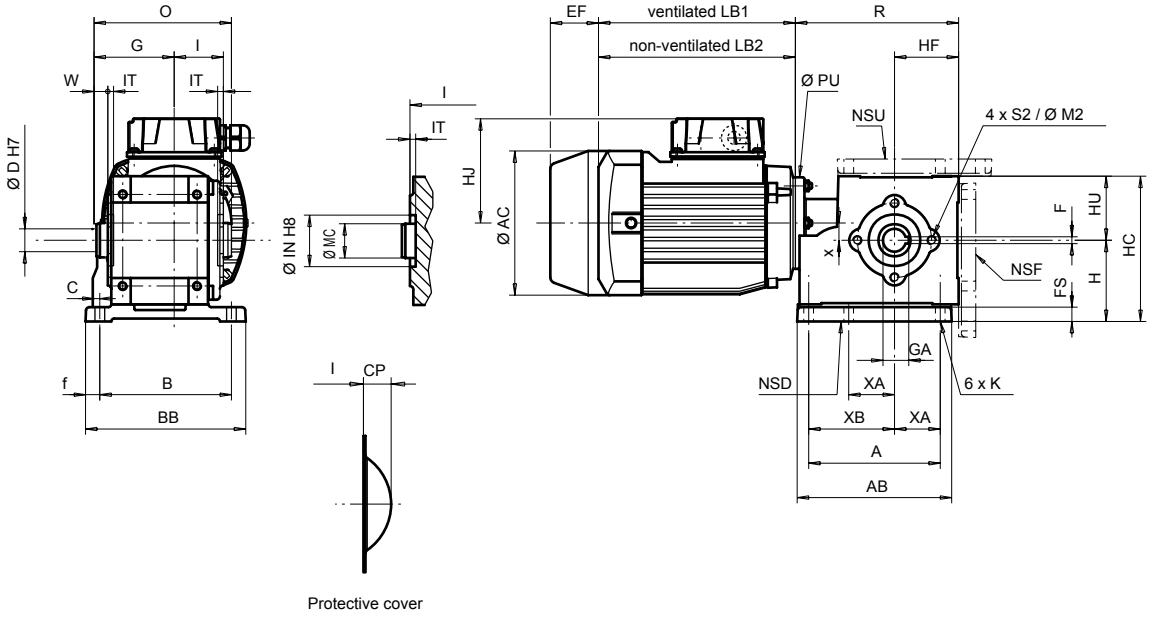
Dimensions

Dimensions of Minibloc MVBE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

B

- NSD, NSF, NSU-H base form



Type	Gearboxes with NSD, NSF, NSU-H base																						* kg
	S	x	A	AB	B	BB	I	XA	XB	HF	HC	H	HU	f	FS	K	G	IN	IT	C	S2	M2	PU	
MVBE	143	15	115	135	115	140	43	40	75	56	127	71	56	12.5	12	8.5	65	45	5	0	M8x12	65	80	7.6

** Gearbox only*
NB: in position NSF and S5 the axis side of the slow speed shaft against the feet fastenings is 71mm.

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVBE	20	115	22.8	6	7	30	20

Fr. size	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
					kg					kg	EF max		kg [1]	
	AC	HJ	LB1	LB2		AC	HJ	LB1	LB2		FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

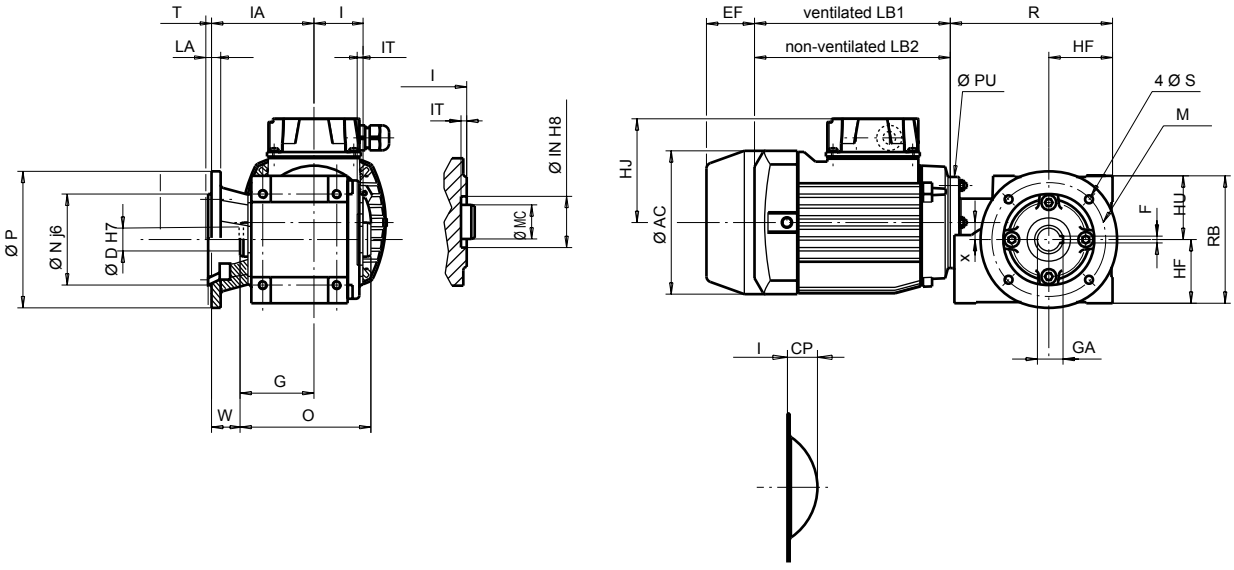
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Dimensions of Minibloc MVBE geared motors, MI integrated mounting, hollow output shaft (H)

Dimensions in millimetres

- BS or BD-H flange form



Protective cover

	Gearboxes with BS-H flange																	
Type	S	x	RB	HU	HF	M	N	P	O	LA	T	IA	G	I	IN	IT	PU	kg*
MVBE	143	15	112	56	56	100	80	120	7	8	3	90	65	43	45	5	80	7

** Gearbox only*

	Other possible flanges[1]											
	BD1						BD2					
Type	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
MVBE	85	70	105	7	8	3	115	95	140	9	8	3

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

	Hollow output shaft						
Type	D	O	GA	F	W	MC	CP
MVBE	20	115	22.8	6	25	30	20

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
											EF max		kg[1]	
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	FMD	FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

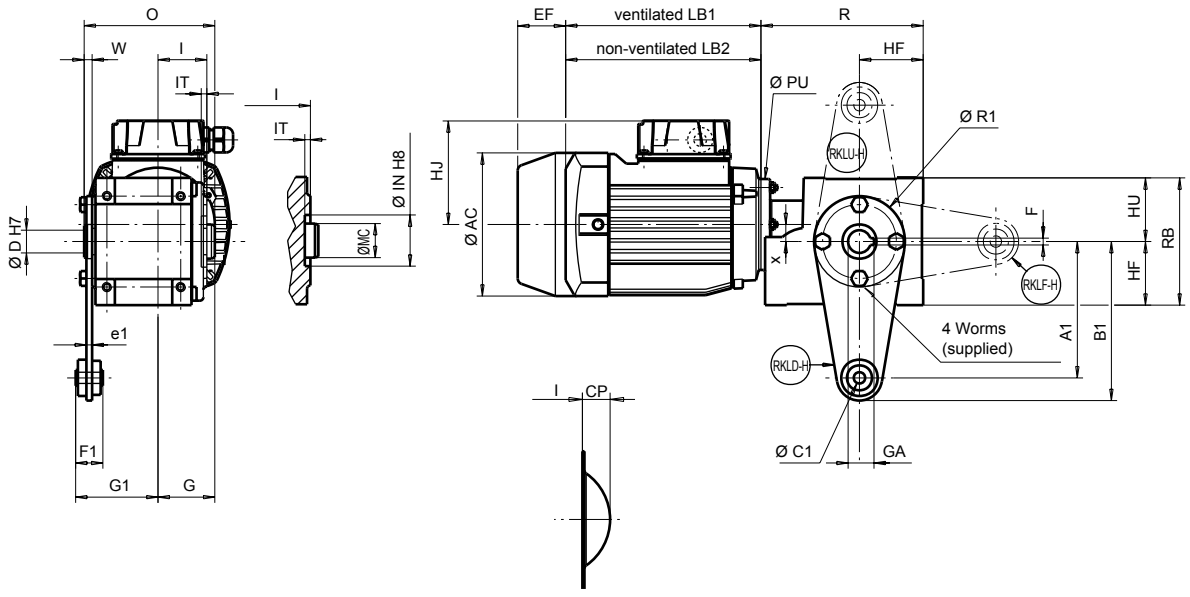
Dimensions of Minibloc MVBE geared motors, MI integrated mounting, hollow output shaft (H), with torque arm

Dimensions in millimetres

B

To make it easier for adaptation on the machine, the torque arm is delivered (with its fixing screws) not mounted on the gearbox.

- RK-K form (torque arm supplied separately)



Protective cover

	Gearboxes with RK-H torque shaft																		
Type	S	x	HF	RB	HU	G	I	IN	IT	A1	B1	R1	C1	F1	G1	e1	Screw	PU	kg *
MVBE	143	15	56	112	56	50	43	45	5	120	140	80	10	24	72.5	5	M8x16	80	6.6

** Gearbox only*

	Hollow output shaft						
Type	D	O	GA	F	W	MC	CP
MVBE	20	115	22.8	6	7	30	20

	Induction motors and brakes													
	3-phase LS					Single-phase LS					Brakes			
											EF max			
Fr. size	AC	HJ	LB1	LB2	kg	AC	HJ	LB1	LB2	kg	FMD	FCR	kg [1] FMD	kg [1] FCR
56	110	85	156	135	3.4	110	90	156	135	3.5	50	-	0.9	-
63	124	95	172	150	4.3	124	110	172	150	4.5	50	-	0.9	-
71[2]	140	102	183	155	6.5	140	129	183	155	7.5	50	90	0.9	2.5

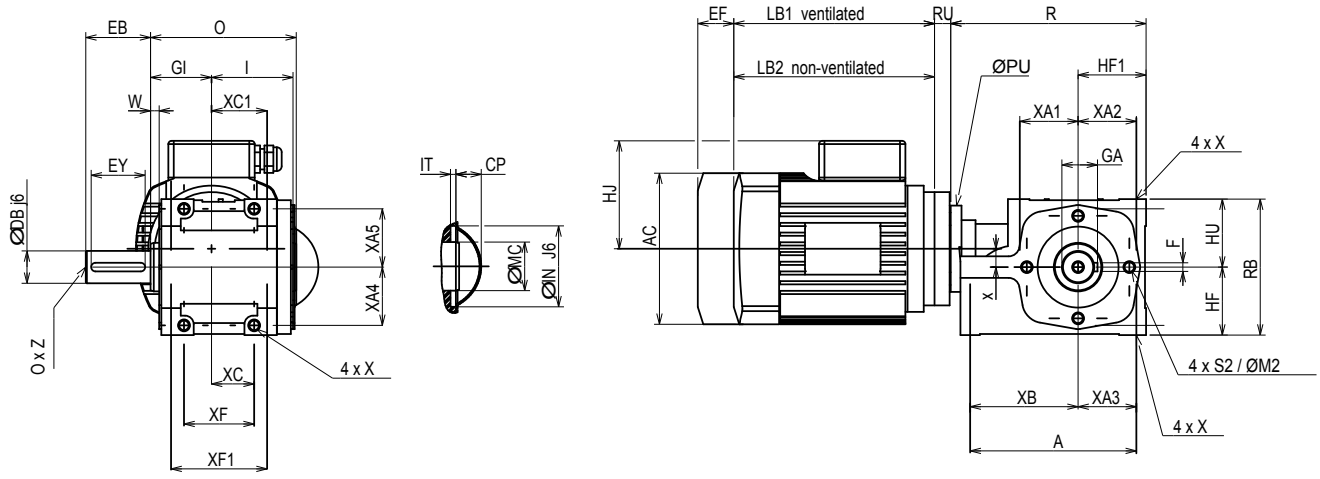
1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

Dimensions

Overall dimensions of the Minibloc MVAE geared motors, MU universal mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

- NU standard form



Type	NU standard gearboxes																				* kg
	S	x	A	XF	XA	XB	RB	RU	HU	HF	X	XC	G	I	IN	IT	S2	M2	XC1	XF1	
MVAE	181	17	154	65	54	100	126	15	63	63	M10x20	39.5	51.5	75.5	75	5	M10x15	95	51.5	89	9

** Gearbox only*

Type	Solid output shaft										
	DB	EB	EY	O	GA	F	W	MC	O	Z	CP
MVAE	30	60	50	135	33	8	8	45	M10	22	23.5

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg **	EF max FMD	EF max FCR	kg [1] FMD	kg [1] FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

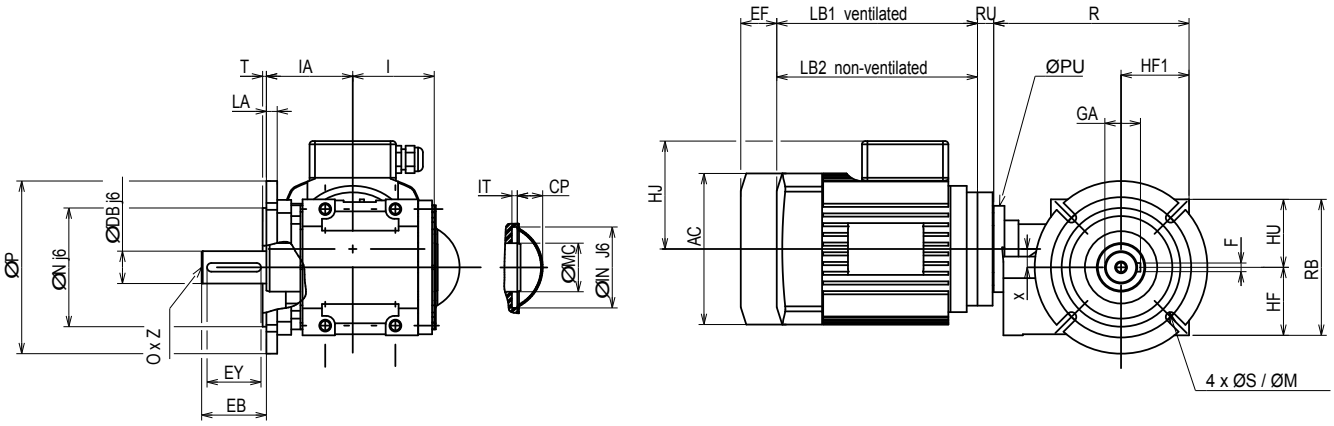
Dimensions

Overall dimensions of the Minibloc MVAE geared motors, MU universal mounting, integral (L, R) or separate (HL, HR) solid output shaft

Dimensions in millimetres

B

- BS or BD flange form



Type	BS standard gearboxes																				kg *
	S	HC	AB	RU	H	x	HU	HF	FS	XA	XB	XC	XF	G	I	IN	IT	X	S2	M2	
MVAE	101	121.5	100	19	50	40	71.5	50	6	31.5	58.5	31.5	63	39	43	65	5	6.5	M6x13	85	2.2

** Gearbox only*

Type	Solid output shaft									
	DB	EB	EY	GA	F	W	MC	O	Z	CP
MVAE	30	60	50	33	8	0	45	M10	22	23.5

Type	Other possible flanges[1]											
	BD1						BD2					
	M1	N1	P1	S1	LA1	T1	M2	N2	P2	S2	LA2	T2
MVAE	115	95	140	9	8	3.5	165	130	200	11	10	3.5

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Fr. size	Induction motors and brakes												Brakes			
	3-phase LS						Single-phase LS						EF max			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg **	FMD	FCR	kg [1] FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

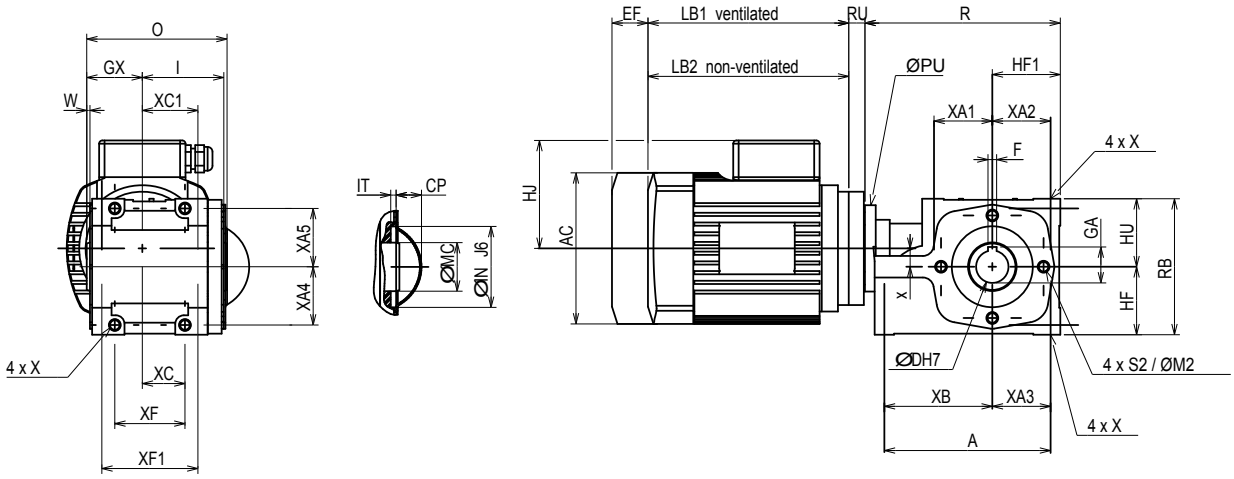
LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

Dimensions

Dimensions of Minibloc MVAE geared motors, MU universal mounting, hollow output shaft (H)

Dimensions in millimetres

- NU-H standard form



Type	NU-H standard gearboxes																				kg*
	S	x	A	XF	XA	XB	RB	HU	HF	X	XC	G	I	IN	IT	S2	M2	XC1	XF1		
MVAE	181	17	154	65	54	100	126	15	63	M10x20	39.5	51.5	75.5	75	5	M10x15	95	51.5	89		9

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVAE	30	130	33.3	8	3	45	23.5

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	kg**	EF max FMD	EF max FCR	kg[1] FMD	kg[1] FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

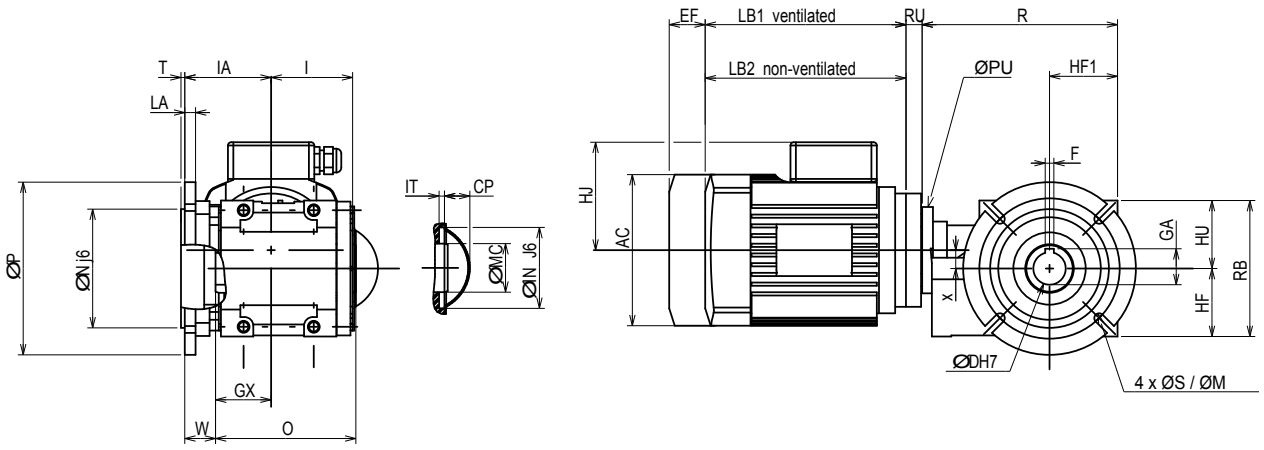
Dimensions

Dimensions of Minibloc MVAE geared motors, MU universal mounting, hollow output shaft (H)

Dimensions in millimetres

B

- BS or BD-H flange form



Type	BS-H standard gearboxes																	kg*
	S	x	RB	HU	HF	M	N	P	O	LA	T	IA	G	I	IN	IT	RU	
MVAE	181	17	126	63	63	130	110	160	9	10	3.5	80	51.5	75.5	75	5	15	9.5

** Gearbox only*

Type	Hollow output shaft						
	D	O	GA	F	W	MC	CP
MVAE	30	130	33.3	8	28.5	45	23.5

Other possible flanges[1]												
BD1							**BD2**					
M1	N1	P1	S1	LA1	T1		M2	N2	P2	S2	LA2	T2
115	95	140	9	8	3.5		165	130	200	11	10	3.5

1. The letters are numbered to distinguish them from the letters on the standard flange diagram.

Fr. size	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
						kg						kg**	EF max		kg[1]	
	AC	HJ	LB1	LB2	PU		AC	HJ	LB1	LB2	PU		FMD	FCR	FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

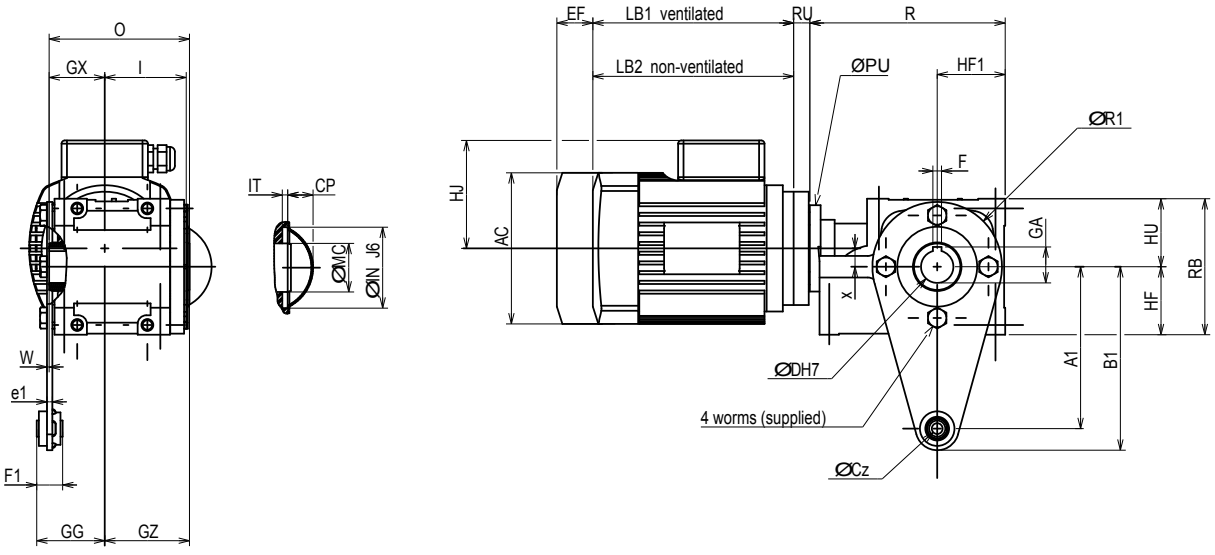
LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

Dimensions

Dimensions of Minibloc MVAE geared motors, MU universal mounting, hollow output shaft (H),| with torque arm

Dimensions in millimetres

- RK-K form (torque arm supplied separately)



	Gearboxes with RK-H torque arm																			* kg
Type	S	x	HF	RB	RU	HU	G2	I	IN	IT	A1	B1	R1	C1	F1	G1	G	e1	Screw	
MVAE	181	17	63	126	15	63	78.5	75.5	75	5	150	170	60	10	24	63	51.5	5	M10x20	9.7

** Gearbox only*

To make it easier for adaptation on the machine, the torque arm is delivered (with its fixing screws) not mounted on the gearbox (RKL-H).

	Hollow output shaft						
Type	D	O	GA	F	W	MC	CP
MVAE	30	130	33.3	8	2	45	23.5

	Induction motors and brakes															
	3-phase LS						Single-phase LS						Brakes			
													EF max		kg [1]	
Fr. size	AC	HJ	LB1	LB2	PU	kg	AC	HJ	LB1	LB2	PU	** kg	FMD	FCR	FMD	FCR
56	110	85	156	135	80	3.4	110	93	156	135	80	3.5	50	-	0.9	-
63	124	90	172	150	90	4.3	124	98	172	150	90	4.5	50	-	0.9	-
71[2]	140	102	183	155	105	6.5	140	110	183	155	105	7.5	50	88	0.9	2.5
80	170	114	215	177	105	10.9	170	122	215	177	105	11	-	77	-	7.2

*** Motor only*

1. Additional brake weight.
2. For LS 71: 0.25 kW 6 poles three-phase, 0.37 kW 4 poles single-phase, 0.55 kW 4 poles three-phase: LB dimension = +9.

LS56, LS63 and LS71 motors: B14 IEC standards (Note: LS56 = 8 holes).
LS80 motor: B14, F85, shaft extension 14x30.

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