

Bell-Housing



GENERAL INFORMATION	page 46
LMG	51
LMC - LDC	63
LMS - LDS	71
MULTI-COMPONENTS	79

Noise is a particularly pervasive problem so much so that there have been statutory regulations in place now for some years, designed to limit harmful occupational exposure.

Many of the machines used in industry today are equipped with oil-hydraulic systems, which happen to be a major source of noise.

1 THEORY AND DEFINITION OF NOISE

From a health and hygiene standpoint, noise can be defined as an unpleasant and undesirable sound, or an unpleasant and annoying or intolerable auditory sensation (noise being any sound phenomena that may be accompanied by sensations of disturbance and pain). By definition, acoustic phenomena are oscillatory in character, propagated in a flexible medium and causing pressure variations at the points, and the areas adjacent to those points, through which they pass.

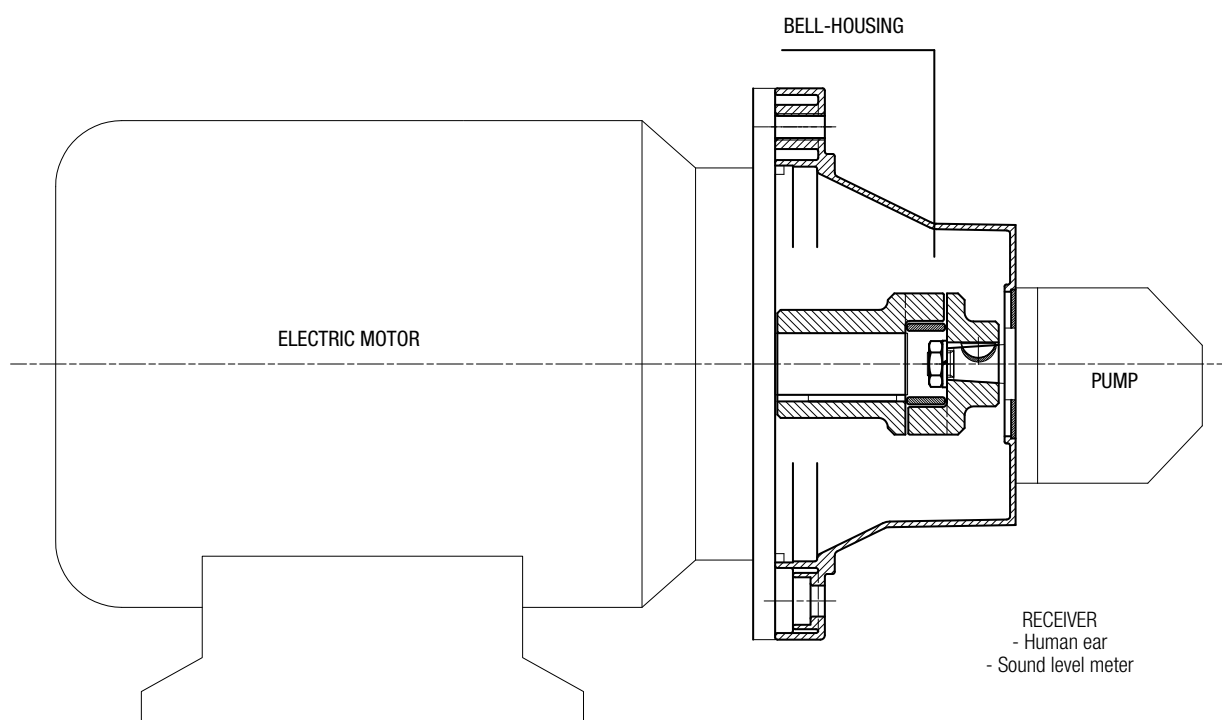
2 SOUND

Technically considered, certain elements must be present simultaneously for acoustic phenomena to occur:

- Sound source
- Transmission medium
- Receiver

The electric motor and the pump, together with the drive coupling, are the SOURCE OF THE NOISE. The Bell-housing is the noise transmission medium. Depending on whether the monobloc bell-housing is a rigid or low noise type, there will be variations in the flexible properties of the transmission medium. The acoustic phenomena are dissimilar in the two cases, given the differences in pressure variation and particle displacement.

MOTOR AND PUMP UNIT



As mentioned in the presentation, low noise bell-housing will help to attenuate the transmission of vibrations and the emission of noise generated by the system. Self-evidently, however, the mere adoption of a low noise bell-housing will achieve little unless the motor and pump are correctly installed on the machine or on the tank of the hydraulic power unit.

From a health and hygiene standpoint, noise can be defined as an unpleasant and undesirable sound, or an unpleasant and annoying or intolerable auditory sensation (noise being any sound phenomena that may be accompanied by sensations of disturbance and pain).

By definition, acoustic phenomena are oscillatory in character, propagated in a flexible medium and causing pressure variations at the points, and the areas adjacent to those points, through which they pass.

Should be followed in order to achieve best possible results and correct installation:

1 MOTOR AND PUMP UNIT MOUNTED HORIZONTALLY ON OIL TANK LID

- The suction pipe attached to the pump must be rigid, and fitted using a resilient bulkhead flange of the FTA series, which helps to cushion the vibrations propagated between the pipe and the tank lid.
If pipes need to be bent, the radius of curvature must be at least 3 times the pipe diameter.
Do not use elbow fittings, as these will significantly increase pressure losses.
- The pressure pipeline of the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer for the specified operating pressure.
- The return pipeline running from the service to the filter must be flexible.
Where oil is returned directly to the tank of the hydraulic power unit through a rigid pipe, it is advisable to use a resilient bulkhead flange of the FTR series, which helps to cushion the vibrations propagated between the pipe and the tank lid.
- Anti-vibration devices (resilient mounts or damping rods) must be located under the feet of the electric motor or the PDM foot brackets, depending on the mounting position of the motor.
- The lids of hydraulic oil tanks must be sturdy enough to support the load they carry.

2 MOTOR AND PUMP UNIT MOUNTED HORIZONTALLY ON MACHINE

- As a matter of good practice, the oil tank and motor-pump unit should be mounted on a single supporting frame of strength sufficient to support the load.
- If the hydraulic system is fitted with a side-mounted filter, the suction pipeline to the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer.
- If the suction filter is not side mounted, the pipeline should be rigid and installed in conjunction with a compensating coupling.
- The pressure pipeline of the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer for the specified operating pressure.

- The return pipeline running from the service to the filter must be flexible.
Where oil is returned directly to the tank of the hydraulic power unit through a rigid pipe, it is advisable to use a resilient bulkhead flange of the FTR series, which helps to cushion the vibrations propagated between the pipe and the tank lid.
- Anti-vibration devices (resilient mounts or damping rods) must be located under the feet of the electric motor or the PDM foot brackets, depending on the mounting position of the motor.

Note:

The above guidelines are indicative only, and subordinate to the solutions adopted ultimately by design engineers.

IN CONCLUSION

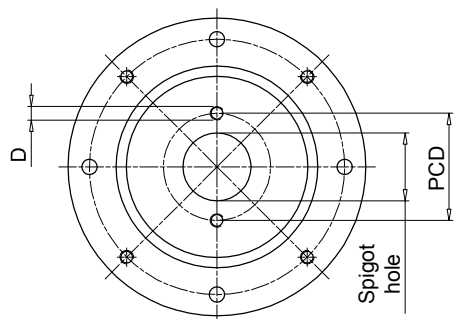
For best results, in any event, the motor-and-pump unit should be incorporated into the hydraulic system in such a way that no one component is rigidly associated with another, resulting in the propagation of vibration, and consequently noise.



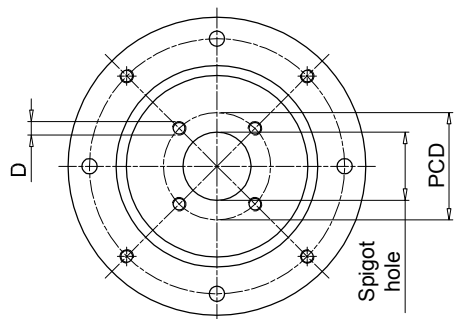
GENERAL INFORMATION

PUMP INTERFACE CODES

Valid configuration for bell-housing up to ø400

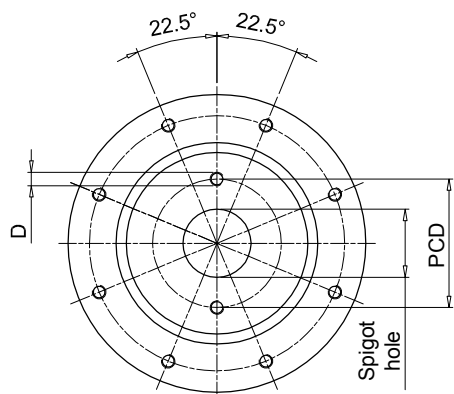


Bell-housing with nr. 2 holes at pump interface, aligned with through holes at motor interface.

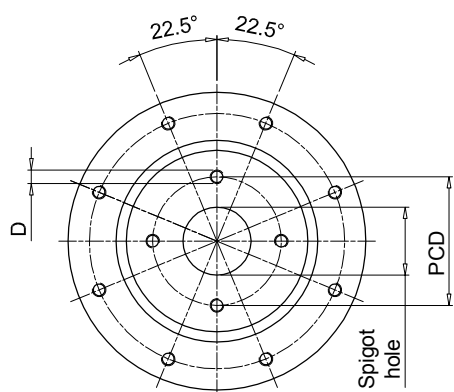


Bell-housing with nr. 4 holes at pump interface, aligned with thread holes at motor interface.

Valid configuration for bell-housing from ø450 to ø660



Bell-housing with nr. 2 holes at pump interface + 22.5° compared to through holes at motor interface.



Bell-housing with nr. 4 holes at pump interface + 22.5° compared to thread holes at motor interface.

Spigot hole [mm]	PCD	D	Nr. holes	Code	Type
40	72.00	M8	2	191	-
45.2	88.90	M8	4	096	-
	71.80	M8	4	120	-
50	80.00	M8	2	052	ISO3019-2-50-B2
	93.00	M10	2	053	-
	60.00	M5	4	280	-
	63.00	Ø7	4	057	-
	93.00	M8	2	287	-
50.8	82.50	M8	2	050	SAE A-A 50-2
56	76.00	M6	4	234	-
57.15	106.40	Ø11	2	212	-
60	74.00	M10	4	098	-
	98.50	M6	4	147	-
	75.00	M6	4	227	-
62.7	157.20	M12	4	231	-
63	100.00	M8	2	042	ISO3019-2-63-B2
	125.00	M6	4	043	-
	85.00	M8	4	044	-
	80.00	M8	2	051	-
	80.00	Ø8,5	4	058	-
	100.00	M10	2	062	-
	85.00	M8	4	168	ISO3019-2-63-B4
	90.00	M8	4	271	-
65	90.00	M8	4	073	-
70	84.00	Ø7	4	289	-
71.8	88.90	M10	4	047	-
75	102.00	M10	4	139	-
80	100.00	M8	4	024	ISO3019-2-80-B4
	103.20	M8	2	045	ISO3019-2-80-B2
	100.00	Ø11	4	059	-
	100.00	M10	2	061	-
	110.00	M10	2	063	-
	140.00	M10	2	064	-
	115.00	M10	2	065	-
	100.00	M10	4	067	-
	106.40	M10	2	083	-
	130.00	M8	4	087	-
	100.00	Ø8,5	4	093	-
	113.00	M12	4	104	-
	95.00	M8	4	169	-
	103.00	M8	4	242	-
	110.00	M10	4	272	-
82.55	106.40	M10	2	060	SAE A 82-2
	105.00	M10	4	097	-
	106.40	M8	2	254	-
	146.00	M12	2	260	-
	110.00	M10	2	284	-
85	106.40	M10	2	066	-
90	112.00	M8	2	134	-
	105.00	M8	4	156	-
	118.00	Ø9	2	163	-
92	112.00	Ø9	2	164	-
	140.00	M8	4	088	-
	145.00	M10	4	089	-

"-": out of ISO & SAE Standard



PUMP INTERFACE CODES GENERAL INFORMATION

Spigot hole [mm]	PCD	D	Nr. holes	Code	Type
95	115.00	M8	4	137	-
	127.00	M10	4	131	-
98.4	125.00	Ø11	4	128	-
100	125.00	M10	4	023	ISO3019-2-100-B4
	125.00	M10	2	025	ISO3019-2-100-B2
	125.00	Ø11	2	031	-
	125.00	M5	4	032	-
	190.00	Ø7	4	038	-
	125.00	Ø13	4	041	-
	125.00	M12	2	071	-
	140.00	M12	2	072	-
	146.00	M12	2	075	-
	126.00	M10	2	106	-
	120.00	M8	4	122	-
	160.00	M10	4	141	-
	150.00	M10	4	150	-
101.6	161.50	M12	4	029	-
	146.00	M12	2	070	SAE B 101-2
	127.00	M12	4	125	-
	146.00	M10	2	159	-
	127.00	M10	4	224	-
105	146.00	M12	2	076	-
110	175.00	M10	4	110	-
	130.00	M8	4	154	-
	200.00	M10	4	202	-
	135.00	M10	4	219	-
	145.00	M12	4	273	-
112	140.00	M12	2	074	-
	140.00	M10	2	138	-
	130.00	M10	4	264	-
115	180.00	M12	4	198	-
116	160.00	M14	2	084	-
120	210.00	M16	2	094	-
	145.00	M10	4	155	-
	150.00	Ø13	4	267	-
125	160.00	M12	4	026	ISO3019-2-125-B4
	160.00	Ø13	4	033	-
	160.00	M12	2	079	-
	180.00	M16	2	082	ISO3019-2-125-B2
	155.00	M10	4	102	-
	160.00	Ø17	4	113	-
	200.00	M12	4	114	-
	181.20	M16	2	136	-
	200.00	M16	4	200	-
	180.00	Ø20	4	215	-
	170.00	Ø18	4	237	-
127	161.50	M12	4	021	-
	181.20	M16	2	080	SAE C 127-2
	161.50	M14	4	140	-
130	165.00	Ø11	4	054	-
	150.00	M12	4	068	-
	181.20	M16	2	085	-
	165.00	M12	4	124	-
	165.00	M14	4	135	-

"-": out of ISO & SAE Standard

Spigot hole [mm]	PCD	D	Nr. holes	Code	Type
130	165.00	M10	4	253	-
135	160.00	M10	4	151	-
	175.40	M12	4	220	-
140	180.00	M14	4	077	ISO3019-2-140-B4
	180.00	M12	2	081	-
	165.00	M10	4	157	-
	200.00	M16	4	176	ISO3019-2-140-B2
	165.00	M10	4	223	-
	180.00	M16	2	232	-
150	185.00	M16	4	069	-
152.4	228.60	M16	4	022	-
	228.60	M18	2	090	-
	228.60	M18	4	108	-
	217.50	Ø17	4	118	-
	228.60	M20	2	166	SAE D 152-2
	228.60	M20	4	192	SAE D 152 -4
160	190.50	M8	4	207	-
	200.00	M16	4	027	ISO3019 - 2 -160 B4
	200.00	Ø17	4	035	-
	200.00	M16	2	091	-
	224.00	M20	2	092	ISO3019 - 2 -160 B2
	200.00	M12	2	107	-
162	230.00	M22	4	111	-
	185.00	M12	4	152	-
	224.00	M16	4	184	-
	230.00	M22	4	228	-
	188.00	M12	4	263	-
	317.35	M20	4	143	SAE E 165 - 4
165.1	317.35	M24	2	145	SAE E 165 - 2
	229.00	M20	4	201	-
	317.35	M18	4	204	-
175	200.00	M12	4	153	-
	230.00	M18	2	185	-
177.8	350.00	M24	4	146	SAE F 177 - 4
	216.00	M12	4	222	-
	350.00	M24	2	203	SAE F 177 - 2
180	216.00	M12	4	055	-
	216.00	M16	4	078	-
	224.00	M16	4	112	ISO3019 - 2 -180 B4
	216.00	M12	4	132	-
	215.00	M22	4	148	-
	230.00	M22	4	226	-
200	250.00	M20	4	028	ISO3019 - 2 -200 B4
	250.00	Ø22	4	095	-
	280.00	M24	2	117	-
	230.50	M12	4	214	-
203.2	254.00	M14	4	210	-
205	240.00	M16	4	133	-
224	280.00	M20	4	144	ISO3019 - 2 -224 B4
	280.00	Ø22	4	205	-
250	310.00	M24	4	238	-
	315.00	M20	4	282	ISO3019 - 2 -250 B4
275	355.00	M16	4	233	-
	355.00	Ø18	4	281	-

"-": out of ISO & SAE Standard

LMG series

Range from IEC motor size 63 to size 225



Technical data

Bell-Housing - range from IEC motor size 63 to IEC motor size 225

Materials

- Bell-housing: Pressure die casting Aluminium
- Center ring: Galvanized Steel
- Gasket: Special paper - Guarnital

Temperature

- From -30 °C to +80 °C

Note

For temperatures outside this range, contact the MP Filtri Technical and Sales Department.

Compatibility with fluids

Modular bell-housing components compatible for use with:

- Mineral oils types HH-LL-HM-HR-HV-HC, to ISO 6743/4 standard
- Water based emulsions types HFAE-HFAS, to ISO 6743/4 standard
- Water glycol type HFC, to ISO 6743/4 standard
- Ask for anodized version

Special Applications

Any applications not covered by the normal indications contained in this catalogue must be evaluated and approved by the MP Filtri Technical and Sales Department.



IEC Electric motors

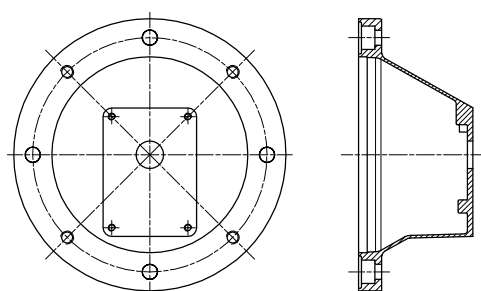
Bell-Housing size	European standard size						German standard size			IEC Motors size
	0.5	1	2	3	3.5	4	ZB	ZF	ZG	
LMG140	●	●	●				●			IEC 63 ø 140 - ø 11x23
LMG160	●	●	●				●			IEC 71 ø 160 - ø 14x30
LMG200	●	●	●	●			●	●		IEC 80 ø 200 - ø 19x40
LMG200	●	●	●	●			●	●		IEC 90 ø 200 - ø 24x50
LMG250		●	●	●	●		●	●		IEC 110 ø 250 - ø 28x60
LMG250		●	●	●	●		●	●		IEC 112 ø 250 - ø 28x60
LMG300		●	●	●	●	●		●	●	IEC 132 ø 300 - ø 38x80
LMG351			●	●	●	●	●	●	●	IEC 160 ø 350 - ø 42x110
LMG351			●	●	●	●	●	●	●	IEC 180 ø 350 - ø 48x110
LMG400			●	●	●	●	●	●	●	IEC 200 ø 400 - ø 55x110
LMG450			●	●	●	●	●	●	●	IEC 225 ø 450 - ø 60x140

Note: For specific information see pages 58 ÷ 60 "Table of Combination"

LMG *** 4S

Without centre ring allowing removal of half-coupling (which as a rule is keyed permanently to the pump shaft); motor mounting flange drilled with 4 clearance holes + 4 threaded holes.

Used normally for vertically mounted motor and pump units with pump submerged in the oil tank.



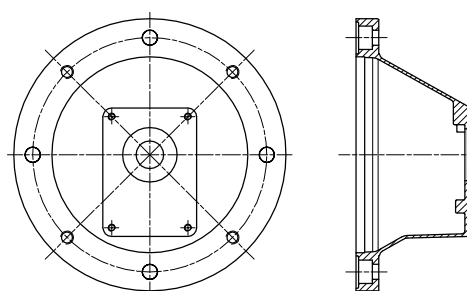
LMG *** 4E

With centre ring allowing removal of half-coupling (which as a rule is keyed permanently to the pump shaft); motor mounting flange drilled with 4 clearance holes + 4 threaded holes.

Normally used for motor and pump units mounted horizontally on the tank lid or on the machine, for maximum ease of maintenance.

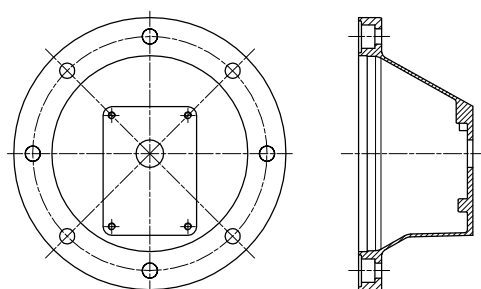
With this type of mounting, in effect, the hydraulic pump can be removed without removing the motor.

The half-coupling mounted to the shaft passes through the spigot hole.



LMG *** 8S

Without centre ring allowing removal of half-coupling (which as a rule is keyed permanently to the pump shaft); motor mounting flange drilled with 8 clearance holes. Used normally for vertically mounted motor and pump units with pump submerged in the oil tank; allows greater flexibility for directional positioning of the hydraulic pump inside the tank, according to constructional requirements.



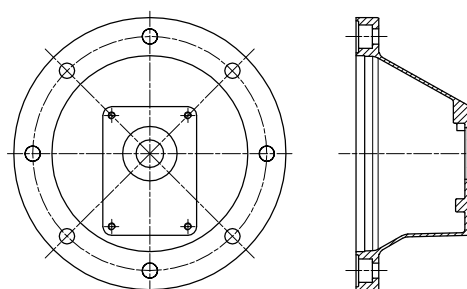
LMG *** 8E

With centre ring allowing removal of half-coupling (which as a rule is keyed permanently to the pump shaft); motor mounting flange drilled with 8 clearance holes.

Normally used for motor and pump units mounted horizontally on the tank lid or on the machine; offers maximum ease of maintenance, and enables directional positioning of the pump.

With this type of mounting, in effect, the hydraulic pump can be removed without removing the motor.

The half-coupling mounted to the shaft passes through the spigot hole.





Designation & Ordering code

COMPLETE KIT

Motors identification code				Configuration example: AKA02 FS200 Z 4E			
02	Gr. 63 B3-B5	13	Gr. 180 B3-B5	44	Gr. 71 B14		
03	Gr. 71 B3-B5	16	Gr. 200 B3-B5	45	Gr. 80 B14		
04	Gr. 80 B3-B5	18	Gr. 225 B3-B5	46	Gr. 90 B14		
05	Gr. 90 B3-B5	20	Gr. 250 B3-B5	48	Gr. 100/112 B14		
07	Gr. 100/112 B3-B5	22	Gr. 280 B3-B5				
11	Gr. 132 B3-B5	26	Gr. 315 B3-B5				
12	Gr. 160 B3-B5	43	Gr. 63 B14				

Pump flange identification code	
FS200	See page 55

Product revision code	
Z	

Versions	
4S	4 through holes + 4 threaded holes, motor interface without coupling removal ring
4E	4 through holes + 4 threaded holes, motor interface with coupling removal ring
8S	8 through holes, motor interface without coupling removal ring
8E	8 through holes, motor interface with coupling removal ring

BELL-HOUSING LMG

Bell-Housing series and size			Configuration example: LMG140 M FS200 4E DI			
LMG140	LMG250	LMG450				
LMG141	LMG251	LMG550				
LMG160	LMG300	LMG660				
LMG161	LMG350					
LMG200	LMG351					
LMG201	LMG400					

Product revision code	
M	

Pump flange identification code	
FS200	See page 55

Versions	
4S	4 through holes + 4 threaded holes, motor interface without coupling removal ring
4E	4 through holes + 4 threaded holes, motor interface with coupling removal ring
8S	8 through holes, motor interface without coupling removal ring
8E	8 through holes, motor interface with coupling removal ring

Options	
DI	Drain hole + inspection hole
AN	Black anodized finish
SA	Motor interface with clearance holes
Pxx	Customer specification

COUPLING KIT

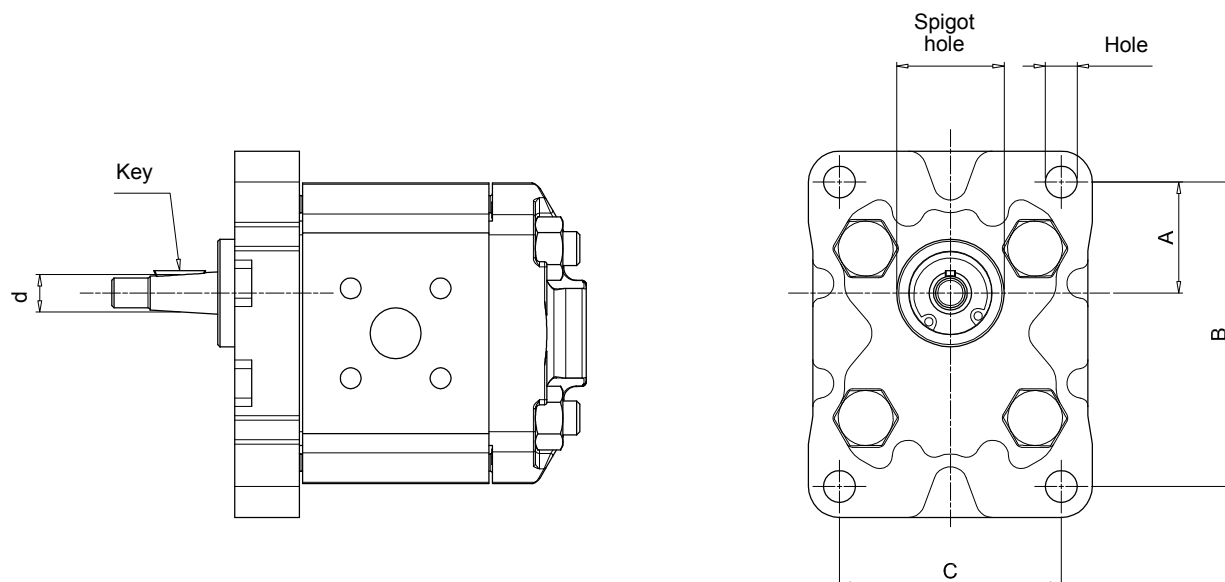
Motors identification code				Configuration example: AKG02 FS200 Z		
02	Gr. 63 B3-B5	13	Gr. 180 B3-B5			
03	Gr. 71 B3-B5	43	Gr. 63 B14			
04	Gr. 80 B3-B5	44	Gr. 71 B14			
05	Gr. 90 B3-B5	45	Gr. 80 B14			
07	Gr. 100/112 B3-B5	46	Gr. 90 B14			
11	Gr. 132 B3-B5	48	Gr. 100/112 B14			
12	Gr. 160 B3-B5					

Pumps flange identification code	
FS200	See page 55

Product revision code	
Z	

Note:

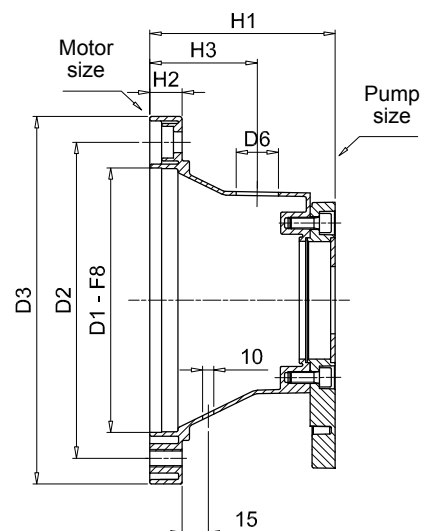
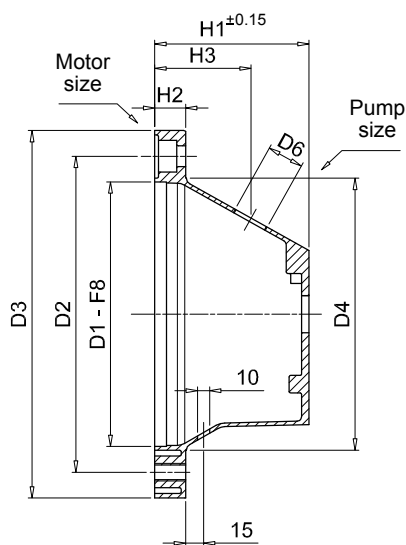
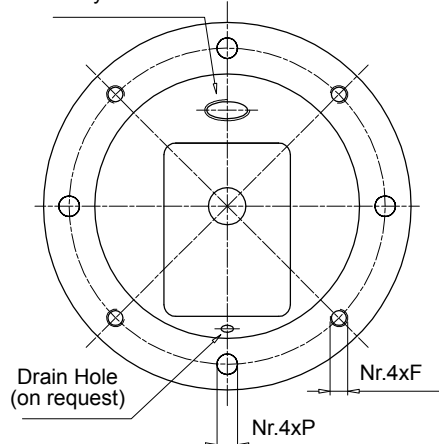
- Bell-Housings with DI options are supplied complete with threaded closure plug.
- Bell-Housing with 4E/8E version are supplied with center ring mounted.
- For product range codes (see pages 58 ÷ 60)



Designation of pump flange and shaft

Pump group	Spigot hole	A	Dimensions B	C	Hole	Pump flange code	d	Key	Shaft type	Pump half-coupling code
05	22.0	25.5	66.0	-	M6	FS05M	6.0	2.0	parallel	FS05M
	22.0	25.5	66.0	-	M6	FS05C	7.0	2.0	parallel	FS05C
1	25.4	26.2	72.0	52.0	M6	FS100	9.7	2.4	tapered 1:8	FS100
	30.0	24.5	73.0	56.0	M6	FS1M0	12.0	3.0	parallel	FS1C0
	30.0	24.5	73.0	56.0	M6	FS1M0	13.9	3.0	tapered 1:8	FS1M0
2	36.5	32.5	96.0	71.5	M8	FS200	17.2	3.2 - 4	tapered 1:8	FS200
3	50.8	43.0	128.0	98.5	M8	FS25T	22.2	4.0	tapered 1:8	FS300
	50.8	42.0	128.0	98.5	M10	FS300	22.2	4.0	tapered 1:8	FS300
	50.8	43.0	128.0	98.5	M10	FS3M0	22.2	4.0	tapered 1:8	FS300
	50.8	45.0	137.0	98.5	M10	FS3T0	22.2	4.0	tapered 1:8	FS300
3.5	60.0	48.5	148.0	127.0	M12	FS35M	25.6	4.76 - 5.0	tapered 1:8	FS350
	60.3	49.5	149.5	114.3	M10	FS350	25.6	4.76 - 5.0	tapered 1:8	FS350
4	63.5	65.0	196.0	142.8	M12	FS4M0	33.3	6.35 - 7.0	tapered 1:8	FS400
	63.5	64.3	188.0	143.0	M12	FS400	33.3	6.35 - 7.0	tapered 1:8	FS400
Bosch	32.0	10.3	40.0	40.0	M8	FSZBR	9.8	2.0	tapered 1:5	FSZBR
	80.0	34.5	100.0	72.0	M8	FSZFR	16.9	3.0	tapered 1:5	FSZFR
	105.0	48.0	145.0	102.0	M10	FSZGR	25.2	5.0	tapered 1:5	FSZGR

Inspection Hole
Plastic threaded plug mounted
(protection according
to DIN EN 292 part 2)
"Safety of machines"



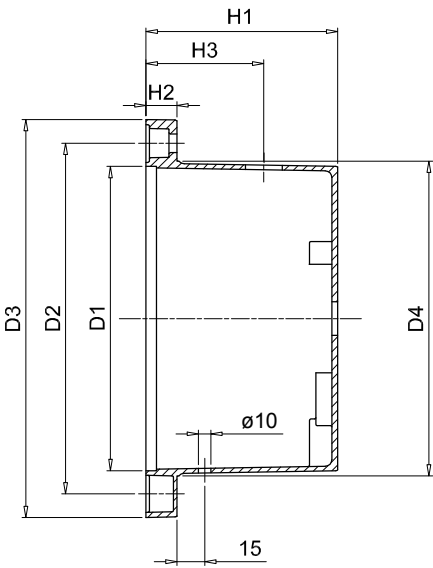
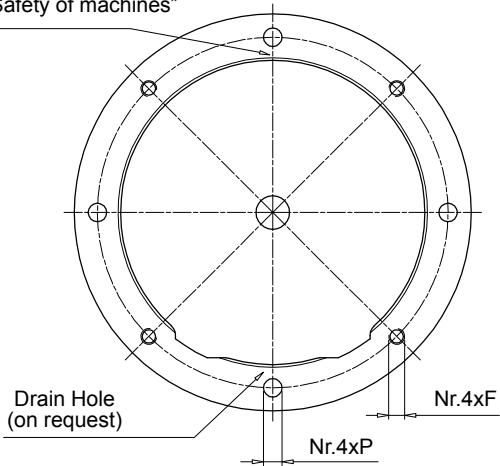
(*) Shape valid for LMG 251

Bell-housing

IEC - Electric motors		Bell-housing code	Dimensions [mm]								On request		Weight [kg]
Motor size	Shaft end [d x l]		D1	D2	D3	D4	H1	H2	F	P	H3	D6	
63 - B14	11x23	LMG090	60	75	90	63	60	7	-	6	40	1/2"	0.30
71 - B14	14x30	LMG105	70	85	105	74	67	8	-	7	40	1/2"	0.35
80 - B14	19x14	LMG120	80	100	120	84	87	9	-	7	45	1/2"	0.40
63 - B3/B5	11x23	LMG140	95	115	140	100	60	13	M8	9	40	1/2"	0.35
63 - B3/B5	11x23	LMG141	95	115	140	100	95	13	M8	9	50	1/2"	0.40
71 - B3/B5	14x30	LMG160	110	130	160	110	70	15	M8	9	40	1/2"	0.44
71 - B3/B5	14x30	LMG161	110	130	160	110	105	15	M8	9	50	1/2"	0.50
80 - B3/B5	19x14	LMG200	130	165	200	135	87	18	M10	11	45	3/4"	0.68
90 - B3/B5	24x50	LMG201	130	165	200	135	95	18	M10	11	50	3/4"	0.80
100-112 - B3/B5	28x60	LMG250	180	215	250	185	105	22	M12	14	70	3/4"	1.16
100-112 - B3/B5	28x60	LMG251 (*)	180	215	250	185	126	22	M12	14	70	3/4"	1.80



Inspection Hole
Plastic threaded plug mounted
(protection according
to DIN EN 292 part 2)
"Safety of machines"



Bell-housing

IEC - Electric motors		Bell-housing code	Dimensions [mm]								On request		Weight [kg]
Motor size	Shaft end [d x l]		D1	D2	D3	D4	H1	H2	F	P	H3	D6	
132	38x80	LMG300	230	265	300	235	145	23	M12	14	80	1"	2.55
160	42x110	LMG351	250	300	350	255	179	31	M16	18	100	1"	4.90
180	48x110	LMG351	250	300	350	255	179	31	M16	18	100	1"	4.90



IEC Electric motors for B3 & B5 mounting flange

IEC - Electric motors Motor size	Shaft end [d x l]	Pump identification code	Bell-Housing code	Motor half-coupling code	Components			
					Spider code	Pump half-coupling code	Coupling kit code	Complete coupling kit code
63	11x23	FS05M	LMG140MFS05M4S	SGEA01M01021FG	EGE 0	SGEA01FS05M	AKA02FS05MZ4S	AKG02FS05MZ
		FS05C	LMG140MFS05M4S			SGEA01FS05C	AKA02FS05CZ4S	AKG02FS05CZ
		FS100	LMG140MFS1004S/4E			SGEA01FS100	AKA02FS100Z4S/4E	AKG02FS100Z
		FS1C0	LMG140MFS1M04S/4E			SGEA01FS1C0	AKA02FS1C0Z4S/4E	AKG02FS1C0Z
		FS1M0	LMG140MFS1M04S/4E			SGEA01FS1M0	AKA02FS1M0Z4S/4E	AKG02FS1M0Z
		FSZBR	LMG140MFSZBR4S			SGEA01FSZBR	AKA02FSZBRZ4S	AKG02FSZBRZ
71	14x30	FS05M	LMG160MFS05M4S	SGEA01M02028FG	EGE 0	SGEA01FS05M	AKA03FS05MZ4S	AKG03FS05MZ
		FS05C	LMG160MFS05M4S			SGEA01FS05C	AKA03FS05CZ4S	AKG03FS05CZ
		FS100	LMG160MFS1004S/4E			SGEA01FS100	AKA03FS100Z4S/4E	AKG03FS100Z
		FS1C0	LMG160MFS1M04S/4E			SGEA01FS1C0	AKA03FS1C0Z4S/4E	AKG03FS1C0Z
		FS1M0	LMG160MFS1M04S/4E			SGEA01FS1M0	AKA03FS1M0Z4S/4E	AKG03FS1M0Z
		FSZBR	LMG160MFSZBR4S			SGEA01FSZBR	AKA03FSZBRZ4S	AKG03FSZBRZ
80	19x40	FS05M	LMG200MFS05M4S	SGEA01M03048FG	EGE 0	SGEA01FS05M	AKA04FS05MZ4S	AKG04FS05MZ
		FS05C	LMG200MFS05M4S			SGEA01FS05C	AKA04FS05CZ4S	AKG04FS05CZ
		FS100	LMG200MFS1004S/4E			SGEA01FS100	AKA04FS100Z4S/4E	AKG04FS100Z
		FS1C0	LMG200MFS1M04S/4E			SGEA01FS1C0	AKA04FS1C0Z4S/4E	AKG04FS1C0Z
		FS1M0	LMG200MFS1M04S/4E			SGEA01FS1M0	AKA04FS1M0Z4S/4E	AKG04FS1M0Z
		FSZBR	LMG200MFSZBR4S			SGEA01FSZBR	AKA04FSZBRZ4S	AKG04FSZBRZ
		FS200	LMG201MFS2004S/4E	SGEA21M03048FG	EGE 2	SGEA21FS200	AKA04FS200Z4S/4E	AKG04FS200Z
		FSZFR	LMG201MFSZFR4S			SGEA21FSZFR	AKA04FSZFRZ4S	AKG04FSZBRZ
90	24x50	FS05M	LMG200MFS05M4S	SGEA01M04048FG	EGE 0	SGEA01FS05M	AKA05FS05MZ4S	AKG05FS05MZ
		FS05C	LMG200MFS05M4S			SGEA01FS05C	AKA05FS05CZ4S	AKG05FS05CZ
		FS100	LMG200MFS1004S/4E			SGEA01FS100	AKA05FS100Z4S/4E	AKG05FS100Z
		FS1C0	LMG200MFS1M04S/4E			SGEA01FS1C0	AKA05FS1C0Z4S/4E	AKG05FS1C0Z
		FS1M0	LMG200MFS1M04S/4E			SGEA01FS1M0	AKA05FS1M0Z4S/4E	AKG05FS1M0Z
		FSZBR	LMG200MFSZBR4S			SGEA01FSZBR	AKA05FSZBRZ4S	AKG05FSZBRZ
		FS200	LMG201MFS2004S/4E	SGEA21M04048FG	EGE 2	SGEA21FS200	AKA05FS200Z4S/4E	AKG05FS200Z
		FSZFR	LMG201MFSZFR4S			SGEA21FSZFR	AKA05FSZFRZ4S	AKG05FSZBRZ
100 112	28x60	FS100	LMG250MFS1004S	SGEA21M05055FG	EGE 2	SGEA21FS100	AKA07FS100Z4S	AKG07FS100Z
		FS1C0	LMG250MFS1M04S			SGEA21FS1C0	AKA07FS1C0Z4S	AKG07FS1C0Z
		FS1M0	LMG250MFS1M04S			SGEA21FS1M0	AKA07FS1M0Z4S	AKG07FS1M0Z
		FSZBR	LMG250MFSZBR4S			SGEA21FSZBR	AKA07FSZBRZ4S	AKG07FSZBRZ
		FS200	LMG250MFS2004S/4E			SGEA21FS200	AKA07FS200Z4S/4E	AKG07FS200Z
		FSZFR	LMG250MFSZFR4S			SGEA21FSZFR	AKA07FSZFRZ4S	AKG07FSZBRZ
		FS25T	LMG251MFS25T4E			SGEA21FS300	AKA07FS3004E	AKG07FS300Z.
		FS300	LMG251MFS3004E			SGEA21FS300	AKA07FS25T4E	AKG07FS300Z
		FS3M0	LMG251MFS3M04E			SGEA21FS300	AKA07FS3M04E	AKG07FS300Z
		FS3T0	LMG251MFS3T04E			SGEA21FS300	AKA07FS3T04E	AKG07FS300Z
132	38x80	FS100	LMG300MFS1004S	SGEA31M06077FG	EGE 3	SGEA31FS100	AKA11FS100Z4S	AKG11FS100Z
		FS1C0	LMG300MFS1M04S			SGEA31FS1C0	AKA11FS1C0Z4S	AKG11FS1C0Z
		FS1M0	LMG300MFS1M04S			SGEA31FS1M0	AKA11FS1M0Z4S	AKG11FS1M0Z
		FSZGR	LMG300MFSZGR4S			SGEA31FSZGR	AKA11FSZBRZ4S	AKG11FSZBRZ
		FS200	LMG300MFS2004S/4E			SGEA31FS200	AKA11FS200Z4S/4E	AKG11FS200Z
		FSZFR	LMG300MFSZFR4S			SGEA31FSZFR	AKA11FSZFRZ4S	AKG11FSZBRZ
		FS25T	LMG300MFS25T4S/4E			SGEA31FS300	AKA11FS3004S/4E	AKG11FS300Z.
		FS300	LMG300MFS3004S/4E			SGEA31FS300	AKA11FS25T 4S/4E	AKG11FS300Z
		FS3M0	LMG300MFS3M04S/4E			SGEA31FS300	AKA11FS3M044S/4E	AKG11FS300Z
		FS3T0	LMG300MFS3T04S/4E			SGEA31FS300	AKA11FS3T04S/4E	AKG11 FS300Z
		FS35M	LMG300MFS35M4S/4E			SGEA31FS350	AKA11FS35MZ4S/4E	AKG11FS350Z
		FS350	LMG300MFS3504S/4E			SGEA31FS350	AKA11FS3504S/4E	AKG11FS350Z

Note:

- For bell-housing dimensions see pages 56-57.
- For coupling dimensions see "Half-couplings" section on pages 26-27.



TABLE OF COMBINATION

LMG

IEC Electric motors for B3 & B5 mounting flange

IEC - Electric motors		Pump identification code	Components					
Motor size	Shaft end [d x l]		Bell-Housing code	Motor half-coupling code	Spider code	Pump half-coupling code	Coupling kit code	Complete coupling kit code
160	42x110	FSZGR	LMG351MFSZGR4S	SGEA51M07109FG	EGE 5	SGEA51FSZGR	AKA12FSZGR4S	AKG12FSZGRZ
		FS200	LMG351MFS2004S			SGEA51FS200	AKA12 FS200Z4S	AKG12FS200Z
		FSZFR	LMG351MFSZFR4S			SGEA51FSZFR	AKA12FSZFRZ4S	AKG12FSZFRZ
		FS25T	LMG351MFS25T4S/4E			SGEA51FS300	AKA12FS3004S/4E	AKG12FS300Z.
		FS300	LMG351MFS3004S/4E			SGEA51FS300	AKA12FS25T4S/4E	AKG12FS300Z
		FS3M0	LMG351MFS3M04S/4E			SGEA51FS300	AKA12FS3M0Z4S/4	AKG12FS300Z
		FS3T0	LMG351MFS3T04S/4E			SGEA51FS300	AKA12FS3T0Z4S/4	AKG12FS300Z
		FS35M	LMG351MFS35M4S/4E			SGEA51FS350	AKA12FS35MZ4S/4	AKG12FS350Z
180	48x110	FS350	LMG351MFS3504S/4E	SGEA51M08109FG	EGE 5	SGEA51FS350	AKA12FS350Z4S/4	AKG12FS350Z
		FSZGR	LMG351MFSZGR4S			SGEA51FSZGR	AKA13FSZGR4S	AKG13FSZGRZ
		FS200	LMG351MFS2004S			SGEA51FS200	AKA13FS200Z4S	AKG13FS200Z
		FSZFR	LMG351MFSZFR4S			SGEA51FSZFR	AKA13FSZFRZ4S	AKG13FSZFRZ
		FS25T	LMG351MFS25T4S/4E			SGEA51FS300	AKA13FS3004S/4E	AKG13FS300Z
		FS300	LMG351MFS3004S/4E			SGEA51FS300	AKA13FS25T4S/4E	AKG13FS300Z
		FS3M0	LMG351MFS3M04S/4E			SGEA51FS300	AKA13FS3M0Z4S/4E	AKG13FS300Z
		FS3T0	LMG351MFS3T04S/4E			SGEA51FS300	AKA13FS3T0Z4S/4E	AKG13FS300Z
200	55x110	FS35M	LMG351MFS35M4S/4E	SGEA51M09109FG	EGE 5	SGEA51FS350	AKA13FS35MZ4S/4E	AKG13FS350Z
		FS350	LMG351MFS3504S/4E			SGEA51FS350	AKA 13FS350Z4S/4E	AKG13FS350Z
		FS200	LMG400MFS2004E			SGEA51FS200	AKA16FS200Z4S	AKG16FS200Z
		FS300	LMG400MFS3004E			SGEA51FS300	AKA16FS300Z4E	AKG16FS300Z
		FS3M0	LMG400MFS3M04E			SGEA51FS300	AKA16FS3M0Z4E	AKG16FS3M0Z
		FS35M	LMG400MFS35M4E			SGEA51FS350	AKA16FS35MZ4E	AKG16FS35MZ
		FS350	LMG400MFS3504E			SGEA51FS350	AKA16FS350Z4E	AKG16FS350Z
		FSZFR	LMG400MFSZFR4S			SGEA51FSZFR	AKA16FSZFRZ4E	AKG16FSZFRZ
225	60x140	FSZGR	LMG400MFSZGR4S	SGEA51M10109FG	EGE 5	SGEA51FSZGR	AKA16FSZGRZ4E	AKG16FSZGRZ
		FS300	LMG450MFS3004E			SGEA51FS300	AKA18FS300Z4E	AKG18FS300Z
		FS3M0	LMG450MFS3M04E			SGEA51FS300	AKA18FS3M0Z4E	AKG18FS3M0Z
		FS35M	LMG450MFS35M4E			SGEA51FS350	AKA18FS35MZ4E	AKG18FS35MZ
		FS350	LMG450MFS3504E			SGEA51FS350	AKA18FS350Z4E	AKG18FS350Z
		FSZGR	LMG450MFSZGR4S			SGEA51FSZGR	AKA18FSZGRZ4E	AKG18FSZGRZ
250	65x140	FS300	LMG550MFS3004E	SGEG60M11140	EGE 6	SGEG60FS300	AKA20FS300Z4E	AKG20FS300Z
		FS3M0	LMG550MFS3M04E			SGEG60FS300	AKA20FS3M0Z4E	AKG20FS3M0Z
		FS35M	LMG550MFS35M4E			SGEG60FS350	AKA20FS35MZ4E	AKG20FS35MZ
		FS350	LMG550MFS3504E			SGEG60FS350	AKA20FS350Z4E	AKG20FS350Z
		FSZGR	LMG550MFSZGR4S			SGEG60FSZGR	AKA20FSZGRZ4E	AKG20FSZGRZ
		FS300	LMG550MFS3004E			SGEG80FS300	AKA22FS300Z4E	AKG22FS300Z
280	75x140	FS3M0	LMG550MFS3M04E	SGEG80M12140	EGE 8	SGEG80FS300	AKA22FS3M0Z4E	AKG22FS3M0Z
		FS35M	LMG550MFS35M4E			SGEG80FS350	AKA22FS35MZ4E	AKG22FS35MZ
		FS350	LMG550MFS3504E			SGEG80FS350	AKA22FS350Z4E	AKG22FS350Z
		FSZGR	LMG550MFSZGR4S			SGEG80FSZGR	AKA22FSZGRZ4E	AKG22FSZGRZ
		FS300	LMG660MFS3004E	SGEG80M13170	EGE 8	SGEG80FS300	AKA26FS300Z4E	AKG26FS300Z
		FS3M0	LMG660MFS3M04E			SGEG80FS300	AKA26FS3M0Z4E	AKG26FS3M0Z
315	80x170	FS35M	LMG660MFS35M4E			SGEG80FS350	AKA26FS35MZ4E	AKG26FS35MZ
		FS350	LMG660MFS3504E			SGEG80FS350	AKA26FS350Z4E	AKG26FS350Z
		FSZGR	LMG660MFSZGR4S			SGEG80FSZGR	AKA26FSZGRZ4E	AKG26FSZGRZ
		FS300	LMG660MFS3004E			SGEG80FS300	AKA26FS300Z4E	AKG26FS300Z

Note:

- For bell-housing dimensions see pages 56-57.
- For coupling dimensions see "Half-couplings" section on pages 26-27.



IEC Electric motors for B14 mounting flange

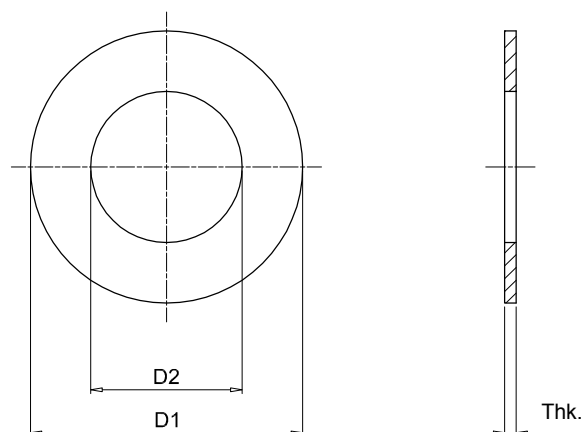
IEC - Electric motors Motor size	Shaft end [d x l]	Pump identification code	Bell-Housing code	Motor half-coupling code	Components			
					Spider code	Pump half-coupling code	Coupling kit code	Complete kit code
63	11x23	FS05M	LMG090MFS05M4E	SGEA01M01021FG	EGE0	SGEA00FS05M	AKA43FS05MZ4E	AKG43FS05MZ
		FS05C	LMG090MFS05M4E			SGEA01FS05C	AKA43FS05CZ4E	AKG43FS05CZ
		FS100	LMG090MFS1004E			SGEA01FS100	AKA43FS100Z4E	AKG43FS100Z
		FS1C0	LMG090MFS1M04E			SGEA01FS1C0	AKA43FS1C0Z4E	AKG43FS1C0Z
		FS1M0	LMG090MFS1M04E			SGEA01FS1M0	AKA43FS1M0Z4E	AKG43FS1M0Z
		FSZBR	LMG090MFSZBR4E			SGEA01FSZBR	AKA43FSZBRZ4E	AKG43FSZBRZ
71	14x30	FS05M	LMG105MFS05M4E	SGEA01M02028FG	EGE 0	SGEA01FS05M	AKA44FS05MZ4E	AKG44FS05MZ
		FS05C	LMG105MFS05M4E			SGEA01FS05C	AKA44FS05CZ4E	AKG44FS05CZ
		FS100	LMG105MFS1004E			SGEA01FS100	AKA44FS100Z4E	AKG44FS100Z
		FS1C0	LMG105MFS1C04E			SGEA01FS1C0	AKA44FS1C0Z4E	AKG44FS1C0Z
		FS1M0	LMG105MFS1M04E			SGEA01FS1M0	AKA44FS1M0Z4E	AKG44FS1M0Z
		FSZBR	LMG105MFSZBR4E			SGEA01FSZBR	AKA44FSZBRZ4E	AKG44FSZBRZ
80	19x40	FS05M	LMG120MFS05M4E	SGEA01M03048FG	EGE 0	SGEA01FS05M	AKA45FS05MZ4E	AKG45FS05MZ
		FS05C	LMG120MFS05M4E			SGEA01FS05C	AKA45FS05CZ4E	AKG45FS05CZ
		FS100	LMG120MFS1004E			SGEA01FS100	AKA45FS100Z4E	AKG45FS100Z
		FS1C0	LMG120MFS1M04E			SGEA01FS1C0	AKA45FS1C0Z4E	AKG45FS1C0Z
		FS1M0	LMG120MFS1M04E			SGEA01FS1M0	AKA45FS1M0Z4E	AKG45FS1M0Z
		FSZBR	LMG120MFSZFR4S			SGEA01FSZBR	AKA45FSZBRZ4E	AKG45FSZBRZ
		FS200	LMG121MFS2004E	SGEA21M03048FG	EGE 2	SGEA21FS200	AKA45FS200Z4E	AKG45FS200Z
		FSZFR	LMG121MFSZFR4S			SGEA21FSZFR	AKA45FSZFRZ4S	AKG45FSZFRZ
90	24x50	FS05M	LMG141MFS05M4S	SGEA01M04048FG	EGE 0	SGEA01FS05M	AKA46FS05MZ4E	AKG46FS05MZ
		FS05C	LMG141MFS05M4S			SGEA01FS05C	AKA46FS05CZ4E	AKG46FS05CZ
		FS100	LMG141MFS1004S/4E			SGEA01FS100	AKA46FS100Z4E	AKG46FS100Z
		FS1C0	LMG141MFS1M04S/4E			SGEA01FS1C0	AKA46FS1C0Z4E	AKG46FS1C0Z
		FS1M0	LMG141MFS1M04S/4E			SGEA01FS1M0	AKA46FS1M0Z4E	AKG46FS1M0Z
		FSZBR	LMG141MFSZBR4S			SGEA01FSZBR	AKA46FSZBRZ4E	AKG46FSZBRZ
		FS200	LMG141MFS2004S/4E	SGEA21M04048FG	EGE 2	SGEA21FS200	AKA46FS200Z4E	AKG46FS200Z
		FSZFR	LMG141MFSZFR4S			SGEA21FSZFR	AKA46FSZFRZ4S	AKG46FSZFRZ
100 112	28x60	FS05M	LMG161MFS05M4S	SGEA21M05055FG	EGE 2	SGEA21FS05M	AKA48FS05MZ4E	AKG48FS05MZ
		FS05C	LMG161MFS05M4S			SGEA21FS05C	AKA48FS05CZ4E	AKG48FS05CZ
		FS100	LMG161MFS1004S			SGEA21FS100	AKA48FS100Z4E	AKG48FS100Z
		FS1C0	LMG161MFS1M04S			SGEA21FS1C0	AKA48FS1C0Z4E	AKG48FS1C0Z
		FS1M0	LMG161MFS1M04S			SGEA21FS1M0	AKA48FS1M0Z4E	AKG48FS1M0Z
		FSZBR	LMG161MFSZBR4S			SGEA21FSZBR	AKA48FSZBRZ4E	AKG48FSZBRZ
		FS200	LMG161MFS2004S/4E			SGEA21FS200	AKA48FS200Z4E	AKG48FS200Z
		FSZFR	LMG161MFSZFR4S			SGEA21FSZFR	AKA48FSZFRZ4S	AKG48FSZFRZ

Note:

- For bell-housing dimensions see pages 56-57.
- For coupling dimensions see "Half-couplings" section on pages 26-27.

CENTER RING

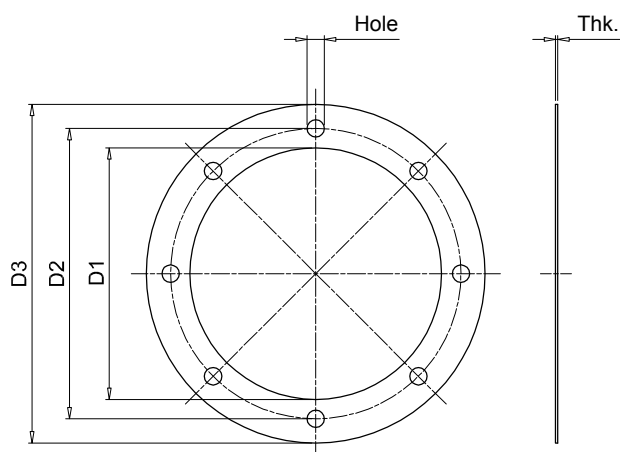
Center ring code	Dimensions [mm]		
	D1	D2	Thk.
ANC01FS100	50	25.4	1.0
ANC01FS1M0	50	30.0	1.0
ANC02FS200	72	36.5	2.0
ANC03FS200	88	36.5	2.0
ANC03FS300	88	50.8	2.5
ANC03FS350	88	60.3	2.5
ANC04FS300	115	50.8	3.5
ANC04FS350	115	60.3	3.5
ANCA001	42	22.0	1.0
ANCD005	85	50.8	2.5



Application

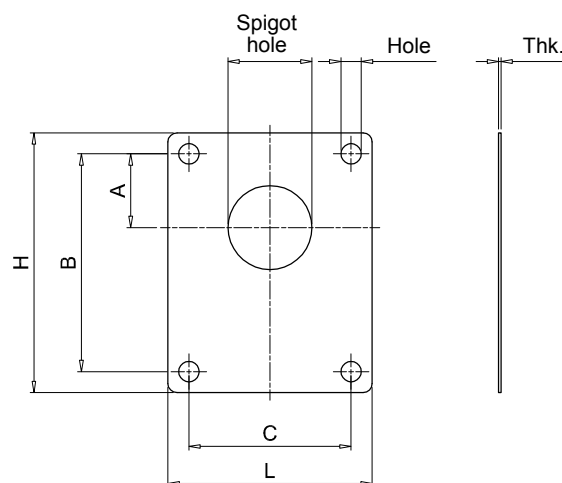
Center ring size	Bell-Housing size										
	LMG090	LMG105	LMG120	LMG140	LMG160	LMG200	LMG250	LMG300	LMG350	LMG400	LMG450
ANC01FS100	●	●	●	●	●						
ANC01FSM0	●	●	●	●	●						
ANC02FS200			●	●	●	●	●				
ANC03FS200								●			
ANC03FS300								●			
ANC03FS350								●			
ANC04FS200									●	●	●
ANC04FS300									●	●	●
ANC04FS350									●	●	●
ANCA001	●	●	●	●	●		●				
ANCD005						●	●	●	●		

GASKET



Motor side gasket

Bell-housing size	Seals code	Dimensions [mm]				
		D1	D2	D3	Thk.	Hole
LMG 120	GUM P 120	84	100	120		7
LMG 140	GUM P 140	96	115	140		9
LMG 160	GUM P 160	110	130	160		9
LMG 200	GUM P 200	145	165	200	1	11
LMG 250	GUM P 250	190	215	250		14
LMG 300	GUM P 300	234	265	300		14
LMG 350	GUM P 350	260	300	350		18



Pump side gasket

Pump identification code	Seals code	Dimensions [mm]							
		PD	A	B	C	H	L	Thk.	Hole
FS05M	GUP P001	22.0	25.6	66	-	80	48		6.5
FS100	GUP P002	25.4	26.6	72	52.4	87	67		6.5
FS1M0	GUP P003	30.0	24.5	73	56.0	85	68		6.5
FS200	GUP P004	36.5	32.5	96	71.5	112	88	1	8.5
FS300	GUP P005	50.8	43.0	128	98.5	148	118		10.5
FSZBR	GUP P013	32.0	10.35	40	40.0	75	62		8.5
FSZFR	GUP P014	80.0	34.5	100	72.0	118	90		9.0