



Bell-Housing



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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.

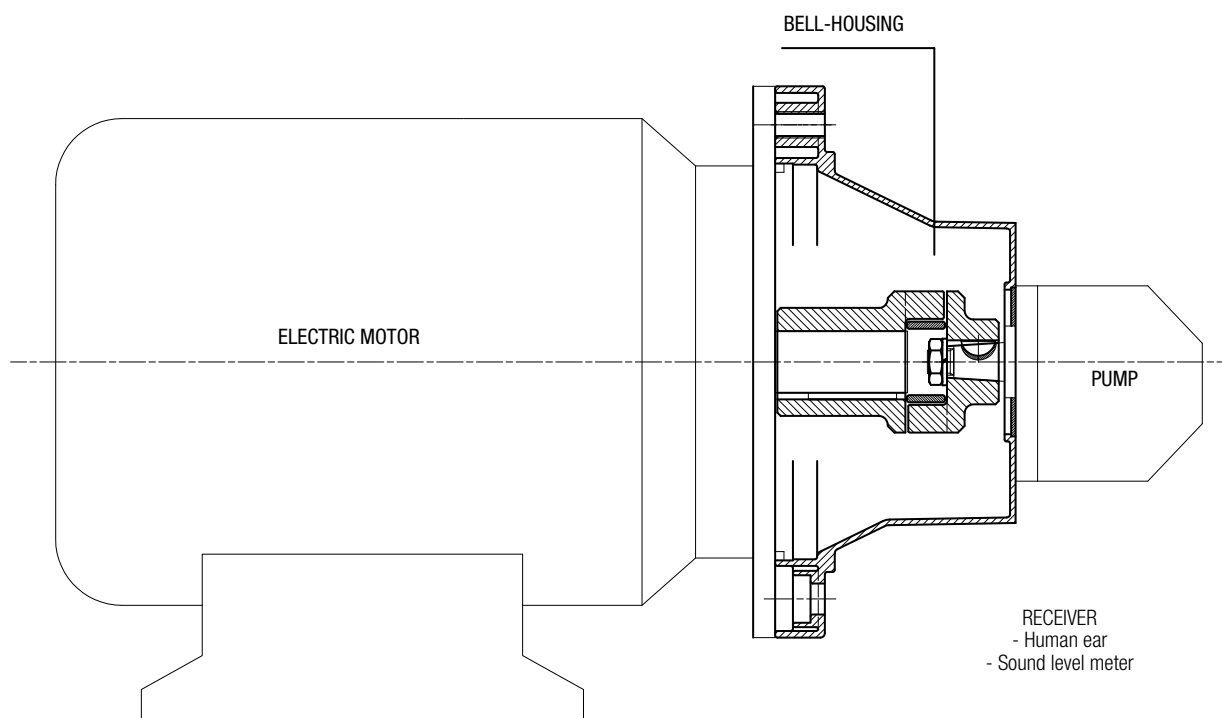
② SOUND

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.

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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:

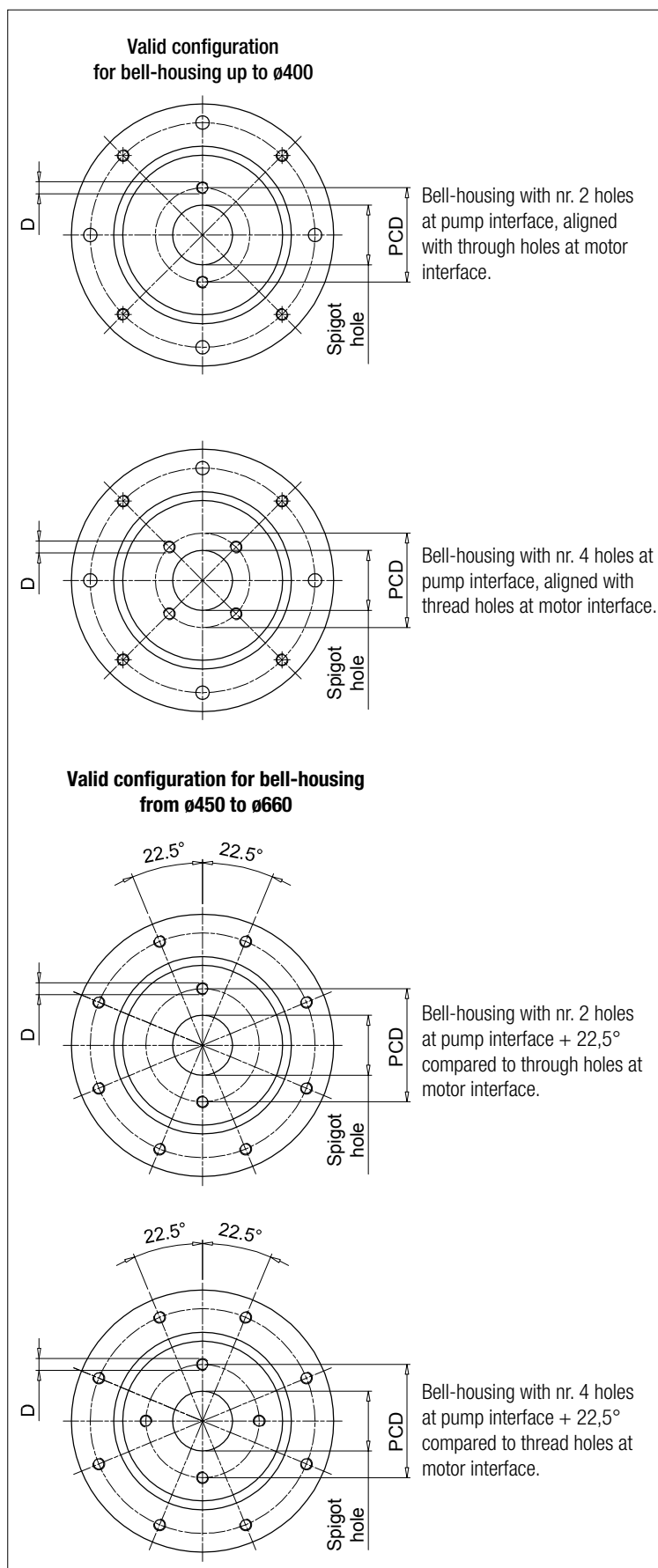
The above guidelines are indicative only, and subordinate to the solutions adopted ultimately by design engineers.

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



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	$\varnothing 7$	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	$\varnothing 11$	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	$\varnothing 8,5$	4	058	-
	100.00	M10	2	062	-
65	85.00	M8	4	168	ISO3019-2-63-B4
	90.00	M8	4	271	-
70	90.00	M8	4	073	-
70	84.00	$\varnothing 7$	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	$\varnothing 11$	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	$\varnothing 8,5$	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	$\varnothing 9$	2	163	-
	112.00	$\varnothing 9$	2	164	-
92	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	-
	125.00	M10	4	023	ISO3019-2-100-B4
100	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	-
105	127.00	M10	4	224	-
	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	-
112	145.00	M12	4	273	-
	140.00	M12	2	074	-
	140.00	M10	2	138	-
115	130.00	M10	4	264	-
	180.00	M12	4	198	-
116	160.00	M14	2	084	-
	210.00	M16	2	094	-
	145.00	M10	4	155	-
120	150.00	Ø13	4	267	-
	160.00	M12	4	026	ISO3019-2-125-B4
	160.00	Ø13	4	033	-
	160.00	M12	2	079	-
125	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	-
	160.00	M10	4	151	-
135	175.40	M12	4	220	-
	180.00	M14	4	077	ISO3019-2-140-B4
140	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	-
	228.60	M16	4	022	-
152.4	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
	190.50	M8	4	207	-
160	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	-
	230.00	M22	4	111	-
	185.00	M12	4	152	-
	224.00	M16	4	184	-
162	230.00	M22	4	228	-
	188.00	M12	4	263	-
165.1	317.35	M20	4	143	SAE E 165 - 4
	317.35	M24	2	145	SAE E 165 - 2
	229.00	M20	4	201	-
175	317.35	M18	4	204	-
	200.00	M12	4	153	-
177.8	230.00	M18	2	185	-
	350.00	M24	4	146	SAE F 177 - 4
	216.00	M12	4	222	-
180	350.00	M24	2	203	SAE F 177 - 2
	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







LMC/LDC series

Range for IEC motors from size 80 to size 355



Technical data

Bell-Housing - range from IEC motor size 80 to IEC motor size 355

Materials

- Monobloc bell-housing: Pressure diecast aluminium alloy
- Pump fange: Pressure diecast aluminium alloy
- Screws kit: Steel
- Gaskets: Special paper (Guarnital)
- Plug for inspection: Nylon

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.





Range

Bell-Housing size	Flange ISO 3019-2								IEC Motors size
	50 B2-B4	63 B2-B4	80 B2-B4	100 B2-B4	125 B2-B4	160 B2-B4	200 B2-B4		
LMC200	●	●	●	●					IEC 80 ø 200 - ø 19x40
LMC200	●	●	●	●					IEC 90 ø 200 - ø 24x50
LMC250	●	●	●	●	●				IEC 100 ø 250 - ø 28x60
LMC250	●	●	●	●	●				IEC 112 ø 250 - ø 28x60
LMC300			●	●	●	●			IEC 132 ø 300 - ø 38x80
LMC350			●	●	●	●			IEC 160 ø 350 - ø 42x110
LMC350			●	●	●	●	●		IEC 180 ø 350 - ø 48x110
LMC400			●	●	●	●	●		IEC 200 ø 400 - ø 55x110
LMC450			●	●	●	●	●		IEC 225 ø 450 - ø 60x140
LMC550					●	●	●		IEC 250 ø 550 - ø 65x140
LMC550					●	●	●		IEC 280 ø 550 - ø 75x140
LMC660					●	●	●		IEC 315 ø 660 - ø 80x170

Bell-Housing size	Flange SAE J 744										IEC Motors size	
	50-2 (A-A)	82-2 (A)	101-2 (B)	127-2 (C)	152-2 (D)	165-2 (E)	101-4 (B)	127-4 (D)	152-4 (D)	165-4 (E)		
LMC200	●	●										IEC 80 ø 200 - ø 19x40
LMC200	●	●										IEC 90 ø 200 - ø 24x50
LMC250	●	●	●				●					IEC 100 ø 250 - ø 28x60
LMC250	●	●	●	●			●					IEC 112 ø 250 - ø 28x60
LMC300		●	●	●			●	●				IEC 132 ø 300 - ø 38x80
LMC350		●	●	●			●	●				IEC 160 ø 350 - ø 42x110
LMC350		●	●	●	●		●	●	●			IEC 180 ø 350 - ø 48x110
LMC400		●	●	●	●	●	●	●	●	●		IEC 200 ø 400 - ø 55x110
LMC450			●	●	●	●		●	●	●		IEC 225 ø 450 - ø 60x140
LMC550				●	●	●		●	●	●		IEC 250 ø 550 - ø 65x140
LMC550				●	●	●		●	●	●		IEC 280 ø 550 - ø 75x140
LMC660				●	●	●		●	●	●		IEC 315 ø 660 - ø 80x170



Designation & Ordering code

LMC

Bell-Housing series and size		Configuration example:	LMC200AFSJ	070	DI
LMC200AFSJ	LMC350AFSU				
LMC200AFSW	LMC400AFSV				
LMC250AFSM	LMC450AFSZ				
LMC250AFSQ	LMC550AFSN				
LMC250AFSR	LMC550AFSO				
LMC300AFST	LMC660AFSP				
LMC300AFSX	LMC660AFSS				
LMC350AFSY					

Pump interface codes

070 See page 48

Options

DI	Drain hole + inspection hole
FG	Holes rotated through 45° in relation to standard position
DP	Double set of hole
AN	Black anodized finish
SA	Clearance holes at motor interface
Pxx	Customer specification

LDC

Bell-Housing series and size		Configuration example:	LDC200AFRB	070	DI
LDC200AFRB	LDC350AF6B				
LDC200AFRC	LDC400AF5A				
LDC200AFRD	LDC400AF5B				
LDC250AFRC	LDC400AF6A				
LDC300AFRC	LDC400AF6B				
LDC300AF5A	LDC450AF6A				
LDC300AF5B	LDC450AF6B				
LDC350AF6A					

Pump interface codes

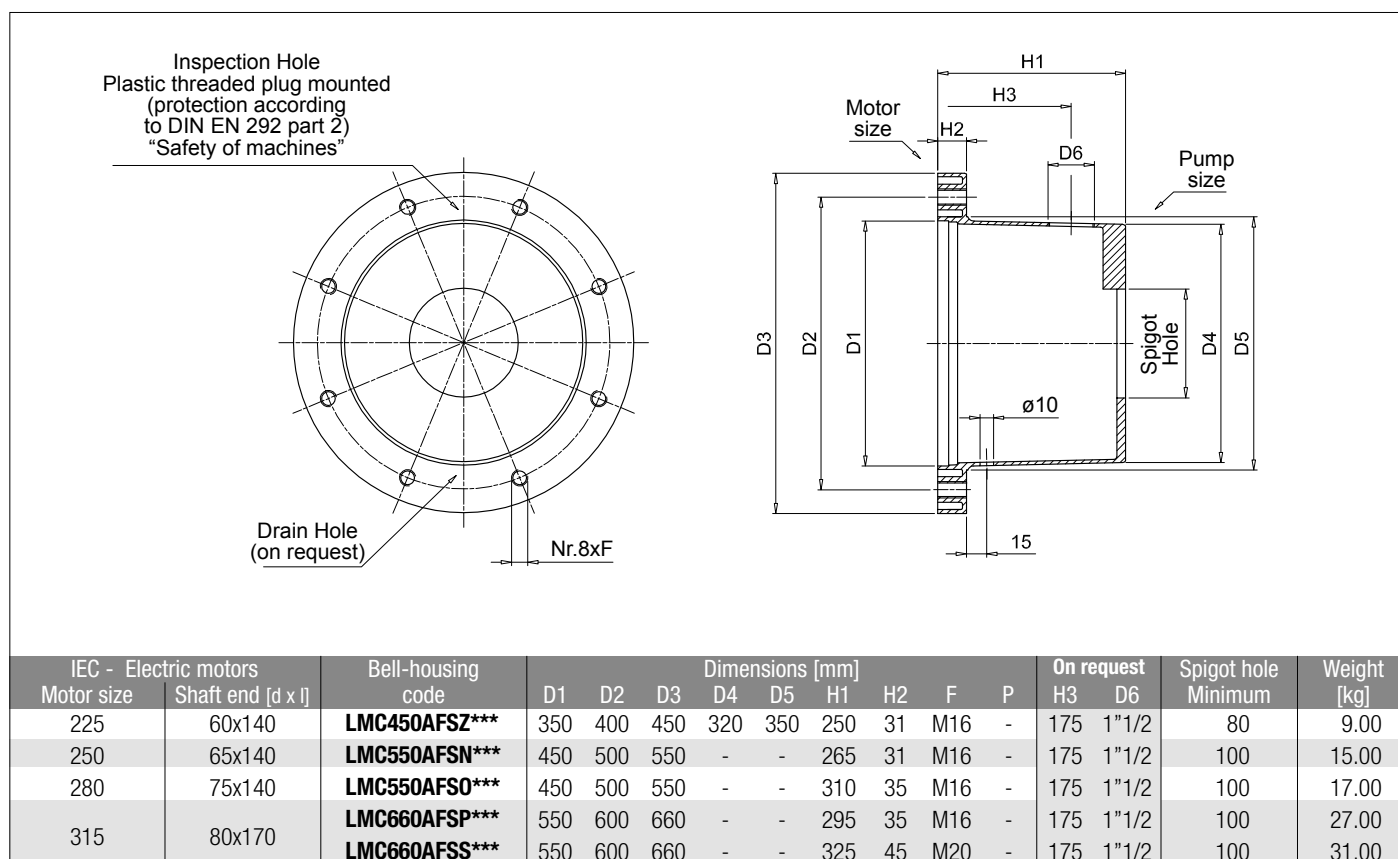
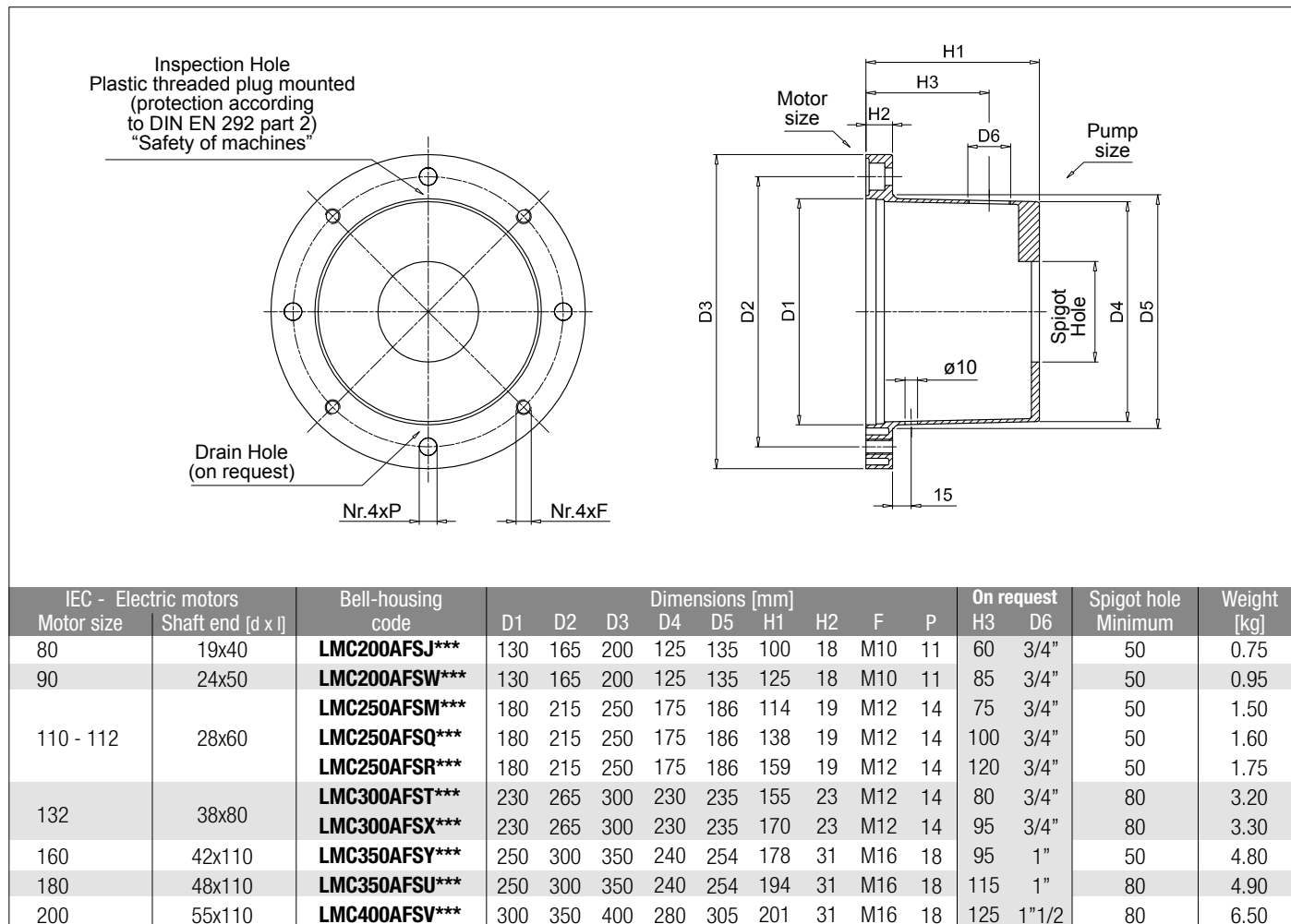
070 See page 48

Options

DI	Drain hole + inspection hole
FG	Holes rotated through 45° in relation to standard position
DP	Double set of hole
AN	Black anodized finish
SA	Clearance holes at motor interface
Pxx	Customer specification

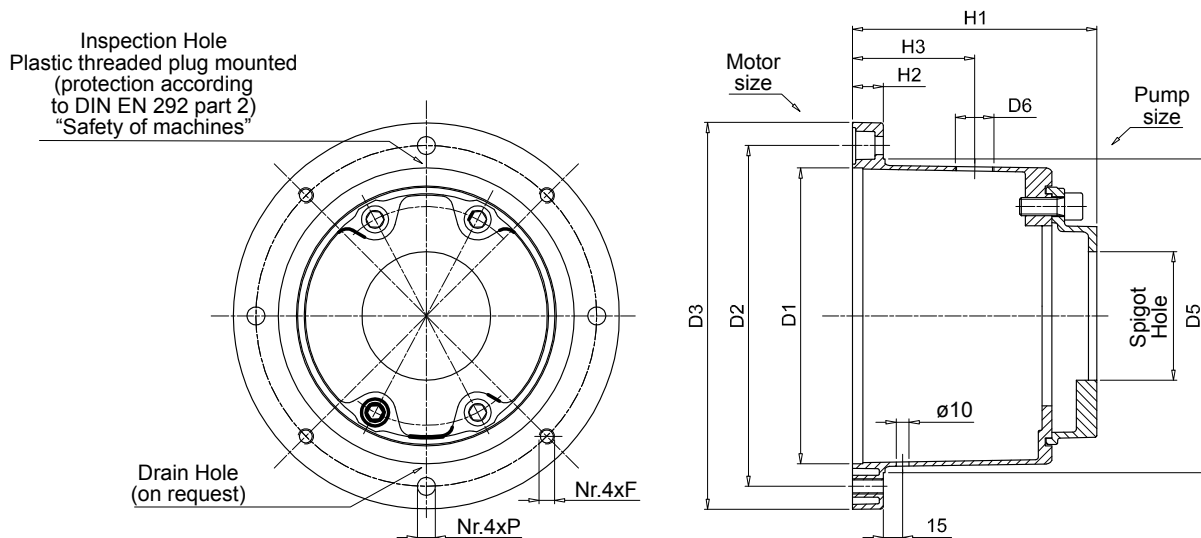
Note:

- Bell-housings with DI options are supplied complete with threaded closure plug.
- For customization features other than those indicated on this page, contact the technical/sales department

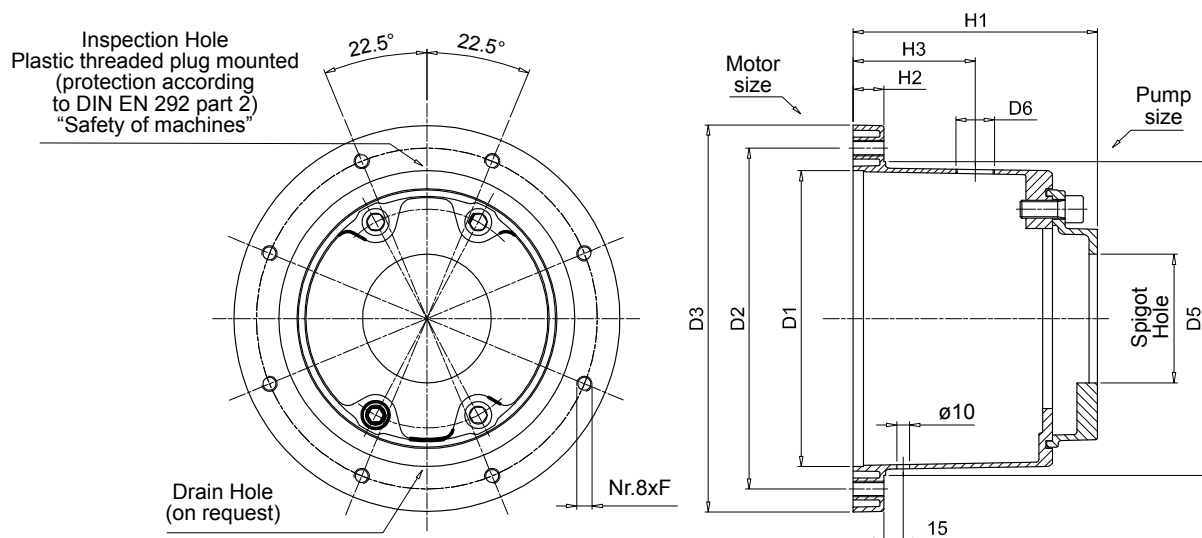




Dimensions



IEC - Electric motors		Bell-housing code	Dimensions [mm]								On request		Spigot hole Minimum	Weight [kg]
Motor size	Shaft end [d x l]		D1	D2	D3	D5	H1	H2	F	P	H3	D6		
80	19x40	LDC200AFRB***	130	165	200	135	125	18	M10	11	60	3/4"	50	1.85
90	24x50	LDC200AFRC***	130	165	200	135	133	18	M10	11	60	3/4"	50	1.95
		LDC200AFRD***	130	165	200	135	158	18	M10	11	75	3/4"	50	2.10
110 - 112	28x60	LDC250AFRC***	180	215	250	186	169	19	M12	14	100	3/4"	50	2.75
		LDC300AFRC***	230	265	300	235	185	23	M12	14	95	3/4"	50	4.60
132	38x80	LDC300AF5A***	230	265	300	235	181	23	M12	14	95	3/4"	80	4.50
		LDC300AF5B***	230	265	300	235	190	23	M12	14	95	3/4"	80	4.80
		LDC350AF6A***	250	300	350	254	239	31	M16	18	115	1"	80	6.80
180	48x110	LDC350AF6B***	250	300	350	254	252	31	M16	18	115	1"	80	7.30
200	55x110	LDC400AF5A***	300	350	400	305	246	31	M16	18	125	1 1/2"	80	7.50
		LDC400AF5B***	300	350	400	305	234	31	M16	18	125	1 1/2"	80	7.90
		LDC400AF6A***	300	350	400	305	246	31	M16	18	125	1 1/2"	80	8.50
		LDC400AF6B***	300	350	400	305	260	31	M16	18	125	1 1/2"	80	9.00



IEC - Electric motors		Bell-housing code	Dimensions [mm]								On request		Spigot hole Minimum	Weight [kg]
Motor size	Shaft end [d x l]		D1	D2	D3	D5	H1	H2	F	P	H3	D6		
225	60x140	LDC450AF6A***	350	400	450	350	295	31	M16	-	175	1"1/2	80	11.20
		LDC450AF6B***	350	400	450	350	308	31	M16	-	175	1"1/2	80	11.60

Comparative table

MP Filtri code	KTR code	OMT code	Raja code	Hydrapp code
LMC200A***	PK200/3/...	TH20A***	R200/99-115/...	-
LMC200A***	PL200/8/...	TH1***	R200/120-135/...	HLC1
LMC250A***	PL250/6/...	TH2***	R250/120-135/...	HLC3
LMC300A***	PL300/4/...	TH3***	R300/155-170/...	HLC5
LMC350A***	PK350/4/...	TH4***	R350/173-194/...	HLC8
LMC400A***	PK400/4/...	TH15***	R400/194-210/...	HLC12
LMC450A***	PK450/4/...	TH18***	R450/250-210/...	-
LMC550A***	PK550/4/...	TH19***	R550/250-210/...	-
LMC660A***	PK660/4/...	TH20***	R660/250-210/...	-

Note:

The above table is guideline only.

Not all bell-housings are fully interchangeable.

