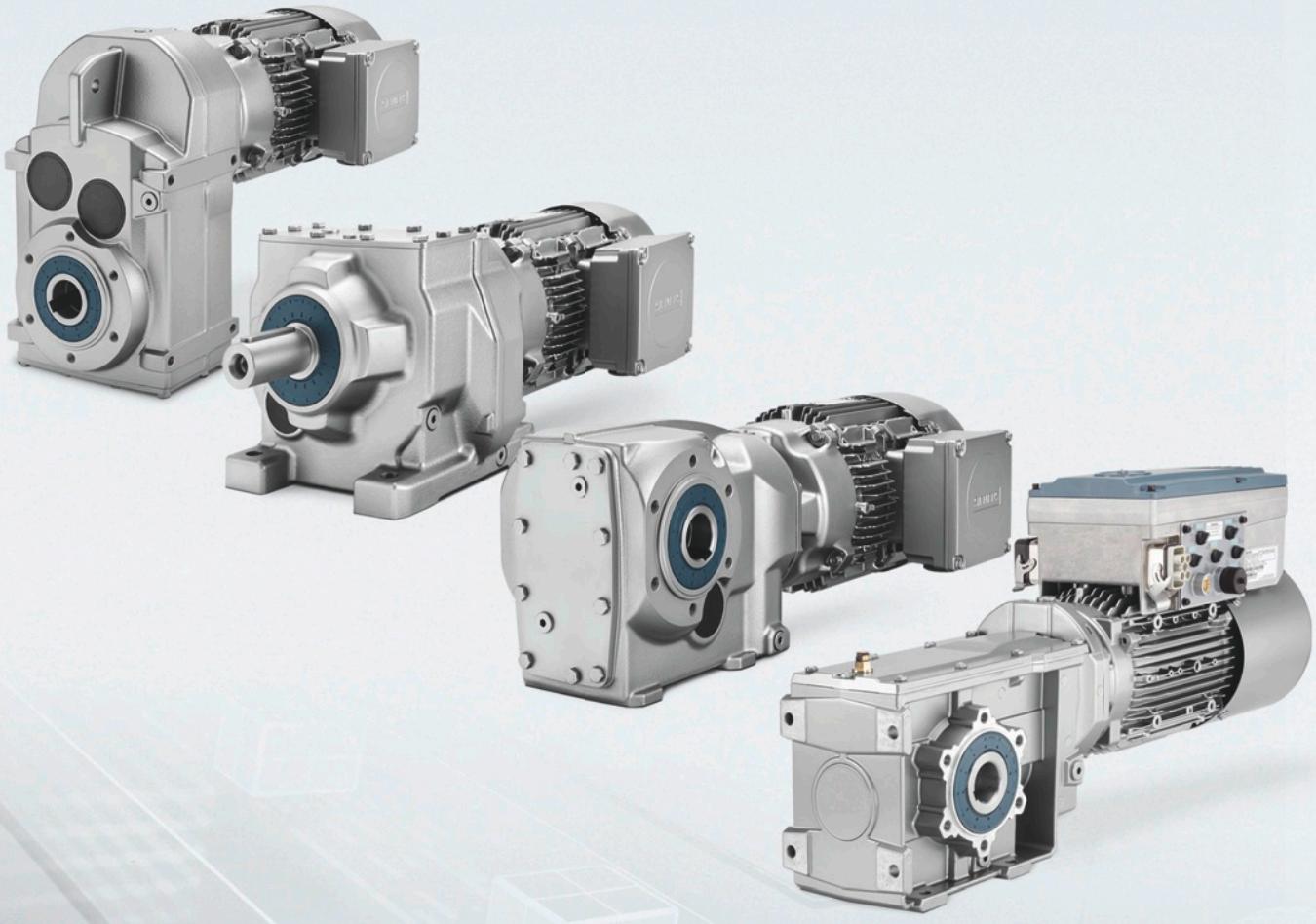
SIEMENS



Motion Control

SIMOGEAR Geared Motors

Helical, parallel shaft, bevel, helical worm and worm geared motors

product design award 2013

Catalog MD 50.1

Edition 2017

siemens.com/gearedmotors

Overview (continued)

Parallel shaft geared motors

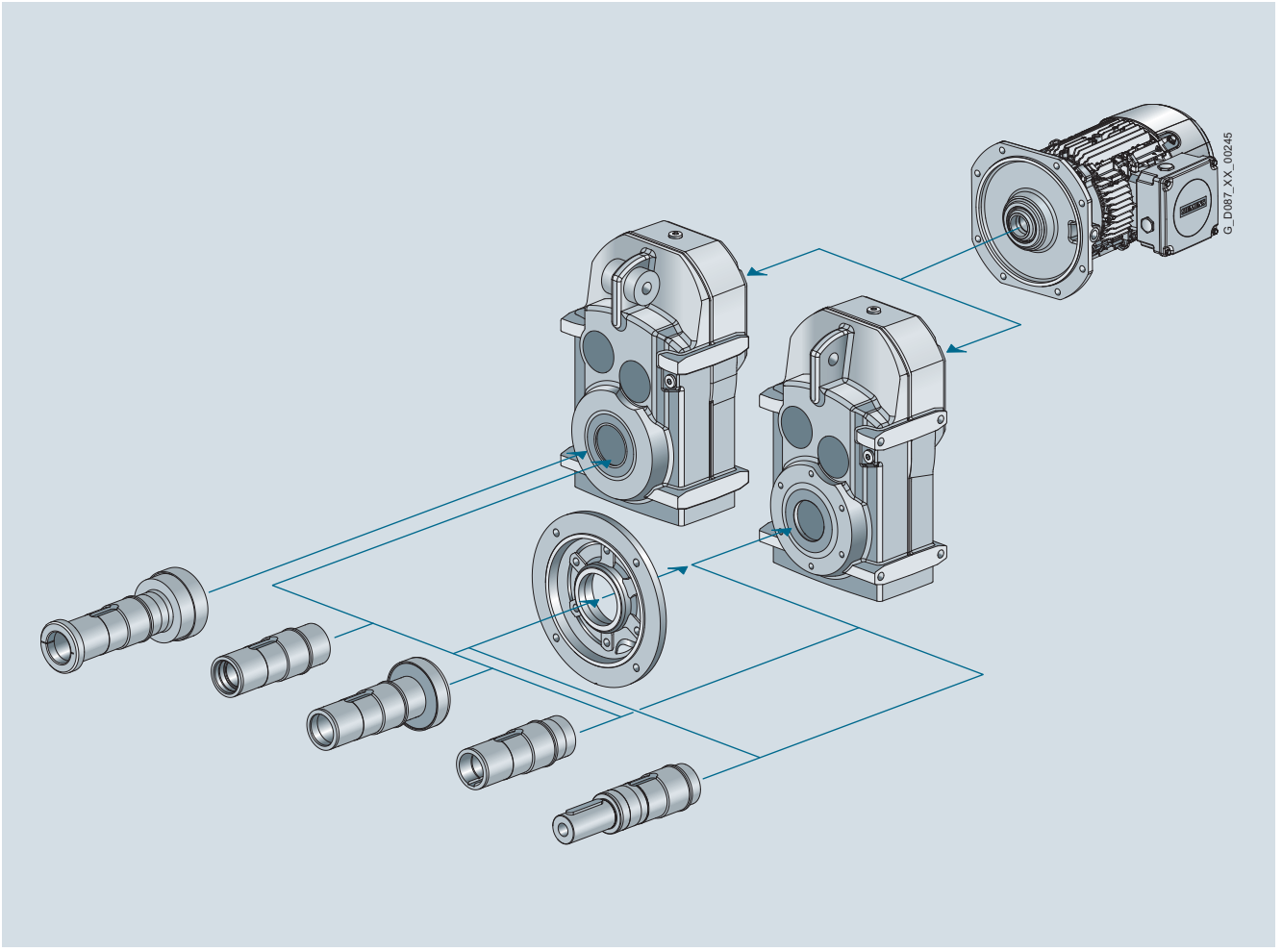


Fig. 1/11 Modular system, parallel shaft geared motor

SIMOGEAR parallel shaft geared motors are available in the following versions for mounting in any position:

- 2 or 3 stages
- 4 to 6 stages for especially low output speeds
- Shaft-mounted design with torque arm
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design
- Hollow shaft design with feather key, splined shaft, shrink disk or SIMOLOC assembly system
- Solid shaft design with and without feather key

SIMOGEAR parallel shaft geared motor F

Fig. 4/1 Parallel shaft geared motor F

Gearbox designation	Number of sizes	Maximum output torque	Transmission ratio	Maximum motor power
		T_{2N}	i	P_1
		Nm	-	kW
FZ29 … FZ189 (2-stage)	11	150 … 19 000	3.5 … 70	55
FD29 … FD189 (3-stage)	11	150 … 19 000	32 … 413	55
FZ.29-Z19 ... FD.189-D69 (4-stage to 6-stage)	11	150 … 19 000	274 … 29 900	7.5

SIMOGEAR parallel shaft geared motors are available in the following versions:

Transmission stages

- 2-stage or 3-stage parallel shaft geared motors
- 4-stage to 6-stage parallel shaft geared motors for very low output speeds

Versions

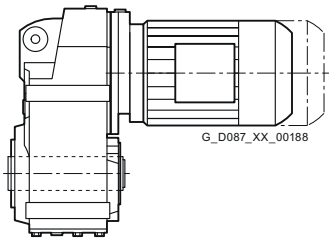
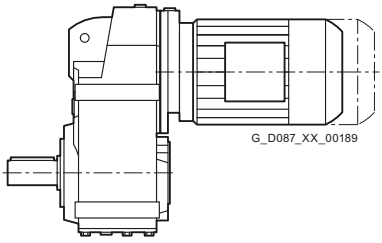
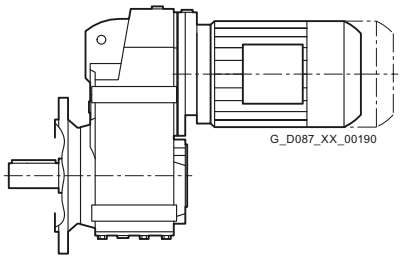
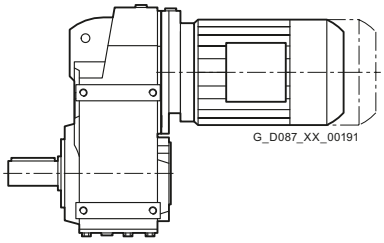
- Shaft-mounted design
- Flange-mounted design
- Design with integrated housing flange
- Foot-mounted design

Mounting

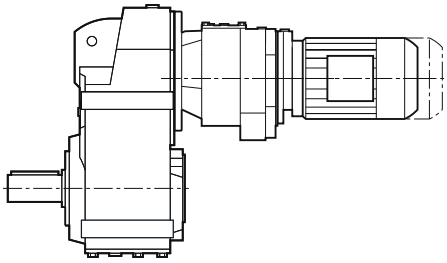
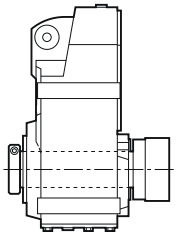
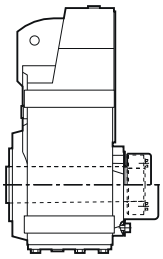
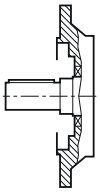
- Hollow shaft design with feather key
- Hollow shaft design with splined shaft
- Hollow shaft design with shrink disk
- Hollow shaft design with SIMOLOC assembly system
- Solid shaft design with and without feather key

Dimensional drawing overview

Information about dimensional drawings can be found in chapter Introduction on page 1/21.

Design	Size	Dimensional drawing on page
Shaft-mounted design		
 G_D087_XX_00188	FDAD./FZAD.29	4/74
	FDAD./FZAD.39	4/78
	FDAD./FZAD.49	4/82
	FDAD./FZAD.69	4/86
	FDAD./FZAD.79	4/90
	FDAD./FZAD.89	4/94
	FDAD./FZAD.109	4/98
	FDAD./FZAD.129	4/102
	FDAD./FZAD.149	4/106
	FDAD./FZAD.169	4/110
	FDAD./FZAD.189	4/114
Housing flange design		
 G_D087_XX_00189	FD.Z./FZ.Z.29	4/75
	FD.Z./FZ.Z.39	4/79
	FD.Z./FZ.Z.49	4/83
	FD.Z./FZ.Z.69	4/87
	FD.Z./FZ.Z.79	4/91
	FD.Z./FZ.Z.89	4/95
	FD.Z./FZ.Z.109	4/99
	FD.Z./FZ.Z.129	4/103
	FD.Z./FZ.Z.149	4/107
	FD.Z./FZ.Z.169	4/111
	FD.Z./FZ.Z.189	4/115
Flange-mounted design		
 G_D087_XX_00190	FD.F./FZ.F.29	4/76
	FD.F./FZ.F.39	4/80
	FD.F./FZ.F.49	4/84
	FD.F./FZ.F.69	4/88
	FD.F./FZ.F.79	4/92
	FD.F./FZ.F.89	4/96
	FD.F./FZ.F.109	4/100
	FD.F./FZ.F.129	4/104
	FD.F./FZ.F.149	4/108
	FD.F./FZ.F.169	4/112
	FD.F./FZ.F.189	4/116
Foot-mounted design		
 G_D087_XX_00191	FD../FZ..29	4/77
	FD../FZ..39	4/81
	FD../FZ..49	4/85
	FD../FZ..69	4/89
	FD../FZ..79	4/93
	FD../FZ..89	4/97
	FD../FZ..109	4/101
	FD../FZ..129	4/105
	FD../FZ..149	4/109
	FD../FZ..169	4/113
	FD../FZ..189	4/117

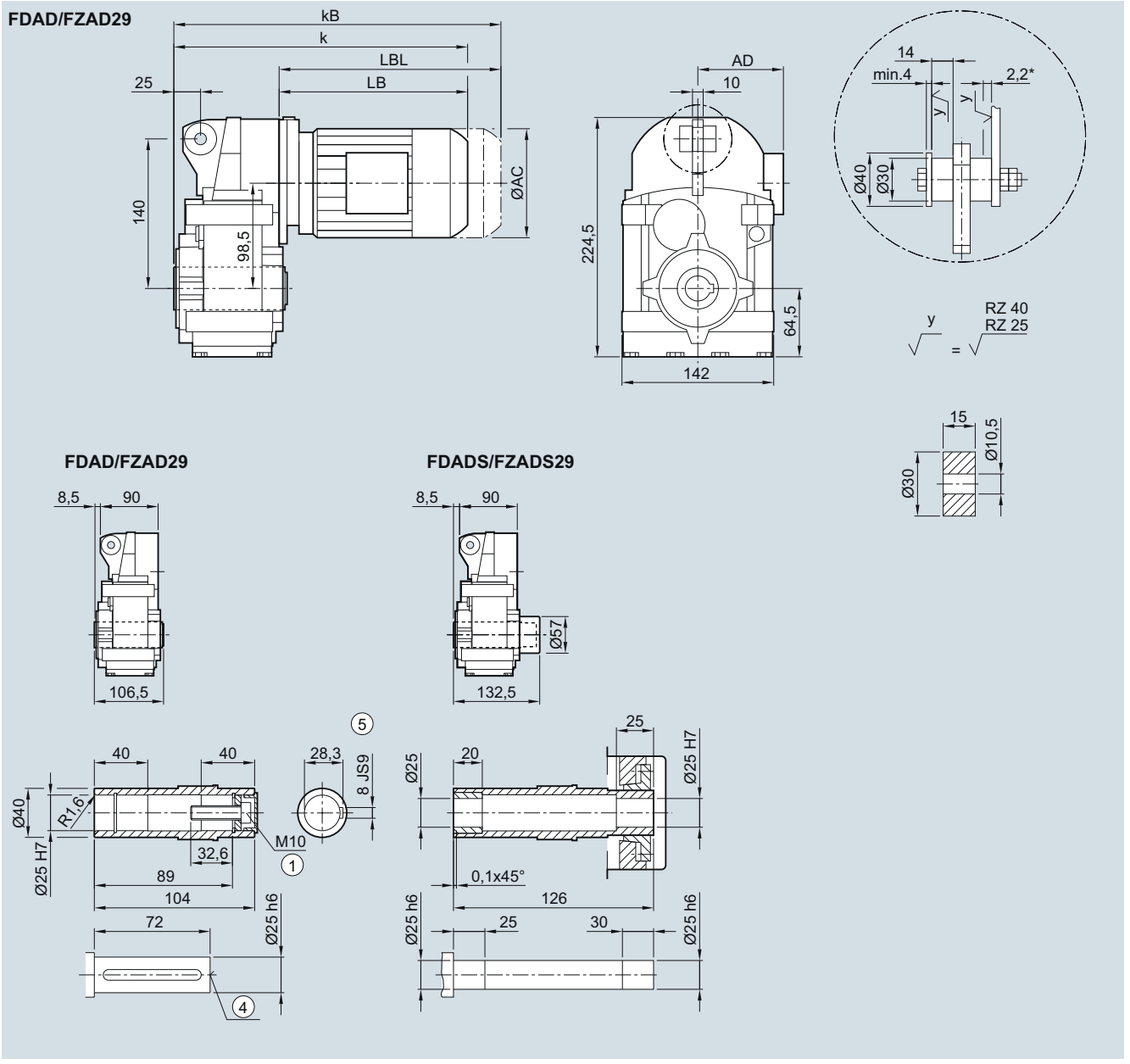
Dimensional drawing overview (continued)

Design	Size	Dimensional drawing on page
Parallel shaft tandem geared motor		
	FD../FZ..29-D/Z19 ... FD..189-D/Z69	4/118 ... 4/119
Additional versions and options		
SIMOLOC assembly system		
	FDADR/FZADR29 ... FDADR/FZADR89	4/120
Protection covers		
	FD../FZ..29 ... FD../FZ..189	4/121 ... 4/122
Inner contour of the flange design		
	FDF/FZF.29 ... FDF/FZF.189 FDAF/FZAF.29 ... FDAF/FZAF.189	4/123
Pin holes		
	F.Z.109 and F.Z.129	4/124

4

FDAD./FZAD.29 gearbox in a shaft-mounted design

FAD030, FADS030



Motor	LA 63	71	71Z	LE 80	80Z	90[2]	90Z[2]	100[2]	100Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	292.5	324.5	343.5	388.5	423.5	450.0	490.0	506.5	541.5
kB	337.0	379.5	398.5	448.5	483.5	520.0	560.0	585.0	620.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5

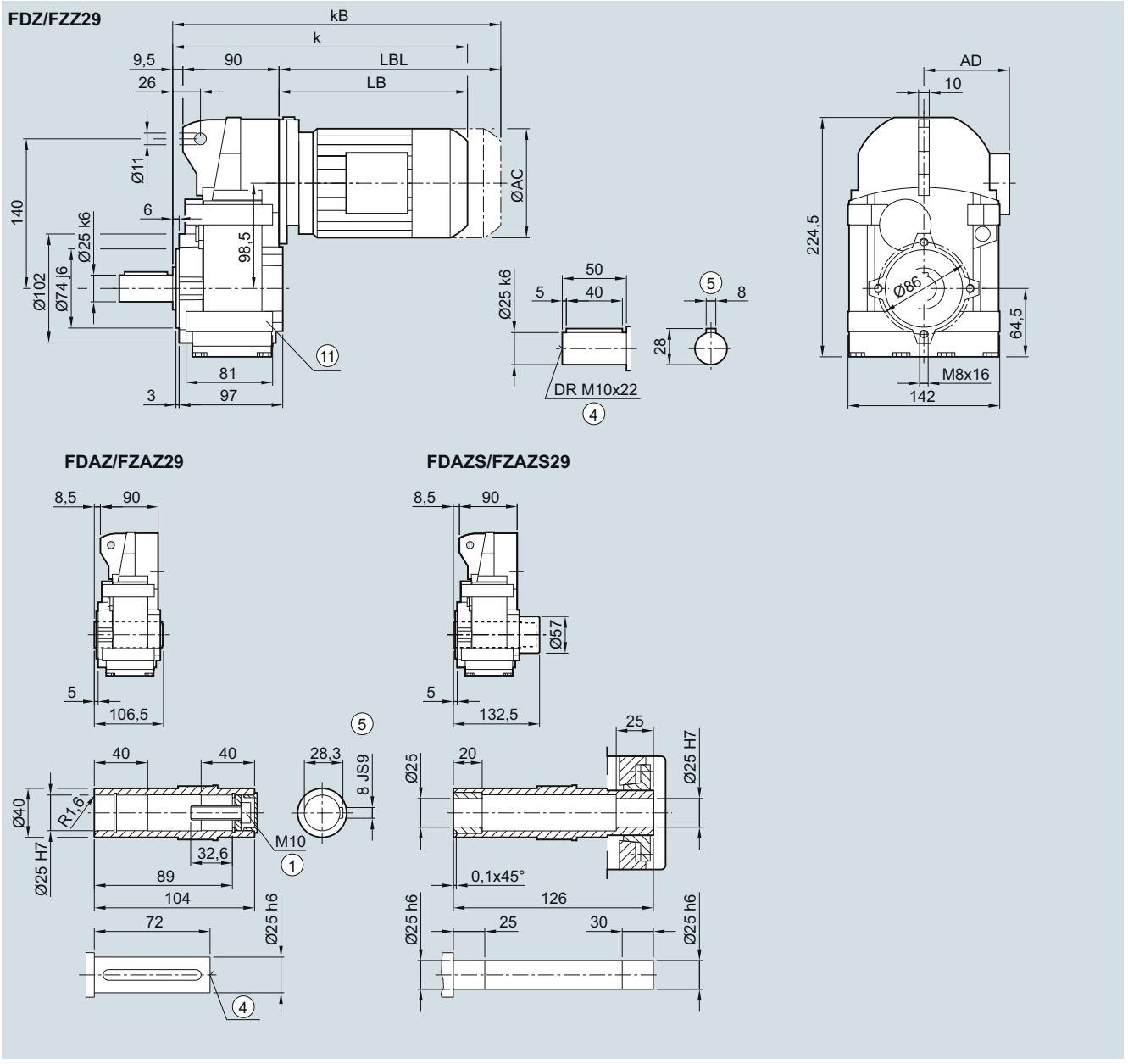
① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 * Spring compression at max. torque

1) AD depends on the motor options, for other dimensions see page 8/36.

2) FDADS/FZADS not possible

FD.Z./FZ.Z.29 gearbox in a housing flange design

FZ030, FAZ030, FAZS030



Motor	LA			LE					
	63	71	71Z	80	80Z	90[2)]	90Z[2)]	100[2)]	100Z[2)]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	293.5	325.5	344.5	389.5	424.5	451.0	491.0	507.5	542.5
kB	338.0	380.5	399.5	449.5	484.5	521.0	561.0	586.0	621.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for foot-mounted design

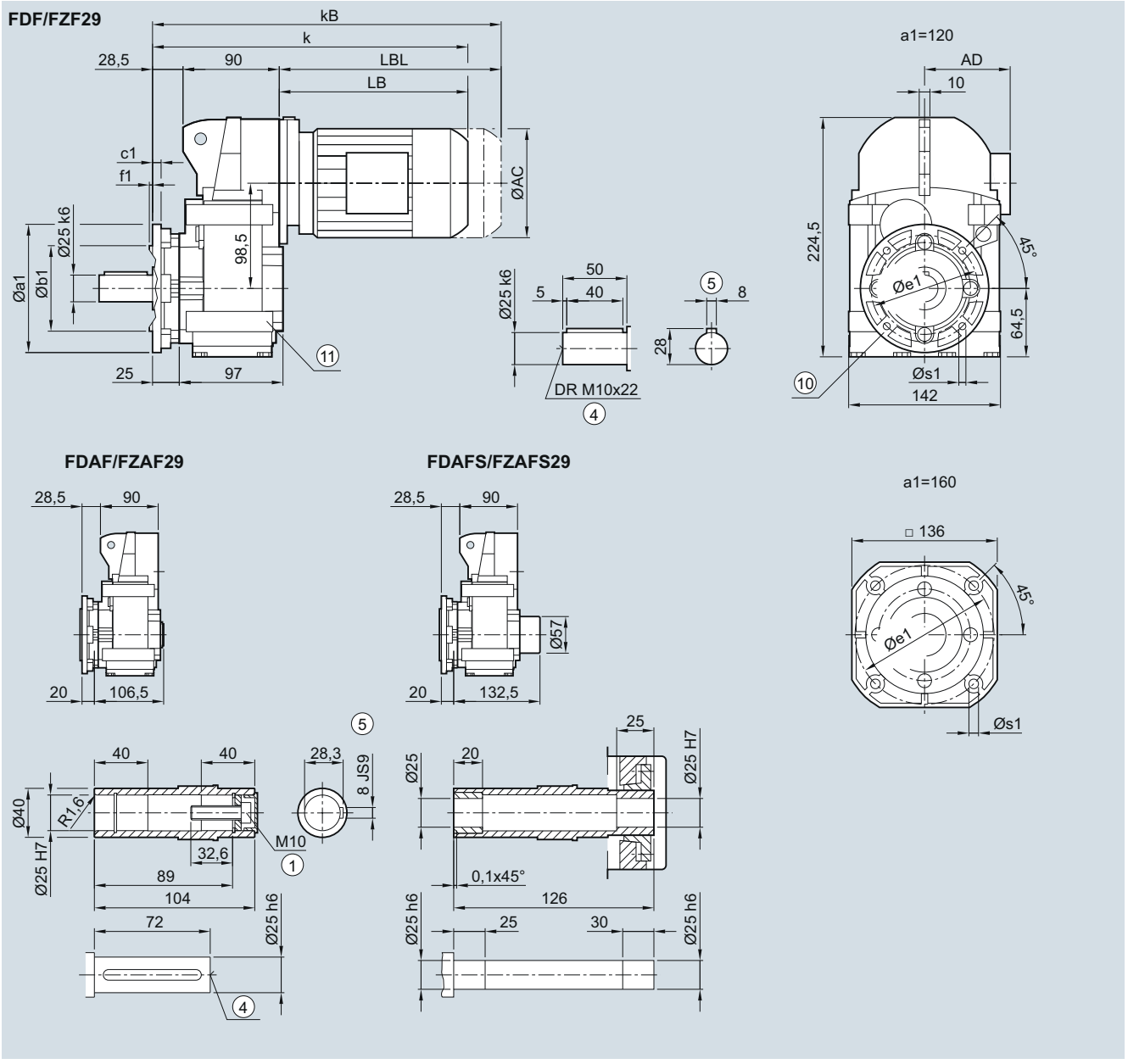
1) AD depends on the motor options, for other dimensions see page 8/36.

2) FDADS/FZADS not possible

4

FD.F./FZ.F.29 gearbox in a flange-mounted design

FF030, FAF030, FAFS030



Flange	a1	b1	c1	f1	e1	s1
	120	80	8	3.0	100	6.6
	160	110	9	3.5	130	9.0

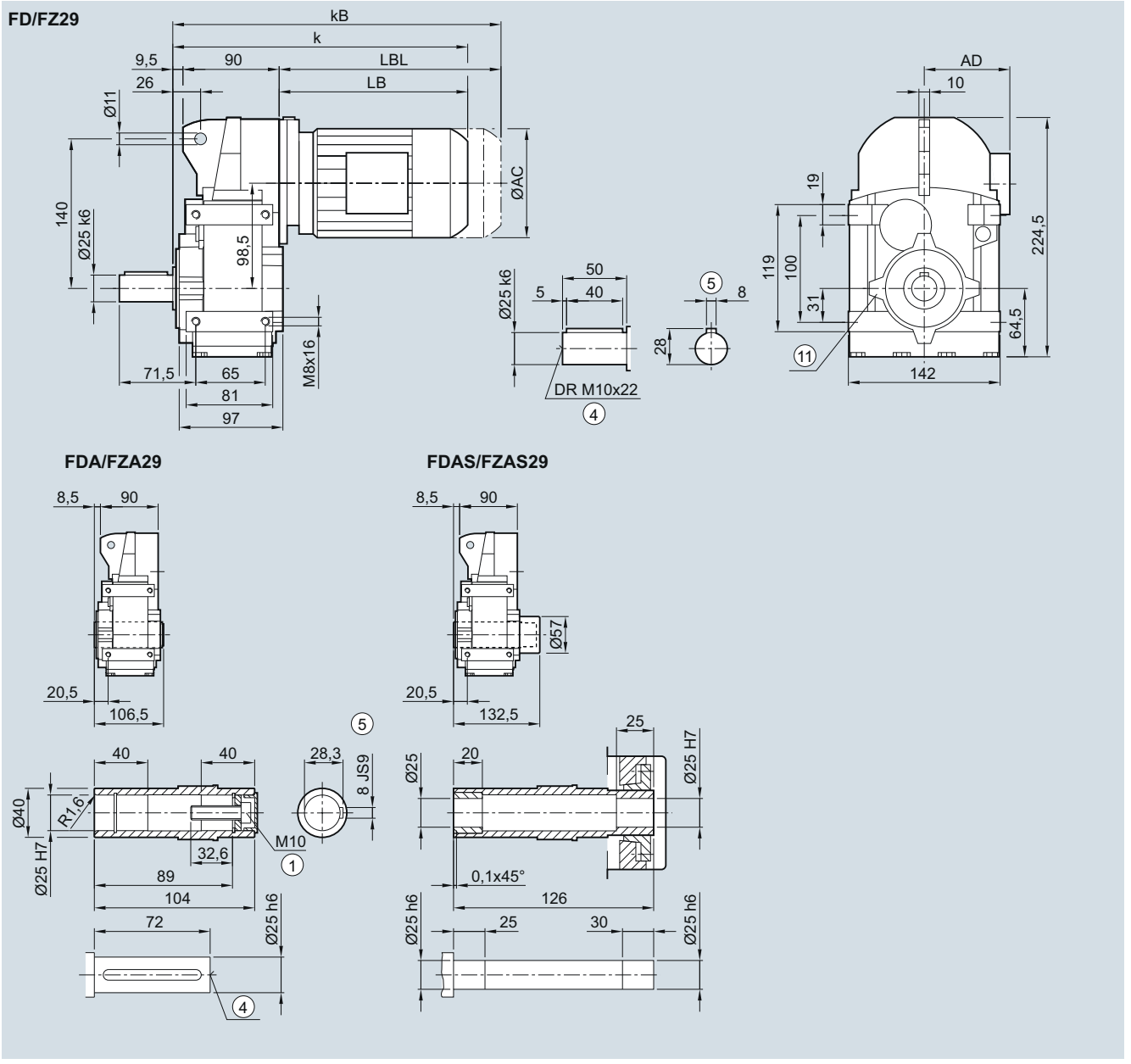
Motor	LA 63	71	71Z	LE 80	80Z	90[2)]	90Z[2)]	100[2)]	100Z[2)]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	312.5	344.5	363.5	408.5	443.5	470.0	510.0	526.5	561.5
kB	357.0	399.5	418.5	468.5	503.5	540.0	580.0	605.0	640.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑩ For inner contour see page 4/123

1) AD depends on the motor options, for other dimensions see page 8/36. 2) FDADS/FZADS not possible ⑪ Use bores only for foot-mounted design

FD../FZ..29 gearbox in a foot-mounted design

F030, FA030, FAS030



Motor	LA 63	71	71Z	LE 80	80Z	90[2)]	90Z[2)]	100[2)]	100Z[2)]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0
AD[1)]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5
k	293.5	325.5	344.5	389.5	424.5	451.0	491.0	507.5	542.5
kB	338.0	380.5	399.5	449.5	484.5	521.0	561.0	586.0	621.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5

① ISO 4017 ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑪ Use bores only for housing flange design

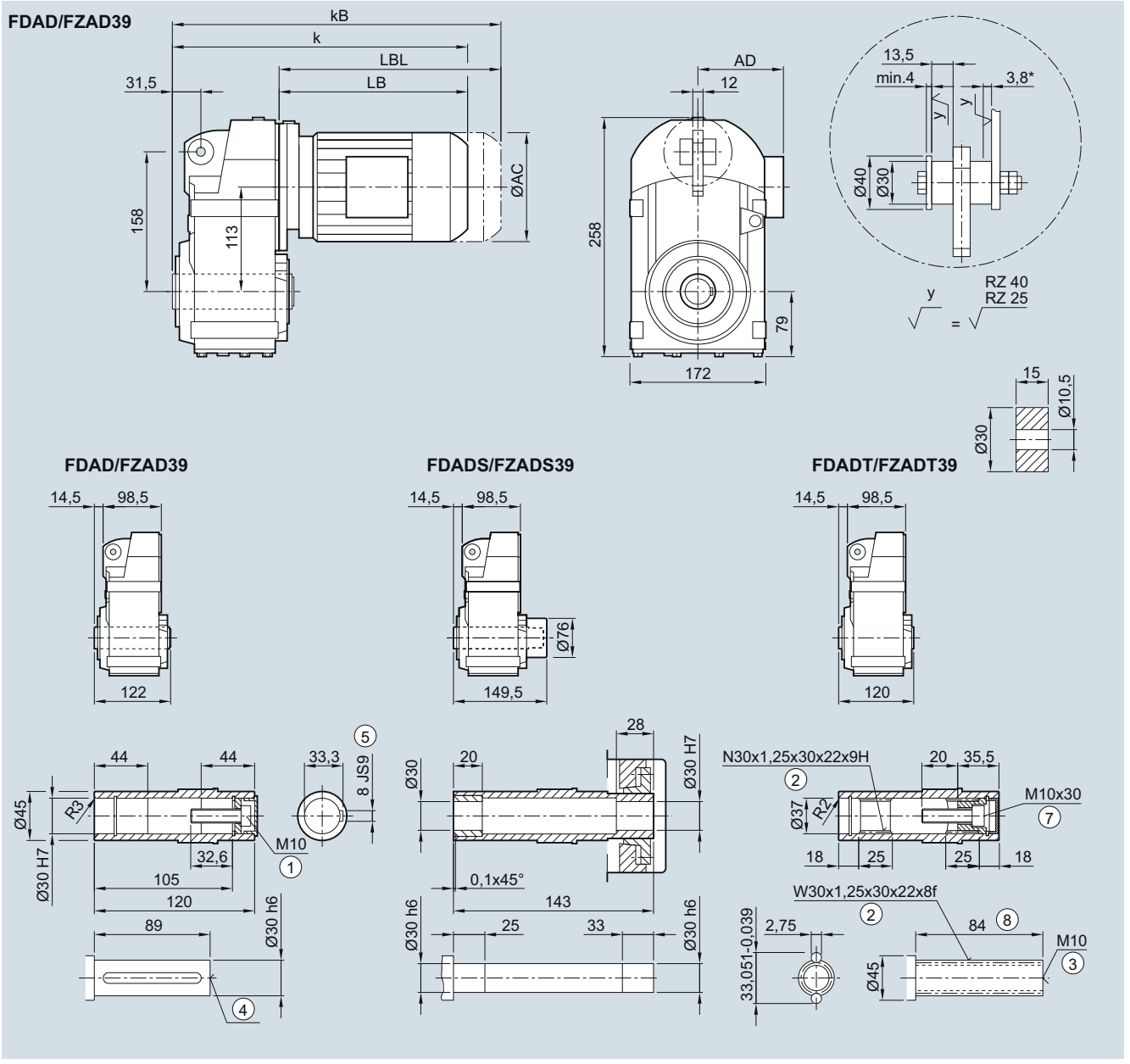
1) AD depends on the motor options, for other dimensions see page 8/36.

2) FDADS/FZADS not possible

4

FDAD./FZAD.39 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



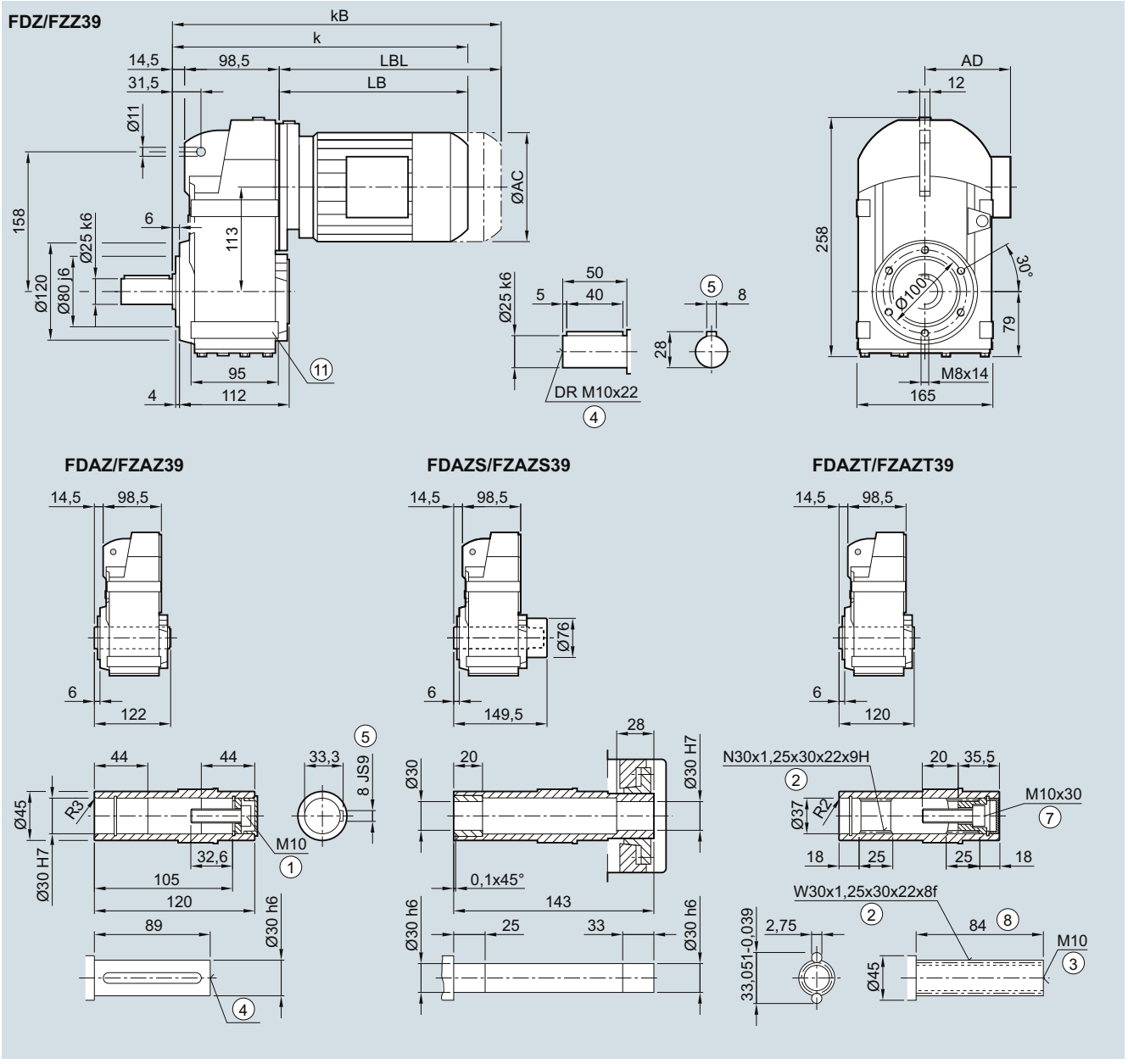
Motor	LA			LE							
	63	71	71Z	80	80Z	90S	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	339.0	358.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	394.0	413.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FDADS/FZADS not possible * Spring compression at max. torque

FD.Z./FZ.Z.39 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LA			LE							
	63	71	71Z	80	80Z	90	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	339.0	358.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	394.0	413.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

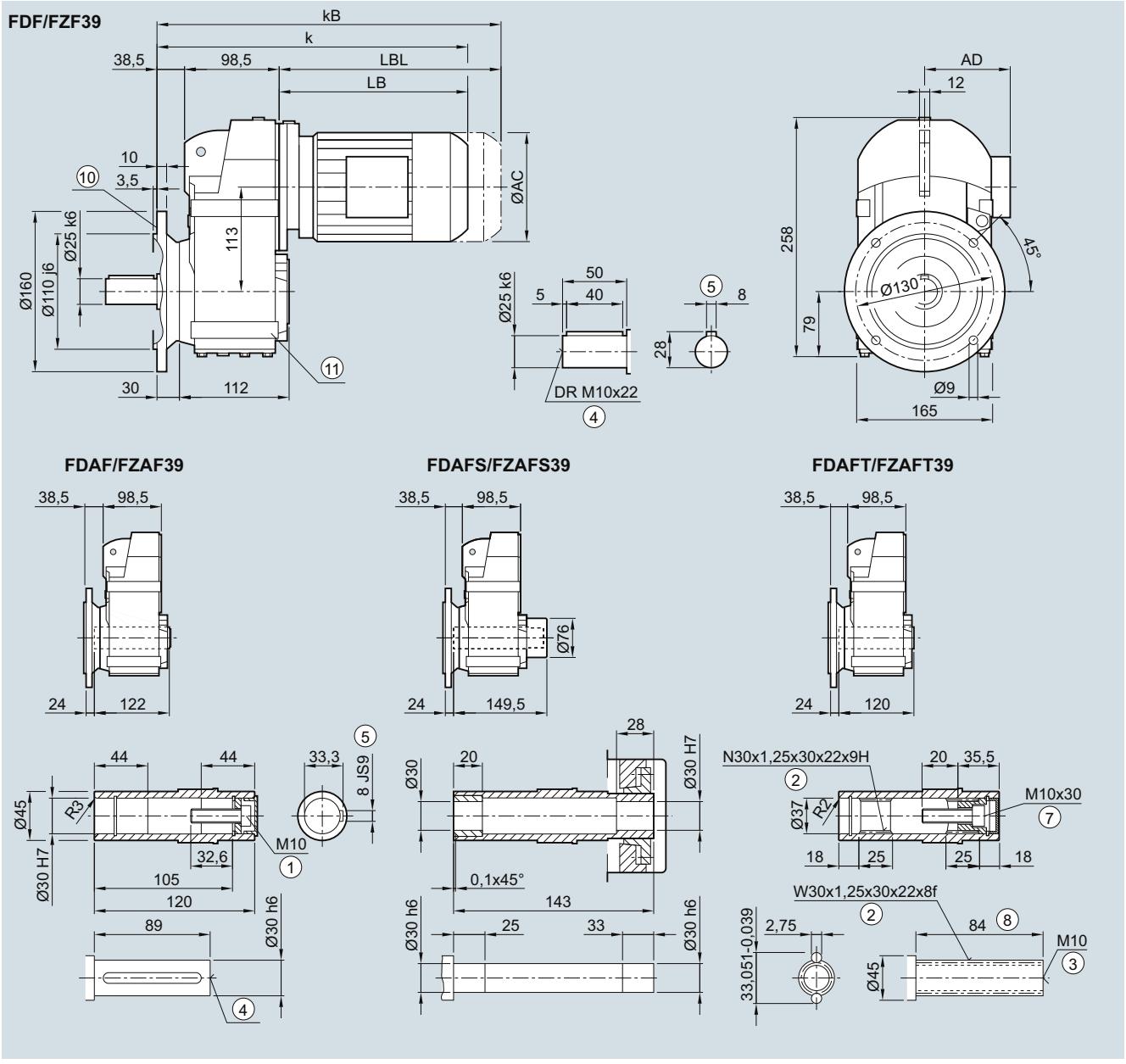
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDADS/FZADS not possible

4

FD.F./FZ.F.39 in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

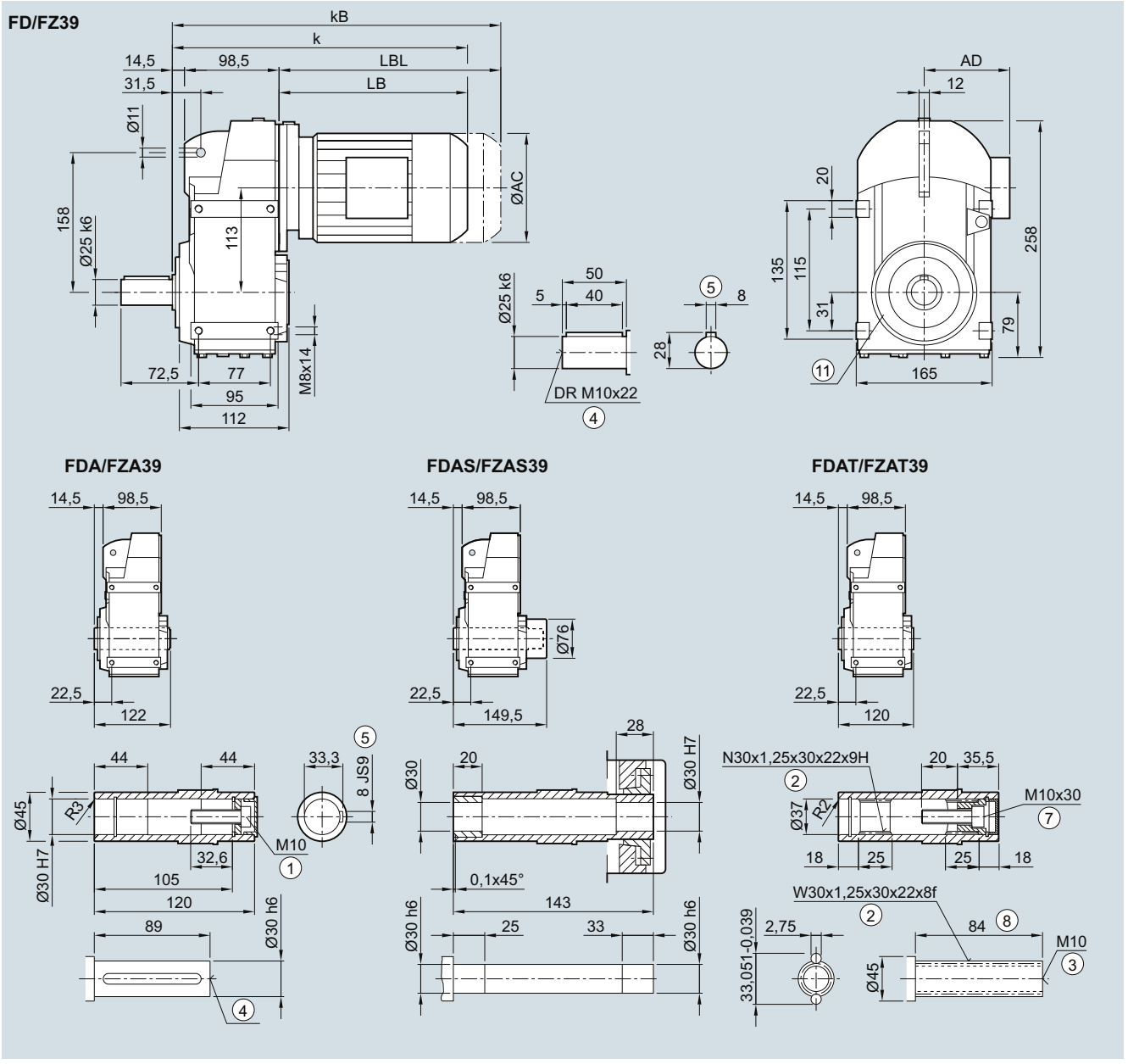


Motor	LA			LE							
	63	71	71Z	80	80Z	90	90Z	100[2)]	100Z[2)]	112[2)]	112Z[2)]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1)]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	331.0	363.0	382.0	427.0	462.0	488.5	528.5	545.0	580.0	555.0	580.0
kB	375.5	418.0	437.0	487.0	522.0	558.5	598.5	623.5	658.5	628.0	653.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1)] AD depends on the motor options, for other dimensions see page 8/36. [2)] FADAFS/FZAFS not possible

FD../FZ..39 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LA			LE							
	63	71	71Z	80	80Z	90	90Z	100[2]	100Z[2]	112[2]	112Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5
k	307.0	339.0	358.0	403.0	438.0	464.5	504.5	521.0	556.0	531.0	556.0
kB	351.5	394.0	413.0	463.0	498.0	534.5	574.5	599.5	634.5	604.0	629.0
LB	194.0	226.0	245.0	290.0	325.0	351.5	391.5	408.0	443.0	418.0	443.0
LBL	238.5	281.0	300.0	350.0	385.0	421.5	461.5	486.5	521.5	491.0	516.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

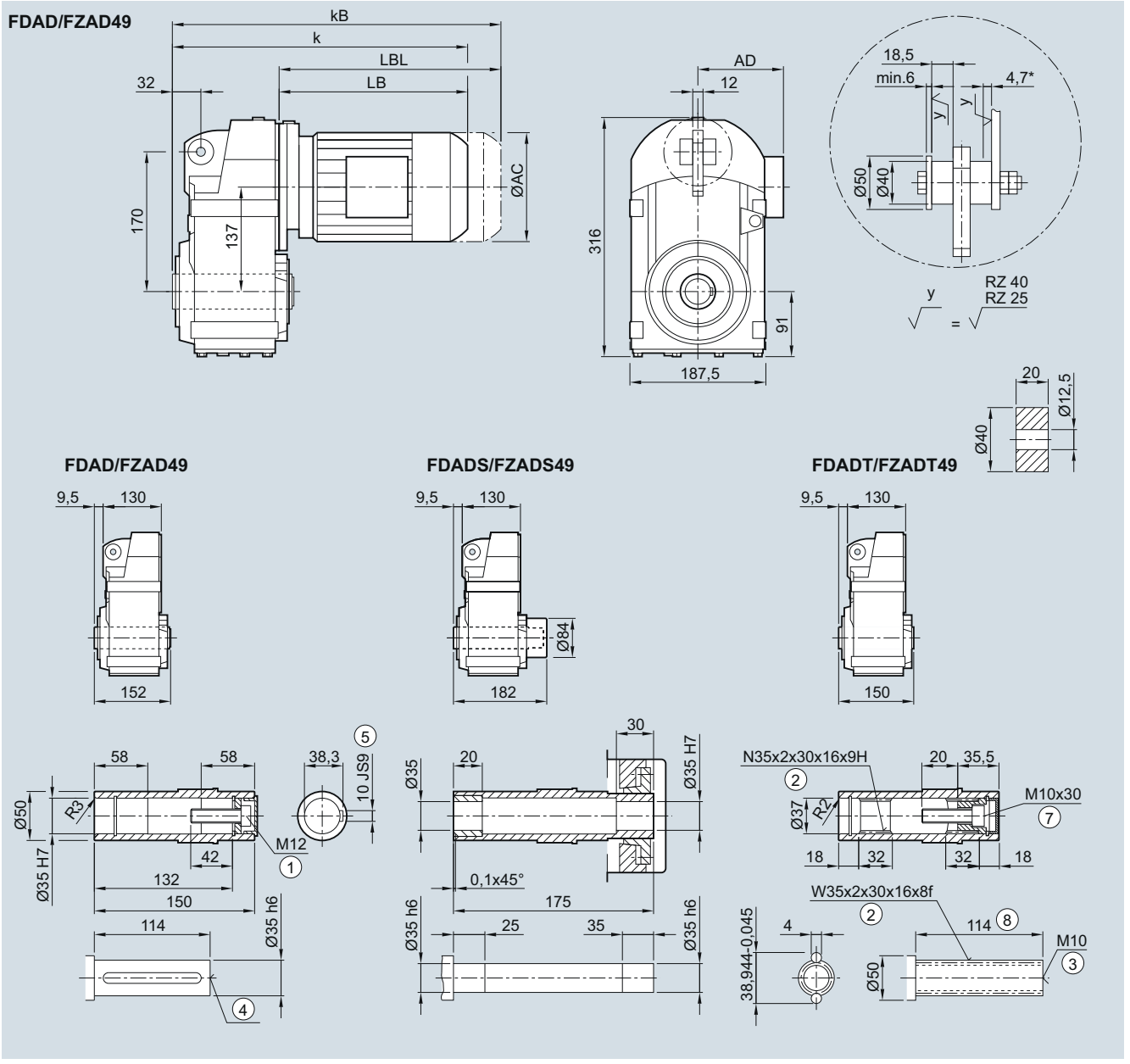
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.49 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



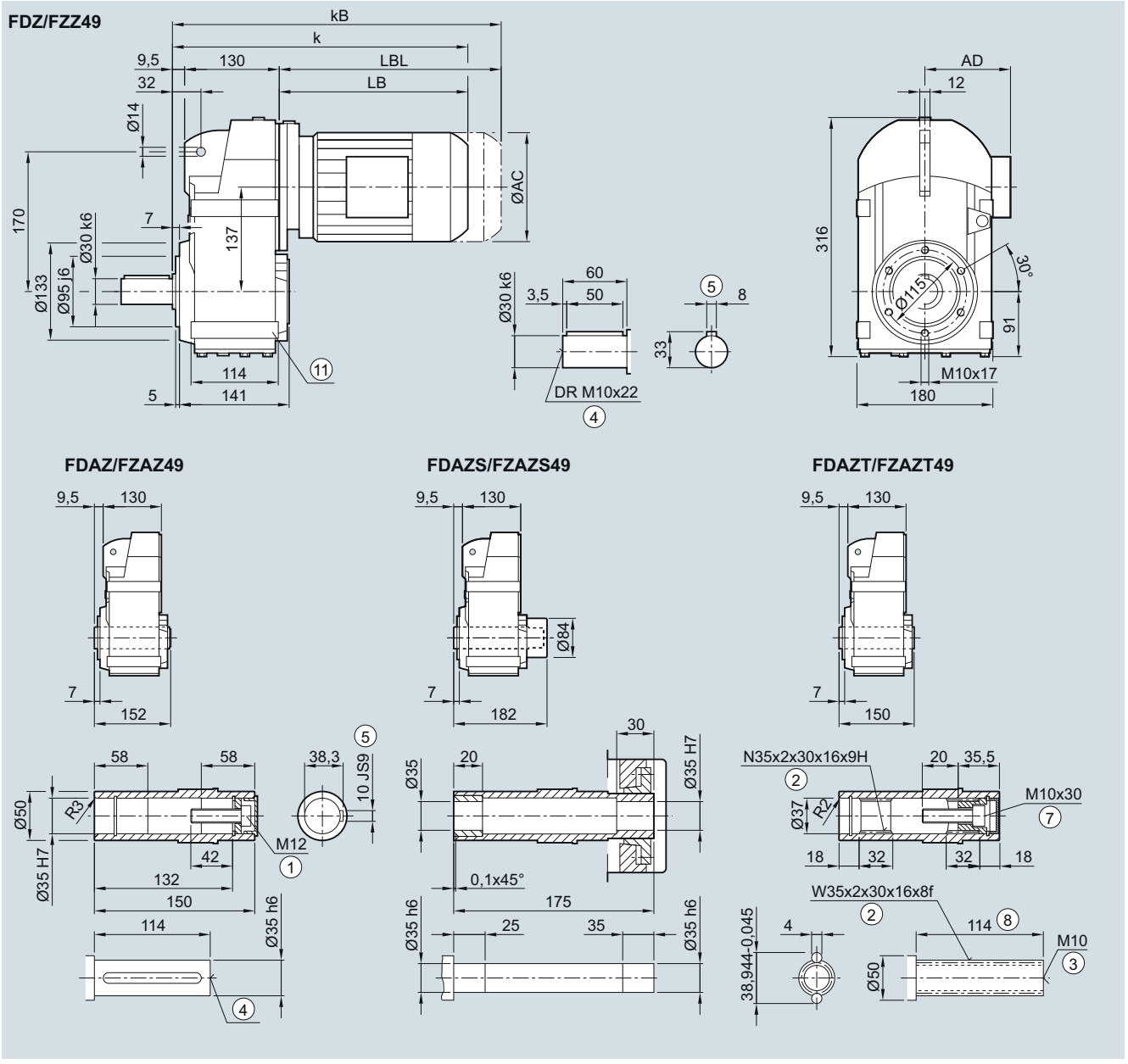
Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	356.0	375.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	411.0	430.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FDADS/FZADS not possible * Spring compression at max. torque

FD.Z./FZ.Z.49 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	356.0	375.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	411.0	430.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

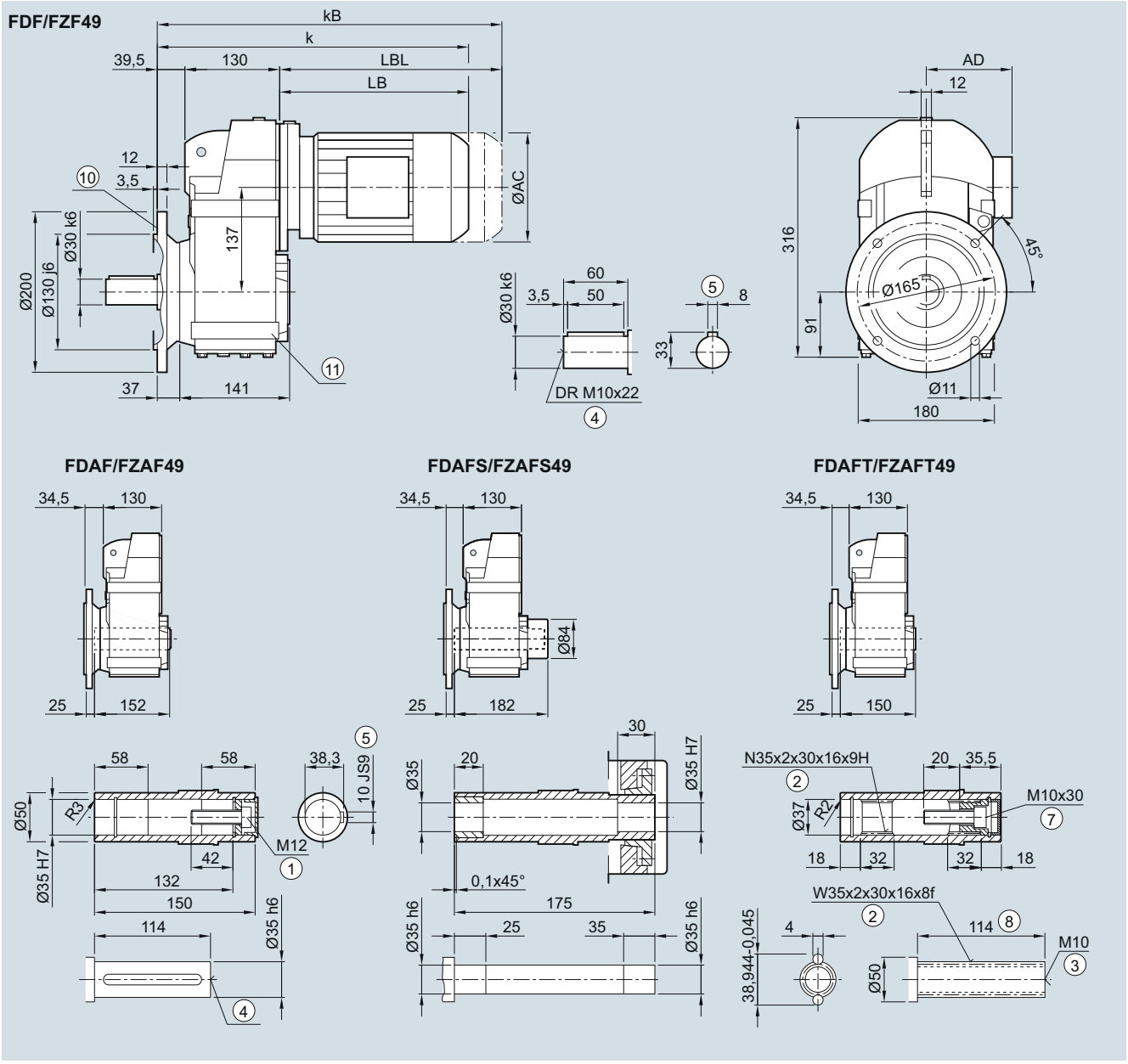
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAZS/FZAZS not possible

4

FD.F./FZ.F.49 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

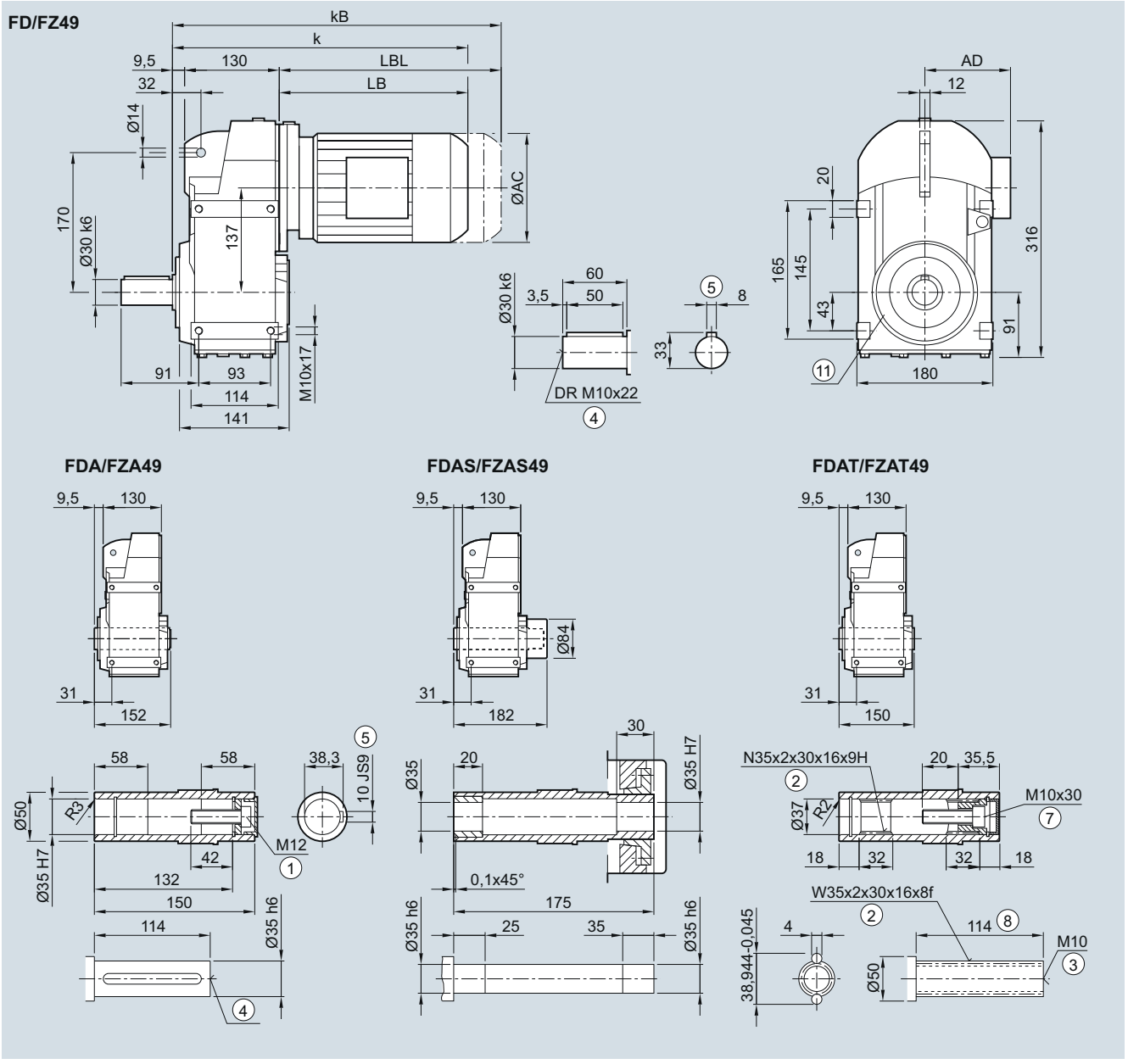


Motor	LA			LE									
	63	71	71Z	80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	354.0	386.0	394.0	450.0	485.0	511.5	551.5	568.0	603.0	578.0	612.5	631.0	681.0
kB	398.5	441.0	460.0	510.0	545.0	581.5	621.5	646.5	681.5	651.0	685.5	735.5	785.5
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FADAFS/FZAFS not possible

FD../FZ..49 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	324.0	356.0	375.0	420.0	455.0	481.5	521.5	538.0	573.0	548.0	582.5	601.0	651.0
kB	368.5	411.0	430.0	480.0	515.0	551.5	591.5	616.5	651.5	621.0	655.5	705.5	755.5
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

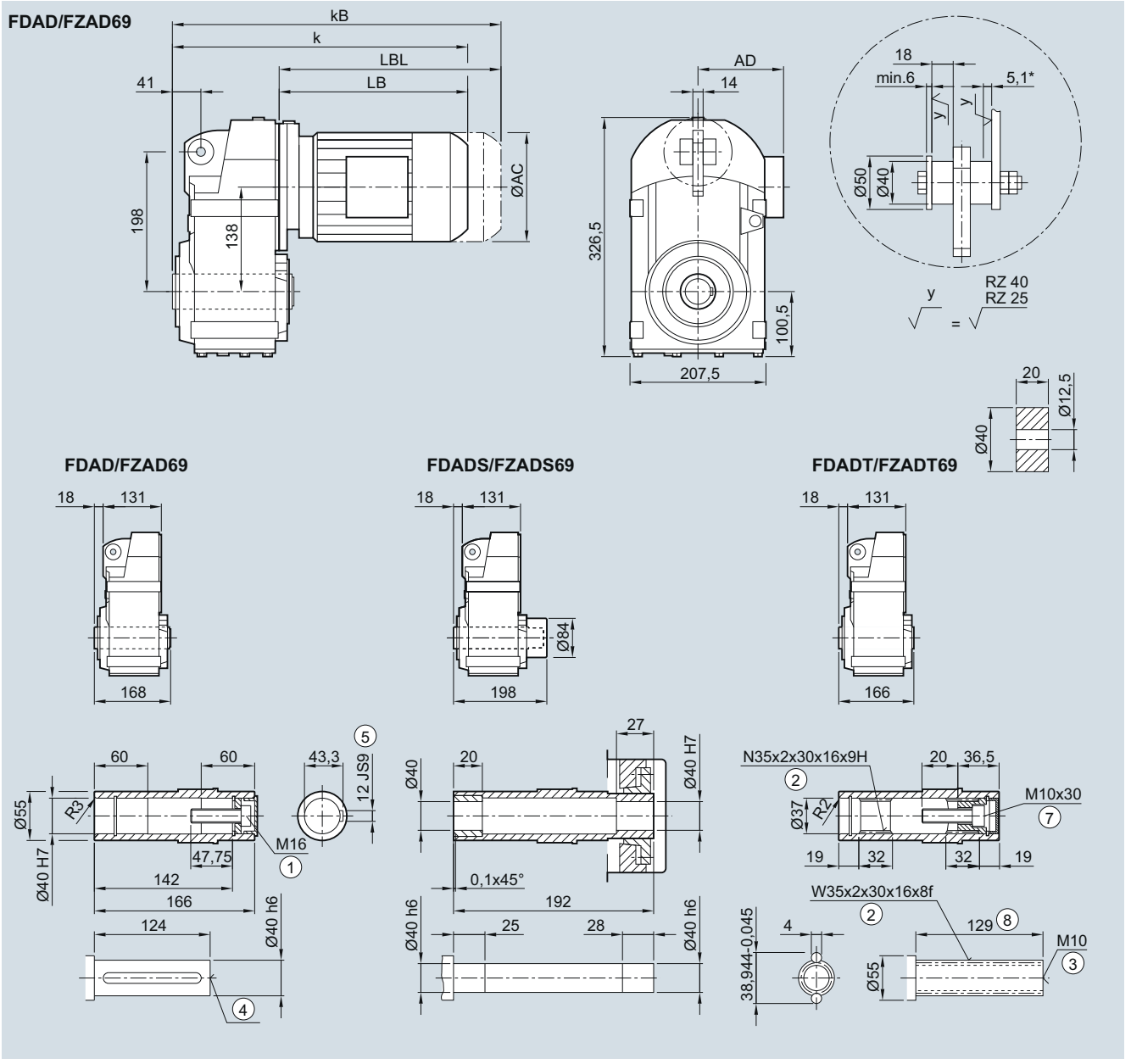
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.69 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



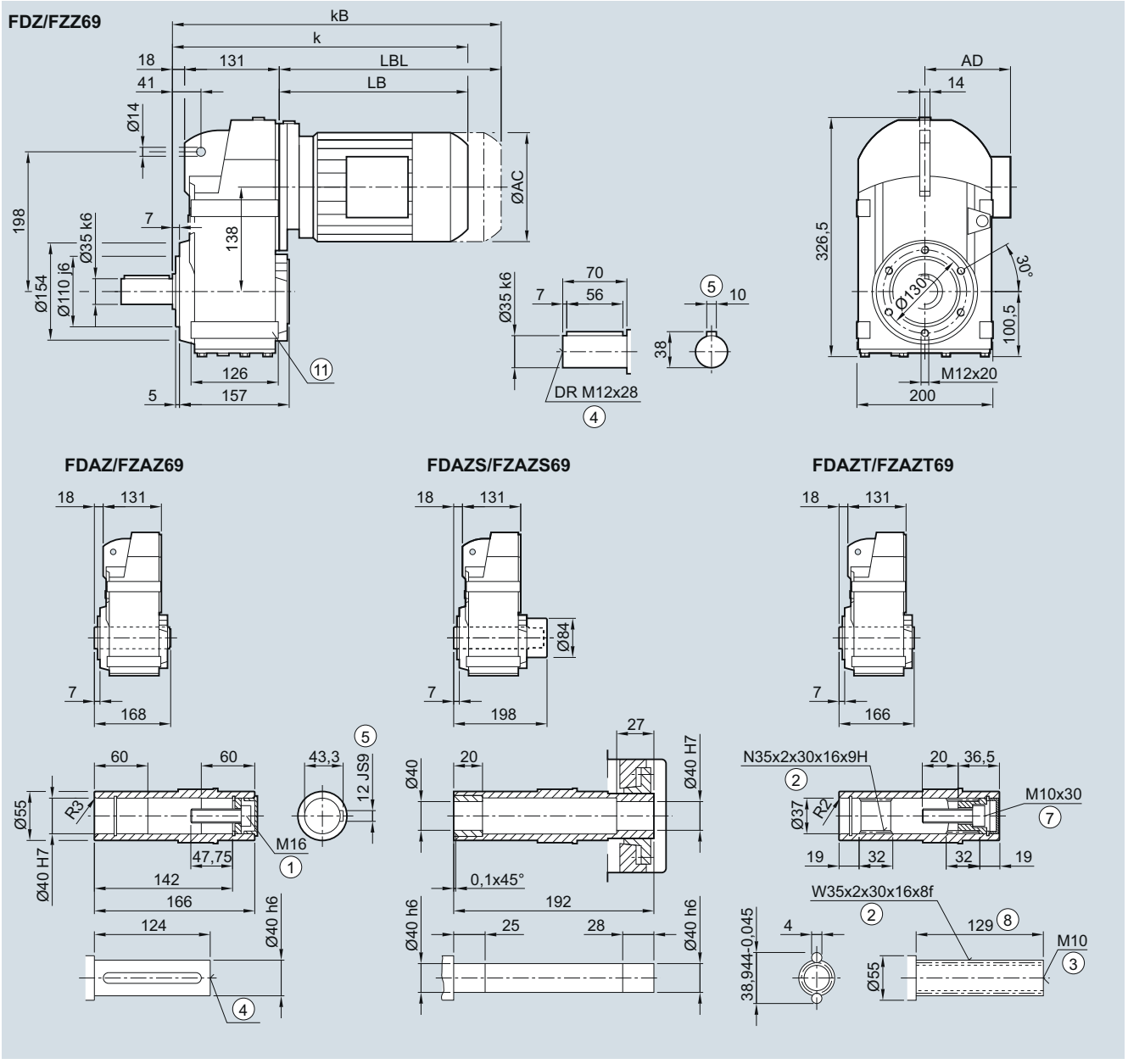
Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	365.5	384.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	420.5	439.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FDADS/FZADS not possible * Spring compression at max. torque

FD.Z./FZ.Z.69 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	365.5	384.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	420.5	439.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

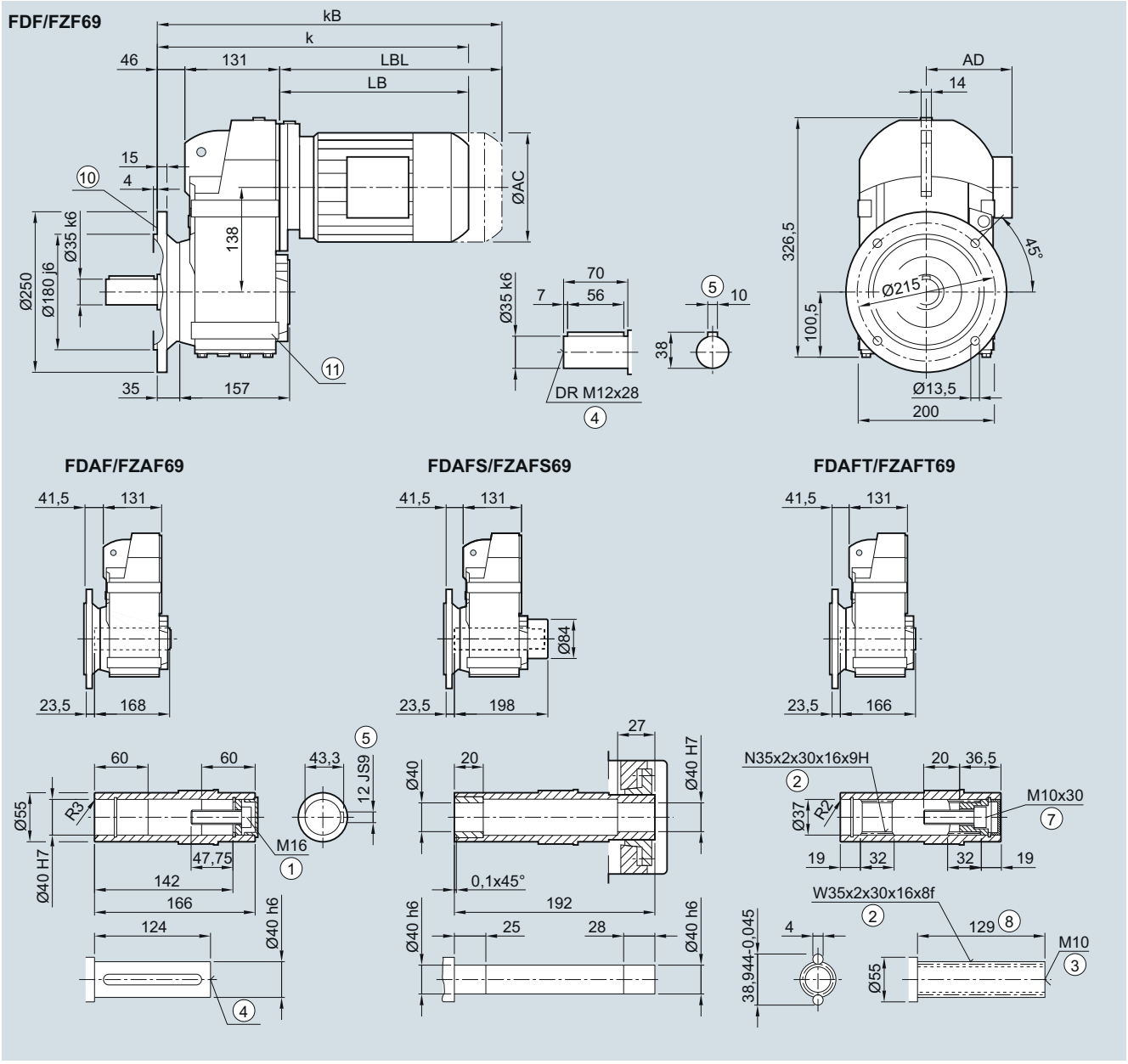
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAZS/FZAZS not possible

4

FD.F./FZ.F.69 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

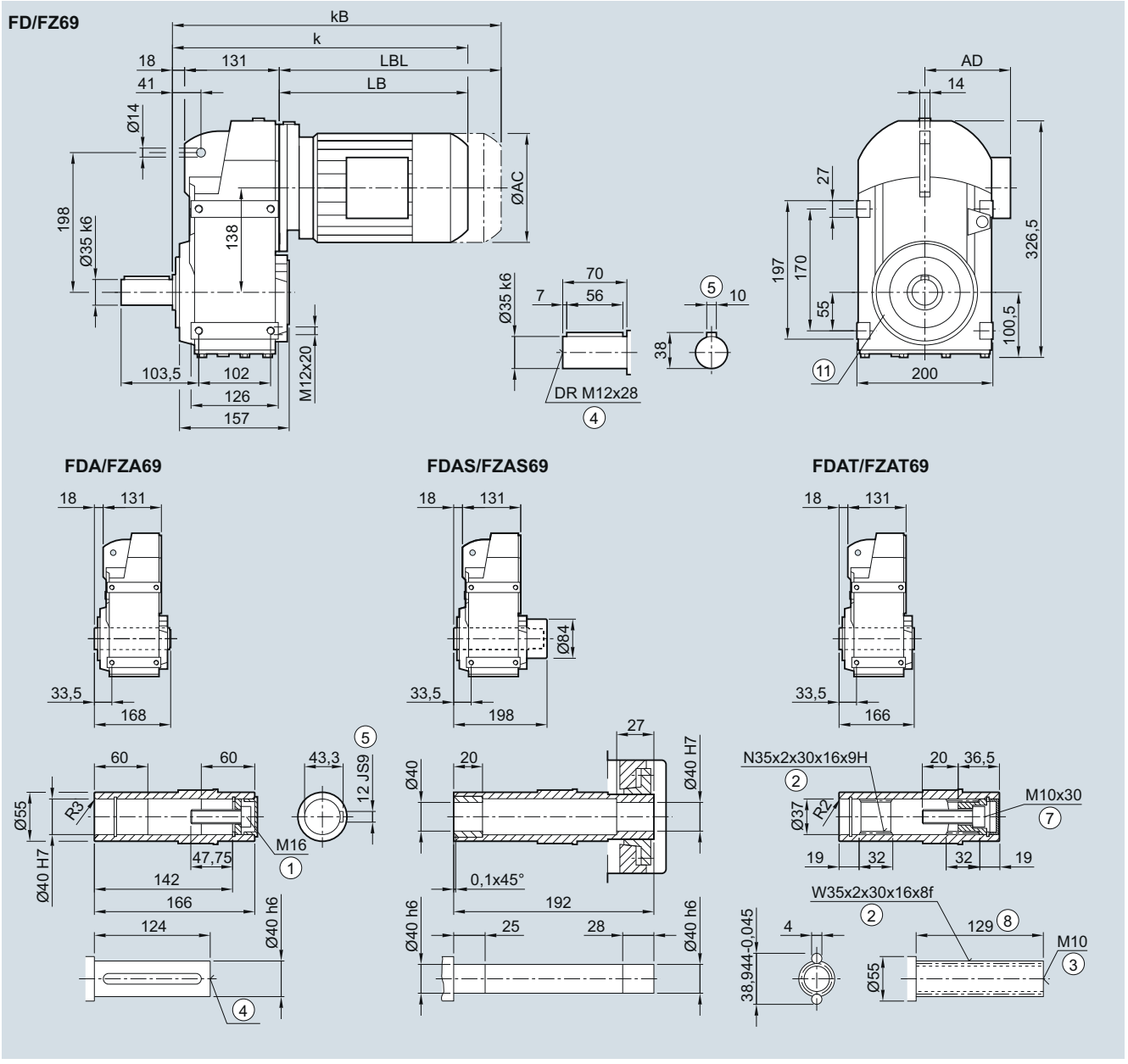


Motor	LA			LE									
	63	71	71Z	80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	361.5	393.5	412.5	457.5	492.5	519.0	559.0	575.5	610.5	585.5	620.0	638.5	688.5
kB	406.0	448.5	467.5	517.5	552.5	589.0	629.0	654.0	689.0	658.5	693.0	743.0	793.0
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FADAFS/FZAFS not possible

FD../FZ..69 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LA 63	71	71Z	LE 80	80Z	90	90Z	100	100Z	112[2]	112Z[2]	132[2]	132Z[2]
AC	117.8	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0
AD[1]	124.0	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0
k	333.5	365.5	384.5	429.5	464.5	491.0	531.0	547.5	582.5	557.5	592.0	610.5	660.5
kB	378.0	420.5	439.5	489.5	524.5	561.0	601.0	626.0	661.0	630.5	665.0	715.0	765.0
LB	184.5	216.5	235.5	280.5	315.5	342.0	382.0	398.5	433.5	408.5	443.0	461.5	511.5
LBL	229.0	271.5	290.5	340.5	375.5	412.0	452.0	477.0	512.0	481.5	516.0	566.0	616.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

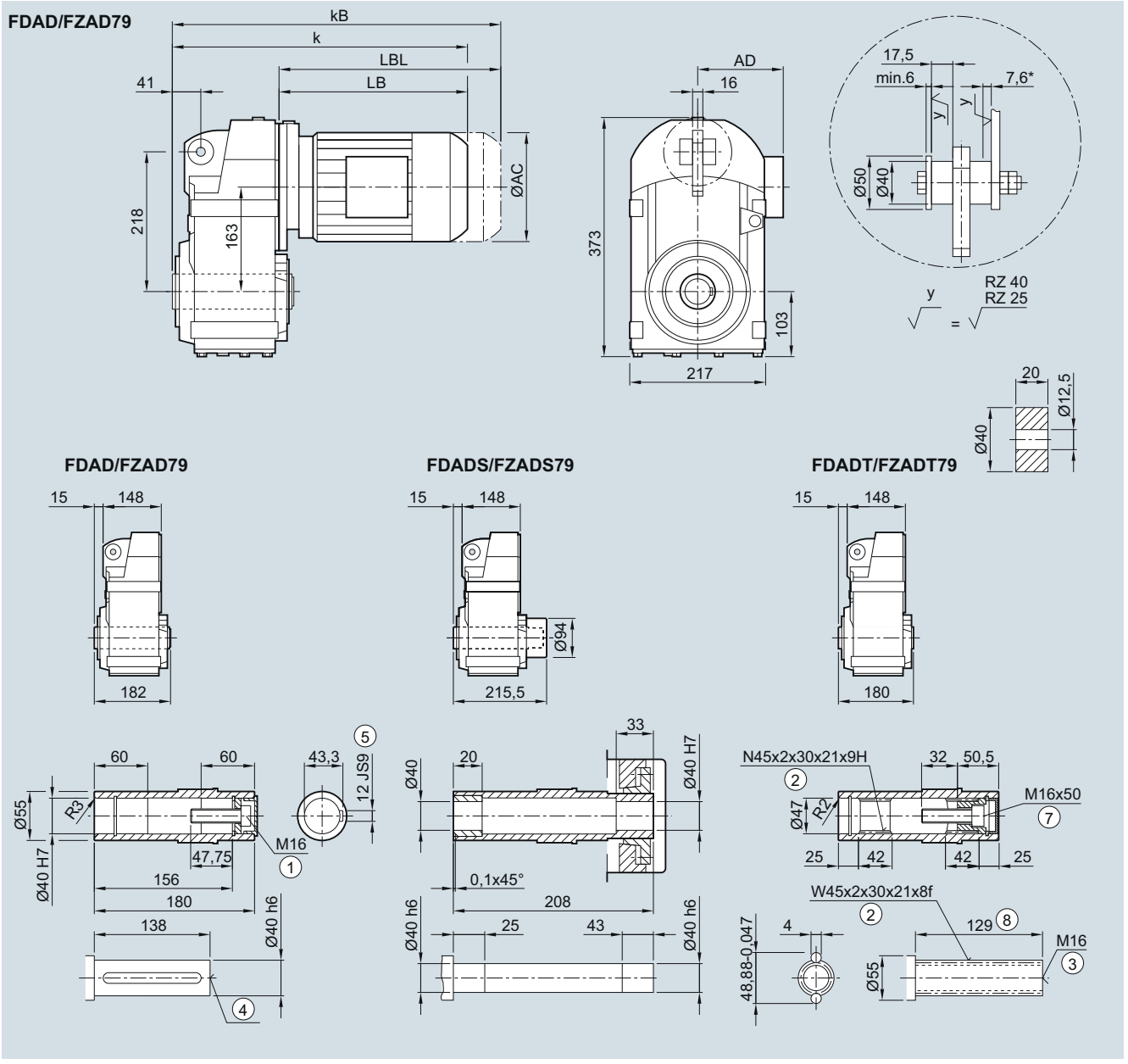
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.79 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



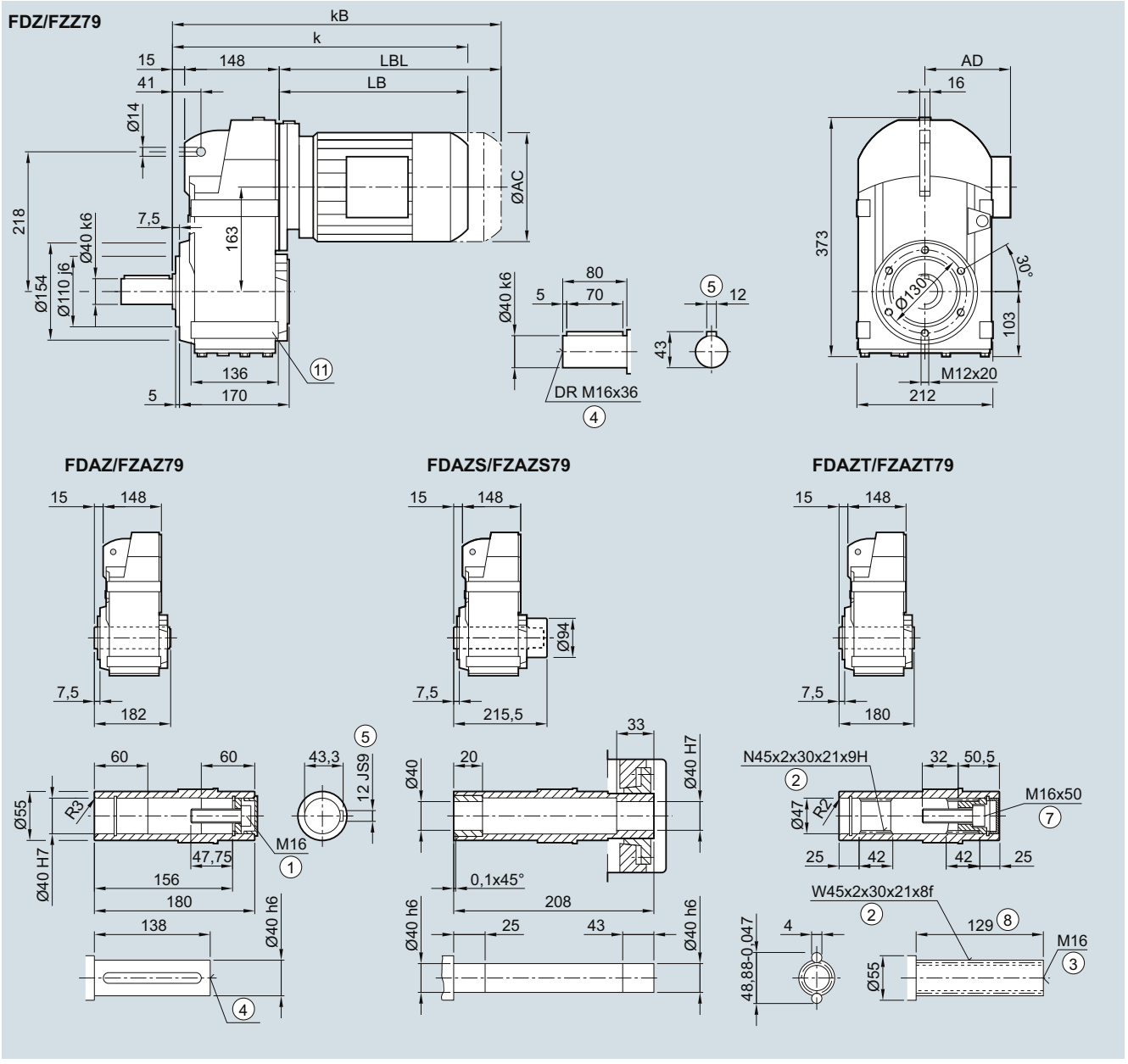
Motor	LA 71	71Z	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2)]	160Z[2)]
AC	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

[1)] AD depends on the motor options, for other dimensions see page 8/36. [2)] FDAS/FZAS not possible * Spring compression at max. torque

FD.Z./FZ.Z.79 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LA		LE											
	71	71Z	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

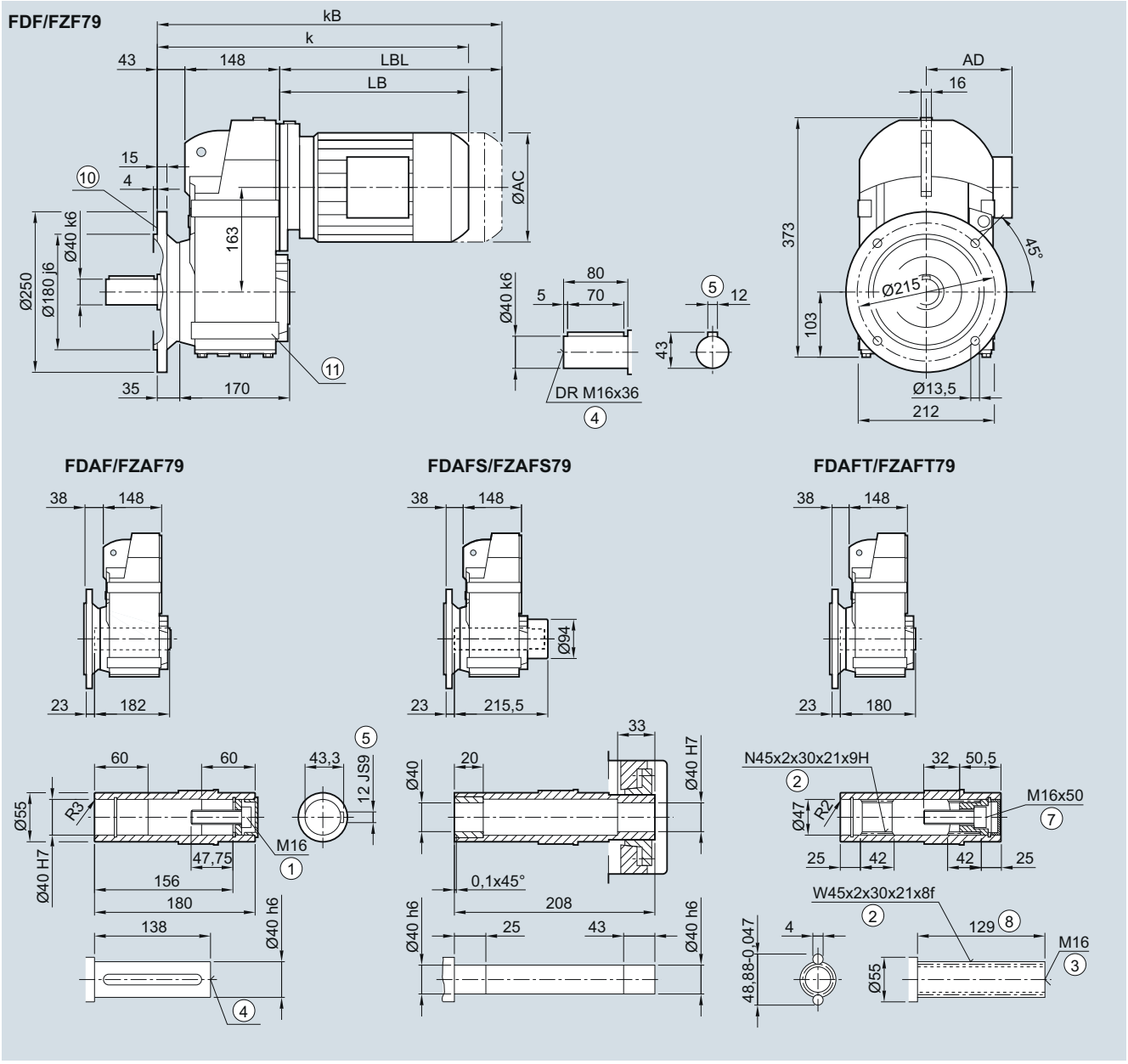
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAZS/FZAZS not possible

4

FD.F./FZ.F.79 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

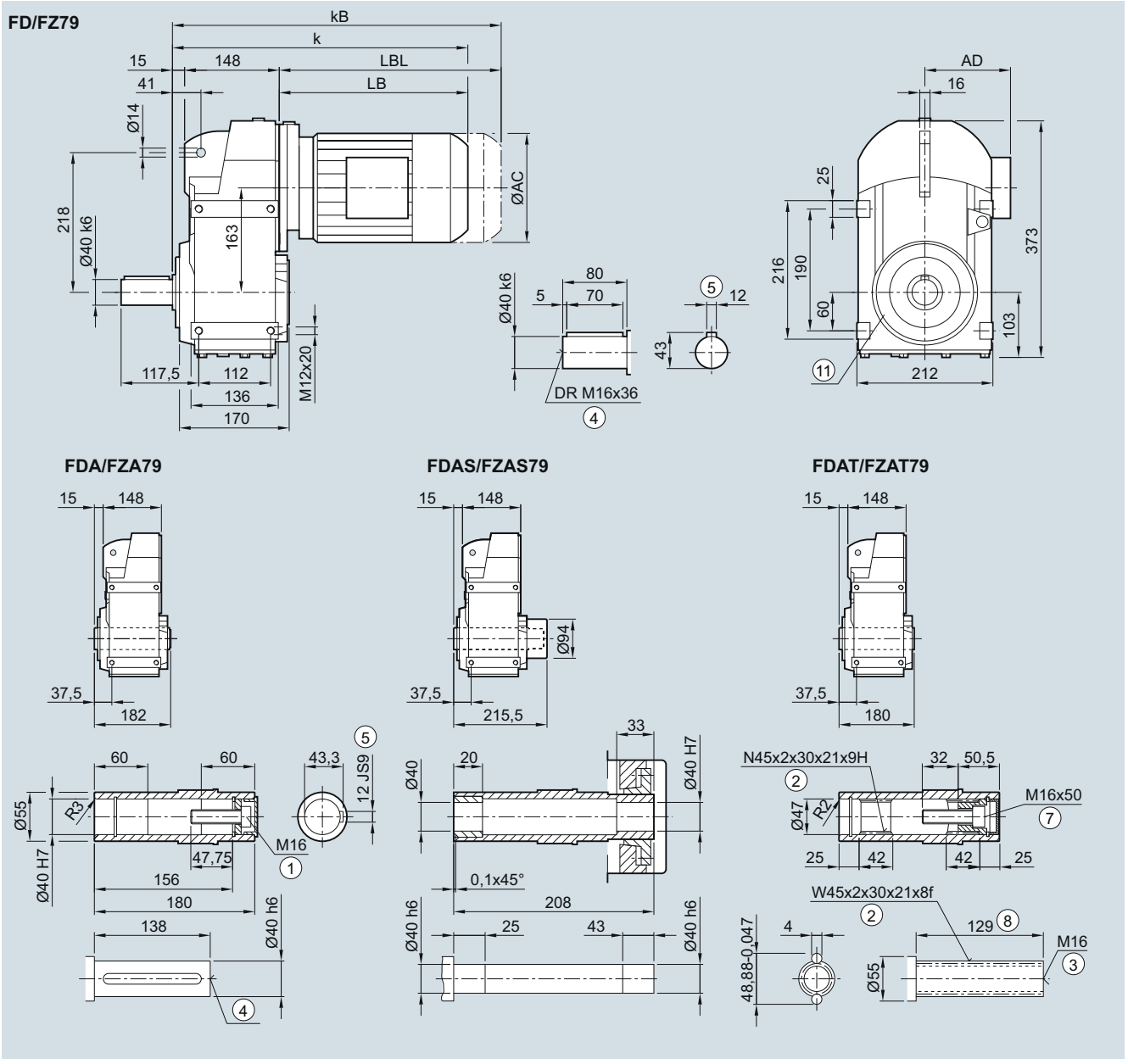


Motor	LA 71	71Z	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2)]	160Z[2)]
AC	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1)]	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	405.5	424.5	465.5	500.5	527.0	567.0	583.5	618.5	593.5	618.5	646.5	696.5	728.5	788.5
kB	460.5	479.5	525.5	560.5	597.0	637.0	662.0	697.0	666.5	691.5	751.0	801.0	844.5	904.5
LB	214.5	233.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1)] AD depends on the motor options, for other dimensions see page 8/36. [2)] FADAFS/FZAFS not possible

FD../FZ..79 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LA		LE											
	71	71Z	80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160[2]	160Z[2]
AC	138.8	138.8	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0
AD[1]	134.0	134.0	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0
k	377.5	396.5	437.5	472.5	499.0	539.0	555.5	590.5	565.5	590.5	618.5	668.5	700.5	760.5
kB	432.5	451.5	497.5	532.5	569.0	609.0	634.0	669.0	638.5	663.5	723.0	773.0	816.5	876.5
LB	214.5	233.5	274.5	309.5	336.0	376.0	392.5	427.5	402.5	427.5	455.5	505.5	537.5	597.5
LBL	269.5	288.5	334.5	369.5	406.0	446.0	471.0	506.0	475.5	500.5	560.0	610.0	653.5	713.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

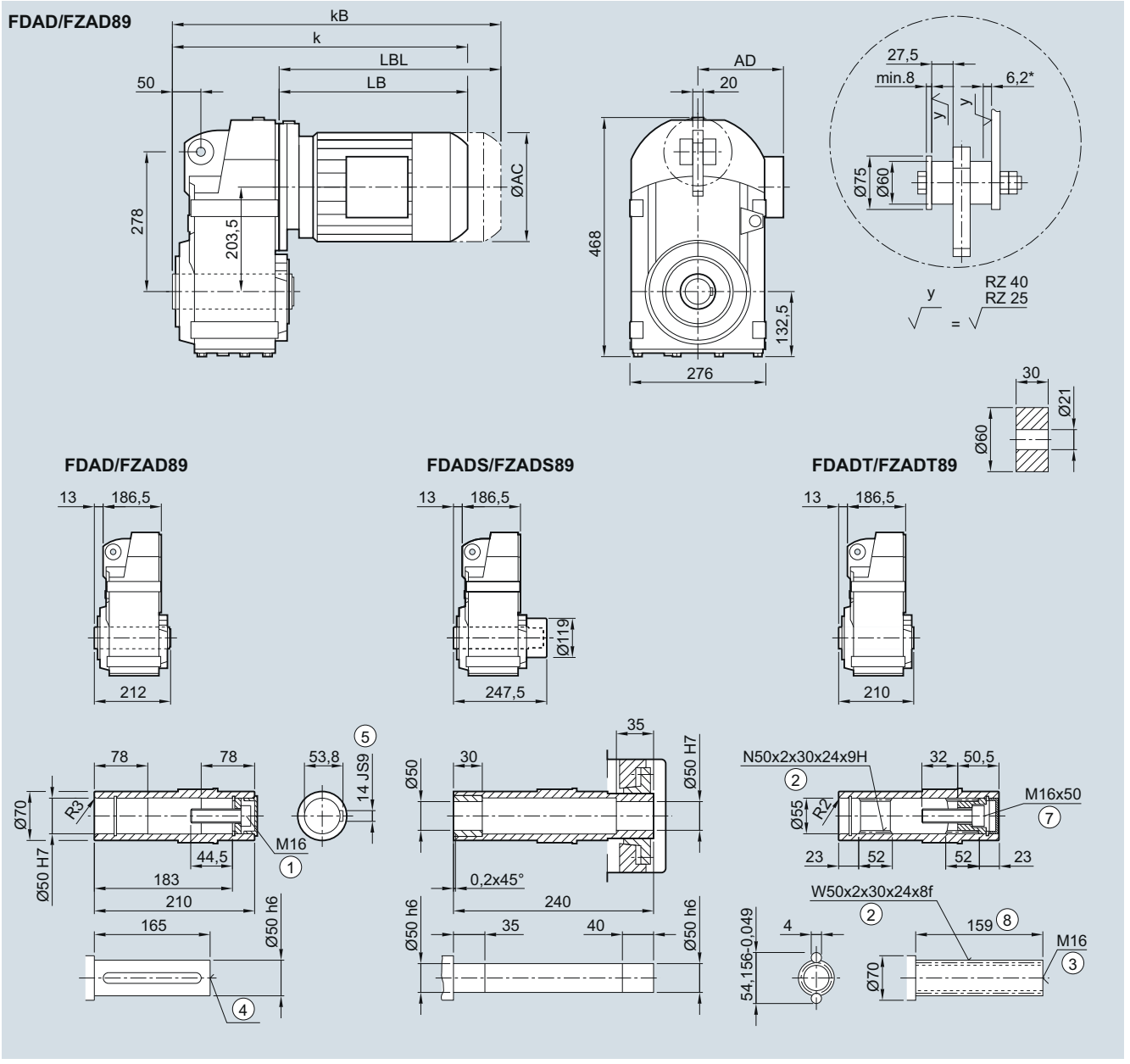
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.89 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



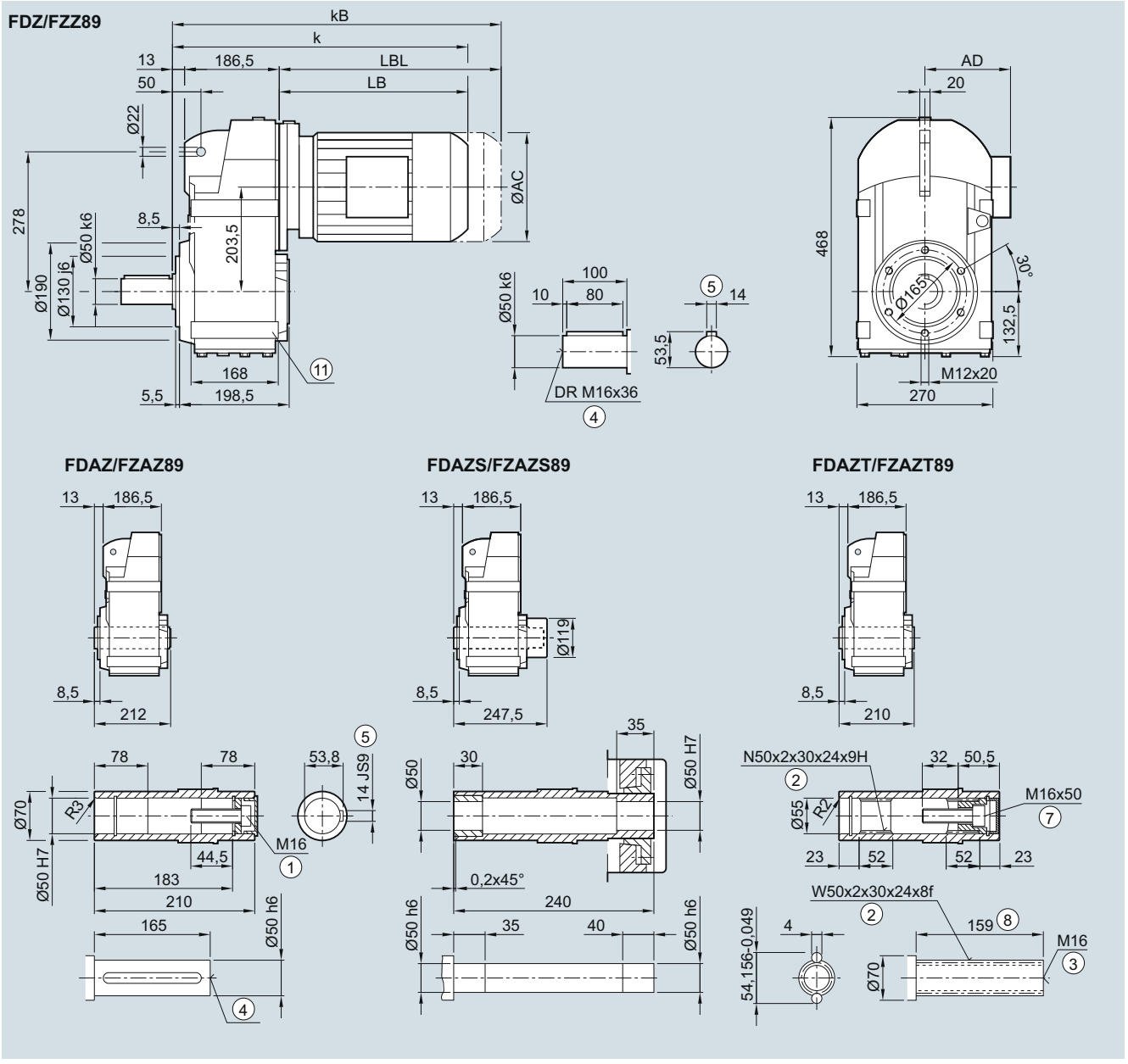
Motor	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FDAS/FZAS not possible * Spring compression at max. torque

FD.Z./FZ.Z.89 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

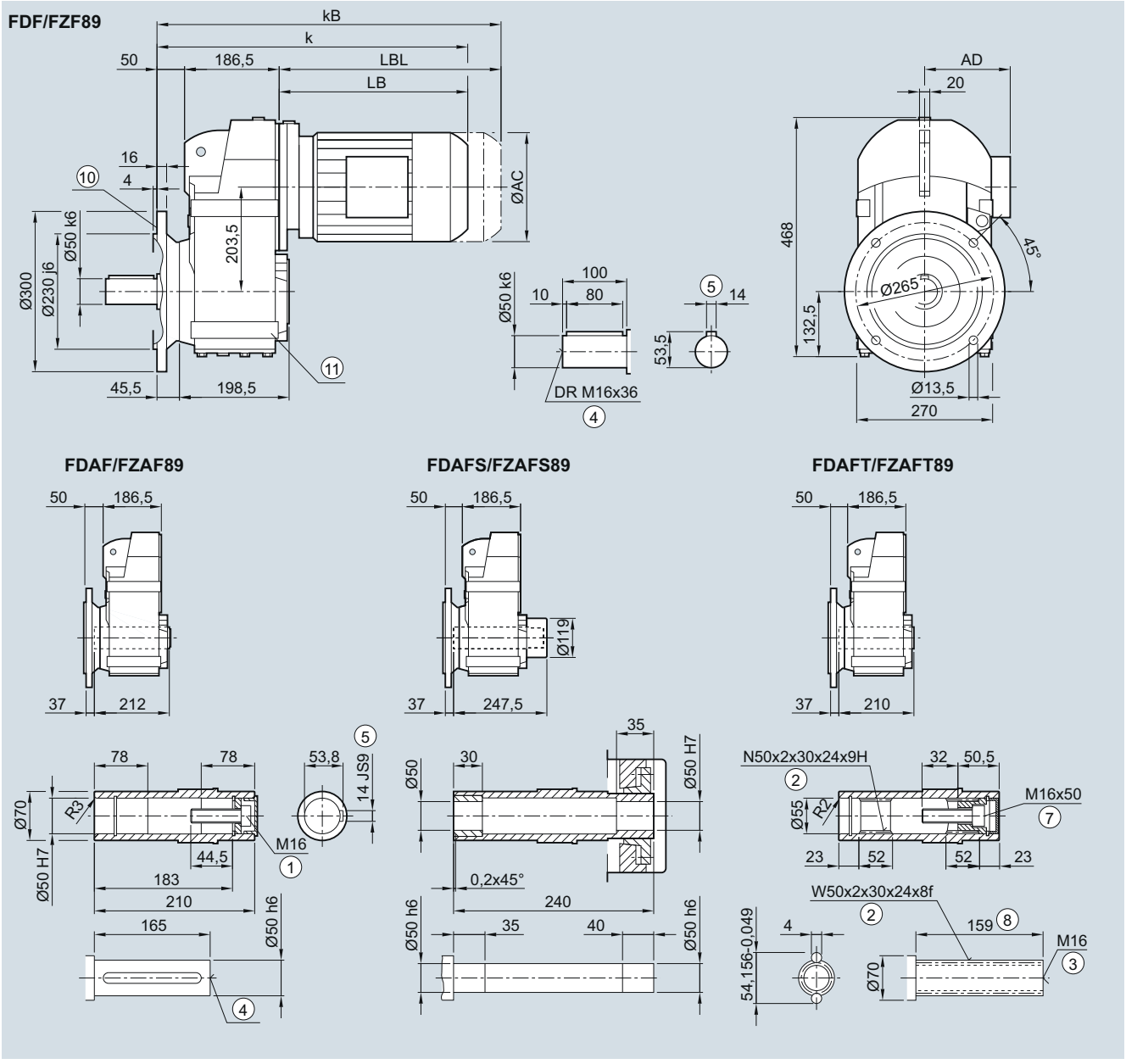
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FD.F./FZ.F.89 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

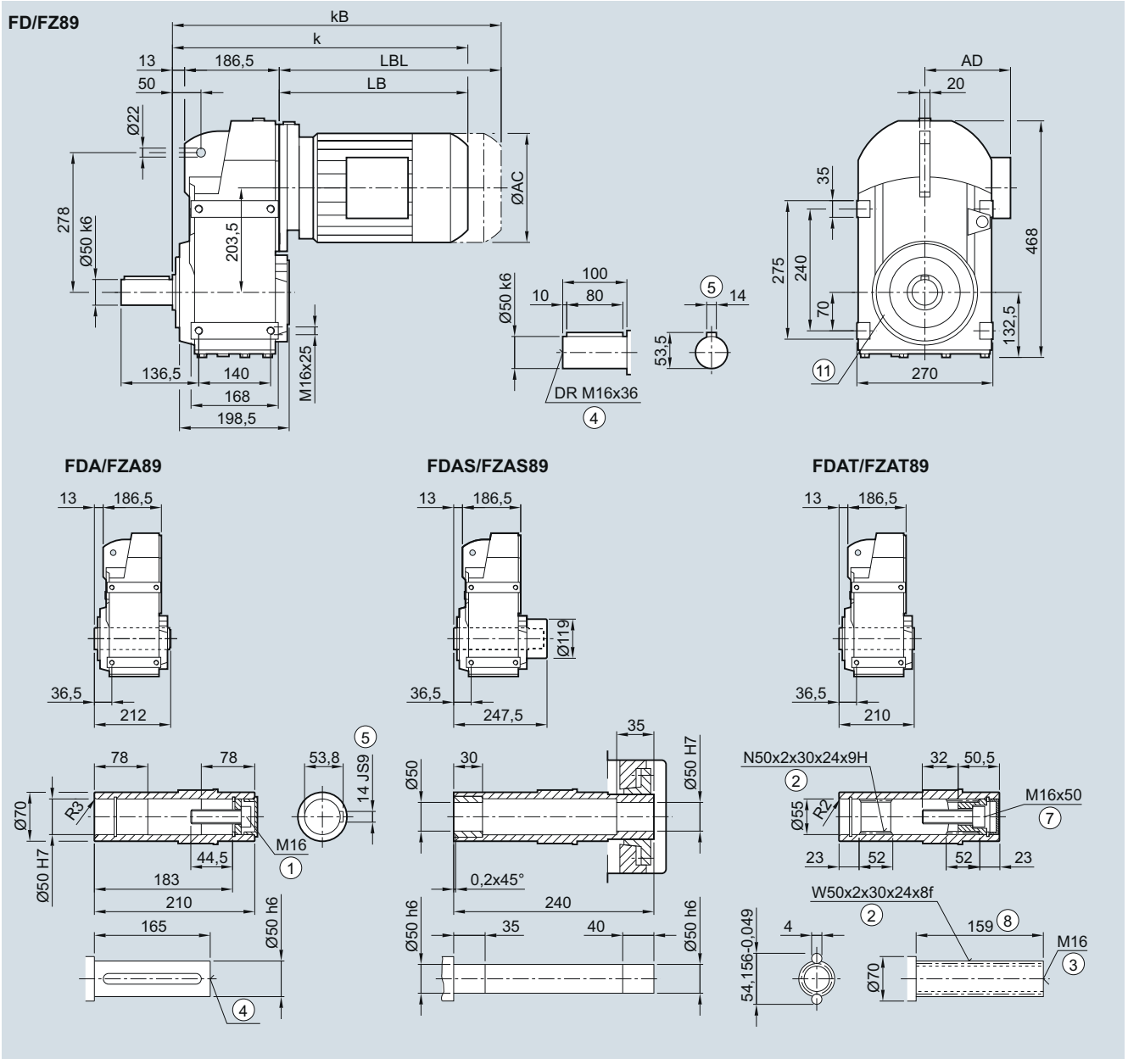


Motor	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	498.0	533.0	559.5	599.5	612.0	647.0	622.0	647.0	675.0	725.0	757.0	817.0	830.0	860.0
kB	558.0	593.0	629.5	669.5	690.5	725.5	695.0	720.0	779.5	829.5	873.0	933.0	959.0	989.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1] AD depends on the motor options, for other dimensions see page 8/36. [2] FADAFS/FZAFS not possible

FD../FZ..89 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LE 80	80Z	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180[2]	180Z[2]
AC	156.3	156.3	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5
AD[1]	149.2	149.2	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0
k	461.0	496.0	522.5	562.5	575.0	610.0	585.0	610.0	638.0	688.0	720.0	780.0	793.0	823.0
kB	521.0	556.0	592.5	632.5	653.5	688.5	658.0	683.0	742.5	792.5	836.0	896.0	922.0	952.0
LB	261.5	296.5	323.0	363.0	375.5	410.5	385.5	410.5	438.5	488.5	520.5	580.5	593.5	623.5
LBL	321.5	356.5	393.0	433.0	454.0	489.0	458.5	483.5	543.0	593.0	636.5	696.5	722.5	752.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

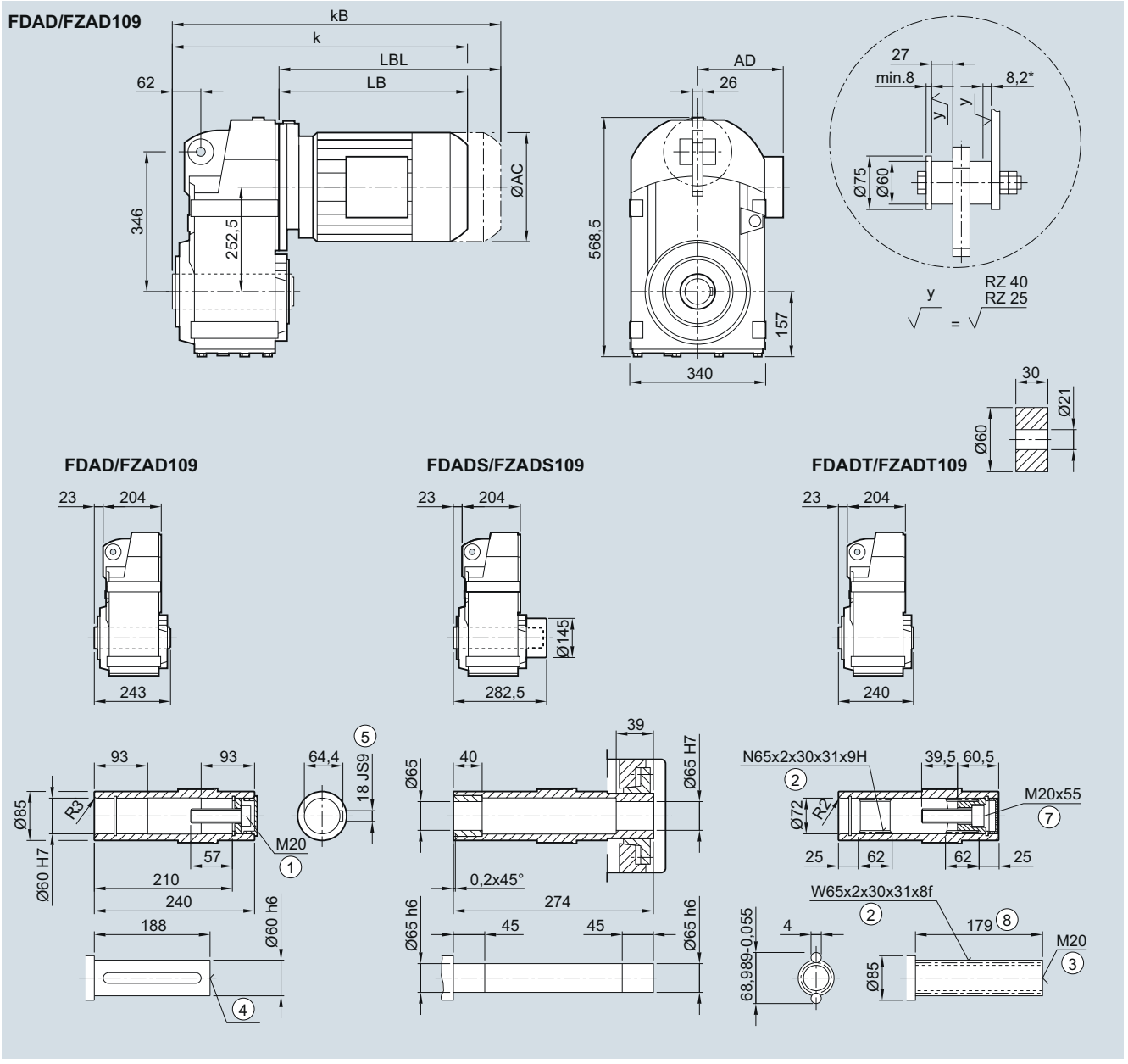
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.109 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1 026.5	1 051.5	1 153.0	1 213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

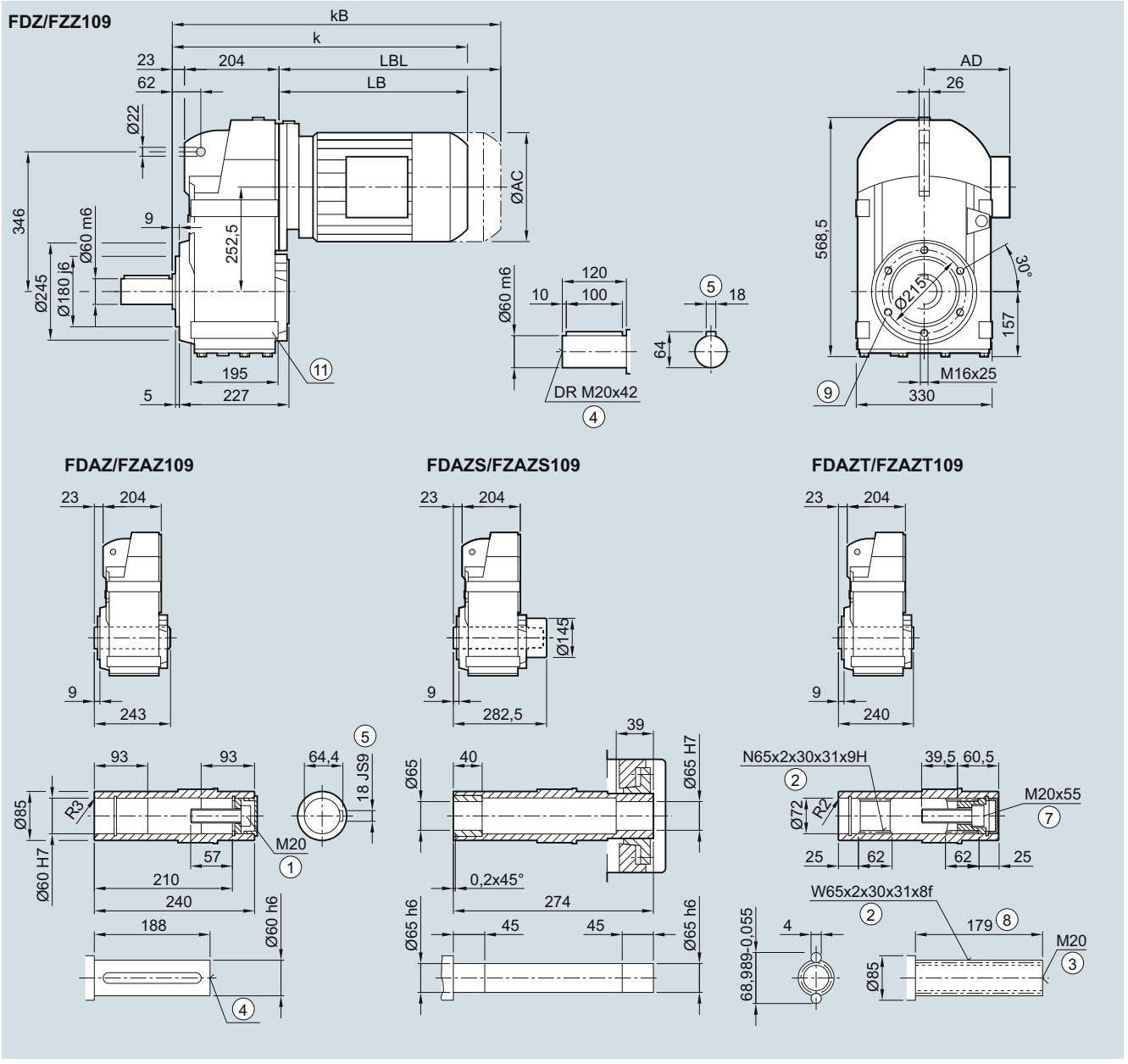
1) AD depends on the motor options, for other dimensions see page 8/36.

* Spring compression at max. torque

2) FDAS/FZAS not possible

FD.Z./FZ.Z.109 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



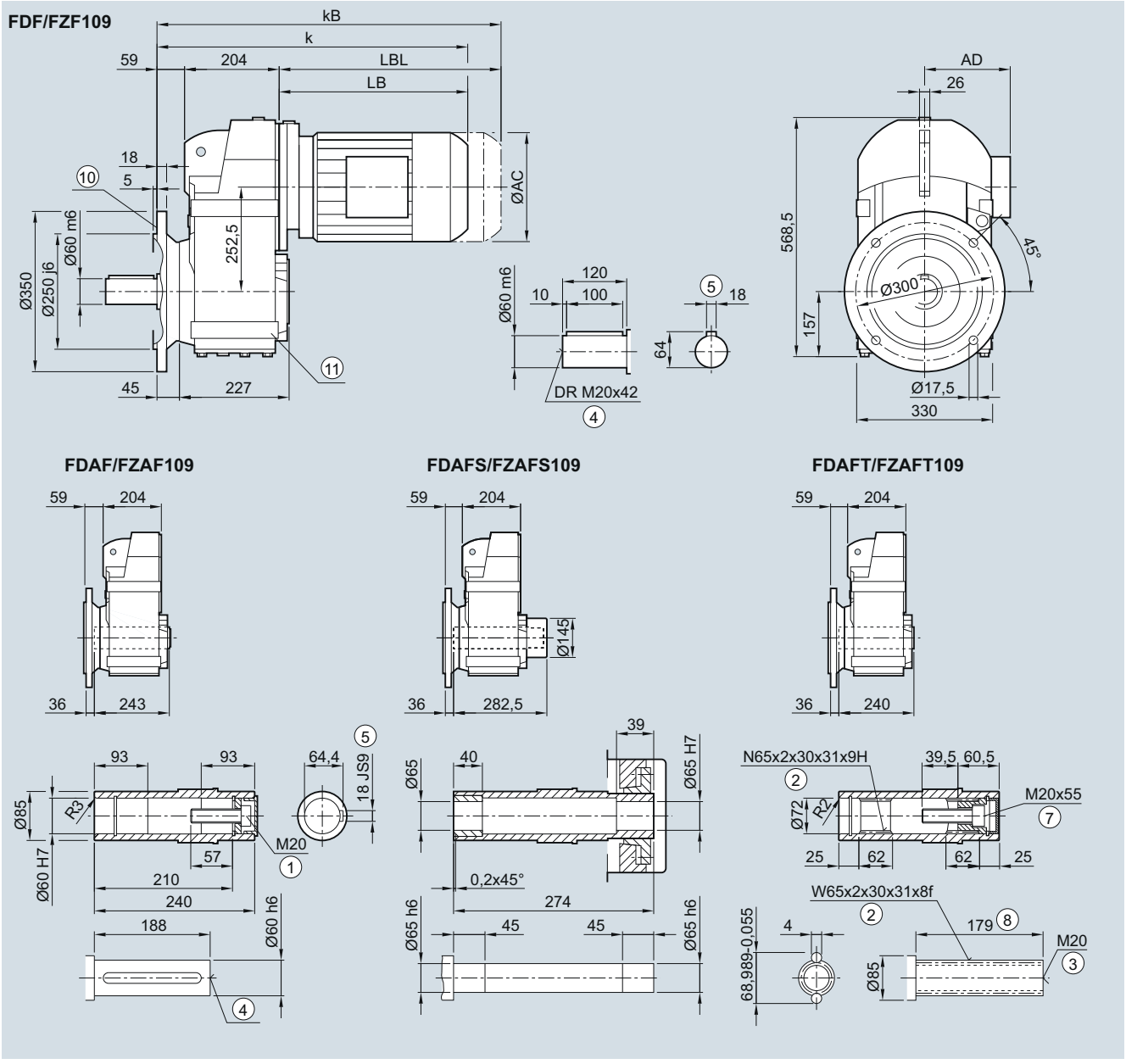
Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1 026.5	1 051.5	1 153.0	1 213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design
⑨ For pin holes see page 4/124 [1] AD depends on the motor options, for other dimensions see page 8/36. [2] FDAS/FZAS not possible

4

FD.F./FZ.F.109 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

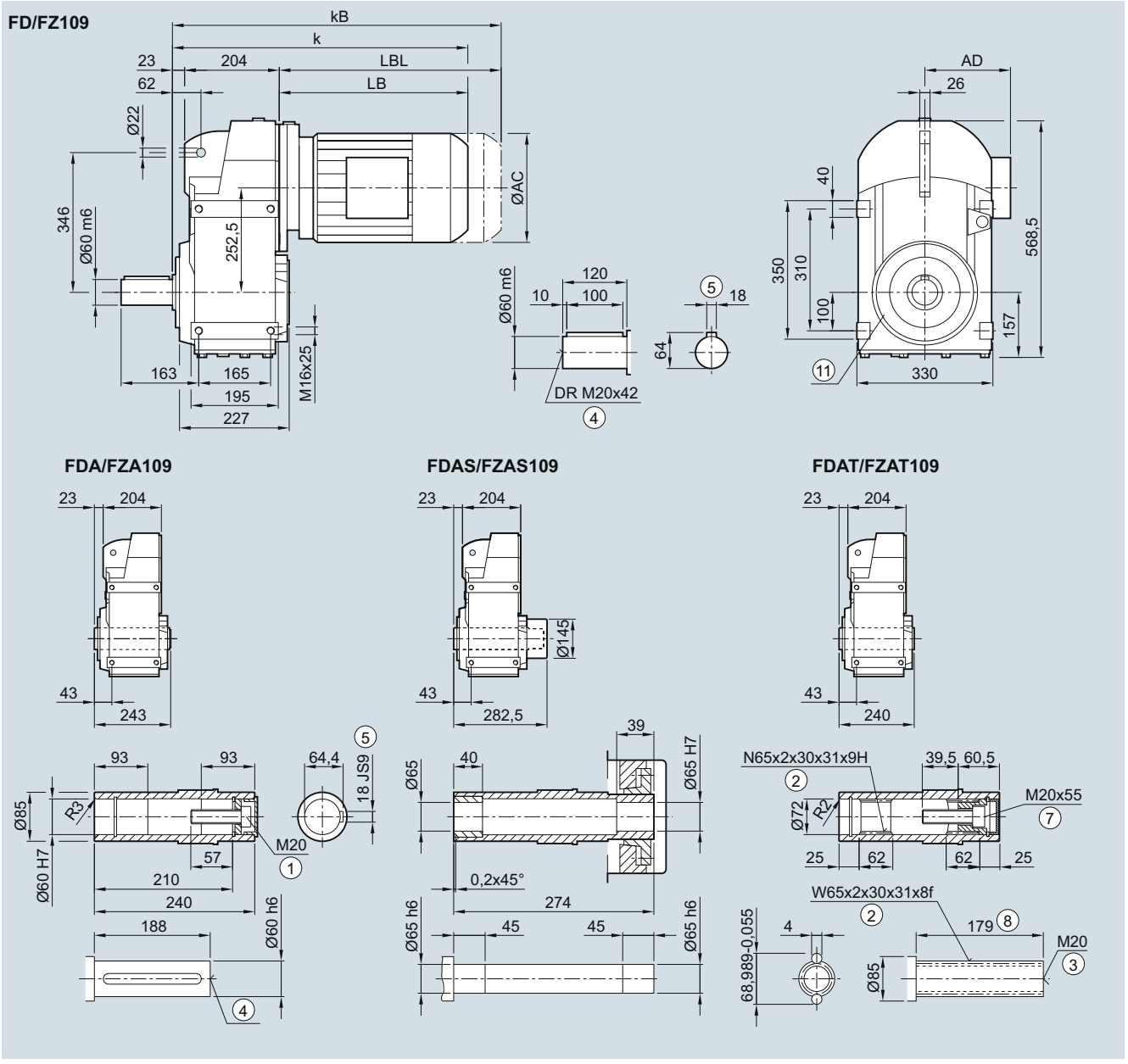


Motor	LE										LES					
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	579.0	619.0	629.5	664.5	639.5	664.5	692.5	742.5	774.5	834.5	847.5	877.5	915.5	940.5	961.0	1 021.0
kB	649.0	689.0	708.0	743.0	712.5	737.5	797.0	847.0	890.5	950.5	976.5	1 006.5	1 062.5	1 087.5	1 189.0	1 249.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1] AD depends on the motor options, for other dimensions see page 8/36.
[2] FDAS/FZAS not possible

FD../FZ.109 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225[2]	225Y[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0
k	543.0	583.0	593.5	628.5	603.5	628.5	656.5	706.5	738.5	798.5	811.5	841.5	879.5	904.5	925.0	985.0
kB	613.0	653.0	672.0	707.0	676.5	701.5	761.0	811.0	854.5	914.5	940.5	970.5	1 026.5	1 051.5	1 153.0	1 213.0
LB	316.0	356.0	366.5	401.5	376.5	401.5	429.5	479.5	511.5	571.5	584.5	614.5	652.5	677.5	698.0	758.0
LBL	386.0	426.0	445.0	480.0	449.5	474.5	534.0	584.0	627.5	687.5	713.5	743.5	799.5	824.5	926.0	986.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

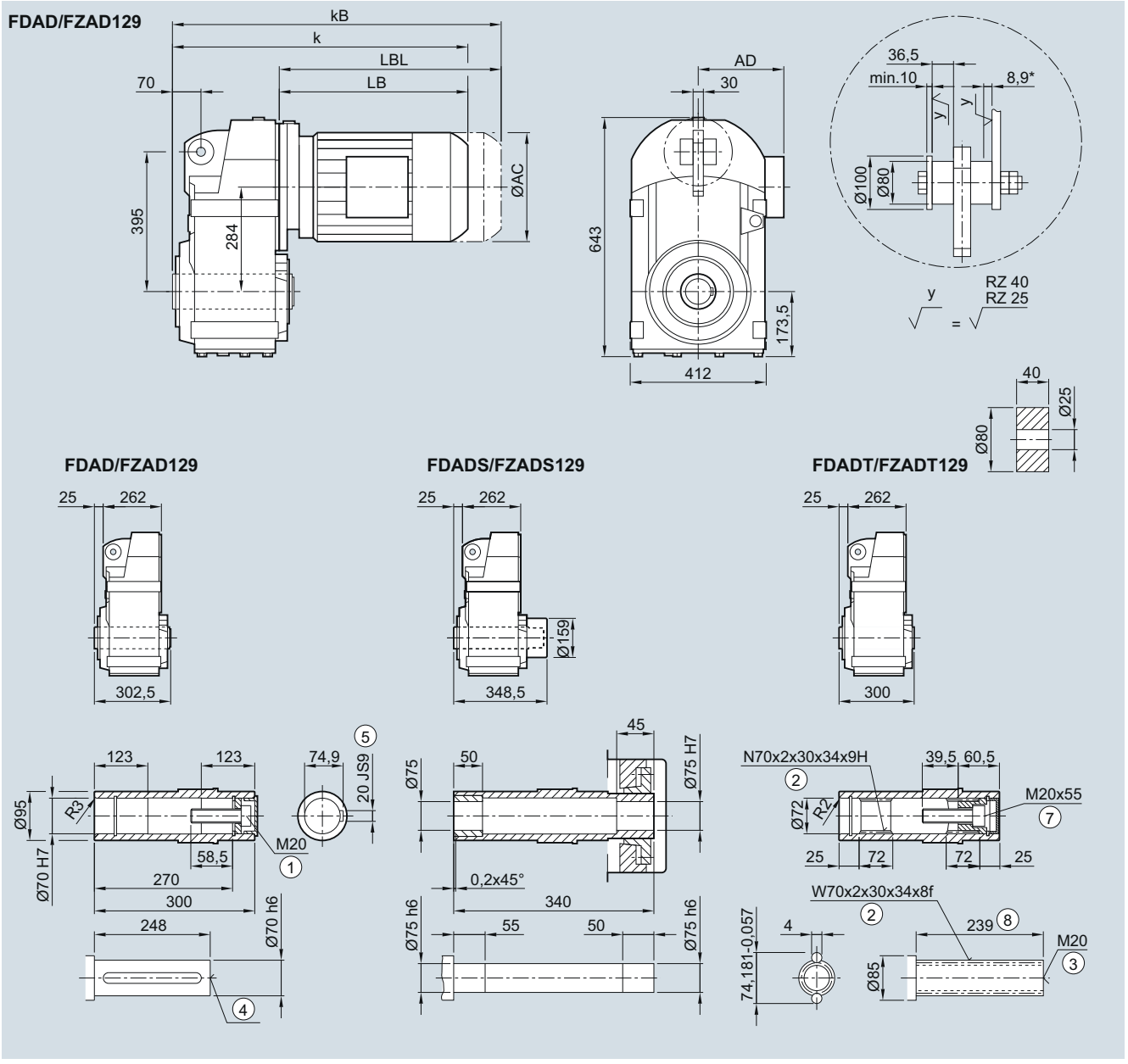
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.129 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	980.0	1 040.0	1 085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1 019.5	1 075.5	1 100.5	1 208.0	1 268.0	1 310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1 023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

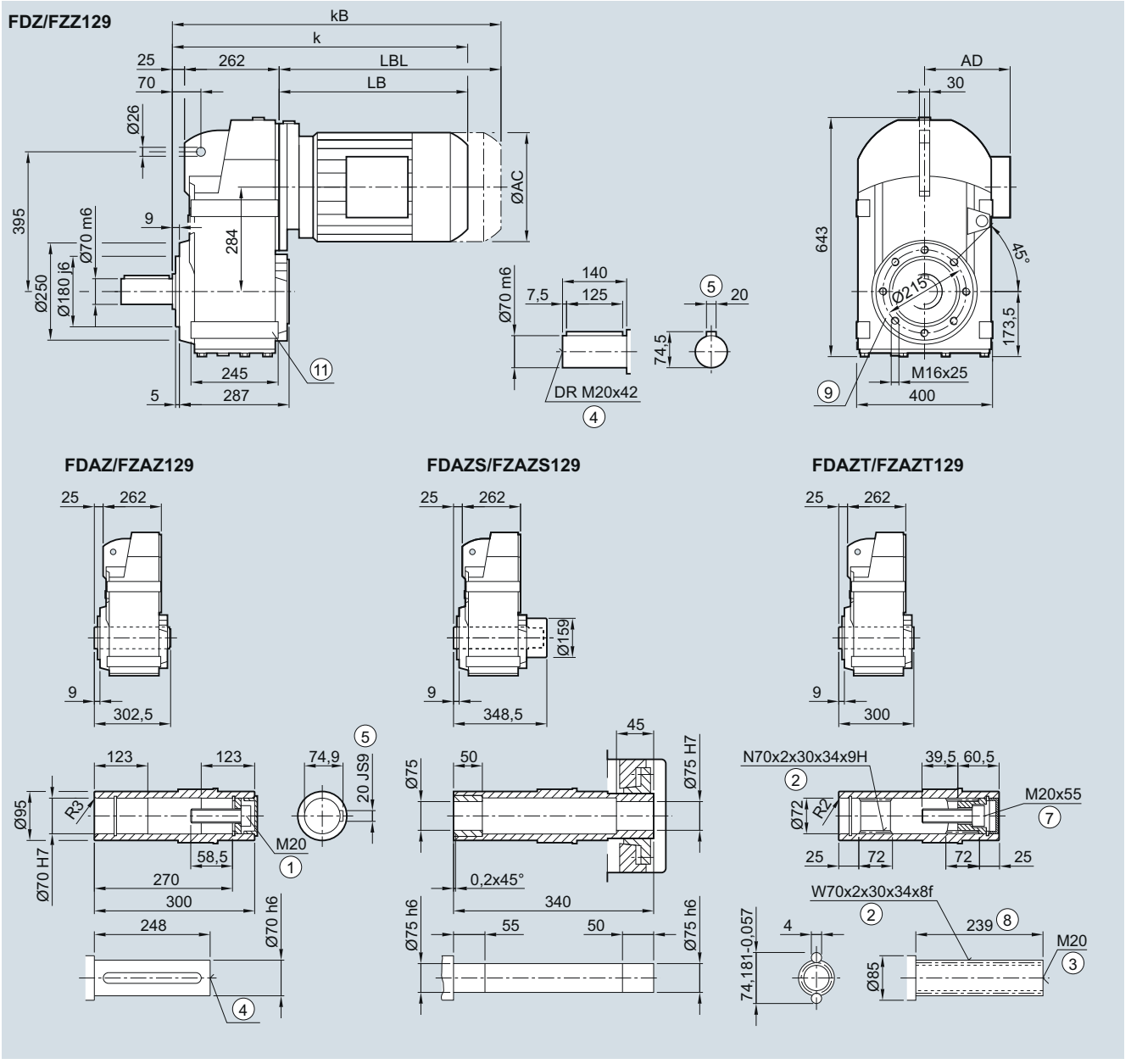
1) AD depends on the motor options, for other dimensions see page 8/36.

* Spring compression at max. torque

2) FDAS/FZAS not possible

FD.Z./FZ.Z.129 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



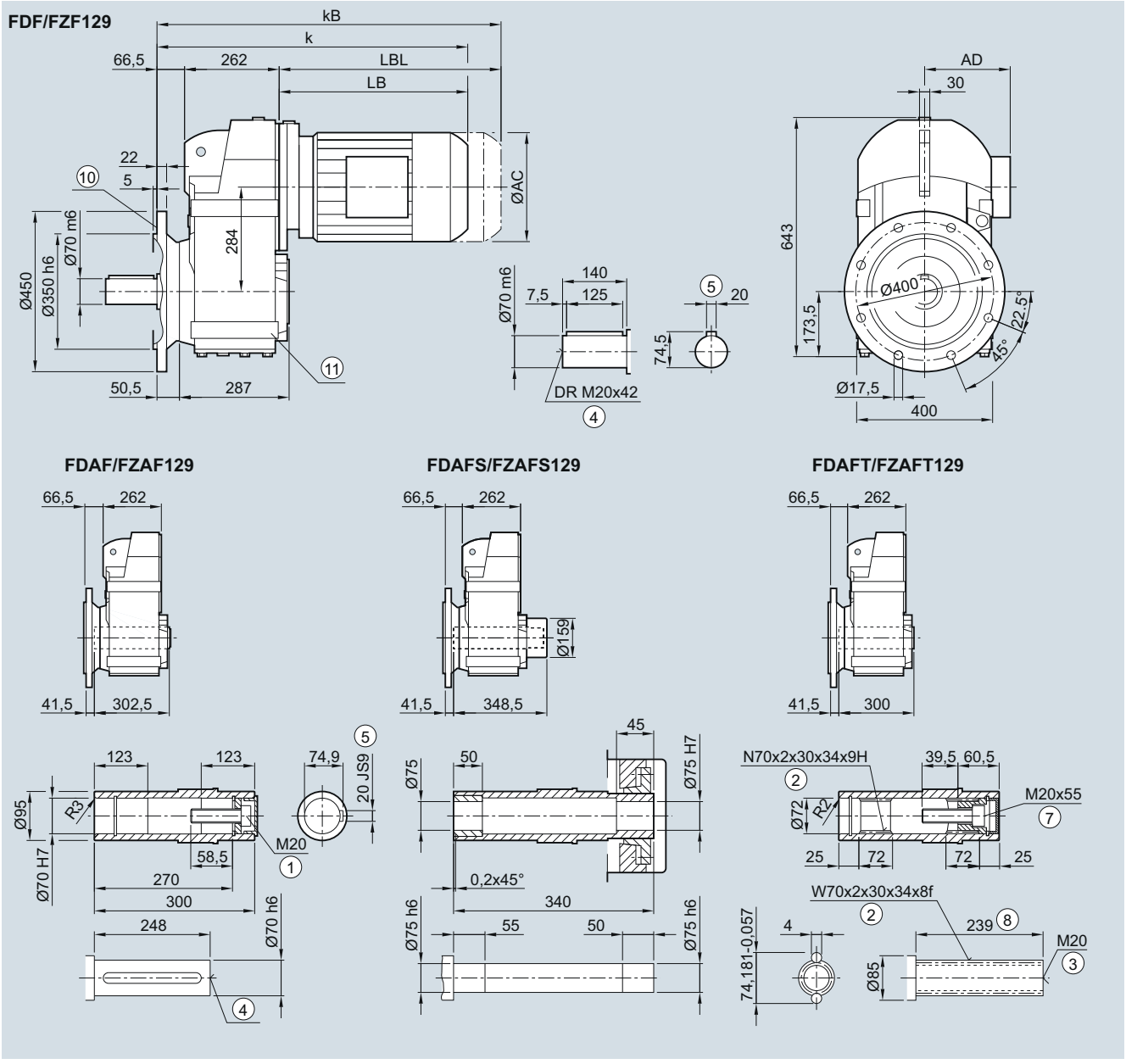
Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	980.0	1 040.0	1 085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1 019.5	1 075.5	1 100.5	1 208.0	1 268.0	1 310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1 023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑨ For pin holes see page 4/124 ⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions see page 8/36. 2) FDAS/FZAS not possible

4

FD.F./FZ.F.129 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

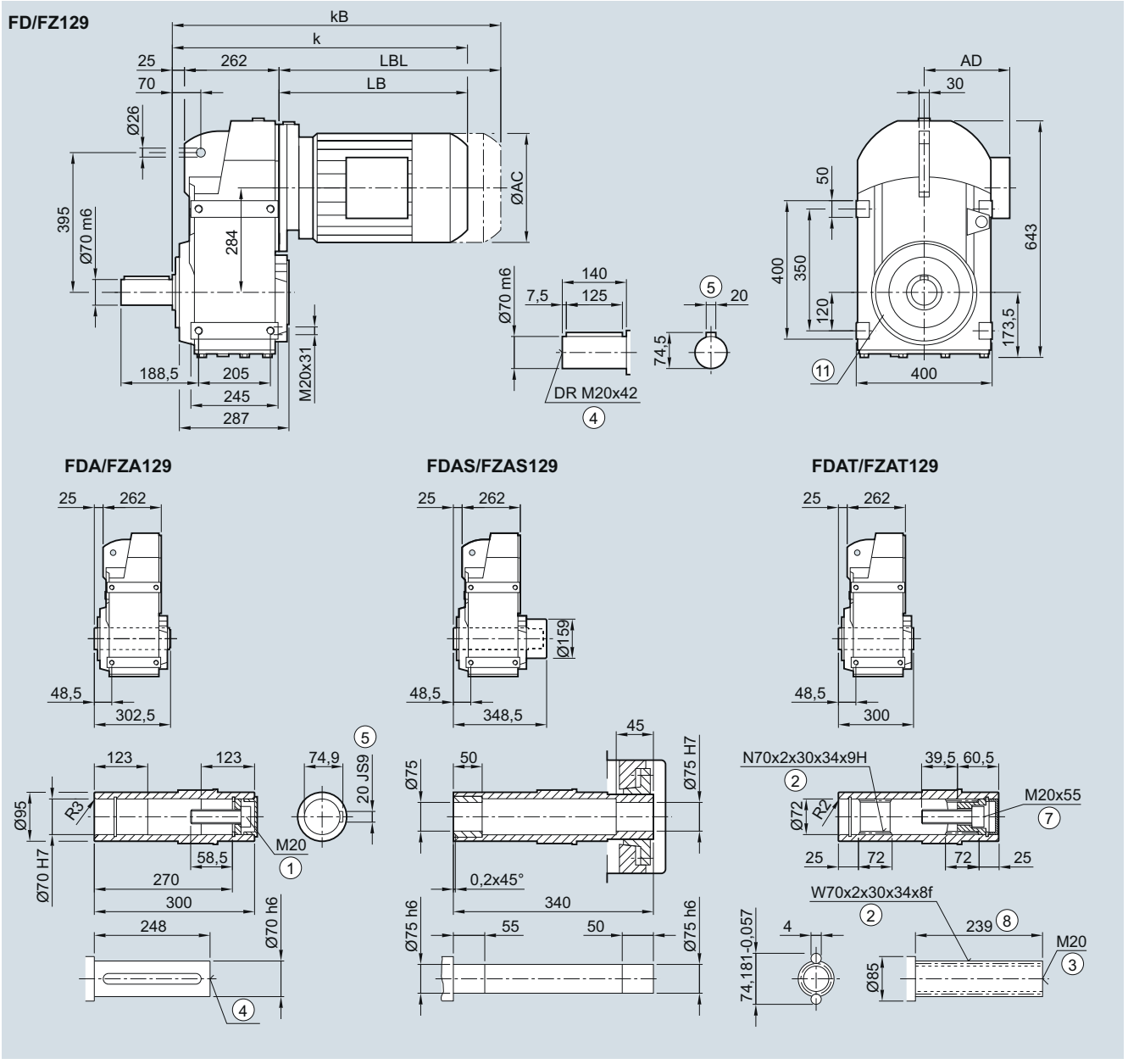


Motor	LE										LES						
	90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	637.5	677.5	686.0	721.0	696.0	721.0	747.0	797.0	829.0	889.0	902.0	932.0	970.0	995.0	1 021.5	1 081.5	1 127.0
kB	707.5	747.5	764.5	799.5	769.0	794.0	851.5	901.5	945.0	1 005.0	1 031.0	1 061.0	1 117.0	1 142.0	1 249.5	1 309.5	1 352.0
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1 023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1] AD depends on the motor options, for other dimensions see page 8/36.
[2] FDAS/FZAS not possible

FD../FZ..129 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LE 90	90Z	100	100Z	112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225	225Y	250[2]
AC	173.8	173.8	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1]	154.2	154.2	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	596.0	636.0	644.5	679.5	654.5	679.5	705.5	755.5	787.5	847.5	860.5	890.5	928.5	953.5	980.0	1 040.0	1 085.5
kB	666.0	706.0	723.0	758.0	727.5	752.5	810.0	860.0	903.5	963.5	989.5	1 019.5	1 075.5	1 100.5	1 208.0	1 268.0	1 310.5
LB	309.0	349.0	357.5	392.5	367.5	392.5	418.5	468.5	500.5	560.5	573.5	603.5	641.5	666.5	693.0	753.0	798.5
LBL	379.0	419.0	436.0	471.0	440.5	465.5	523.0	573.0	616.5	676.5	702.5	732.5	788.5	813.5	921.0	981.0	1 023.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

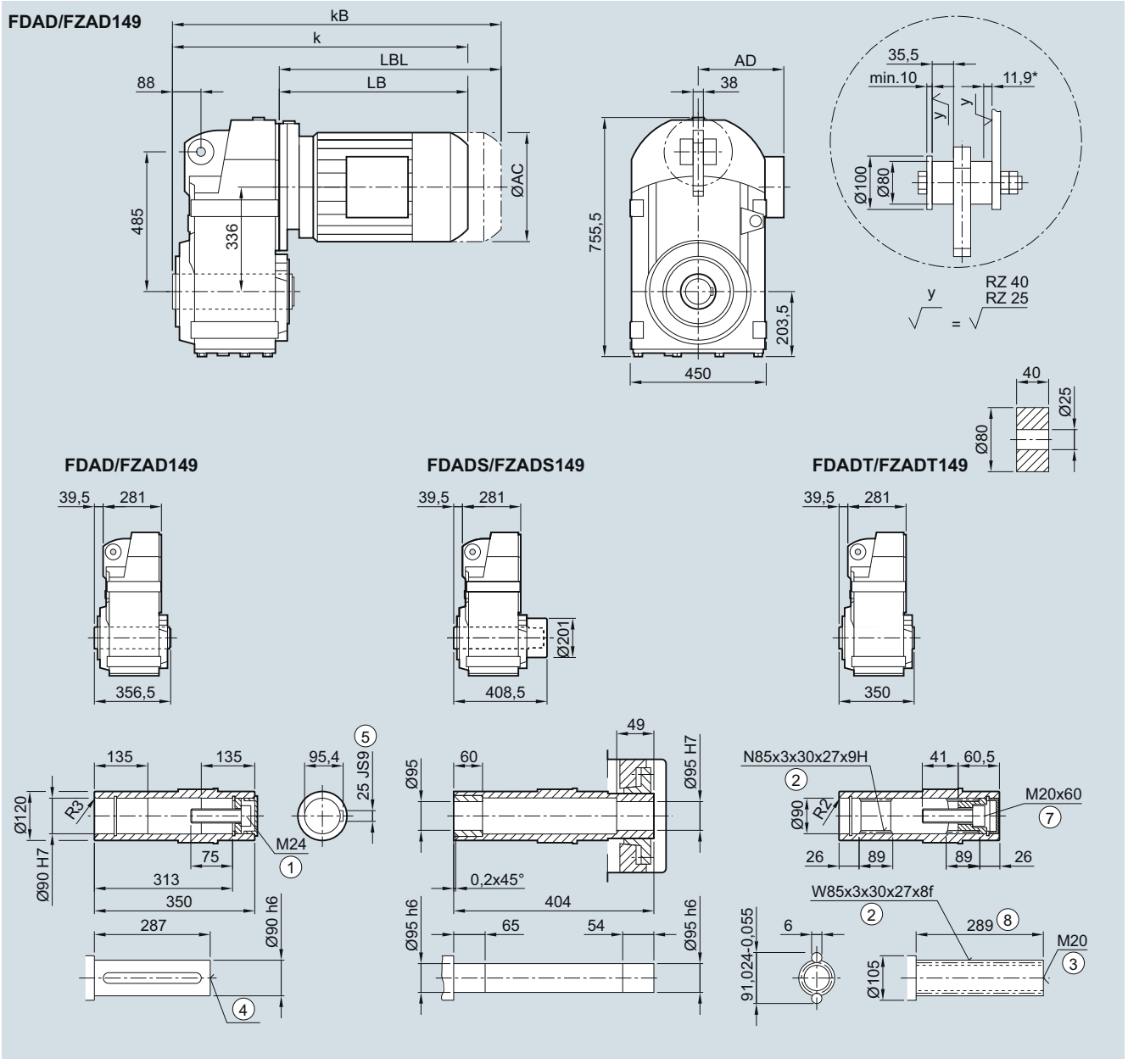
[1] AD depends on the motor options, for other dimensions see page 8/36.

[2] FDAS/FZAS not possible

4

FDAD./FZAD.149 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



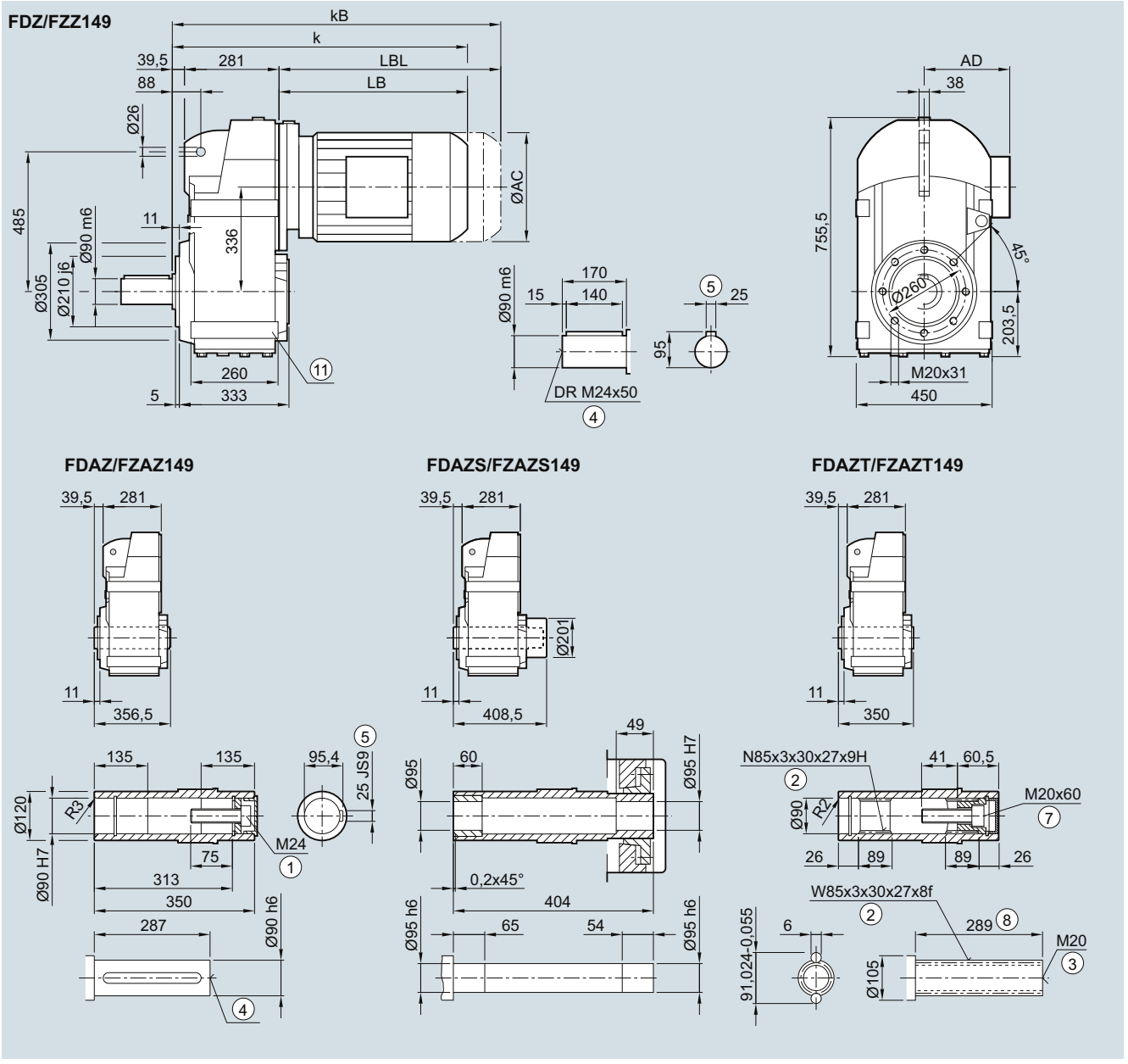
Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1 000.5	1 060.5	1 112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1 016.5	1 046.5	1 102.5	1 127.5	1 229.0	1 289.0	1 337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1 017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions see page 8/36. * Spring compression at max. torque

FD.Z./FZ.Z.149 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1 000.5	1 060.5	1 112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1 016.5	1 046.5	1 102.5	1 127.5	1 229.0	1 289.0	1 337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1 017.0

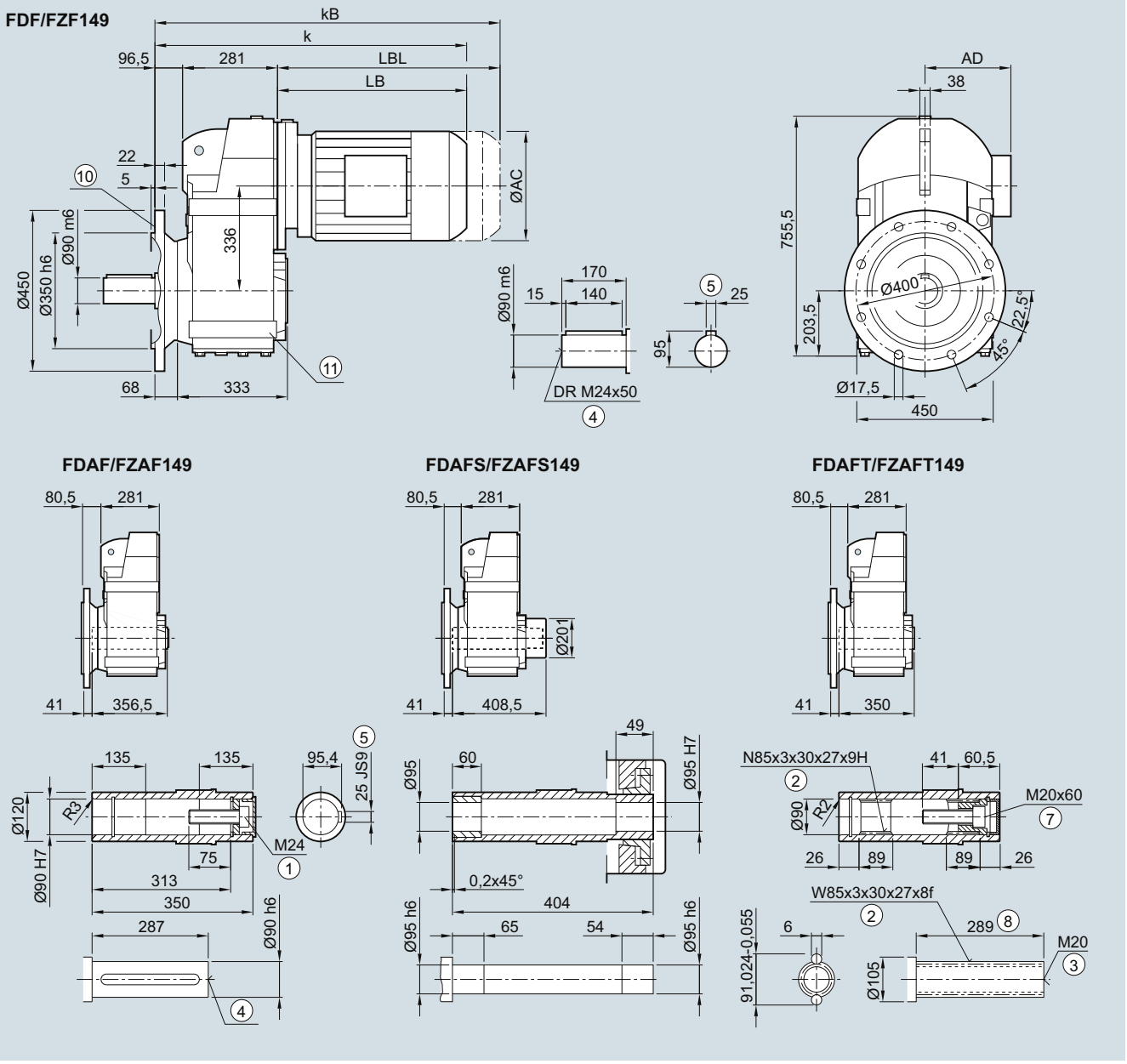
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions see page 8/36.

4

FD.F./FZ.F.149 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

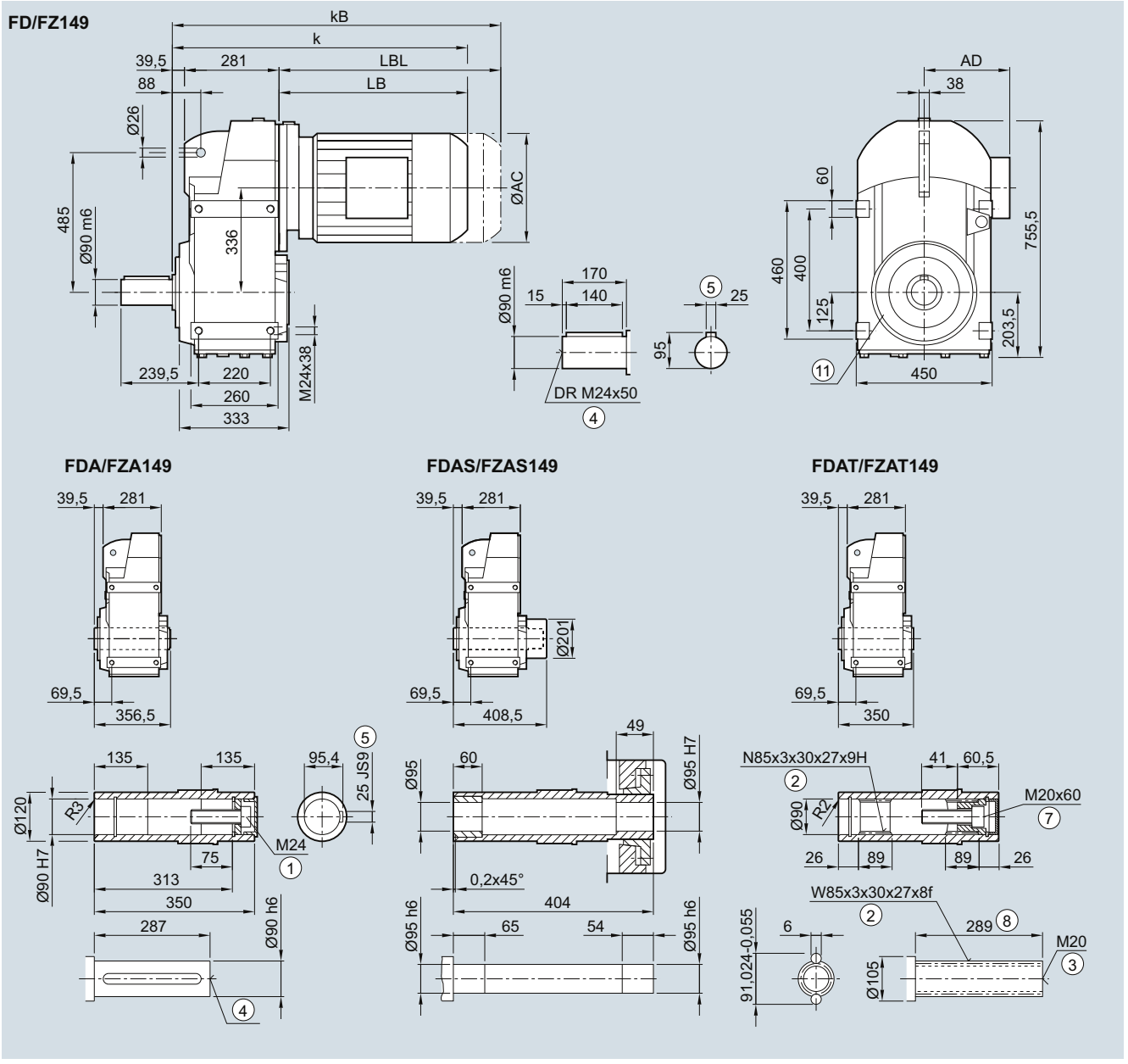


Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	734.0	769.0	744.0	769.0	790.0	840.0	872.0	932.0	945.0	975.0	1 013.0	1 038.0	1 058.5	1 118.5	1 170.0
kB	812.5	847.5	817.0	842.0	894.5	944.5	988.0	1 048.0	1 074.0	1 104.0	1 160.0	1 185.0	1 286.5	1 346.5	1 395.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1 017.0

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
[1)] AD depends on the motor options, for other dimensions see page 8/36.

FD../FZ..149 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LE								LES						
	100	100Z	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	198.0	198.0	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	170.5	170.5	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	676.5	711.5	686.5	711.5	732.5	782.5	814.5	874.5	887.5	917.5	955.5	980.5	1 000.5	1 060.5	1 112.0
kB	755.0	790.0	759.5	784.5	837.0	887.0	930.5	990.5	1 016.5	1 046.5	1 102.5	1 127.5	1 229.0	1 289.0	1 337.0
LB	356.0	391.0	366.0	391.0	412.0	462.0	494.0	554.0	567.0	597.0	635.0	660.0	680.5	740.5	792.0
LBL	434.5	469.5	439.0	464.0	516.5	566.5	610.0	670.0	696.0	726.0	782.0	807.0	908.5	968.5	1 017.0

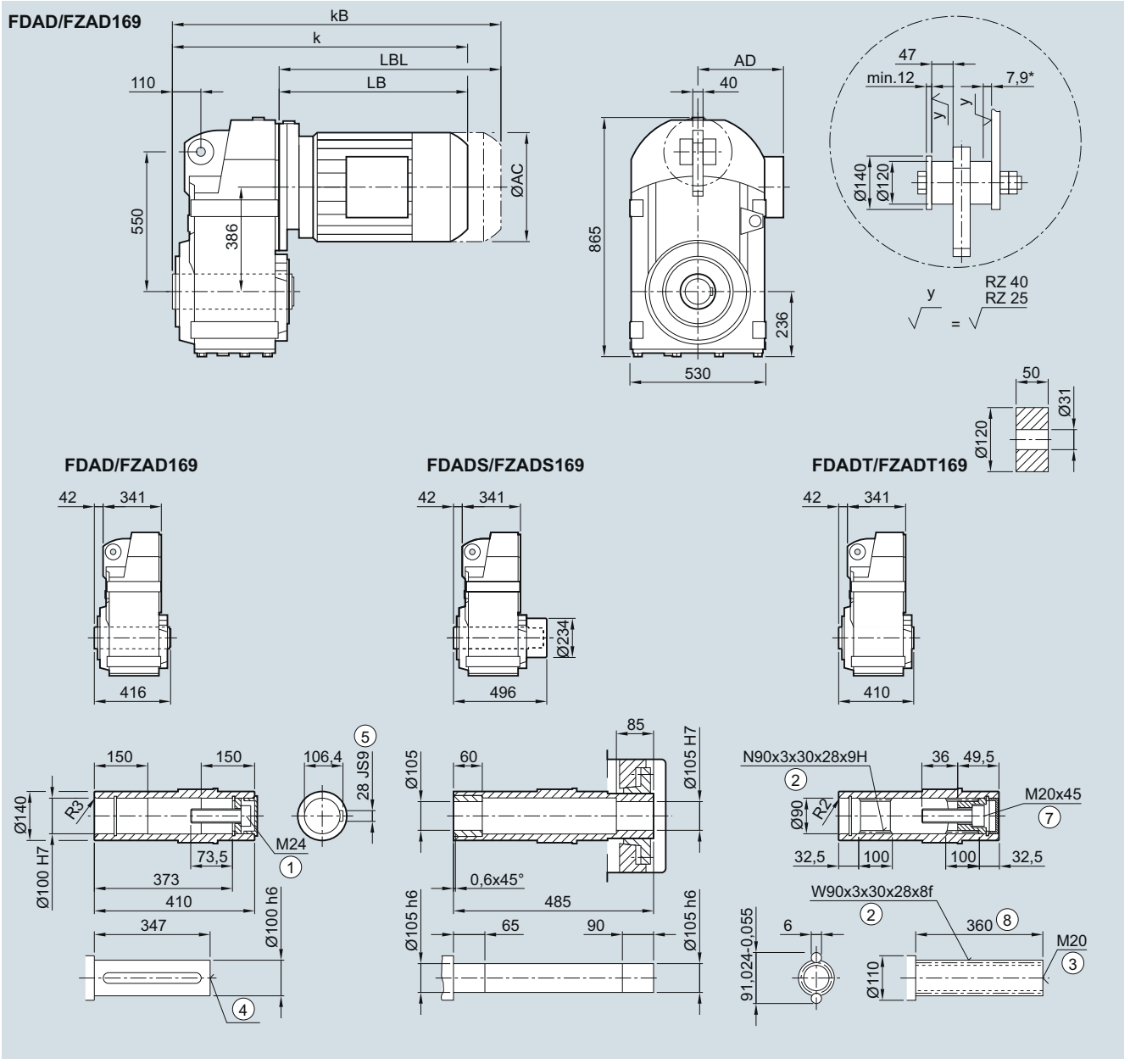
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions see page 8/36.

4

FDAD./FZAD.169 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



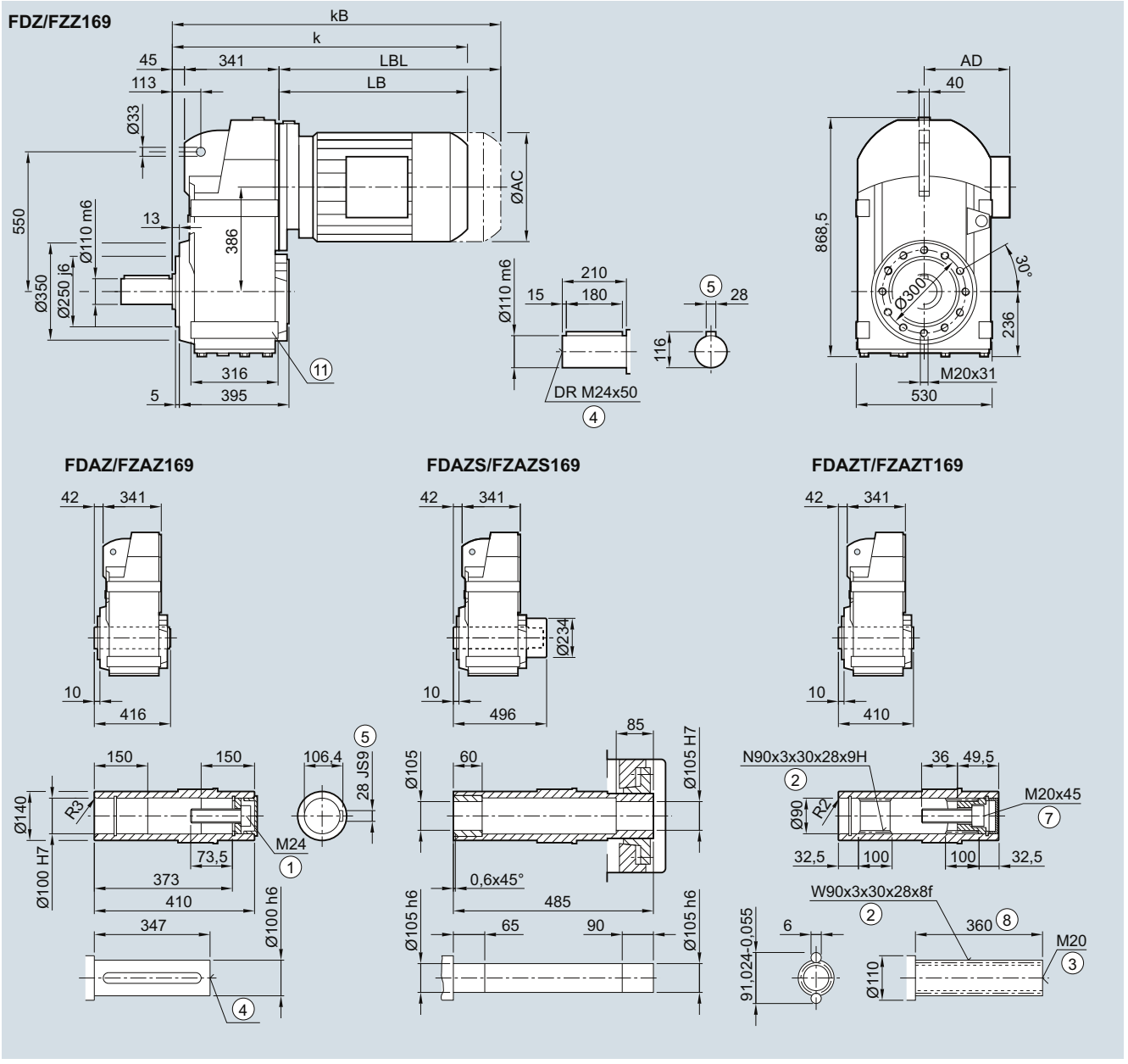
Motor	LE 112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1 007.5	1 032.5	1 052.5	1 112.0	1 159.5
kB	812.5	837.5	889.5	939.5	983.0	1 043.0	1 068.5	1 098.5	1 154.5	1 179.5	1 280.0	1 340.0	1 384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm

1) AD depends on the motor options, for other dimensions see page 8/36. * Spring compression at max. torque

FD.Z./FZ.Z.169 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1 007.5	1 032.5	1 052.5	1 112.0	1 159.5
kB	812.5	837.5	889.5	939.5	983.0	1 043.0	1 068.5	1 098.5	1 154.5	1 179.5	1 280.0	1 340.0	1 384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

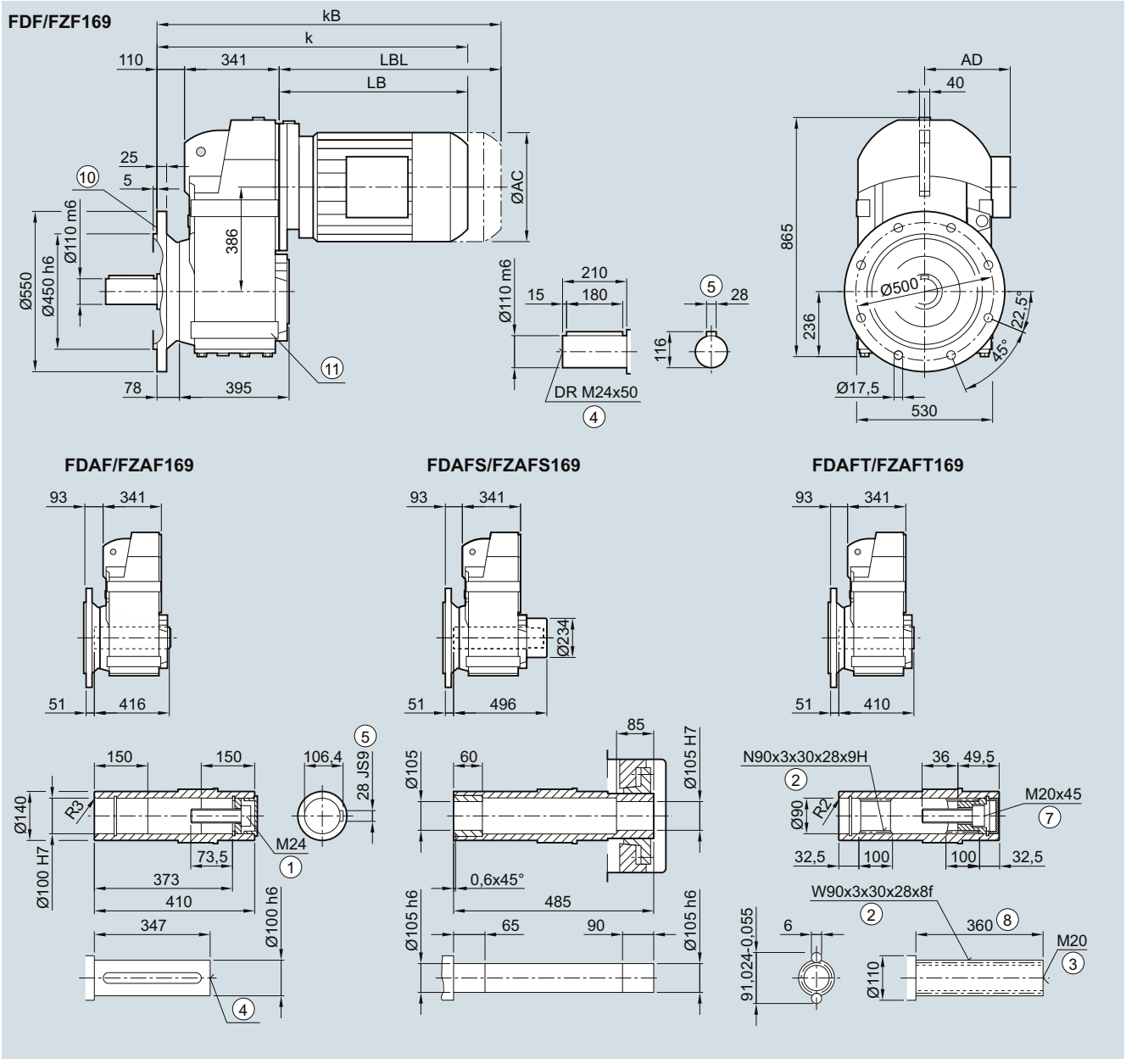
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions see page 8/36.

4

FD.F./FZ.F.169 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030

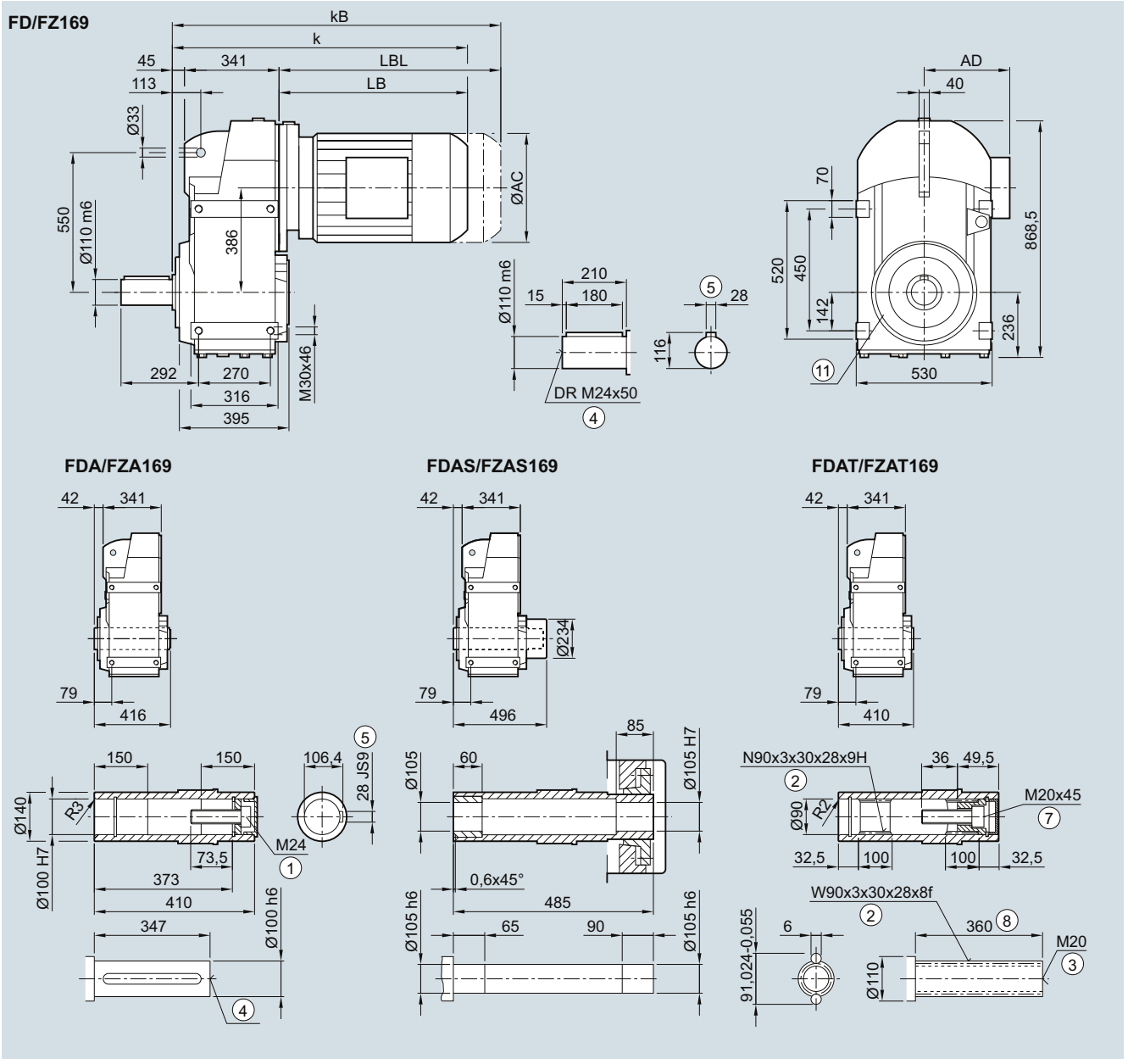


Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	804.5	829.5	850.0	900.0	932.0	992.0	1 004.5	1 034.5	1 072.5	1 097.5	1 117.0	1 177.0	1 224.5
kB	877.5	902.5	954.5	1 004.5	1 048.0	1 108.0	1 133.5	1 163.5	1 219.5	1 244.5	1 345.0	1 405.0	1 449.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design
1) AD depends on the motor options, for other dimensions see page 8/36.

FD../FZ..169 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030



Motor	LE 112	112Z	132	132Z	160	160Z	LES 180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.0
k	739.5	764.5	785.0	835.0	867.0	927.0	939.5	969.5	1 007.5	1 032.5	1 052.5	1 112.0	1 159.5
kB	812.5	837.5	889.5	939.5	983.0	1 043.0	1 068.5	1 098.5	1 154.5	1 179.5	1 280.0	1 340.0	1 384.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.0	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

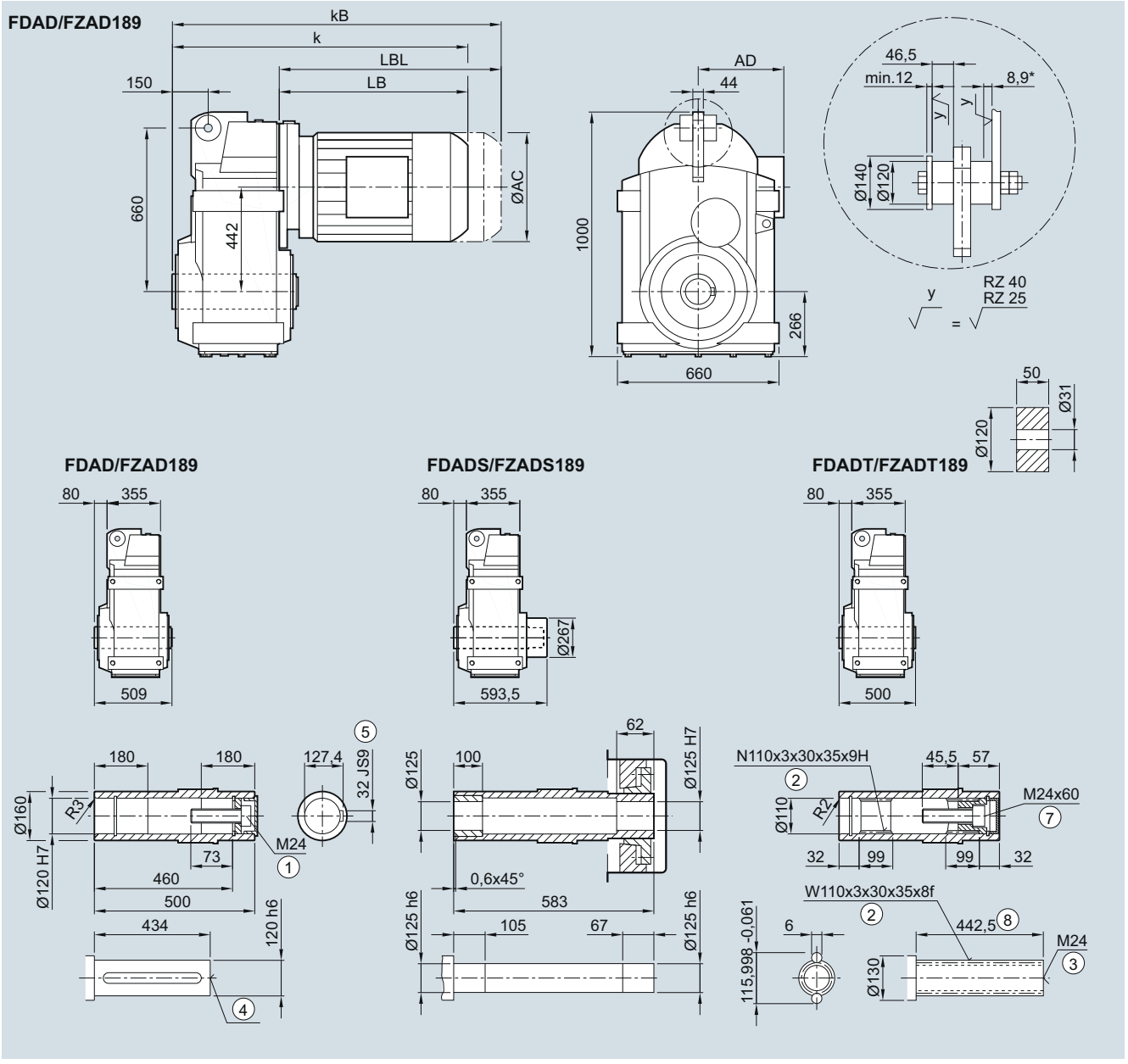
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions see page 8/36.

4

FDAD./FZAD.189 gearbox in a shaft-mounted design

FAD030, FADS030, FADT030



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1 018.5	1 056.5	1 081.5	1 101.0	1 161.0	1 208.5
kB	861.5	886.5	938.5	988.5	1 032.0	1 092.0	1 117.5	1 147.5	1 203.5	1 228.5	1 329.0	1 389.0	1 433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

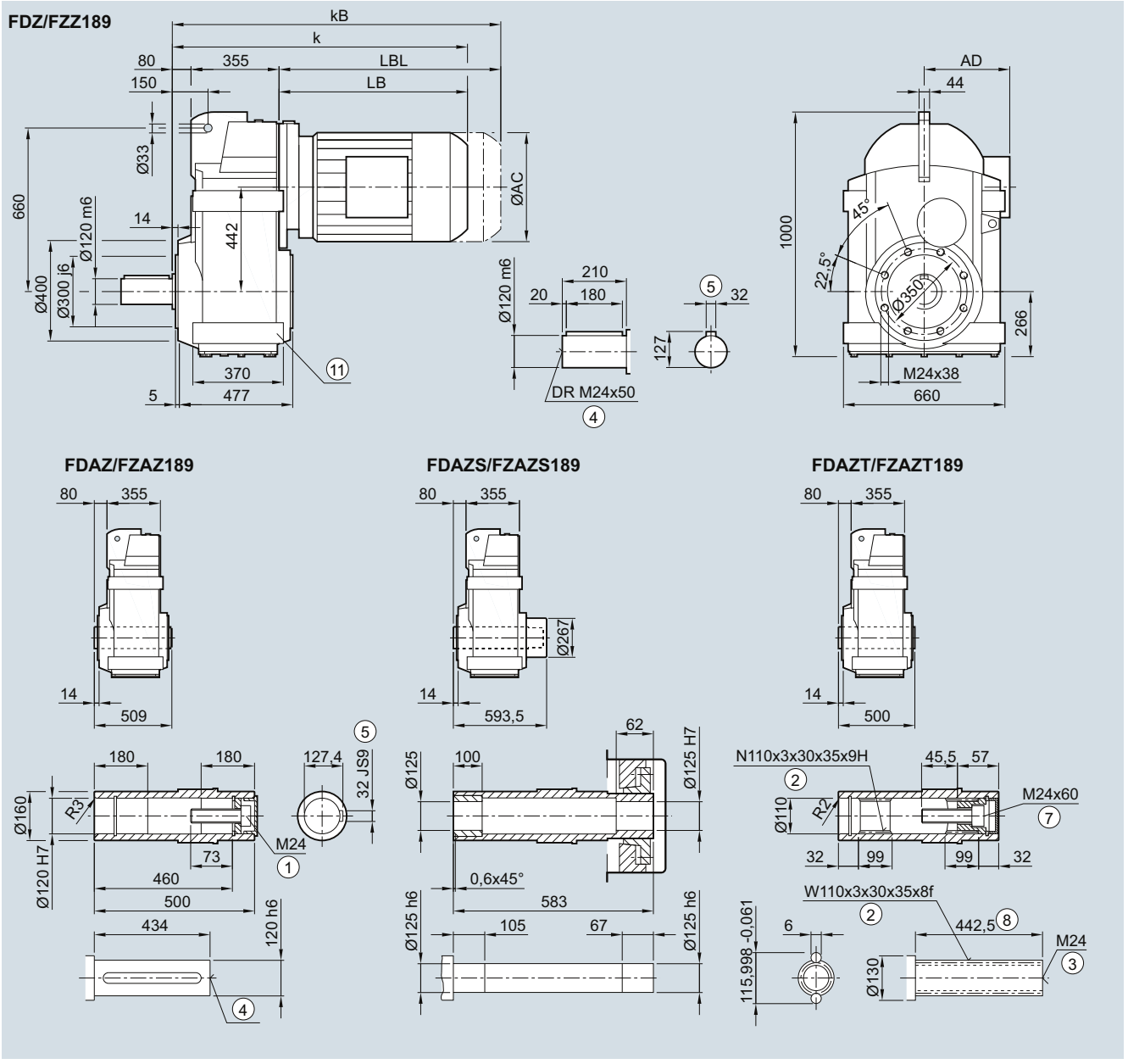
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions see page 8/36.

* Spring compression at max. torque

FD.Z./FZ.Z.189 gearbox in a housing flange design

FZ030, FAZ030, FAZS030, FAZT030



Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1 018.5	1 056.5	1 081.5	1 101.0	1 161.0	1 208.5
kB	861.5	886.5	938.5	988.5	1 032.0	1 092.0	1 117.5	1 147.5	1 203.5	1 228.5	1 329.0	1 389.0	1 433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

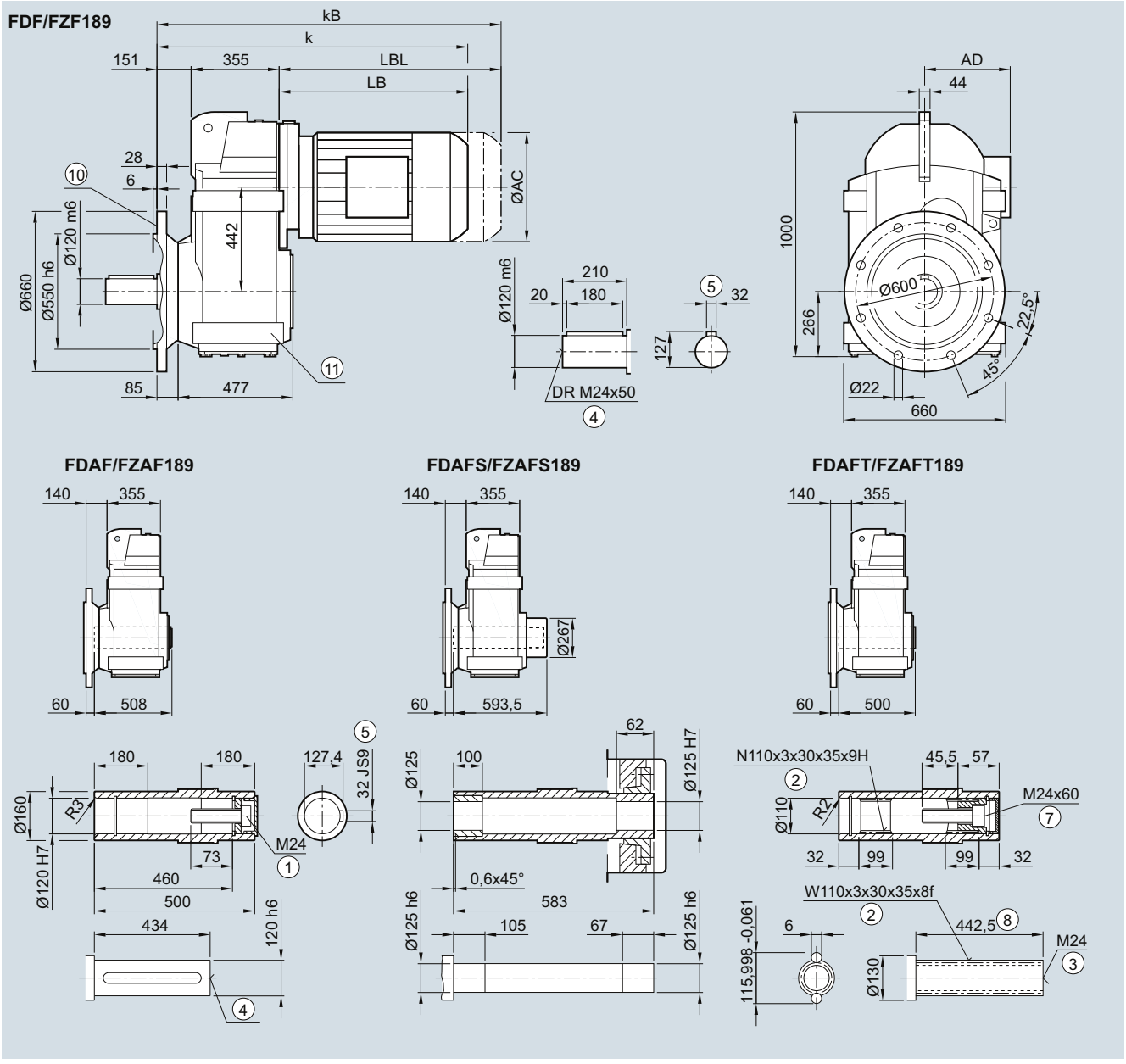
① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for foot-mounted design

1) AD depends on the motor options, for other dimensions see page 8/36.

4

FD.F./FZ.F.189 gearbox in a flange-mounted design

FF030, FAF030, FAFS030, FAFT030



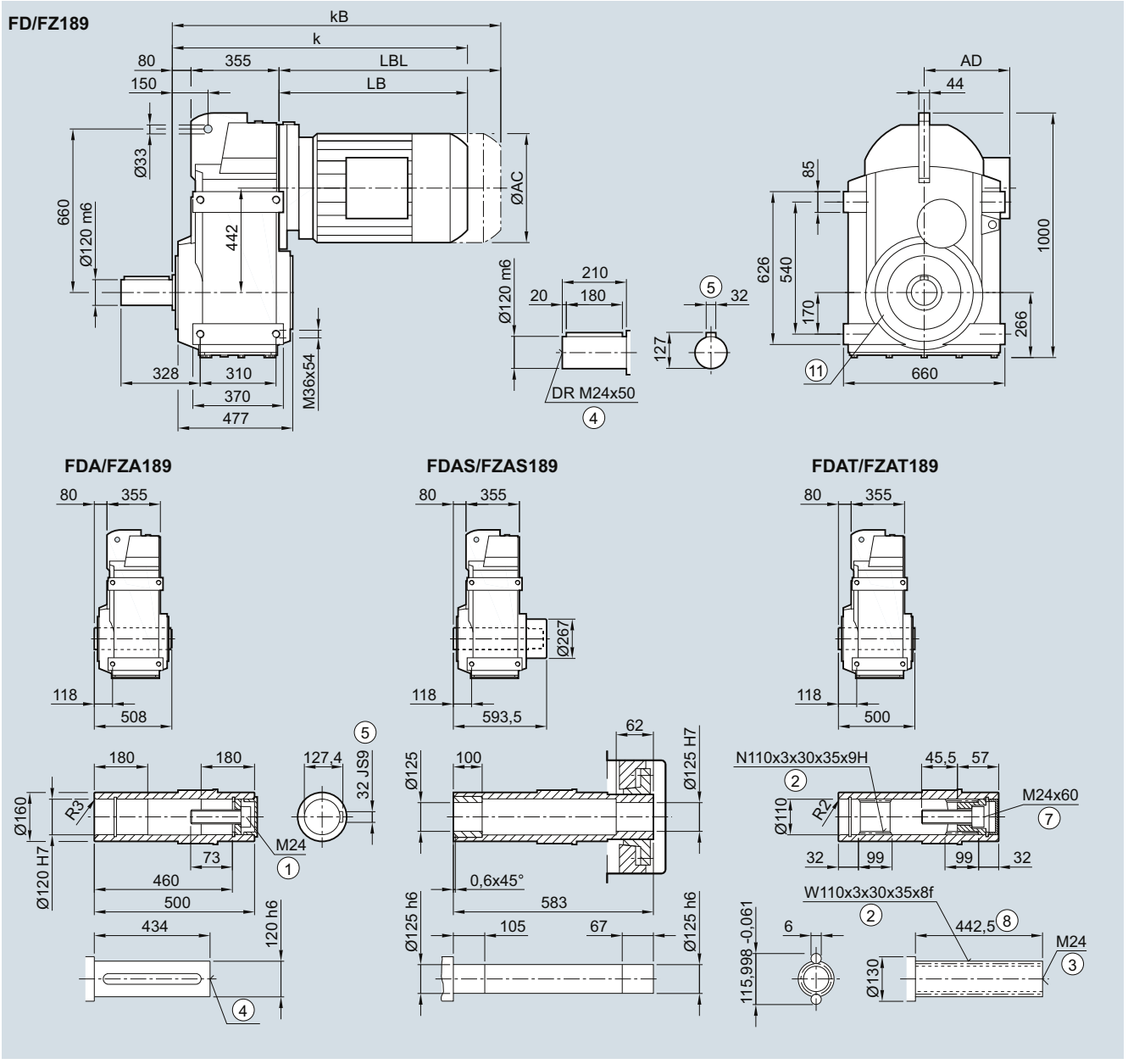
Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	859.5	884.5	905.0	955.0	987.0	1 047.0	1 059.5	1 089.5	1 127.5	1 152.5	1 172.0	1 232.0	1 279.5
kB	932.5	957.5	1 009.5	1 059.5	1 103.0	1 163.0	1 188.5	1 218.5	1 274.5	1 299.5	1 400.0	1 460.0	1 504.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑩ For inner contour see page 4/123 ⑪ Use bores only for foot-mounted design

[1)] AD depends on the motor options, for other dimensions see page 8/36.

FD../FZ..189 gearbox in a foot-mounted design

F030, FA030, FAS030, FAT030

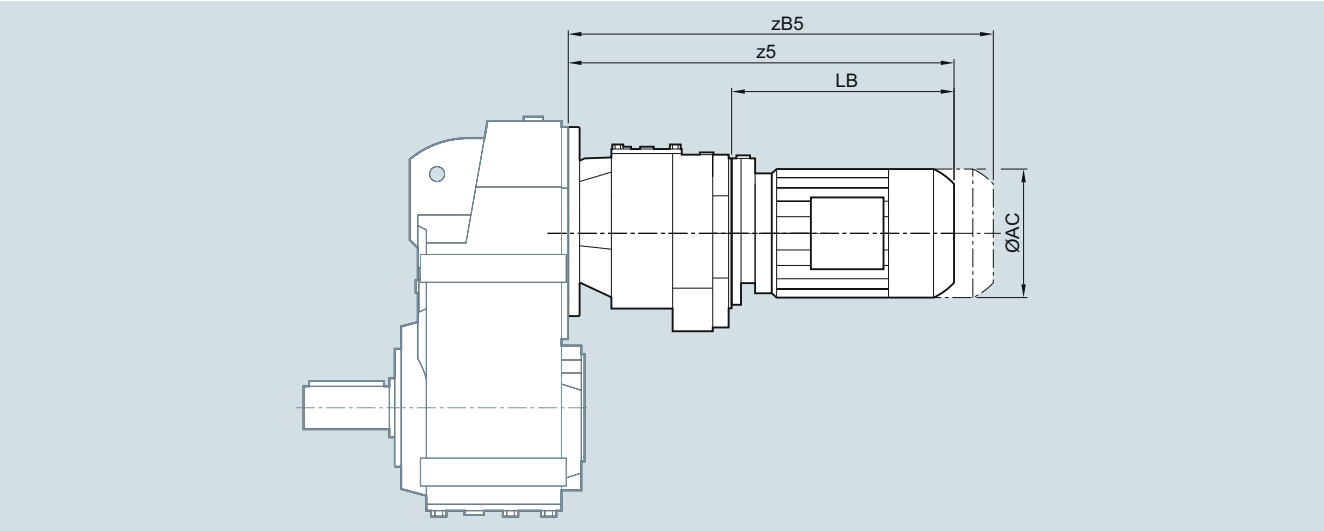


Motor	LE						LES						
	112	112Z	132	132Z	160	160Z	180	180Z	200	200Z	225	225Y	250
AC	222.0	222.0	264.0	264.0	318.0	318.0	352.5	352.5	392.5	392.5	439.0	439.0	487.0
AD[1)]	181.5	181.5	207.0	207.0	241.0	241.0	292.0	292.0	315.0	315.0	382.0	382.0	457.5
k	788.5	813.5	834.0	884.0	916.0	976.0	988.5	1 018.5	1 056.5	1 081.5	1 101.0	1 161.0	1 208.5
kB	861.5	886.5	938.5	988.5	1 032.0	1 092.0	1 117.5	1 147.5	1 203.5	1 228.5	1 329.0	1 389.0	1 433.5
LB	353.5	378.5	399.0	449.0	481.0	541.0	553.5	583.5	621.5	646.5	666.0	726.0	773.5
LBL	426.5	451.5	503.5	553.5	597.0	657.0	682.5	712.5	768.5	793.5	894.0	954.0	998.5

① ISO 4014 ② DIN 5480 ③ DIN 332-D ④ DIN 332 ⑤ Feather key/keyway DIN 6885-1 ⑦ ISO 4762 ⑧ Without locating shoulder +1 mm
⑪ Use bores only for housing flange design

1) AD depends on the motor options, for other dimensions see page 8/36.

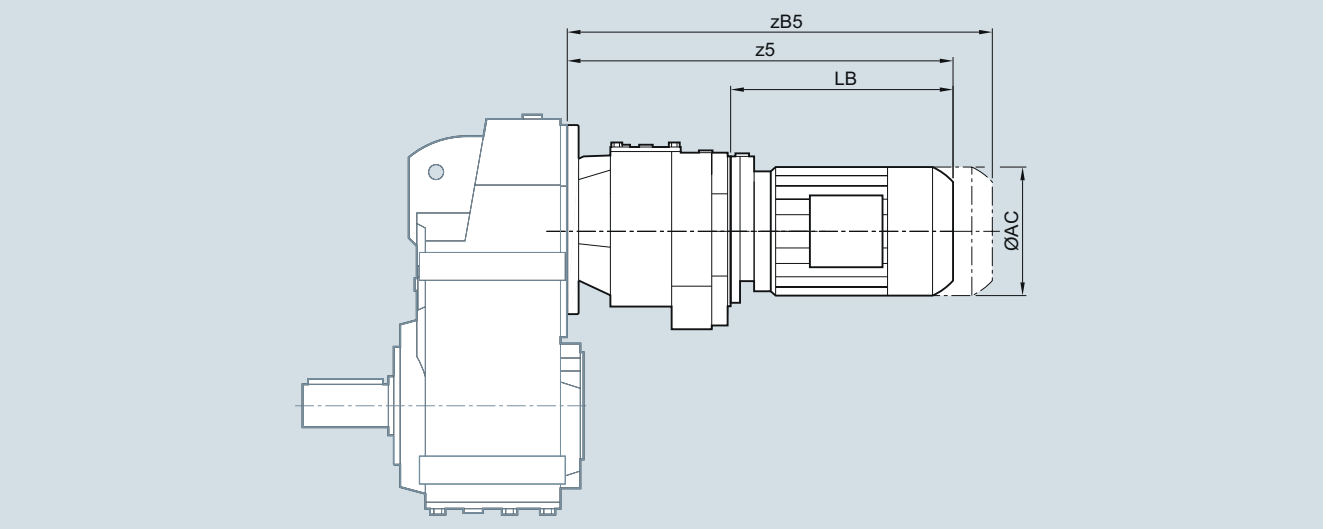
Parallel shaft tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
FD../FZ..29-D/Z19	LA63	117.8	331.0	375.5	160.5
FD../FZ..39-D/Z19	LA63	117.8	331.0	375.5	160.5
	LA71	138.8	363.0	418.0	184.5
	LA71Z	138.8	382.0	437.0	203.5
FD../FZ..49-D/Z19	LA63	117.8	322.0	366.5	160.5
	LA71	138.8	354.0	409.0	184.5
	LA71Z	138.8	373.0	428.0	203.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
FD../FZ..69-D/Z19	LA63	117.8	322.0	366.5	160.5
	LA71	138.8	354.0	409.0	184.5
	LA71Z	138.8	373.0	428.0	203.5
	LE80	156.3	410.0	470.0	240.0
	LE80Z	156.3	445.0	505.0	275.0
FD../FZ..79-D/Z39	LA63	117.8	373.5	418.0	194.0
	LA71	138.8	405.5	460.5	226.0
	LA71Z	138.8	424.5	479.5	245.0
	LE80	156.3	469.5	529.5	290.0
	LE80Z	156.3	504.5	564.5	325.0
FD../FZ..89-D/Z39	LA63	117.8	356.5	401.0	194.0
	LA71	138.8	388.5	443.5	226.0
	LA71Z	138.8	407.5	462.5	245.0
	LE80	156.3	452.5	512.5	290.0
	LE80Z	156.3	487.5	547.5	325.0
	LE90	173.8	514.0	584.0	351.5
	LE90Z	173.8	554.0	624.0	391.5
FD..109-D/Z39	LA63	117.8	347.5	392.0	194.0
	LA71	138.8	379.5	434.5	226.0
	LA71Z	138.8	398.5	453.5	245.0
	LE80	156.3	443.5	503.5	290.0
	LE80Z	156.3	478.5	538.5	325.0
	LE90	173.8	505.0	575.0	351.5
	LE90Z	173.8	545.0	615.0	391.5
	LE100	198.0	561.5	640.0	408.0
	LE100Z	198.0	596.5	675.0	443.0

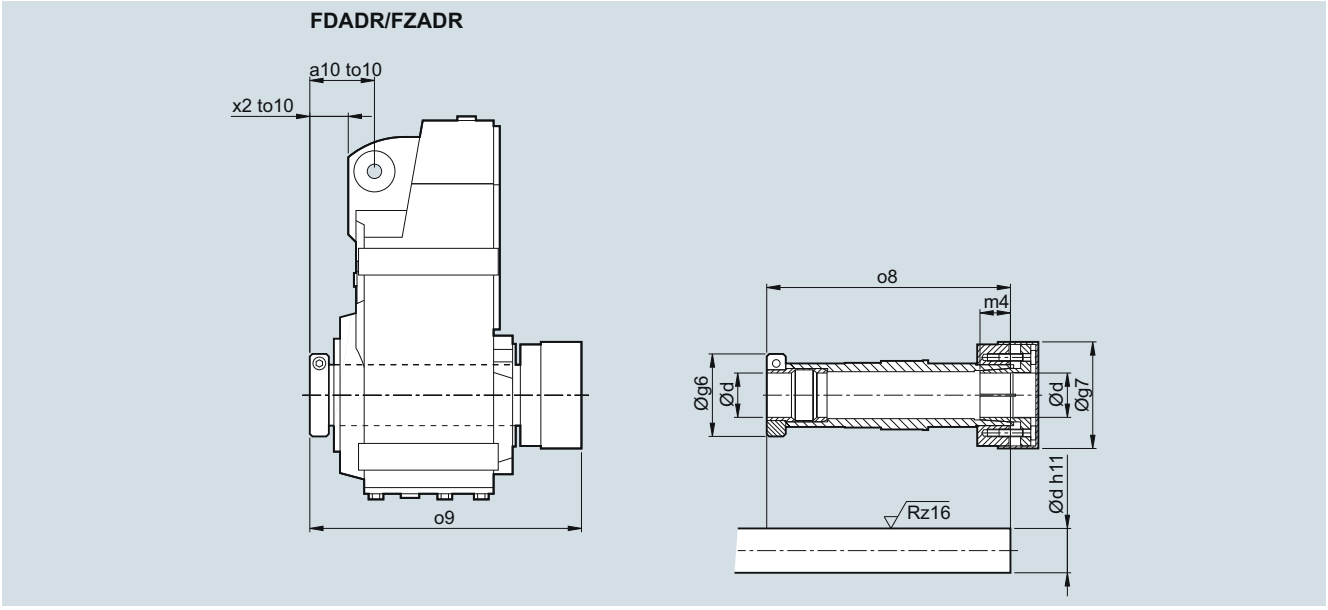
Gearbox	Motor	AC	z5	zB5	LB
FD..129-D/Z49	LA63	117.8	376.5	421.0	184.5
	LA71	138.8	408.5	463.5	216.5
	LA71Z	138.8	427.5	482.5	235.5
	LE80	156.3	472.5	532.5	280.5
	LE80Z	156.3	507.5	567.5	315.5
	LE90	173.8	534.0	604.0	342.0
	LE90Z	173.8	574.0	644.0	382.0
	LE100	198.0	590.5	669.0	398.5
	LE100Z	198.0	625.5	704.0	433.5
	LE112	222.0	600.5	673.5	408.5
	LE112Z	222.0	635.0	708.0	443.0
FD..149-D/Z49	LA63	117.8	366.0	410.5	184.5
	LA71	138.8	398.0	453.0	216.5
	LA71Z	138.8	417.0	472.0	235.5
	LE80	156.3	462.0	522.0	280.5
	LE80Z	156.3	497.0	557.0	315.5
	LE90	173.8	523.5	593.5	342.0
	LE90Z	173.8	563.5	633.5	382.0
	LE100	198.0	580.0	658.5	398.5
	LE100Z	198.0	615.0	693.5	433.5
	LE112	222.0	590.0	663.0	408.5
	LE112Z	222.0	624.5	697.5	443.0
	LE132	264.0	643.0	747.5	461.5
	LE132Z	264.0	693.0	797.5	511.5

Parallel shaft tandem geared motors



Gearbox	Motor	AC	z5	zB5	LB
FD..169-D/Z69	LA63	117.8	391.5	436.0	184.5
	LA71	138.8	423.5	478.5	216.5
	LA71Z	138.8	442.5	497.5	235.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5
FD..189-D/Z69	LA63	117.8	391.5	436.0	184.5
	LA71	138.8	423.5	478.5	216.5
	LA71Z	138.8	442.5	497.5	235.5
	LE80	156.3	487.5	547.5	280.5
	LE80Z	156.3	522.5	582.5	315.5
	LE90	173.8	549.0	619.0	342.0
	LE90Z	173.8	589.0	659.0	382.0
	LE100	198.0	605.5	684.0	398.5
	LE100Z	198.0	640.5	719.0	433.5
	LE112	222.0	615.5	688.5	408.5
	LE112Z	222.0	650.0	723.0	443.0
	LE132	264.0	668.5	773.0	461.5
	LE132Z	264.0	718.5	823.0	511.5

SIMOLOC assembly system



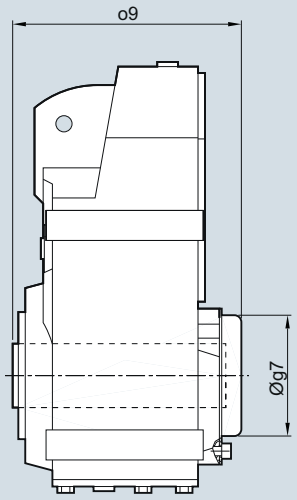
Note mounting tolerance to10 when positioning the torque arm.

d	g6	g7	m4	o8	o9	a10	to10	x2
FDADR/FZADR29								
25	58.5	56	18.5	140.5	161	40.0	+2.1 +0.6	23.5
20								
1"								
0.75“								
FDADR/FZADR39								
30	62.0	76	22	160.5	181	46.5	+2.2 +0.7	29.5
25								
1.25"								
1.1875"								
1"								
FDADR/FZADR49								
35	65.0	84	24	192.0	214	47.0	+2.6 +0.8	24.5
30								
1.375"								
1.4375"								
1.25"								
1.1875"								
FDADR/FZADR.69								
40	79.5	94	30	217.5	240	59.5	+2.5 +0.7	37.0
35								
1.5"								
1.625"								
1.4375"								
1.375"								
FDADR/FZADR79								
40	79.5	94	30	232.0	259	60.0	+3.2 +1.4	34.0
35								
1.5"								
1.625"								
1.4375"								
1.375"								
FDADR/FZADR89								
50	89.0	114	32	264.0	295	69.0	+3.4 +1.5	32.0
40								
2"								
1.9375"								
1.75"								
1.625"								

Protection covers

Protection cover for hollow shaft

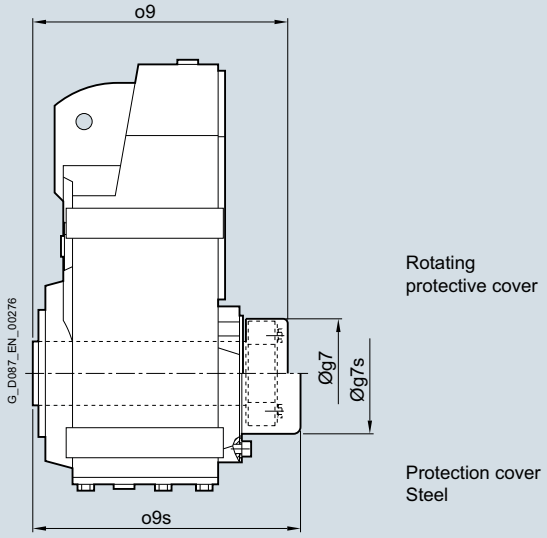
F.A, F.AF, F.AZ, F.AD



Gearbox type	F.A..29	F.A..39	F.A..49	F.A..69	F.A..79	F.A..89	F.A..109	F.A..129	F.A..149	F.A..169	F.A..189
Protection cover											
g7	67.0	82.5	80.0	99.0	99.0	137.0	187.0	187.0	218.0	257.5	309.5
o9	120.5	134.0	177.0	179.0	192.5	232.5	281.5	348.0	425.0	520.0	623.5

Protection cover for hollow shaft with shrink disk

F.AS, F.AFS, F.AZS, F.ADS

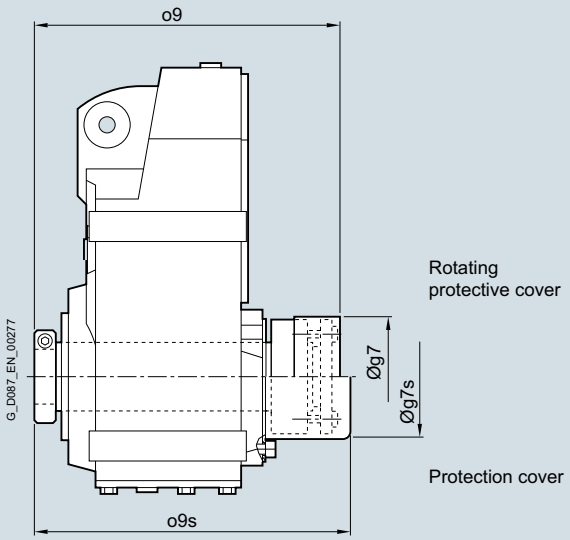


Gearbox type	F.A..29	F.A..39	F.A..49	F.A..69	F.A..79	F.A..89	F.A..109	F.A..129	F.A..149	F.A..169	F.A..189
Rotating protective cover with shrink disk version											
max. motor frame size that can be mounted	80	90	100	100	132	160	200	225	250	250	250
g7	57.0	76.0	84.0	84.0	94.0	119.0	145.0	159.0	201.0	234.0	267.0
o9	132.5	149.5	182.0	198.0	215.5	247.5	282.5	348.5	408.5	496.0	593.5
Protection cover											
max. motor frame size that can be mounted	71	80	100	100	112	132	200	225	250	250	250
g7s	58.0	82.5	86.0	99.0	99.0	137.0	187.0	187.0	218.0	257.5	309.5
o9s	135.5	170.0	198.0	210.0	223.5	284.5	308.5	375.0	425.0	520.0	623.5

Protection covers

Protection cover for hollow shaft with SIMOLOC assembly system

F.ADR

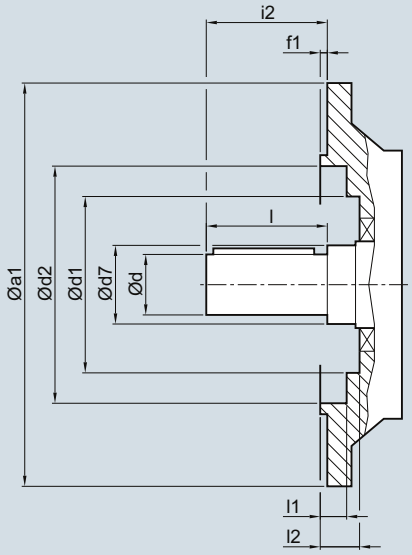


Gearbox type	F.ADR29	F.ADR39	F.ADR49	F.ADR69	F.ADR79	F.ADR89
Rotating protective cover						
max. motor frame size that can be mounted	80	90	100	100	132	160
g7	56.0	76.0	84.0	94.0	94.0	114.0
o9	161.0	181.0	214.0	240.0	259.0	295.0
Protection cover						
max. motor frame size that can be mounted	71	80	100	100	112	132
g7s	58.0	82.5	86.0	99.0	99.0	137.0
o9s	164.0	184.0	219.0	249.5	263.5	303.5

Inner contour of the flange design

Notes regarding the design of the customer's interface for the solid shaft design

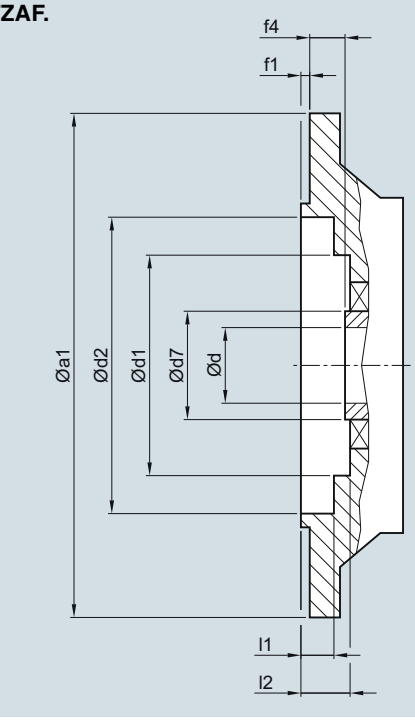
FDF/FZF



Gearbox type	a1	d	d7	d1	d2	f1	i2	l	l1	l2
FDF/FZF29	120	25	40	-	70	3.0	40	40	24.0	-
	160	25	40	70	101	3.5	40	40	8.5	24.5
FDF/FZF39	160	25	30	-	100	3.5	50	50	5.0	-
FDF/FZF49	200	30	35	-	118	3.5	60	60	5.5	-
FDF/FZF69	250	35	45	-	165	4.0	70	70	6.5	-
FDF/FZF79	250	40	55	-	165	4.0	80	80	6.5	-
FDF/FZF89	300	50	55	-	165	4.0	100	100	8.0	-
FDF/FZF109	350	60	65	-	235	5.0	120	120	9.0	-
FDF/FZF129	450	70	75	-	336	5.0	140	140	9.0	-
FDF/FZF149	450	90	100	-	336	5.0	170	170	10.0	-
FDF/FZF169	550	110	120	-	427	5.0	210	210	10.0	-
FDF/FZF189	660	120	160	-	517	6.0	210	210	11.0	-

Notes regarding the design of the customer's interface for the hollow shaft design

FDAF./FZAF.



Gearbox type	a1	d	d7	d1	d2	f1	f4	l1	l2
FDAF./FZAF.29	120	25	40	-	70	3.0	20.0	24.0	-
	160	25	40	70	101	3.5	20.0	8.5	24.5
FDAF./FZAF.39	160	30	45	80	102	3.5	24.0	2.0	29.5
FDAF./FZAF.49	200	35	50	90	120	3.5	25.0	4.0	30.5
FDAF./FZAF.69	250	40	55	104	165	4.0	23.5	2.0	29.5
FDAF./FZAF.79	250	40	55	104	165	4.0	23.0	2.0	29.5
FDAF./FZAF.89	300	50	70	135	215	4.0	37.0	2.0	44.5
FDAF./FZAF.109	350	60	85	184	210	5.0	36.0	13.0	45.0
FDAF./FZAF.129	450	70	95	184	336	5.0	41.5	16.5	48.5
FDAF./FZAF.149	450	90	120	214	330	5.0	41.0	10.5	50.0
FDAF./FZAF.169	550	100	140	254	426	5.0	56.0	14.5	56.0
FDAF./FZAF.189	660	120	160	306	518	6.0	66.0	6.0	62.0

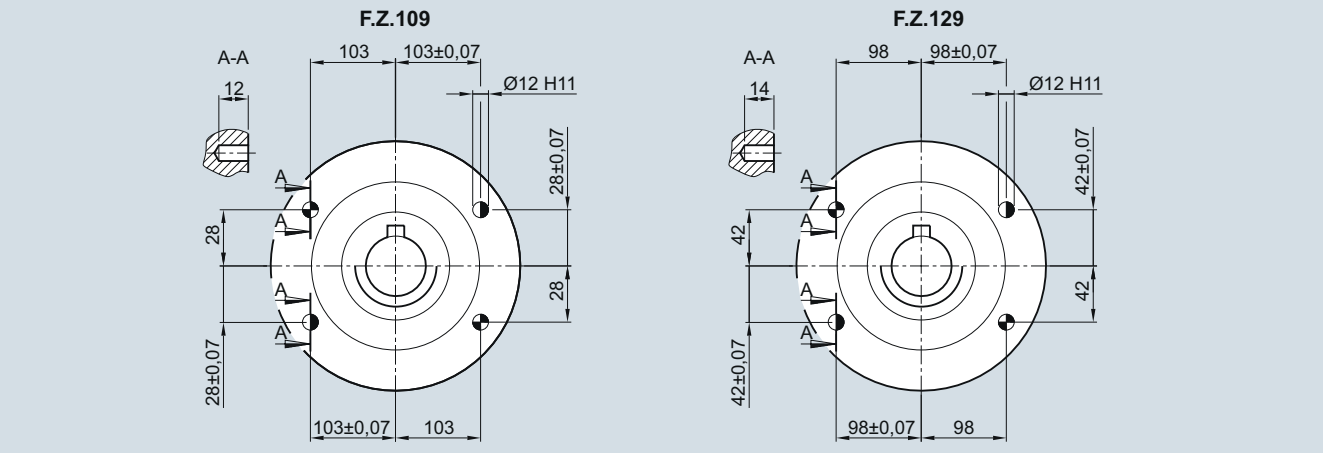
Pin holes

In the case of gearboxes F.Z.109 and F.Z.129, the customer's interface can be pinned on the housing flange (C type).

The output flanges have been designed to ensure the reliable transmission of the permissible torques and radial forces by the bolt connections.

If additional fastening is required, in the case of high shock loads, for example, the existing drilled pin holes can be used.

The gearboxes can also be drilled and pinned together with the machine. The listed dimensions must be complied with.



◑ Spring pins, heavy-duty design, to DIN 1481: Use pin holes provided in the housing flange.

◓ Grooved cylindrical pins with chamfer to EN 28740 / ISO 8740: Drill connecting component together with housing.