SEW EURODRIVE

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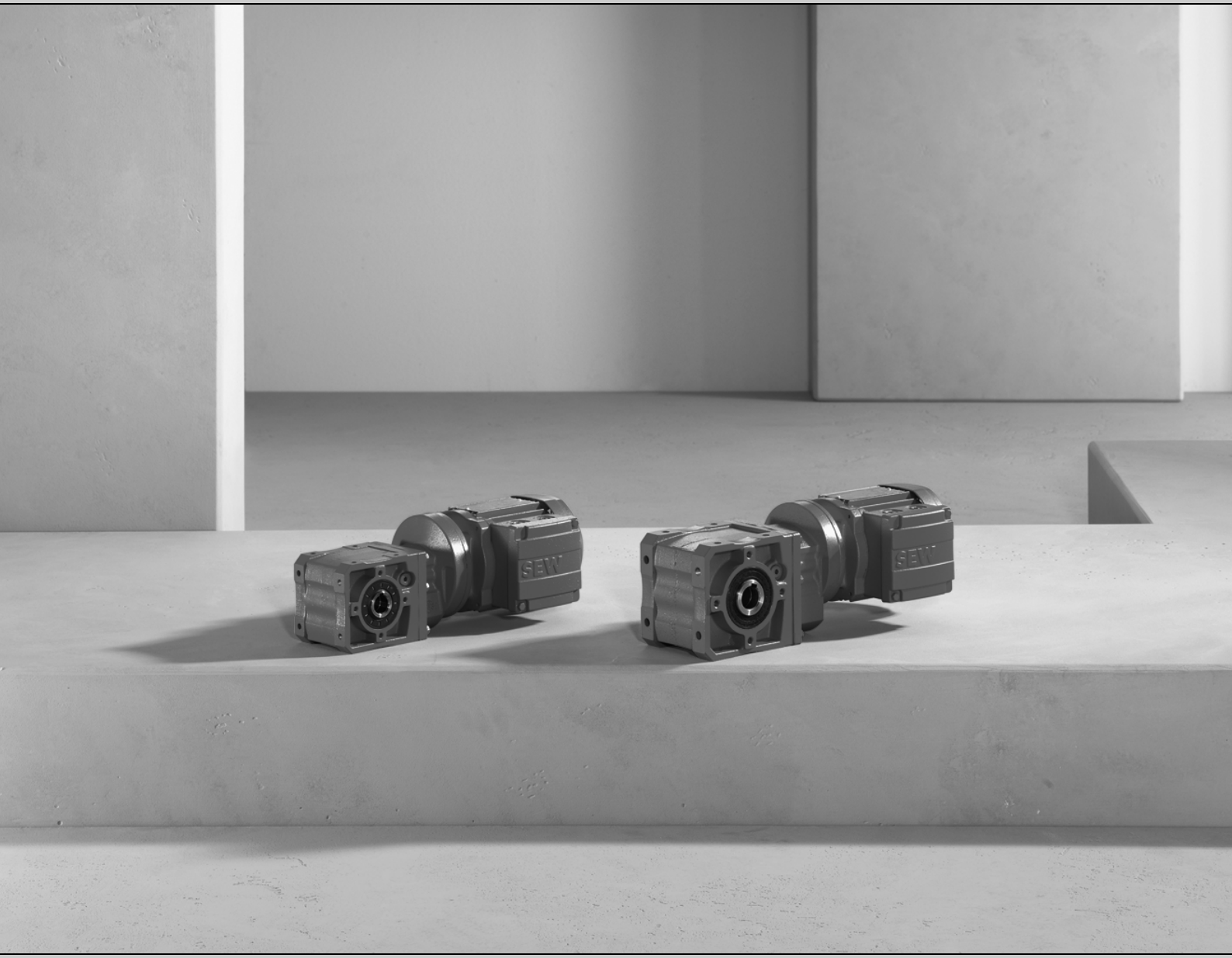

Two-Stage Helical-Bevel Gear Unit Sizes K..19 and K..29

Edition 09/2013

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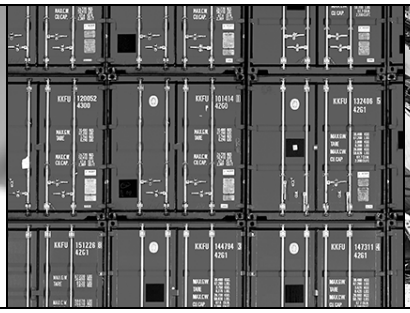


Contents

1 Product Description

1.1 Characteristics and features

K..9 helical-bevel gear units are right-angle gear units that are designed analogously to the modular concept of the 7-series. Sizes K..19 and K..29 are added to the existing K gear unit series and offer energy efficient, two-stage helical-bevel gear units for the lower torque range. A variety of motor types and adapters can be mounted to these gear units as they come equipped with an LIA120 flange interface on the input end. K..9 gear units can be combined with DR, DRC, CMP and LSPM motors as well as with the range of adapters of the 7-series gear units.

The following technical features were implemented in the K..9 gear units:

- Right-angle gear unit in the lower torque range
- Two-stage helical-bevel gear unit with hypoid gearing in the second stage
- LIA120 flange interface for mounting a wide range of motors and adapters
- Can be combined with DRC, DR, CMP and LSPM motors
- Can be combined with the range of adapters of 7-series gear units
- Efficiency over 90% (up to 95%) for all gear ratios
- Two-piece aluminum housing for foot and shaft mounting with 3rd base strip for optimum mounting; Installation is also possible on the top side of the gear unit
- Overall gear ratio K..19: i = 4.5 to 56.68
- Overall gear ratio K..29: i = 3.19 to 71.93
- Optimally utilized installation space

1.2 Design

The design meets all requirements for an economical solution and offers all the benefits of the modular SEW-EURODRIVE system.

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1.3 Structure

The aluminum housing of K..9 gear units is a two-piece housing like that of W..37 / 47 gear units. For both sizes, two flange sizes (like for the 7-series) are available on the output end.

For the KA.29B variant, a hollow shaft with a diameter of 30 mm and low keyway is offered as option in addition to the 30 mm hollow shaft. The design of the shafts as well as the requirements on the accuracy correspond to the shafts of the 7-series.

The hypoid stage is an axially shifted bevel gear stage whose gear set plan comprises 3 gear ratios per size. The axial offset and the high gear ratio of the hypoid stage require a high-viscosity synthetic lubricant.

Two oil fill quantities were defined to avoid excessive churning losses that would lead to the deterioration of the efficiency because the oil level is too high. One fill quantity applies to the M4 mounting position, the second one applies to all other mounting positions.

The following variants are available as output interface:

- Solid shaft with key
- Solid shaft with key and flange
- Hollow shaft with keyway
- Hollow shaft with keyway and flange
- Hollow shaft with shrink disk
- Hollow shaft with shrink disk and flange

Depending on the type, the gear units are mounted on the base strips or using torque arms.

1.4 Assignment to the modular system

K..19 and K..29 gear units are new sizes of the K..7 helical-bevel gear unit series. All components of the modular system of SEW-EURODRIVE can be mounted using the 120 LIA flange.

1.5 Target industries and applications

K..9 gear units are particularly suited for use in the following areas:

- Industries:
  - Automotive industry
  - Transport and logistics
  - Food industry
  - Beverage industry
  - Airport logistics
  - ...
- Applications:
  - Horizontal conveyors, such as roller and belt conveyors
  - Vertical conveyors, such as hoist stations and transfer units
  - ...

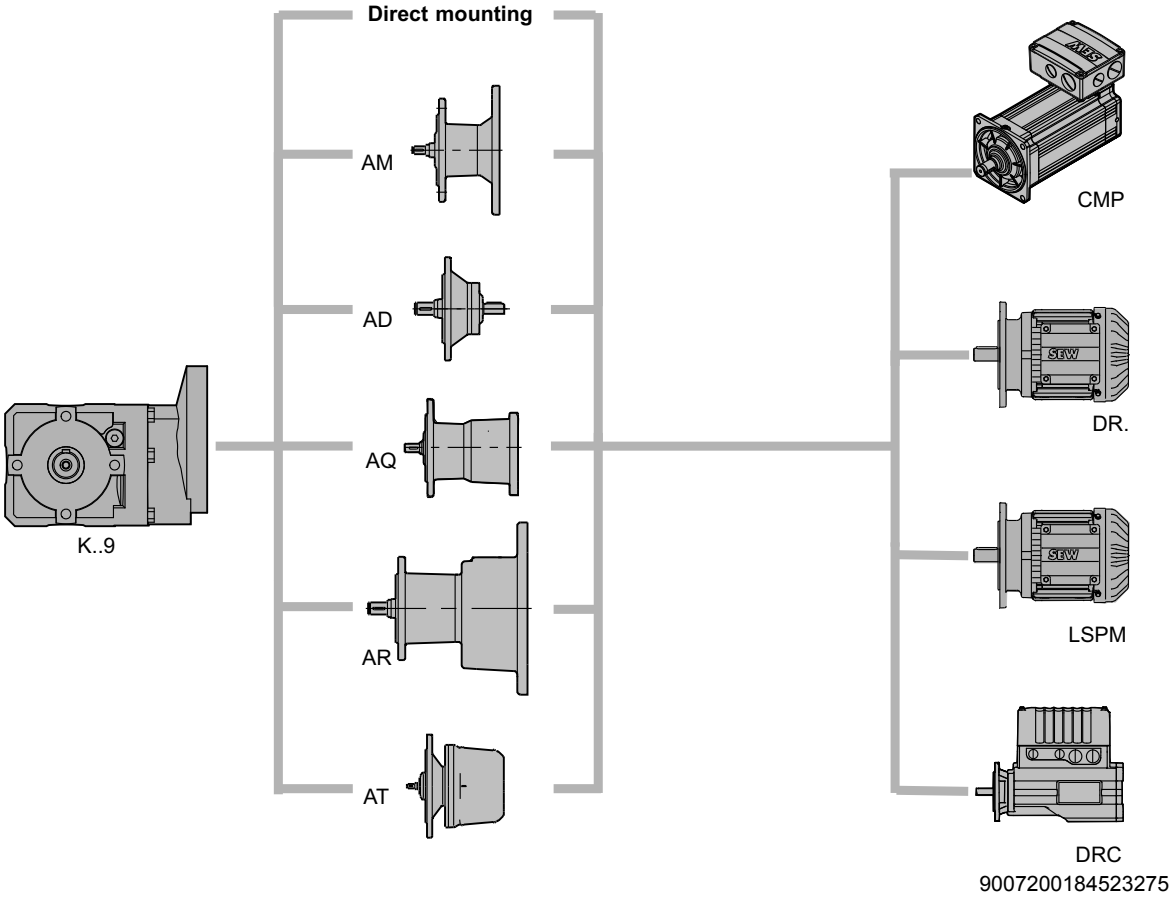
1.6 Variants

The K..9 gear units are available in the following variants:

		
Solid shaft with key K19... K29...	**Hollow shaft with keyway** KA19B... KA29B...	**Hollow shaft with keyway and flange** KAF19B... KAF29B...
		
Solid shaft with key and flange KF19B.. KF29B..	**Hollow shaft with shrink disk** As standard, the shrink disk is located at position B and would not be visible from this perspective. The picture depicts the shrink disk at position A. KH19B... KH29B...	**Hollow shaft with shrink disk and flange** The shrink disk is located at position B and is not visible from this perspective. KHF19B.. KHF29B..

1.7 Overview of motor and gear unit combinations

The following figure shows the adapter and motor combinations possible for K..9 gear units:



2 Technical Data

2.1 Technical data of K..9

The following table lists the technical data for K..9 gear units:

Series	K..19	K..29
M_{amax} [Nm]	80	130
F_{Ramax} [N]	4500	6000
Shaft height [mm]	50	63
Solid shaft [mm]	20	25
Hollow shaft KA [mm]	20	25 and 30[1)]
Shrink disk KH [mm]	20	25
Flange diameter KF.. [mm]	120 / 160	160 / 200
Gear ratio [i]	4.50 – 58.68	3.19 – 71.93
Dimensions L x W x H [mm]	166 x 103 x 131	197 x 117 x 147

[1)] For size KA29B, two standard shafts with a diameter of 25 mm or 30 mm are offered. The 30 mm hollow shaft requires a low key according to DIN 6885-3.

2.2 Lubricants

All gear units of the same variant are filled with the same oil quantity in mounting positions M1, M2, M3, M5 and M6. The oil quantity differs only for mounting position M4.

A new high-viscosity synthetic lubricant with API Gl5 approval is introduced with the K..9 gear units. Refer to the lubricant table for details.

2.3 Lubricant table

The lubricant table on the following page shows the permitted lubricants for SEW-EURODRIVE gear units. Observe the following key to the lubricant table.

2.3.1 Key to the lubricant table

Abbreviations, meaning of shading and notes:

CLP PG	= Polyglycol (W gear units, conforms to USDA-H1)
CLP HC	= Synthetic hydrocarbons
E	= Ester oil (water hazard classification 1)
HCE	= Synthetic hydrocarbons + ester oil (USDA - H1 certification)
HLP	= Hydraulic oil
	= Synthetic lubricant (= synthetic-based roller bearing grease)
1)	Helical-worm gear units with PG oil: please consult SEW-EURODRIVE
2)	Special lubricant for SPIROPLAN® gear units only
3)	Use SEW $f_B \geq 1.2$
4)	Observe the critical starting behavior at low temperatures.
5)	Low-viscosity grease
6)	Ambient temperature
7)	Grease
	Lubricant for the food industry (food grade oil)
	Biodegradable oil (lubricant for agriculture, forestry, and water management)

2.3.2 Lubricant table

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	6) °C	DIN (ISO)	ISO.NLGI	Mobil®	Shell	bp		Castrol Tribol	Castrol Optimol	FUCHS	TOTAL
R... K..37-187 (HK...) F...	-15 Standard +40	CLP (CC)	VG 220	Mobilgear 600 XP 220	Shell Omala S2 G 220	BP Energol GR-XP 220	Klüberoil GEM 1-220 N	Tribol 1100/220	Optigear BM 220	Renolin CLP 220	Carter EP 220
	-20 +80	CLP PG	VG 220	Mobil Glygoyle 220	Shell Omala S4 WE 220	BP Enersyn SG-XP 220	Klübersynth GH 6-220	Tribol 800/220	Optiflex A 220	Renolin PG 220	Carter SY 220
	-20 +60	CLP HC	VG 220	Mobil SHC 630	Shell Omala S4 GX 220		Klübersynth GEM 4-220 N	Tribol 1510/220	Optigear Synthetic X 220	Renolin Unisyn CLP 220	Carter SH 220
	4) -40 +40	CLP HC	VG 150	Mobil SHC 629	Shell Omala S4 GX 150		Klübersynth GEM 4-150 N	Pinnacle EP 150	Optigear Synthetic X 150	Renolin Unisyn CLP 150	Carter SH 150
	-20 +25	CLP (CC)	VG 150	Mobilgear 600 XP 150	Shell Omala S2 G 150	BP Energol GR-XP 150	Klüberoil GEM 1-150 N	Meropa 150	Tribol 1100/150	Optigear BM 100	Carter EP 150
	-40 +20	CLP HC	VG 68	Mobil SHC 626	Shell Omala S4 GX 68					Renolin Unisyn CLP 68	
	-40 + 0	CLP HC	VG 32	Mobil SHC 624			Klüber-Summit HySyn FG-32	Cetus PAO 46		Optilleb HY 32	Renolin Unisyn OL 32	Dacnis SH 32
K..19 - K..29	Standard +60	CLP PG	VG 460				Klübersynth GH 6-460					
	-20 +60	H1 PG	VG 460				Klübersynth UH1 6-460					
S...(HS...)	Standard +40	CLP (CC)	VG 680	Mobilgear 600 XP 680	Shell Omala S2 G 680	BP Energol GR-XP 680	Klüberoil GEM 1-680 N	Meropa 680	Tribol 1100/680	Optigear BM 680	Renolin SEW 680	Carter EP 680
	1) -20 +80	CLP PG	VG 680	Mobil Glygoyle 680	Shell Omala S4 WE 680	BP Enersyn SG-XP 680	Klübersynth GH 6-680	Synlube CLP 680	Tribol 800/680	Optiflex A 680	Renolin PG 680	
	-20 +60	CLP HC	VG 460	Mobil SHC 634	Shell Omala S4 GX 460		Klübersynth GEM 4-460 N	Pinnacle EP 460		Optigear Synthetic X 460	Renolin Unisyn CLP 460	Carter SH 460
	4) -40 +30	CLP HC	VG 150	Mobil SHC 629	Shell Omala S4 GX 150		Klübersynth GEM 4-150 N	Pinnacle EP 150		Optigear Synthetic X 150	Renolin Unisyn CLP 150	Carter SH 150
	-20 +10	CLP (CC)	VG 150	Mobilgear 600 XP 150	Shell Omala S2 G 150	BP Energol GR-XP 150	Klüberoil GEM 1-150 N	Meropa 150	Tribol 1100/150	Optigear BM 150	Renolin CLP 150	Carter EP 150
	1) -20 +40	CLP PG	VG 220	Mobil Glygoyle 220	Shell Omala S4 WE 220	BP Enersyn SG-XP 220	Klübersynth GH 6-220	Synlube CLP 220	Tribol 800/220	Optiflex A 220	Renolin PG 220	Carter SY 220
	-40 +20	CLP HC	VG 68	Mobil SHC 626	Shell Omala S4 GX 68						Renolin Unisyn CLP 68	
	-40 0	CLP HC	VG 32	Mobil SHC 624			Klüber-Summit HySyn FG-32	Cetus PAO 46		Alphasyn T32	Renolin Unisyn OL 32	Dacnis SH 32
R.. K..37-187 / HK.. F.. S../ HS..	-10 +40	CLPHC NSF H1	VG 460				Klüberoil 4UH1-460 N			Optileb GT 460	Cassida Fluid GL 460	
	-20 +30		VG 220				Klüberoil 4UH1-220 N			Optileb GT 220	Cassida Fluid GL 220	
	-40 0		VG 68				Klüberoil 4UH1-68 N			Optileb HY 68	Cassida Fluid HF 68	
	-20 +40	E	VG 460				Klüberbio CA2-460				Plantogear 460 S	
W...(HW...)	Standard +40	SEW PG	VG 460				Klüber SEW HT-460-5					
	2) -20											
	4) -40 +10	API GL5	SAE 75W90 (~VG 100)	Mobil Synth Gear Oil 75 W90								
	3) -20 +60	H1 PG	VG 460				Klübersynth UH1 6-460					
PS.F..	Standard +80	CLP PG	VG 220				Klübersynth GH 6-220					
	-20											
	-20 +60	H1 PG	VG 460				Klübersynth UH1 6-460					
	-40 0	CLP HC	VG 32	Mobil SHC 624								
PS.C..	Standard +40	CLP (CC)	VG 220	Mobilgear 600 XP 220								
	-10											
	5) -20 +40	DIN 51 818	NLGI 00	Mobillux EP 004								
	-20 +40	DIN 51 818	NLGI 1				Klübersynth UH1 14-151					
	-40 0	CLP HC	VG 32	Mobil SHC 624								
BS.F..	Standard +60	CLP PG	VG 220				Klübersynth GH 6-220					
	-20											
	-20 +60	H1 PG	VG 460				Klübersynth UH1 6-460					

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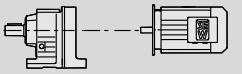
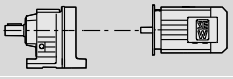
2.4 Speed/power overview table K..9 / DR

P_m [kW]	n_a [rpm]	M_a [Nm]	i	F_{Ra} [1)] [N]	SEW f_B				m [kg]
0.12	**19**	54	71.93	5310	2.4				
	21	50	66.25	5330	2.6	**K**	**29**	**DR 63S4**	9.7
	23	46	61.28	5340	2.8	**KF**	**29**	**DR 63S4**	11
	25	41	54.89	5360	3.1	**KA**	**29**	**DR 63S4**	9.6
	27	38	50.35	5370	3.4	**KAF**	**29**	**DR 63S4**	11
	32	32	42.87	5390	4.0				
	24	44	58.68	4480	1.60				
	26	41	53.88	4500	1.70				
	28	38	49.69	4500	1.85				
	31	34	44.48	4500	2.1				
	34	31	40.63	4500	2.2				
	40	26	34.29	4500	2.5				
	43	24	31.74	4500	3.3				
	47	22	29.29	4500	2.8				
	47	22	29.14	4500	3.6	**K**	**19**	**DR 63S4**	8.3
	51	20	27.16	4500	2.9	**KF**	**19**	**DR 63S4**	8.8
	51	21	26.88	4500	3.9	**KA**	**19**	**DR 63S4**	8.0
	57	19	24.06	4470	4.3	**KAF**	**19**	**DR 63S4**	8.4
	63	17	21.98	4350	4.7				
	74	14	18.55	4130	5.6				
	87	12	15.84	3930	6.6				
	94	11	14.69	3840	7.1				
	109	9.8	12.70	3670	8.2				
	117	9.1	11.84	3590	8.6				
	134	8.0	10.32	3430	9.6				
	144	7.6	9.58	3370	8.4				
0.18	**18**	85	71.93	5200	1.55				
	20	78	66.25	5220	1.65				
	22	73	61.28	5240	1.80				
	24	65	54.89	5270	2.0				
	26	60	50.35	5290	2.2				
	31	51	42.87	5320	2.5	**K**	**29**	**DR 63M4**	9.7
	34	47	38.90	5350	2.8	**KF**	**29**	**DR 63M4**	11
	36	44	36.96	5350	2.8	**KA**	**29**	**DR 63M4**	9.6
	37	43	35.83	5360	3.0	**KAF**	**29**	**DR 63M4**	11
	40	40	33.15	5320	3.2				
	44	36	30.11	5150	3.2				
	44	36	29.69	5160	3.6				
	48	33	27.23	5030	4.0				
	53	29	24.91	4870	3.7				
	22	69	58.68	4330	1.00				
	24	64	53.88	4370	1.10				
	27	59	49.69	4400	1.20				
	30	53	44.48	4440	1.30				
	32	48	40.63	4460	1.40				
	38	41	34.29	4500	1.60				
	42	38	31.74	4500	2.1				
	45	35	29.29	4500	1.75				
	45	35	29.14	4500	2.3				
	49	32	27.16	4500	1.85	**K**	**19**	**DR 63M4**	8.3
	49	32	26.88	4500	2.5	**KF**	**19**	**DR 63M4**	8.8
	55	29	24.06	4430	2.8	**KA**	**19**	**DR 63M4**	8.0
	60	27	21.98	4320	3.0	**KAF**	**19**	**DR 63M4**	8.4
	71	22	18.55	4110	3.6				
	83	19	15.84	3920	4.2				
	90	18	14.69	3830	4.5				
	104	15	12.70	3660	5.2				
	111	14	11.84	3590	5.5				
	128	12	10.32	3440	6.1				
	138	12	9.58	3390	5.3				
	163	10.0	8.09	3210	8.0				
	191	8.5	6.91	3050	9.4				

P_m [kW]	n_a [rpm]	M_a [Nm]	i	F_{Ra} [N] [1)]	SEW f_B				m [kg]
0.25	**18**	120	71.93	5060	1.10				
	20	111	66.25	5100	1.20				
	21	102	61.28	5130	1.25				
	24	92	54.89	5170	1.40				
	26	84	50.35	5200	1.55				
	30	72	42.87	5250	1.80				
	33	66	38.90	5280	1.95				
	35	62	36.96	5280	2.00	**K**	**29**	**DR 63L4**	10
	36	61	35.83	5300	2.1	**KF**	**29**	**DR 63L4**	12
	39	57	33.15	5210	2.3	**KA**	**29**	**DR 63L4**	10
	43	50	30.11	5030	2.3	**KAF**	**29**	**DR 63L4**	11
	44	51	29.69	5050	2.6				
	48	46	27.23	4940	2.8				
	52	42	24.91	4780	2.6				
	56	40	23.19	4720	3.3				
	59	37	22.08	4620	2.8				
	65	34	19.99	4520	3.8				
	26	83	49.69	4230	0.85				
	29	74	44.48	4300	0.95				
	32	68	40.63	4340	1.00				
	38	57	34.29	4410	1.10				
	41	54	31.74	4430	1.50				
	44	49	29.29	4460	1.25				
	45	50	29.14	4460	1.60				
	48	45	27.16	4390	1.30				
	48	46	26.88	4460	1.75				
	54	41	24.06	4330	1.95				
	59	37	21.98	4230	2.1	**K**	**19**	**DR 63L4**	9.0
	70	32	18.55	4030	2.5	**KF**	**19**	**DR 63L4**	9.5
	82	27	15.84	3860	3.0	**KA**	**19**	**DR 63L4**	8.7
	88	25	14.69	3780	3.2	**KAF**	**19**	**DR 63L4**	9.1
	102	22	12.70	3620	3.7				
	110	20	11.84	3550	3.9				
	126	18	10.32	3400	4.3				
	136	17	9.58	3360	3.8				
	161	14	8.09	3190	5.7				
	188	12	6.91	3040	6.6				
	203	11	6.41	2970	7.2				
	235	9.6	5.54	2840	8.3				
	252	9.0	5.16	2780	8.9				
0.37	**25**	128	54.89	5030	1.00				
	27	117	50.35	5070	1.10				
	32	100	42.87	5100	1.30				
	37	86	36.96	4950	1.40				
	46	70	30.11	4720	1.65	**K**	**29**	**DRS 71S4**	12
	46	71	29.69	4770	1.85	**KF**	**29**	**DRS 71S4**	14
	51	65	27.23	4670	2.0	**KA**	**29**	**DRS 71S4**	12
	55	58	24.91	4510	1.90	**KAF**	**29**	**DRS 71S4**	13
	60	55	23.19	4480	2.4				
	62	51	22.08	4380	2.0				
	69	48	19.99	4310	2.7				
	85	39	16.29	4070	3.4				
	40	80	34.29	4260	0.80				
	47	68	29.29	4130	0.90				
	51	63	27.16	4070	0.95				
	57	57	24.06	4070	1.40				
	63	52	21.98	3980	1.55				
	74	44	18.55	3820	1.80				
	87	38	15.84	3670	2.1				
	94	35	14.69	3600	2.3	**K**	**19**	**DRS 71S4**	11
	109	30	12.70	3460	2.6	**KF**	**19**	**DRS 71S4**	11
	117	28	11.84	3390	2.8	**KA**	**19**	**DRS 71S4**	11
	134	25	10.32	3260	3.1	**KAF**	**19**	**DRS 71S4**	11
	144	23	9.58	3240	2.7				
	171	20	8.09	3080	4.1				
	200	17	6.91	2940	4.8				
	215	16	6.41	2870	5.1				
	249	13	5.54	2750	6.0				
	267	13	5.16	2690	6.4				
	307	11	4.50	2580	7.3				

P_m [kW]	n_a [rpm]	M_a [Nm]	i	F_{Ra} [N] [1)]	SEW f_B		m [kg]
0.55	**32**	148	42.87	4620	0.85		
	37	128	36.96	4530	0.95		
	46	104	30.11	4380	1.10		
	46	105	29.69	4460	1.25		
	51	96	27.23	4390	1.35		
	55	86	24.91	4230	1.25	**K 29 DRS 71M4**	14
	60	82	23.19	4240	1.60	**KF 29 DRS 71M4**	15
	62	76	22.08	4130	1.35	**KA 29 DRS 71M4**	13
	69	71	19.99	4100	1.85	**KAF 29 DRS 71M4**	14
	85	58	16.29	3900	2.3		
	102	48	13.47	3720	2.7		
	116	42	11.94	3610	3.1		
	139	36	9.90	3510	3.1		
	162	31	8.53	3360	4.0		
	57	85	24.06	3790	0.95		
	63	78	21.98	3720	1.05		
	74	66	18.55	3600	1.20		
	87	56	15.84	3480	1.45		
	94	52	14.69	3420	1.55		
	109	45	12.70	3300	1.80		
	117	42	11.84	3250	1.90	**K 19 DRS 71M4**	12
	134	36	10.32	3140	2.1	**KF 19 DRS 71M4**	13
	144	35	9.58	3150	1.80	**KA 19 DRS 71M4**	12
	171	29	8.09	3010	2.7	**KAF 19 DRS 71M4**	12
	200	25	6.91	2880	3.2		
	215	23	6.41	2810	3.5		
	249	20	5.54	2700	4.0		
	267	19	5.16	2640	4.3		
	307	16	4.50	2540	4.9		
0.75	**48**	135	30.11	3980	0.85		
	58	112	24.91	3890	0.95		
	63	106	23.19	3940	1.20		
	66	99	22.08	3820	1.05		
	73	92	19.99	3840	1.40		
	89	75	16.29	3680	1.75	**K 29 DRP 90M4**	23
	108	62	13.47	3530	2.1	**KF 29 DRP 90M4**	24
	121	55	11.94	3430	2.4	**KA 29 DRP 90M4**	23
	147	46	9.90	3380	2.4	**KAF 29 DRP 90M4**	24
	158	42	9.17	3210	3.1		
	170	40	8.53	3240	3.0		
	194	34	7.48	3050	3.6		
	209	33	6.95	3060	3.4		
	78	85	18.55	3330	0.95		
	92	73	15.84	3240	1.10		
	99	67	14.69	3200	1.20		
	114	58	12.70	3110	1.35		
	122	54	11.84	3060	1.45	**K 19 DRP 90M4**	21
	140	47	10.32	2970	1.60	**KF 19 DRP 90M4**	22
	179	38	8.09	2880	2.1	**KA 19 DRP 90M4**	21
	210	32	6.91	2770	2.5	**KAF 19 DRP 90M4**	21
	226	30	6.41	2710	2.7		
	262	26	5.54	2600	3.1		
	281	24	5.16	2550	3.3		
	322	21	4.50	2450	3.8		
	48	137	30.11	3990	0.85		
	58	113	24.91	3900	0.95		
	62	107	23.19	3950	1.20		
	65	100	22.08	3830	1.05		
	72	93	19.99	3840	1.40		
	88	76	16.29	3690	1.70	**K 29 DRE 80M4**	18
	107	62	13.47	3540	2.1	**KF 29 DRE 80M4**	20
	120	55	11.94	3440	2.4	**KA 29 DRE 80M4**	18
	145	47	9.90	3390	2.4	**KAF 29 DRE 80M4**	19
	156	43	9.17	3220	3.1		
	168	40	8.53	3250	3.0		
	192	35	7.48	3060	3.6		
	206	33	6.95	3070	3.4		

P_m [kW]	n_a [rpm]	M_a [Nm]	i	F_{Ra} [N] [1)]	SEW f_B		m [kg]
0.75	**77**	86	18.55	3340	0.95		
	91	73	15.84	3250	1.10		
	98	68	14.69	3200	1.15		
	113	59	12.70	3110	1.35		
	121	55	11.84	3070	1.45	**K 19 DRE 80M4**	17
	139	48	10.32	2980	1.60	**KF 19 DRE 80M4**	17
	177	38	8.09	2890	2.1	**KA 19 DRE 80M4**	17
	208	33	6.91	2770	2.4	**KAF 19 DRE 80M4**	17
	224	30	6.41	2720	2.6		
	259	26	5.54	2610	3.0		
	278	24	5.16	2560	3.3		
	319	21	4.50	2460	3.8		
	46	140	30.11	4000	0.80		
	56	116	24.91	3910	0.95		
	60	110	23.19	3960	1.20		
	63	103	22.08	3840	1.00		
	70	95	19.99	3860	1.35		
	86	77	16.29	3710	1.70	**K 29 DRS 80S4**	16
	104	64	13.47	3560	2.0	**KF 29 DRS 80S4**	17
	117	57	11.94	3460	2.3	**KA 29 DRS 80S4**	16
	141	48	9.90	3410	2.3	**KAF 29 DRS 80S4**	17
	153	44	9.17	3240	3.0		
	164	41	8.53	3270	3.0		
	187	36	7.48	3080	3.5		
	201	34	6.95	3090	3.3		
	75	88	18.55	3350	0.90		
	88	75	15.84	3260	1.05		
	95	70	14.69	3220	1.15		
	110	60	12.70	3130	1.35		
	118	56	11.84	3080	1.40	**K 19 DRS 80S4**	14
	136	49	10.32	2990	1.55	**KF 19 DRS 80S4**	15
	173	39	8.09	2910	2.0	**KA 19 DRS 80S4**	14
	203	34	6.91	2790	2.4	**KAF 19 DRS 80S4**	14
	219	31	6.41	2740	2.6		
	253	27	5.54	2630	3.0		
	271	25	5.16	2580	3.2		
	311	22	4.50	2480	3.7		
1.1	**62**	157	23.19	3500	0.85		
	72	135	19.99	3460	0.95		
	88	110	16.29	3370	1.20		
	107	91	13.47	3280	1.40		
	121	81	11.94	3210	1.60	**K 29 DRP 90L4**	26
	146	68	9.90	3240	1.60	**KF 29 DRP 90L4**	27
	157	62	9.17	3040	2.1	**KA 29 DRP 90L4**	25
	169	59	8.53	3120	2.1	**KAF 29 DRP 90L4**	26
	193	51	7.48	2910	2.4		
	207	48	6.95	2960	2.3		
	250	40	5.75	2820	2.8		
	282	35	5.10	2730	3.1		
	61	159	23.19	3500	0.80		
	71	137	19.99	3460	0.95		
	87	112	16.29	3380	1.15		
	105	93	13.47	3280	1.40		
	119	82	11.94	3220	1.60	**K 29 DRE 90M4**	23
	143	69	9.90	3250	1.60	**KF 29 DRE 90M4**	24
	155	63	9.17	3050	2.1	**KA 29 DRE 90M4**	23
	166	60	8.53	3140	2.0	**KAF 29 DRE 90M4**	24
	190	51	7.48	2920	2.4		
	204	49	6.95	2980	2.3		
	247	40	5.75	2830	2.8		
	279	36	5.10	2740	3.1		
	112	87	12.70	2830	0.90		
	120	81	11.84	2810	0.95		
	138	71	10.32	2750	1.05		
	176	57	8.09	2760	1.40	**K 19 DRE 90M4**	21
	206	48	6.91	2660	1.65	**KF 19 DRE 90M4**	22
	222	45	6.41	2610	1.80	**KA 19 DRE 90M4**	21
	256	39	5.54	2520	2.1	**KAF 19 DRE 90M4**	21
	275	36	5.16	2480	2.2		
	316	32	4.50	2390	2.5		

P_m [kW]	n_a [rpm]	M_a [Nm]	i	F_{Ra} [N] [1)]	SEW f_B				m [kg]
1.5	**88**	150	16.29	3010	0.85				
	107	124	13.47	2980	1.05				
	121	110	11.94	2940	1.20				
	157	85	9.17	2840	1.55				
	169	80	8.53	2980	1.50	**K**	**29**	**DRP 100M4**	28
	193	69	7.48	2740	1.80	**KF**	**29**	**DRP 100M4**	30
	207	66	6.95	2850	1.70	**KA**	**29**	**DRP 100M4**	28
	250	54	5.75	2720	2.1	**KAF**	**29**	**DRP 100M4**	29
	282	48	5.10	2640	2.3				
	368	37	3.92	2470	3.4				
	451	30	3.19	2330	3.6				
	88	152	16.29	3020	0.85				
	106	125	13.47	2980	1.05				
	120	111	11.94	2950	1.15				
	156	85	9.17	2840	1.50				
	168	81	8.53	2990	1.50	**K**	**29**	**DRE 90L4**	26
	191	70	7.48	2750	1.75	**KF**	**29**	**DRE 90L4**	27
	206	66	6.95	2850	1.70	**KA**	**29**	**DRE 90L4**	25
	249	55	5.75	2730	2.0	**KAF**	**29**	**DRE 90L4**	26
	280	48	5.10	2650	2.3				
	365	37	3.92	2470	3.4				
	448	30	3.19	2340	3.6				
2.2	**155**	126	9.17	2490	1.05				
	191	102	7.48	2460	1.20				
	205	97	6.95	2650	1.15	**K**	**29**	**DRE 100M4**	30
	248	80	5.75	2560	1.40	**KF**	**29**	**DRE 100M4**	32
	280	71	5.10	2500	1.55	**KA**	**29**	**DRE 100M4**	30
	364	55	3.92	2360	2.3	**KAF**	**29**	**DRE 100M4**	31
	446	45	3.19	2250	2.5				

2.5 Selection tables for K..9 / AM

n_e = 1400 rpm																			80 Nm
	i	n_a [rpm]	$M_{a\,max}$ [Nm]	F_{Ra} [N]	$\varphi_{(/R)}$ [']	AM 63	71	80	90	100	112	132S /M	132 ML	160	180	200	225	250	280
	4.50	311	80	2010	-														
	5.16	271	80	2140	-														
	5.54	253	80	2200	-														
	6.41	218	80	2340	-														
	6.91	203	80	2420	-														
	8.09	173	80	2590	-														
	9.58	146	63	2910	-														
	10.32	136	76	2720	-														
	11.84	118	79	2850	-														
	12.70	110	80	2930	-														
	14.69	95	80	3110	-														
	15.84	88	80	3210	-														
K..19	**18.55**	75	80	3430	-														
2	**21.98**	64	80	3680	-														
	24.06	58	80	3820	-														
	26.88	52	80	3990	-														
	27.16	52	60	4090	-														
	29.14	48	80	4120	-														
	29.29	48	61	4200	-														
	31.74	44	80	4260	-														
	34.29	41	64	4370	-														
	40.63	34	67	4350	-														
	44.48	31	69	4340	-														
	49.69	28	70	4330	-														
	53.88	26	70	4330	-														
	58.68	24	70	4330	-														

m [kg]		AM													
IEC	**s**	**63**	**71**	**80**	**90**	**100**	**112**	**132S /M**	**132 ML**	**160**	**180**	**200**	**225**	**250**	**280**
K..19	2	8.1	8.3	12	12	22	22	39	39	62	63	82	87	115	115
NEMA		-	56	143	145	-	-	-	-	-	-	-	-	-	-
K..19	2	-	7.1	9.1	9.2	-	-	-	-	-	-	-	-	-	-
KF: + 0.5 kg / KA: + -0.3 kg / KAF: + 0.1 kg															

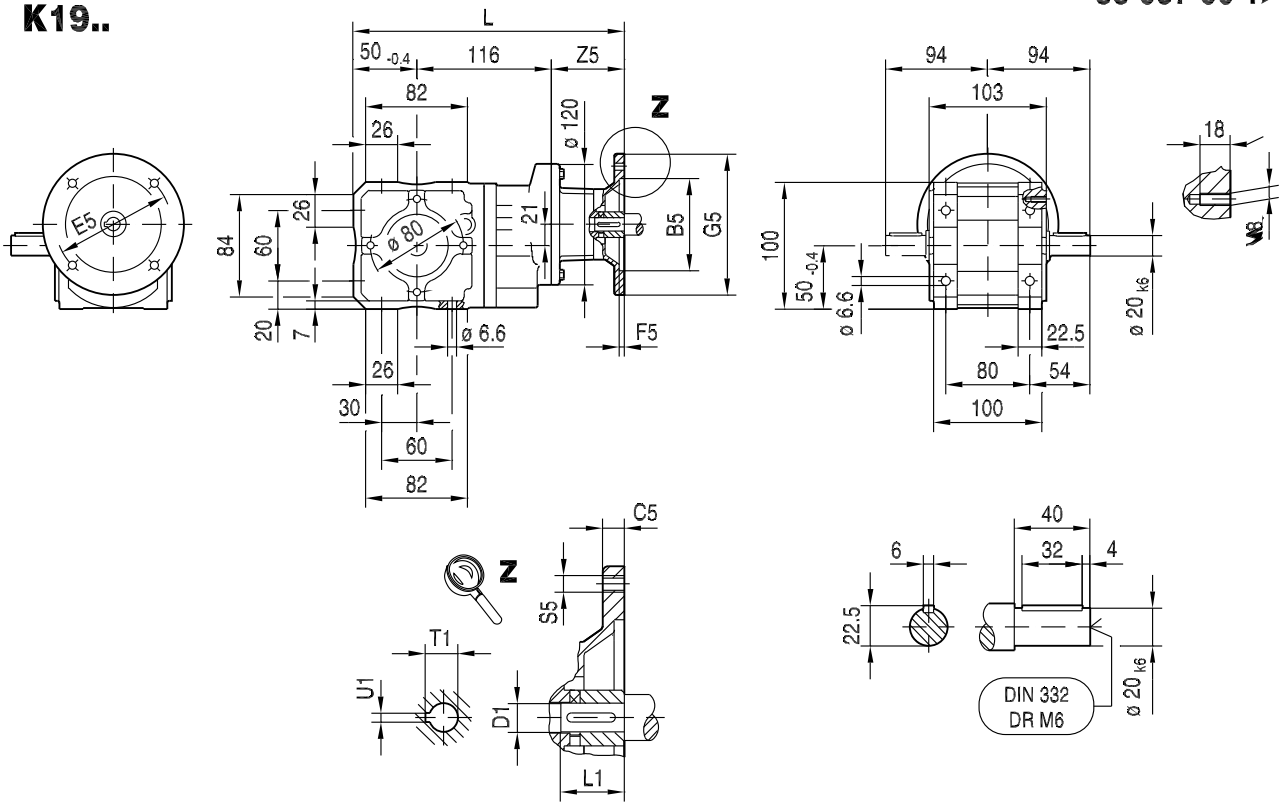
n_e = 1400 rpm																			130 Nm
	i	n_a [rpm]	$M_{a\,max}$ [Nm]	F_{Ra} [N]	$\varphi_{(/R)}$ [']	AM 63	71	80	90	100	112	132S /M	132 ML	160	180	200	225	250	280
	3.19	439	110	1830	-														
	3.92	357	126	1910	-														
	5.10	275	110	2260	-														
	5.75	243	112	2370	-														
	6.95	201	112	2580	-														
	7.48	187	123	2300	-														
	8.53	164	122	2740	-														
	9.17	153	130	2470	-														
	9.90	141	110	3000	-														
	11.94	117	130	2810	-														
	13.47	104	130	2970	-														
	16.29	86	130	3240	-														
	19.99	70	130	3550	-														
	22.08	63	105	3820	-														
K..29	**23.19**	60	130	3790	-														
	24.91	56	109	3980	-														
	27.23	51	130	4060	-														
	29.69	47	130	4210	-														
	30.11	46	115	4250	-														
	33.15	42	130	4410	-														
	35.83	39	130	4560	-														
	36.96	38	122	4560	-														
	38.90	36	130	4720	-														
	42.87	33	128	4790	-														
	50.35	28	130	5020	-														
	54.89	26	130	5020	-														
	61.28	23	130	5020	-														
	66.25	21	130	5020	-														
	71.93	19	130	5020	-														

m [kg]		AM													
IEC	**s**	**63**	**71**	**80**	**90**	**100**	**112**	**132S /M**	**132 ML**	**160**	**180**	**200**	**225**	**250**	**280**
K..29		9.5	9.7	13	13	24	24	41	41	64	64	83	88	115	115
NEMA		-	56	143	145	-	-	-	-	-	-	-	-	-	-
K..29		-	8.5	11	11	-	-	-	-	-	-	-	-	-	-
KF: + 1.3 kg / KA: + -0.1 kg / KAF: + 1.0 kg															

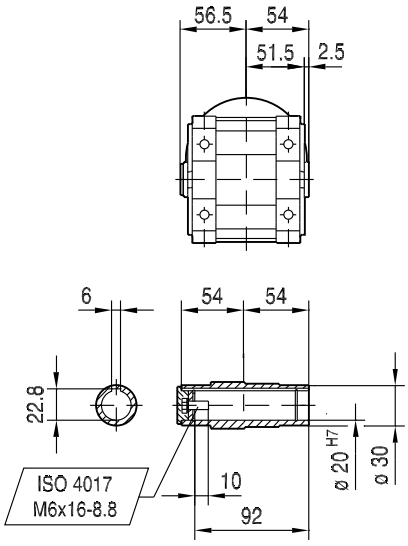
2.6 Dimension sheets for K..19 / AM

33 087 00 12

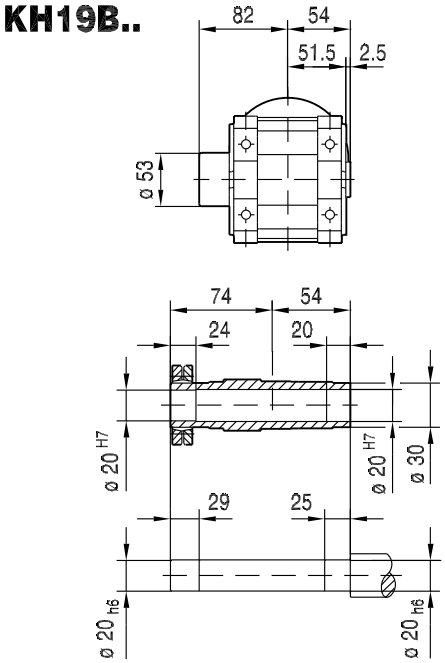
K19..



KA19B..



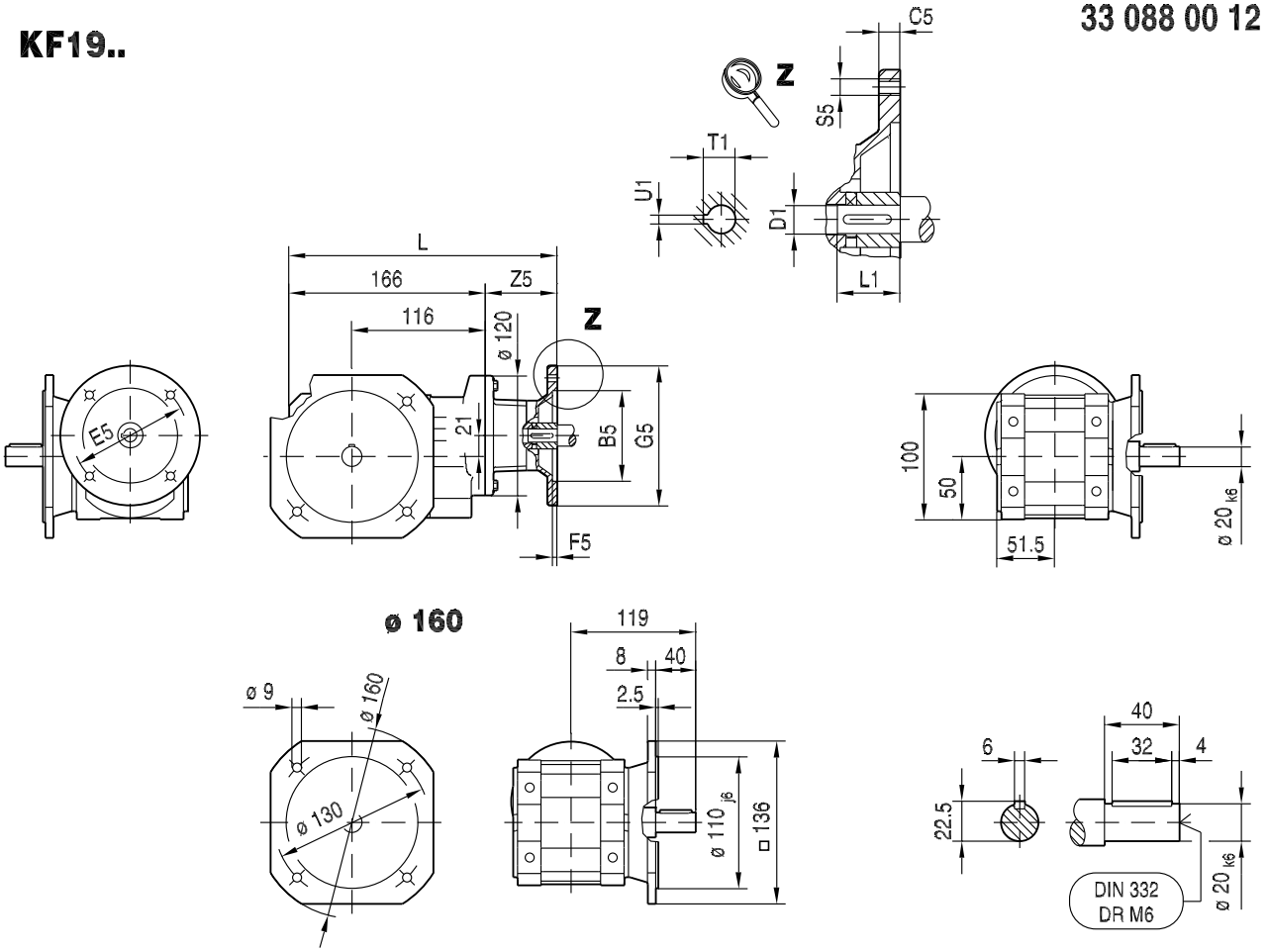
KH19B..



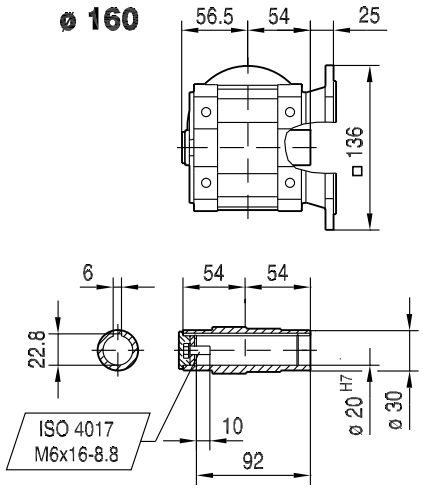
	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	238	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	238	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	272	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	272	M10	106	24	50	27.3	8

33 088 00 12

KF19..



KAF19..



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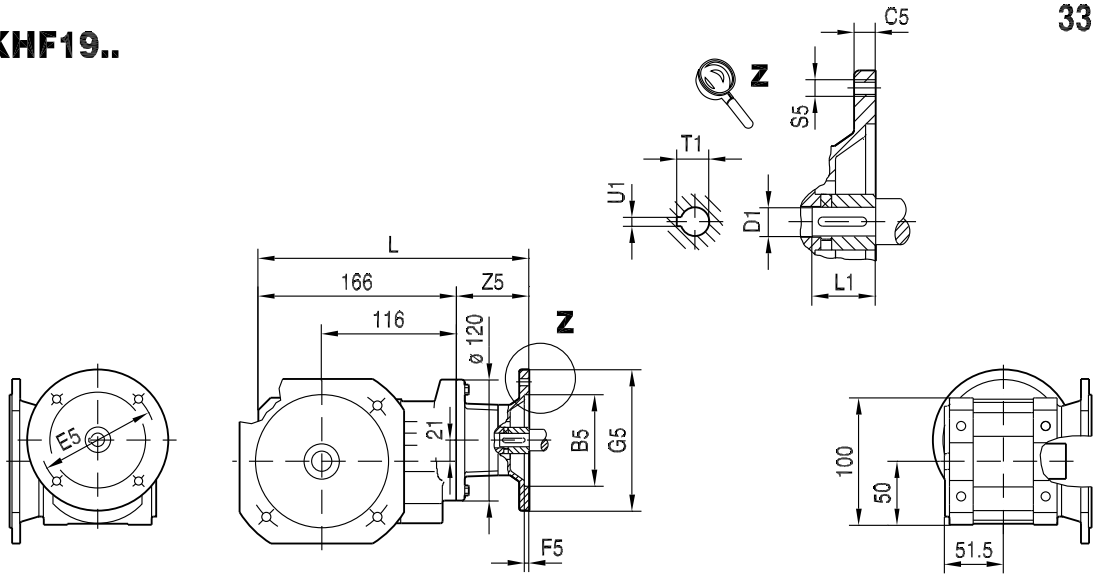
AM63	95	10	115	3.5	140	238	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	238	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	272	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	272	M10	106	24	50	27.3	8

KHF19..

33 089 00 12



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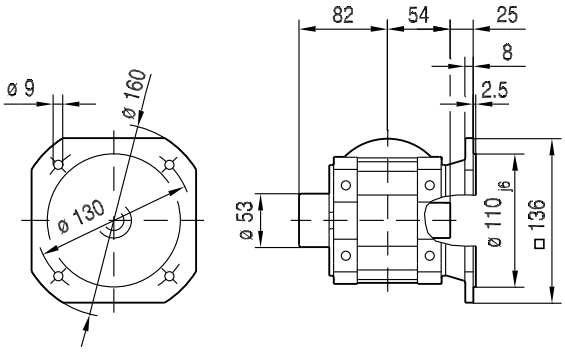
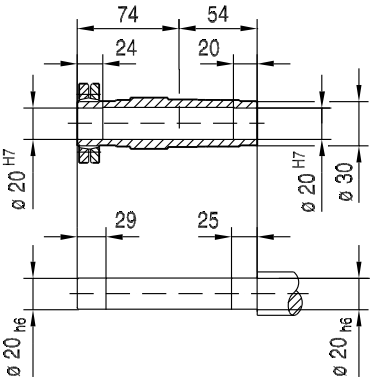
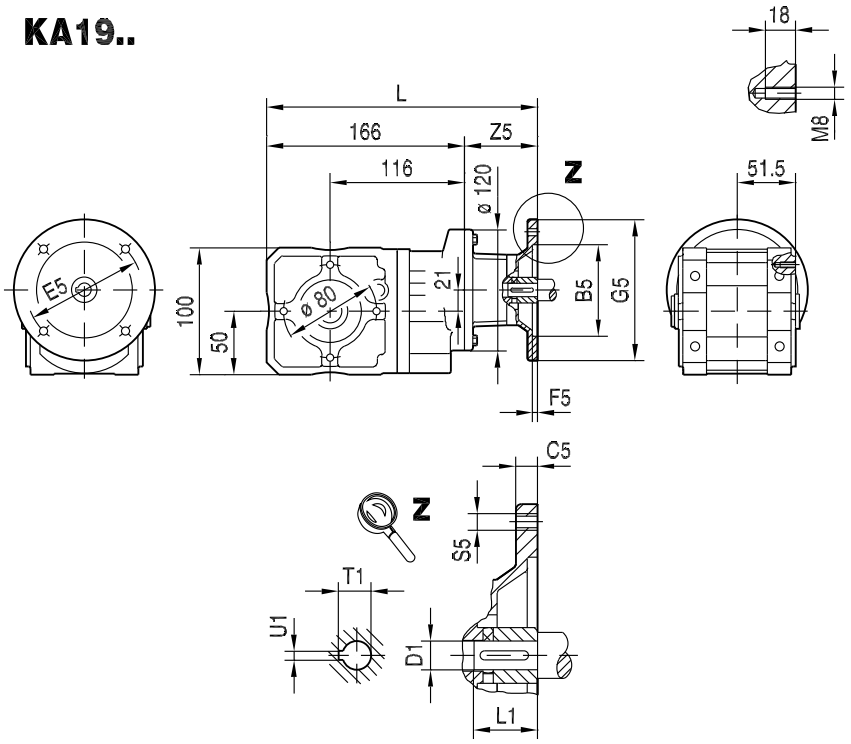


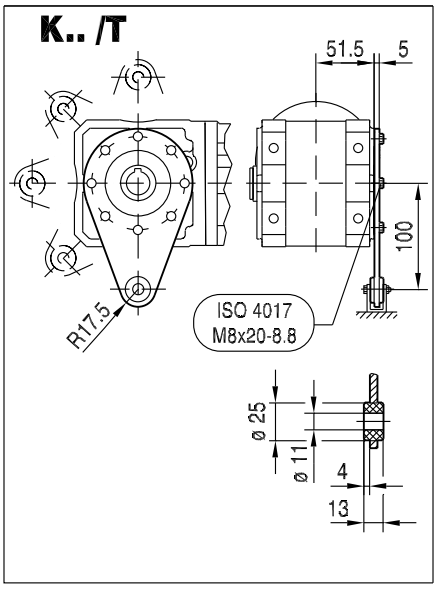


	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	238	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	238	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	272	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	272	M10	106	24	50	27.3	8

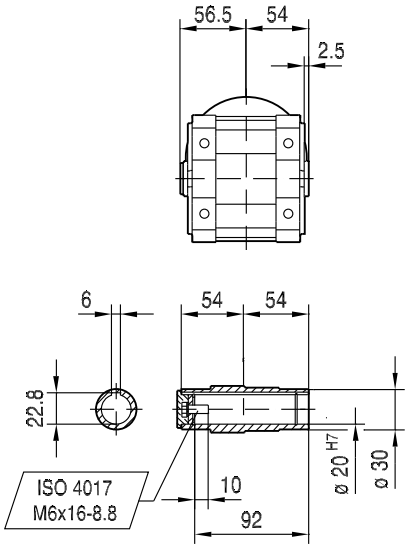
33 090 00 12

KA19..

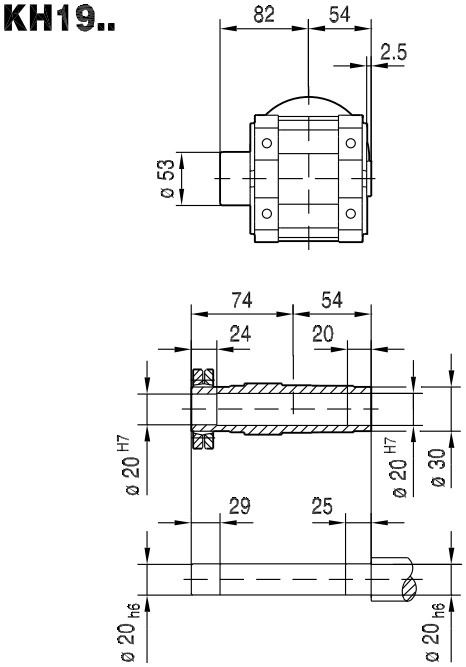




KA19..



KH19..

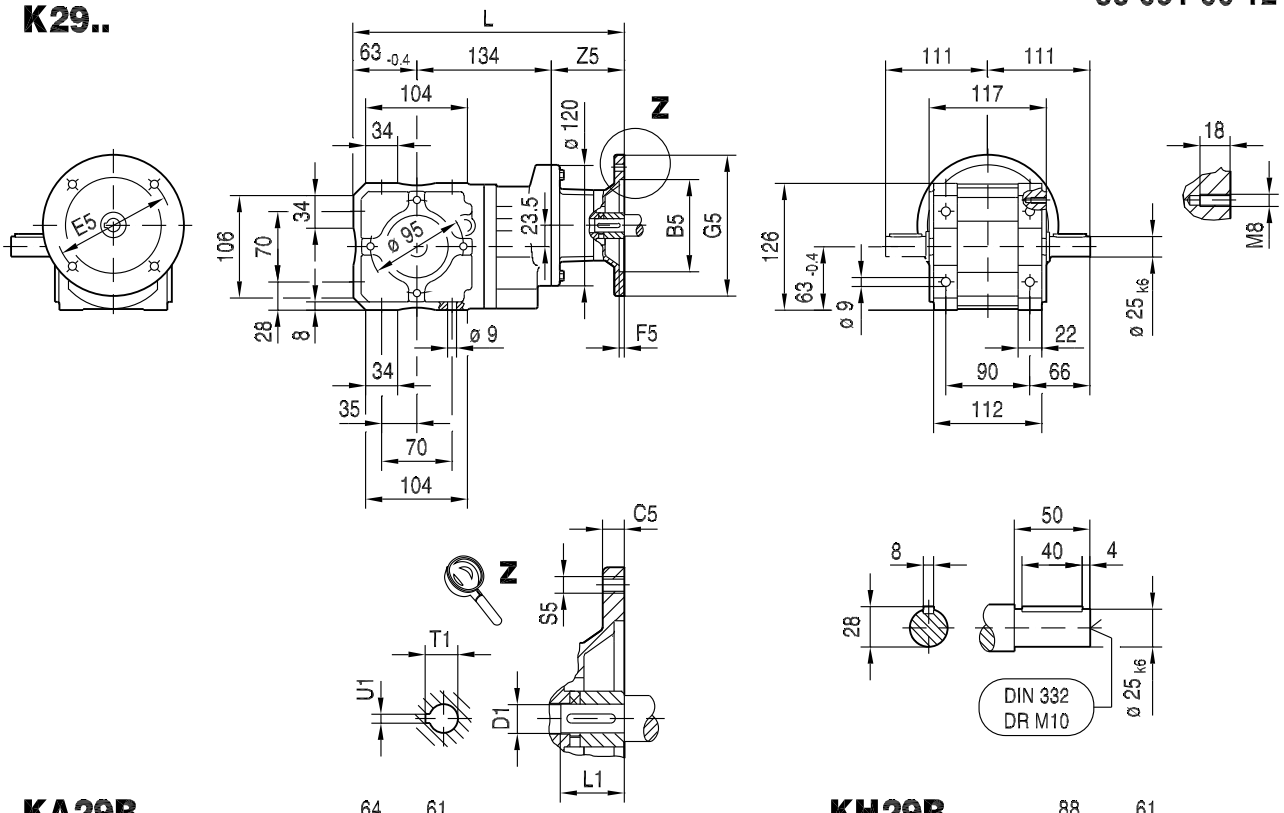


	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	238	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	238	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	272	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	272	M10	106	24	50	27.3	8

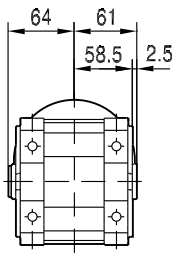
2.7 Dimension sheets for K..29 / AM

33 091 00 12

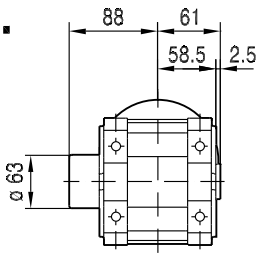
K29..



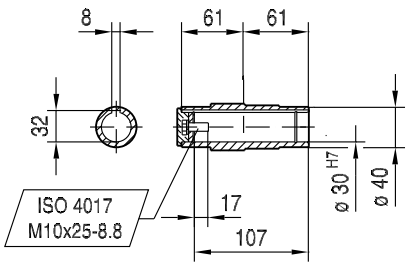
KA29B..



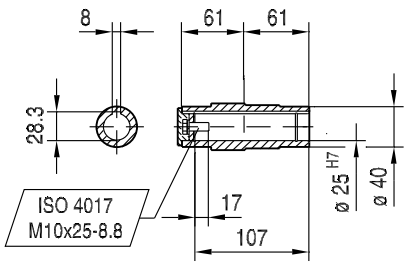
KH29B..

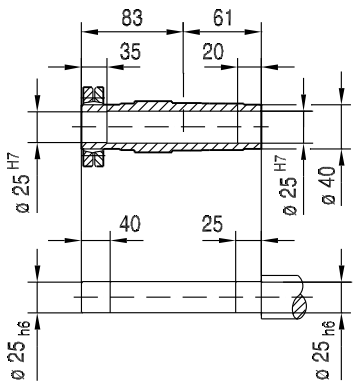


ø 30 H7
DIN 6885-3



ø 25 H7

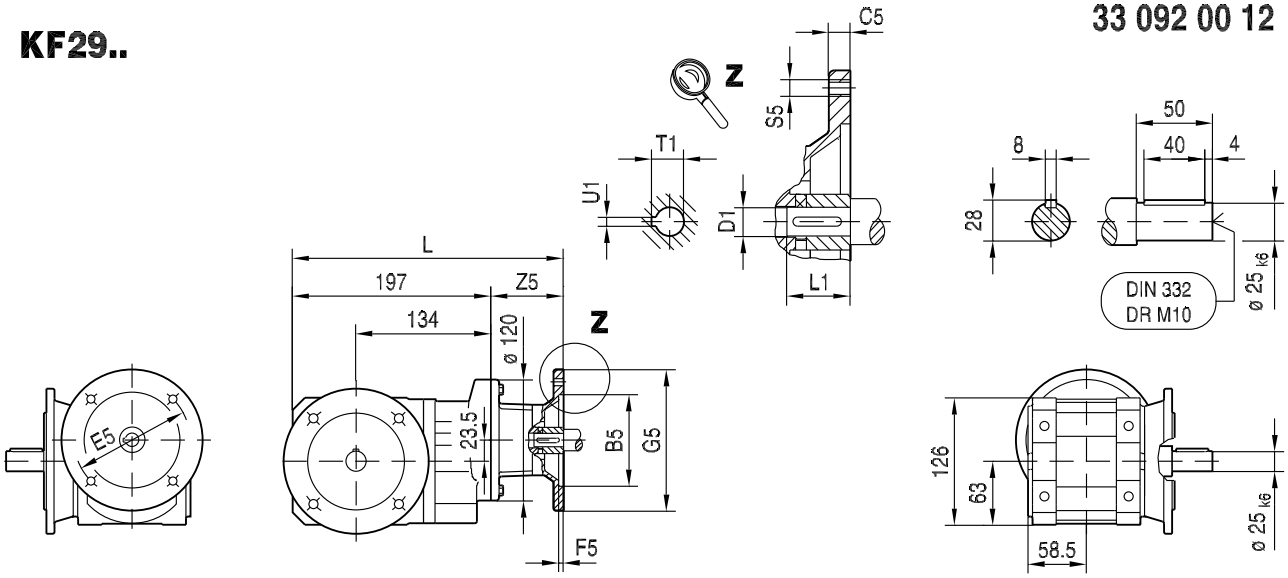




	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	269	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	269	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	303	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	303	M10	106	24	50	27.3	8

33 092 00 12

KF29..



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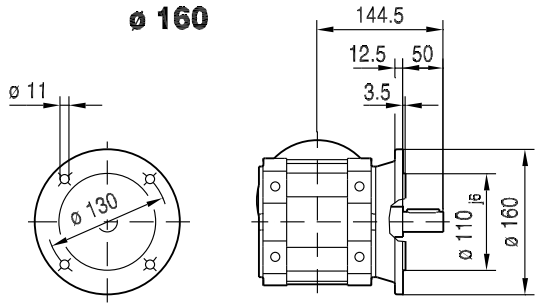
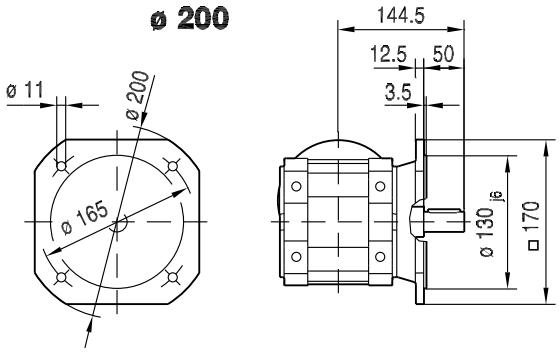
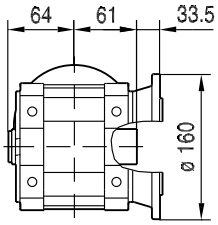


ø 200

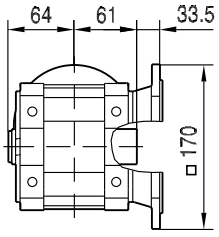


KAF29..

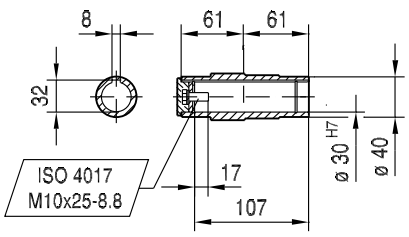
ø 160



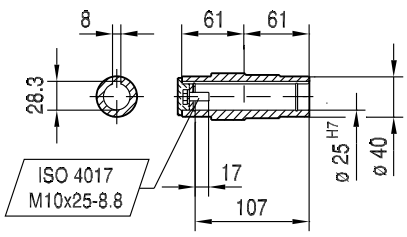
ø 200



ø 30 H7
DIN 6885-3



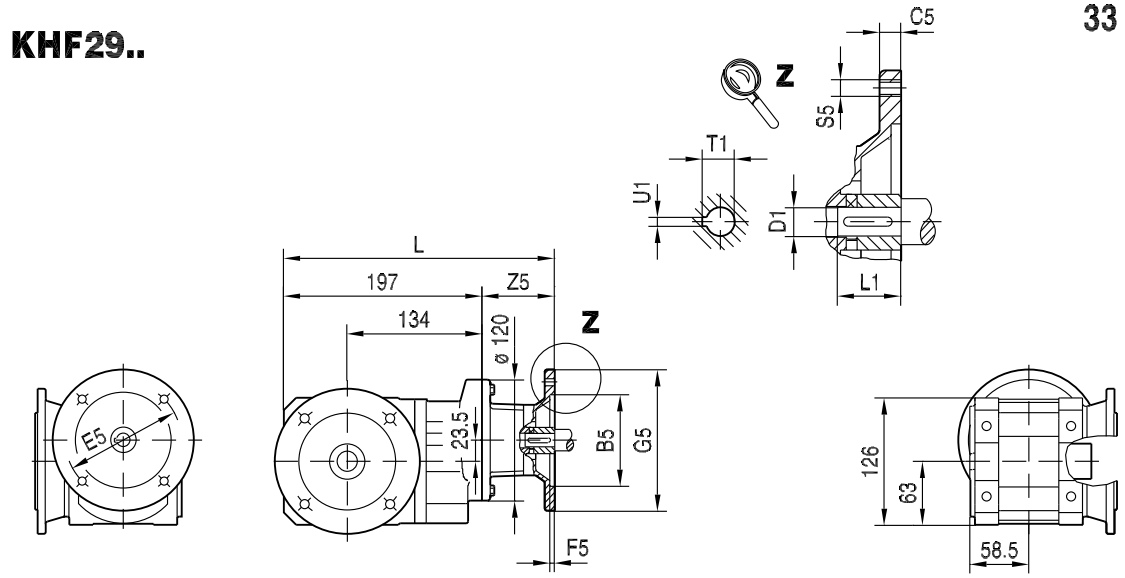
ø 25 H7



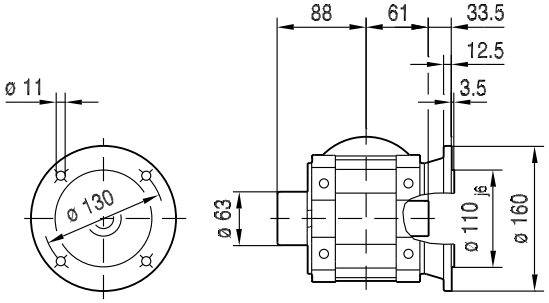
	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	269	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	269	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	303	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	303	M10	106	24	50	27.3	8

KHF29..

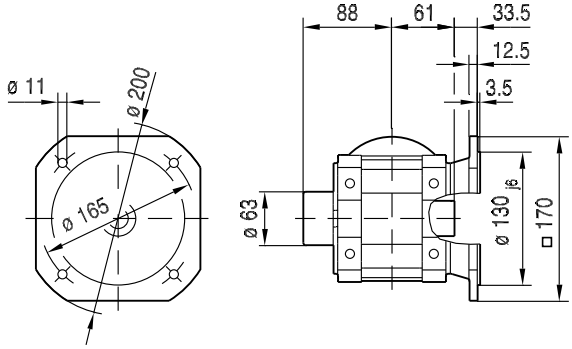
33 093 00 12

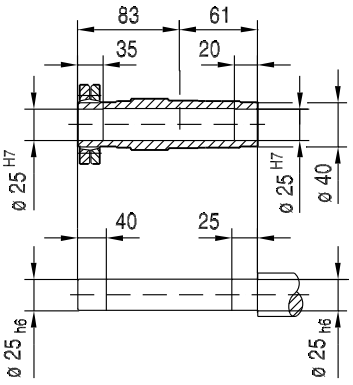


ø 160



ø 200

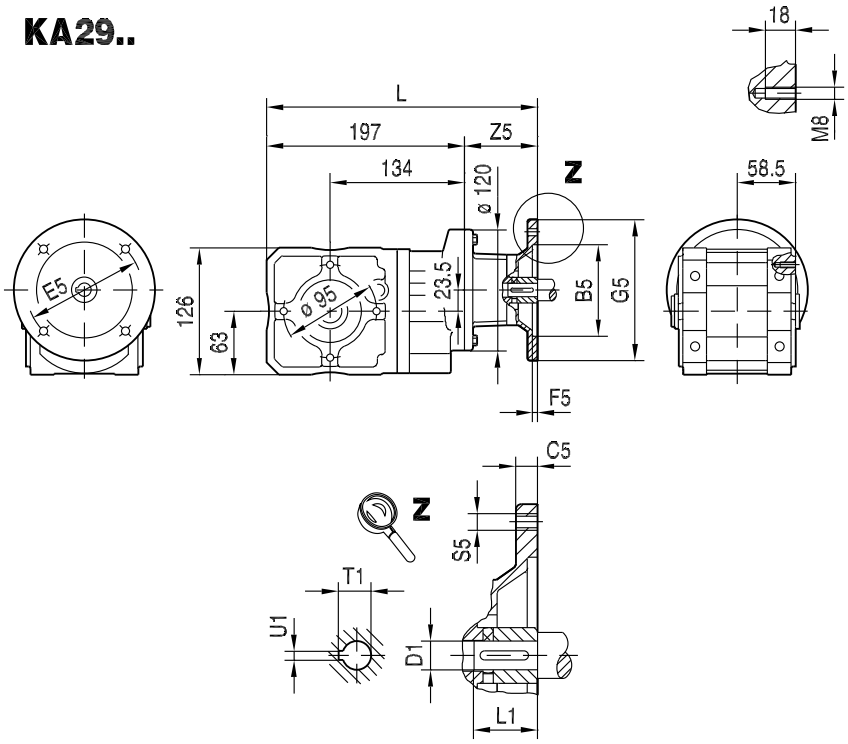




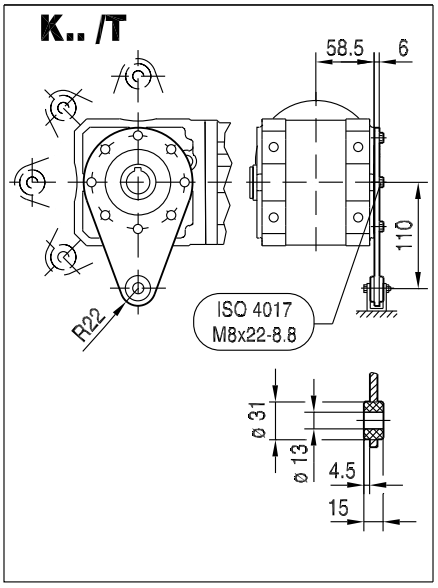
	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	269	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	269	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	303	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	303	M10	106	24	50	27.3	8

33 094 00 12

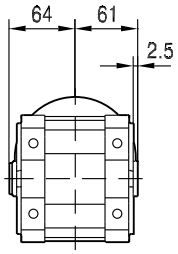
KA29..



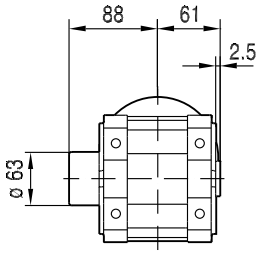
K.. /T



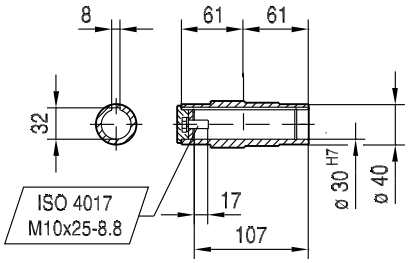
KA29..



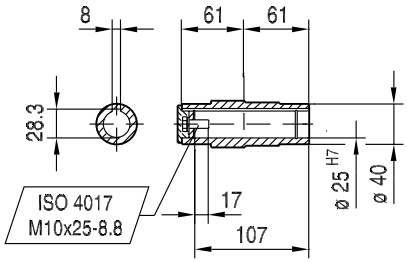
KH29..

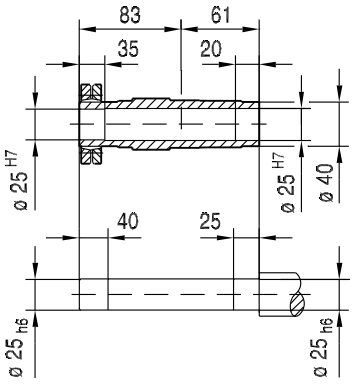


ø 30 H7
DIN 6885-3



ø 25 H7



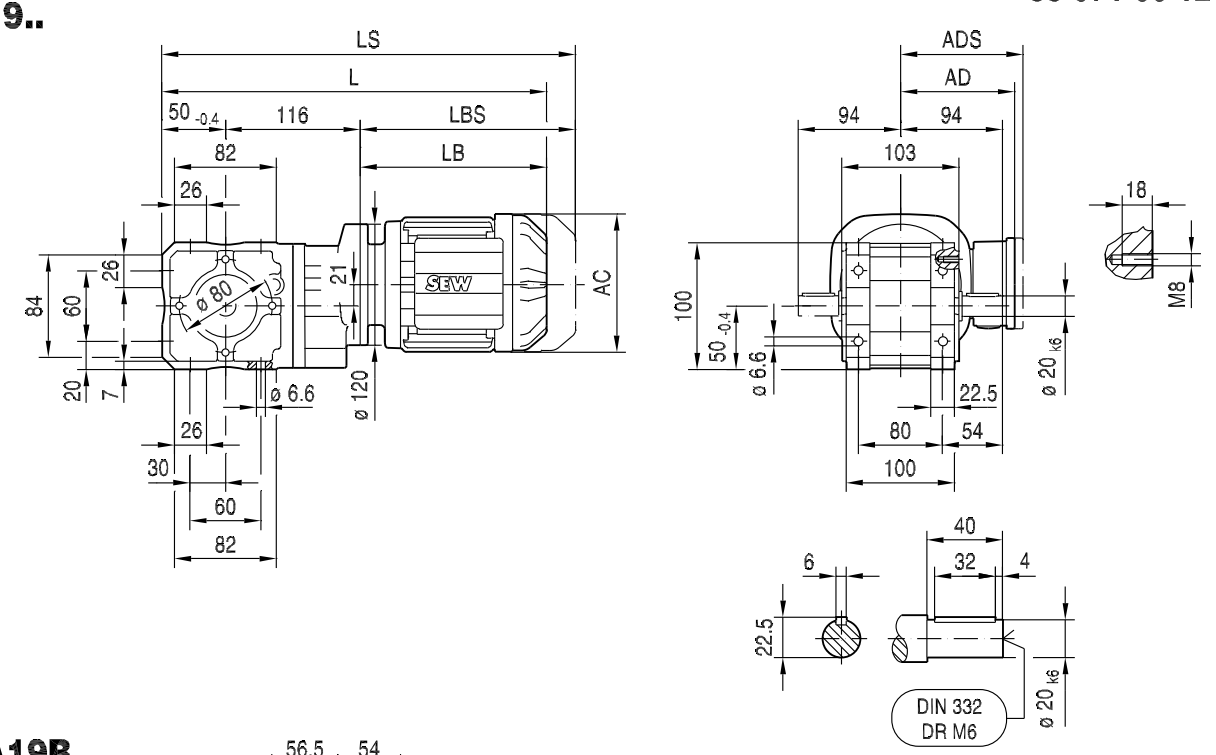


	B5	C5	E5	F5	G5	L	S5	Z5	D1	L1	T1	U1
AM63	95	10	115	3.5	140	269	M8	72	11	23	12.8	4
AM71	110	10	130	4	160	269	M8	72	14	30	16.3	5
AM80	130	12	165	4.5	200	303	M10	106	19	40	21.8	6
AM90	130	12	165	4.5	200	303	M10	106	24	50	27.3	8

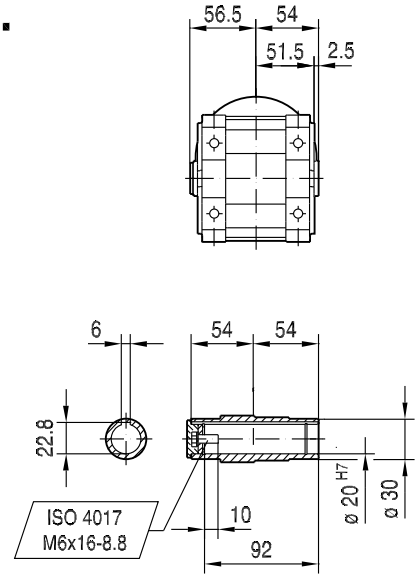
2.8 Dimension sheets for K..19 / DR

33 071 00 12

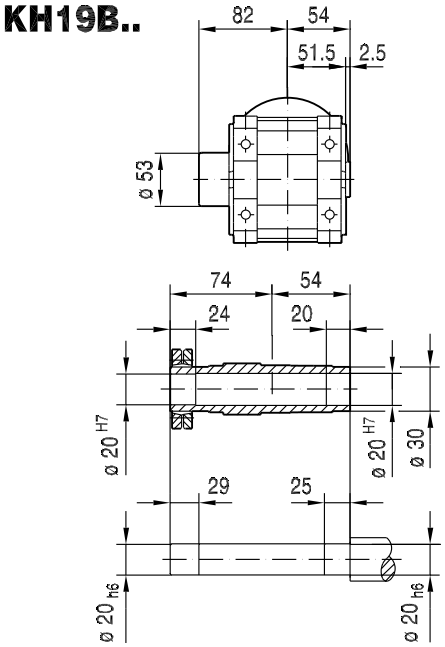
K19..



KA19B..



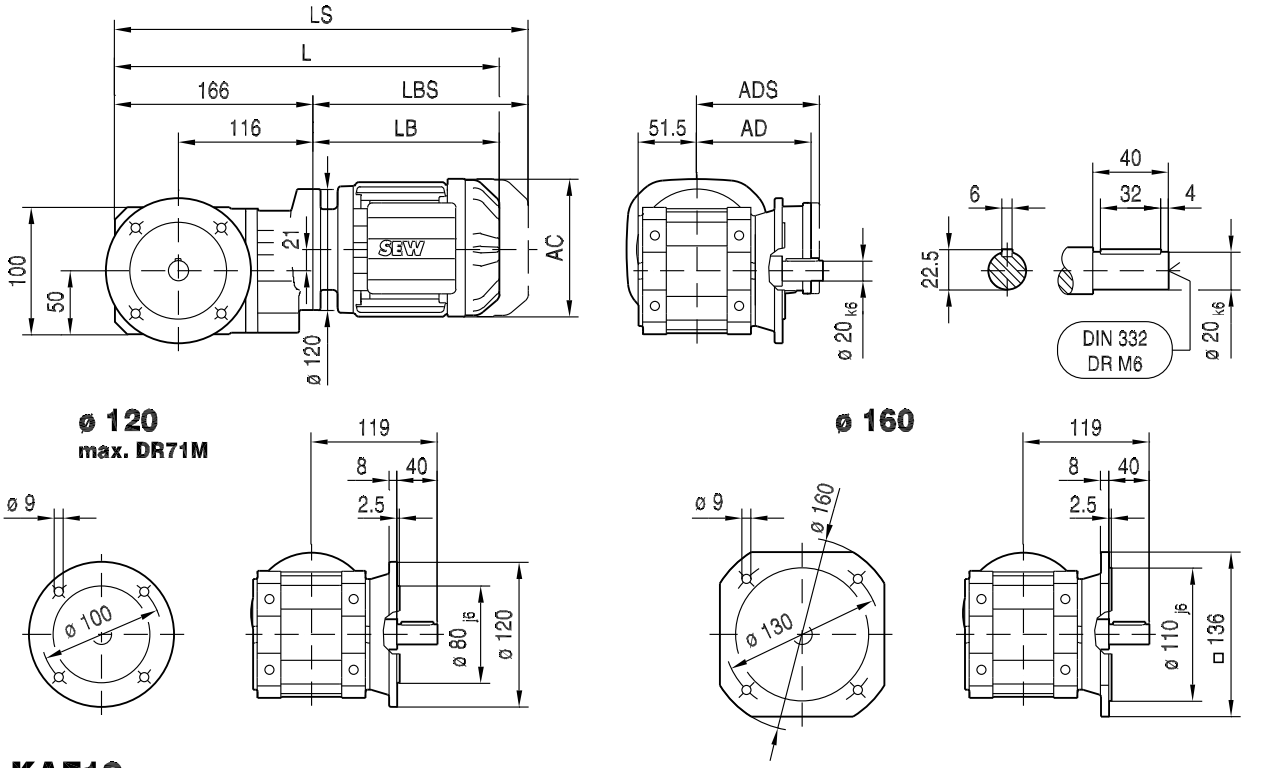
KH19B..



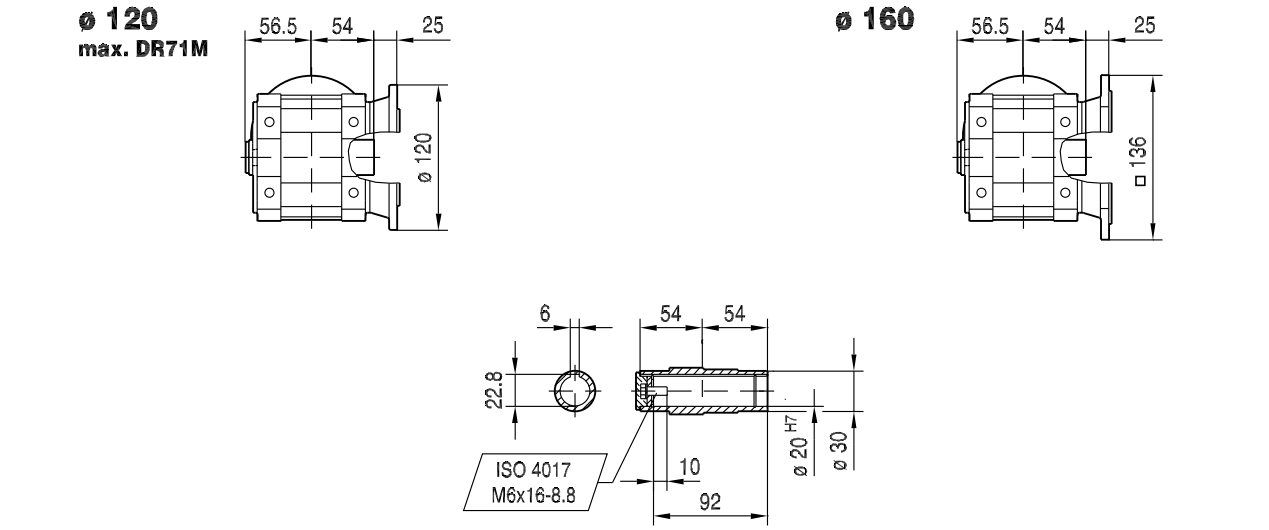
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	403	434	438		
LS	412	436	461	484	515	531		
LB	191	202	227	237	268	272		
LBS	246	270	295	318	349	365		

33 072 00 12

KF19..



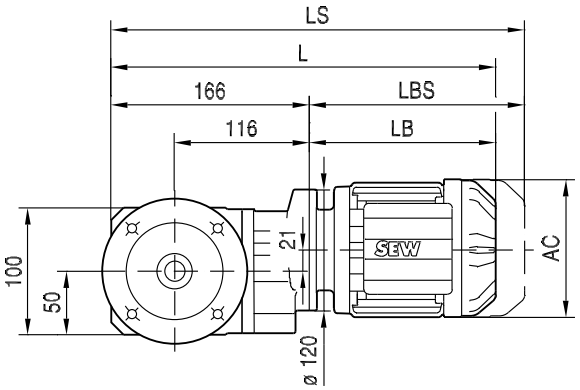
KAF19..



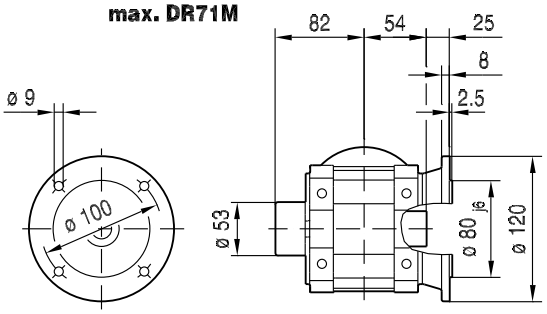
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	403	434	438		
LS	412	436	461	484	515	531		
LB	191	202	227	237	268	272		
LBS	246	270	295	318	349	365		

33 073 00 12

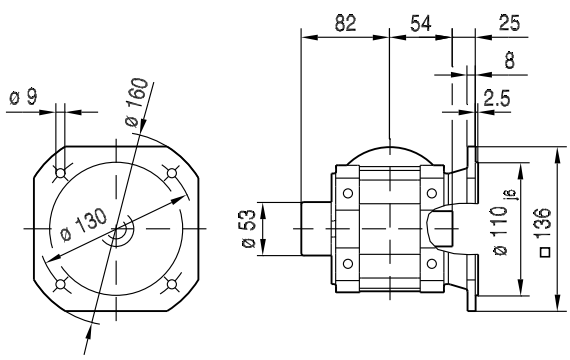
KHF19..

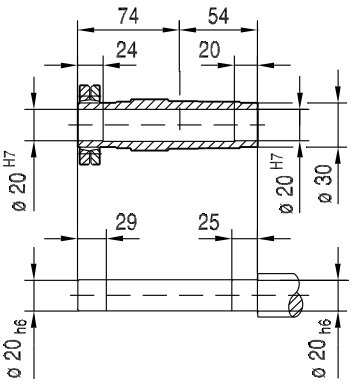


ø 120
max. DR71M



ø 160

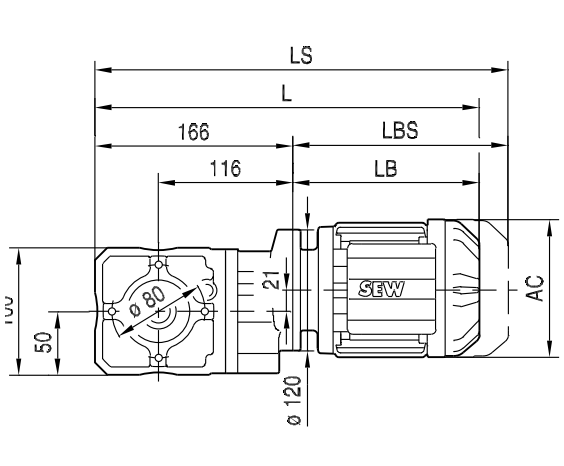




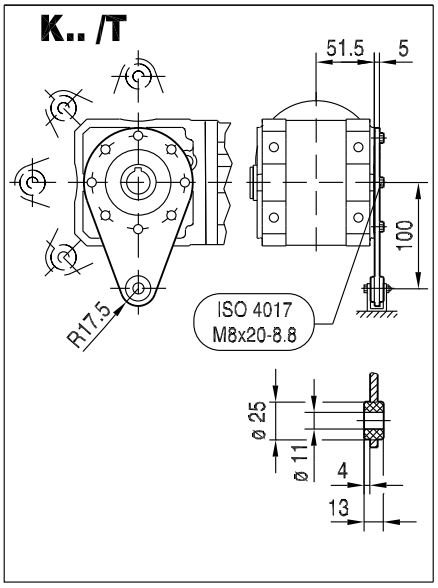
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	403	434	438		
LS	412	436	461	484	515	531		
LB	191	202	227	237	268	272		
LBS	246	270	295	318	349	365		

33 074 00 12

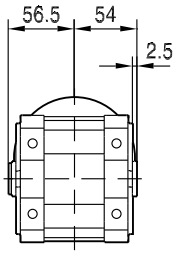
KA19..

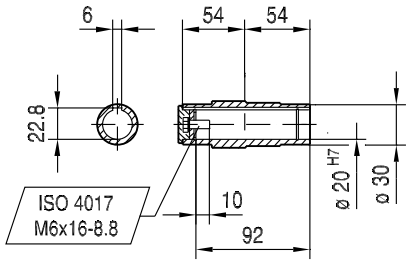


K.. /T

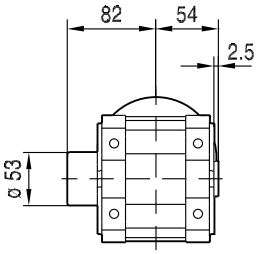


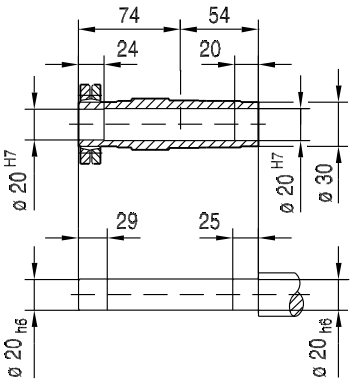
KA19..





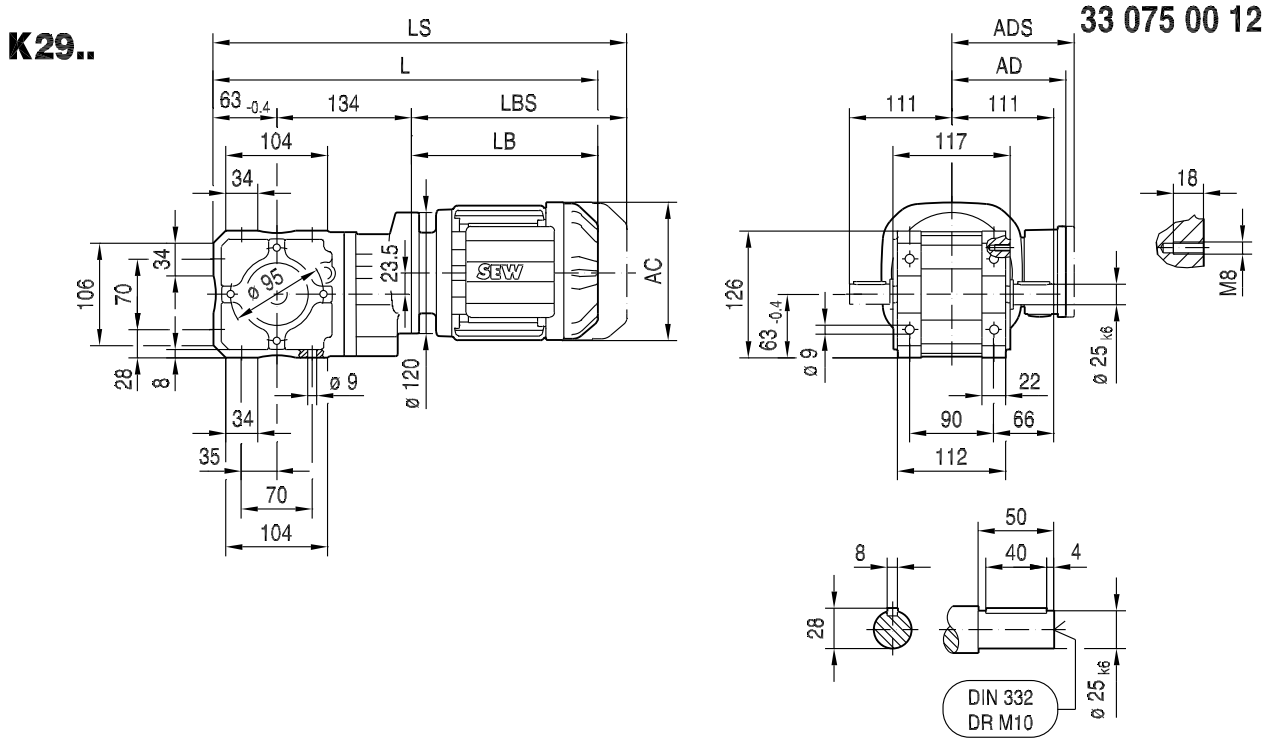
KH19..

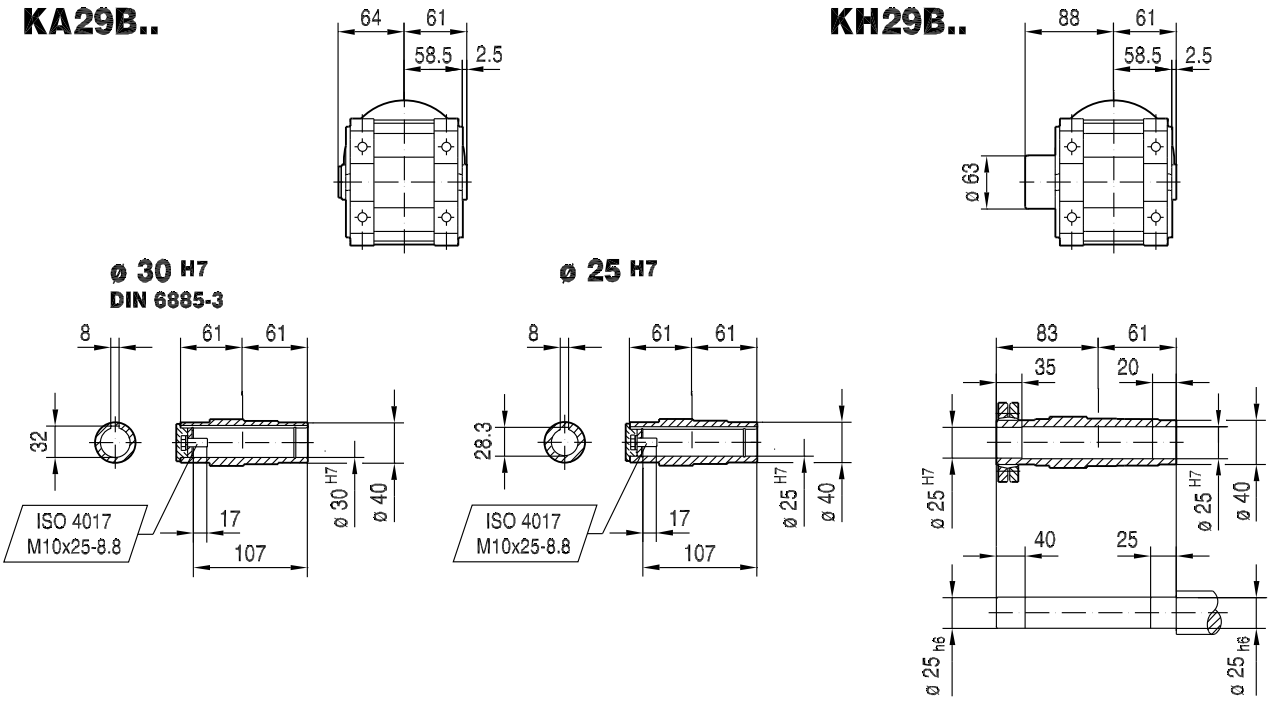




	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M		
AC	132	139	139	156	156	179		
AD	105	119	119	128	128	140		
ADS	105	129	129	139	139	150		
L	357	368	393	403	434	438		
LS	412	436	461	484	515	531		
LB	191	202	227	237	268	272		
LBS	246	270	295	318	349	365		

2.9 Dimension sheets for K..29 / DR

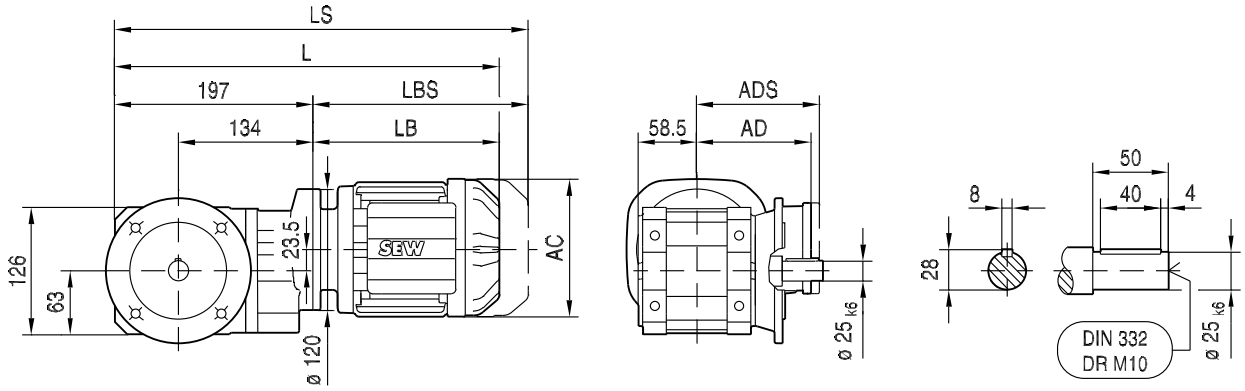




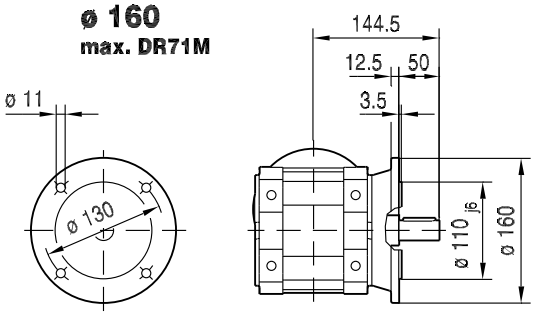
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M	DR90L	DR100M
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	388	399	424	434	465	469	489	519
LS	443	467	492	515	546	562	582	612
LB	191	202	227	237	268	272	292	322
LBS	246	270	295	318	349	365	385	415

33 076 00 12

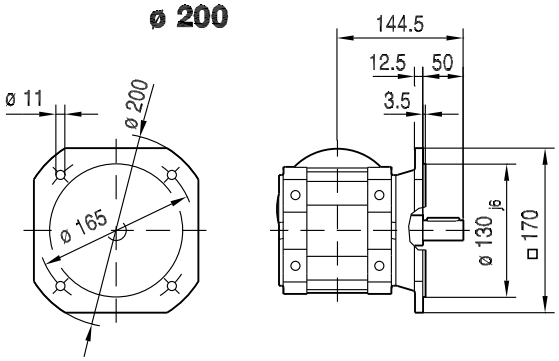
KF29..



ø 160
max. DR71M

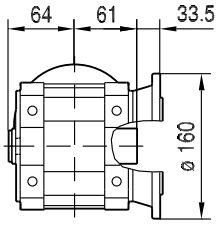


ø 200

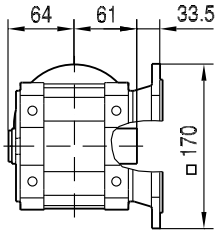


KAF29..

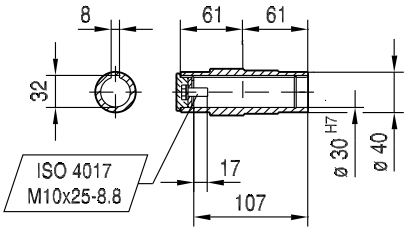
ø 160
max. DR71M



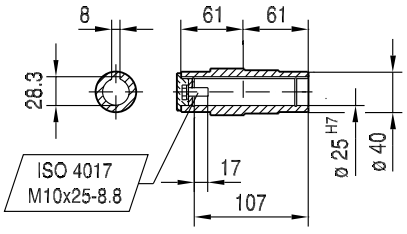
ø 200



ø 30 H7
DIN 6885-3



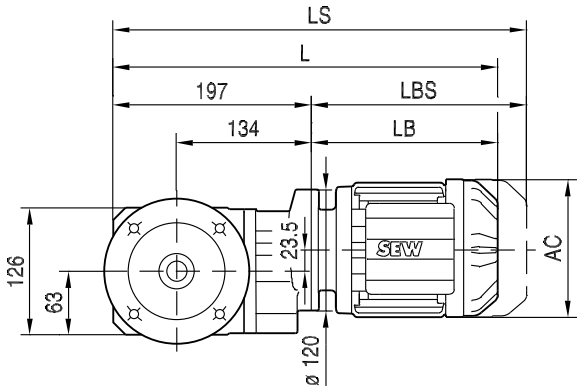
ø 25 H7



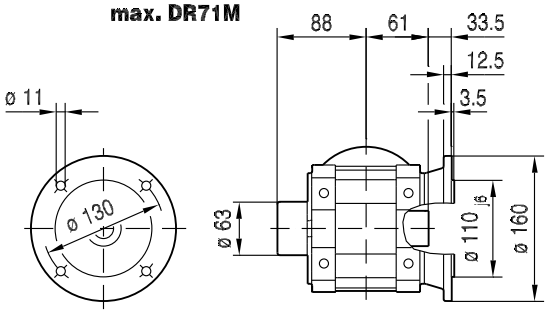
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M	DR90L	DR100M
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	388	399	424	434	465	469	489	519
LS	443	467	492	515	546	562	582	612
LB	191	202	227	237	268	272	292	322
LBS	246	270	295	318	349	365	385	415

33 077 00 12

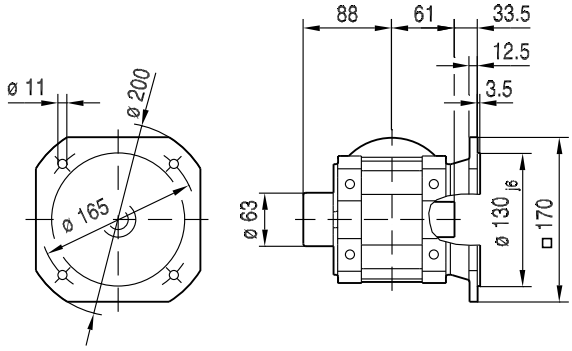
KHF29..

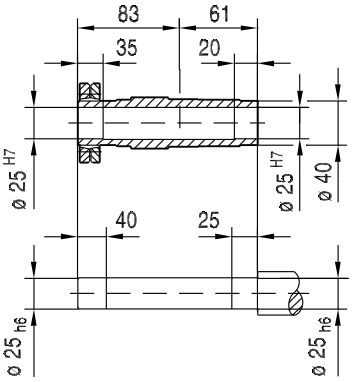


ø 160
max. DR71M



ø 200

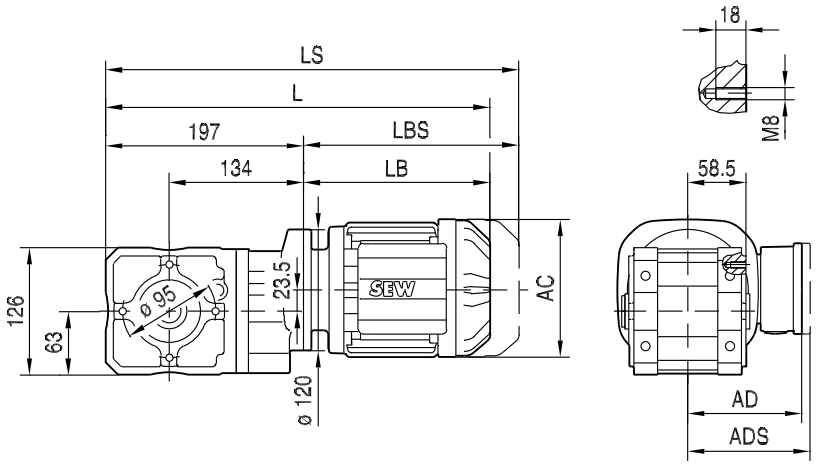




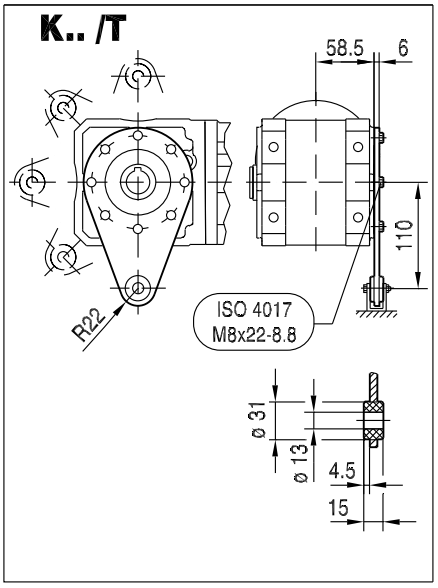
	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M	DR90L	DR100M
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	388	399	424	434	465	469	489	519
LS	443	467	492	515	546	562	582	612
LB	191	202	227	237	268	272	292	322
LBS	246	270	295	318	349	365	385	415

33 078 00 12

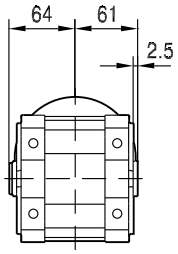
KA29..



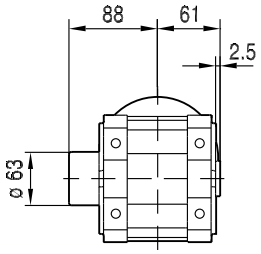
K.. /T



KA29..



KH29..



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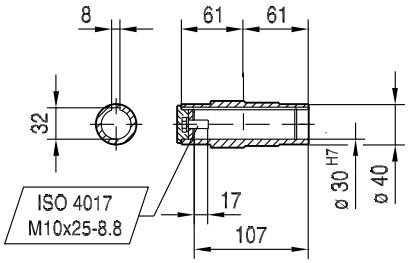
DIN 6885-3



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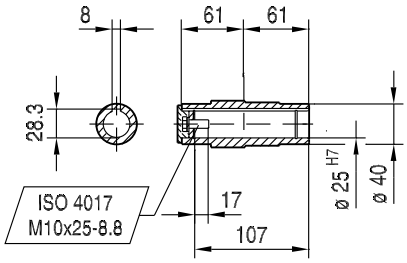
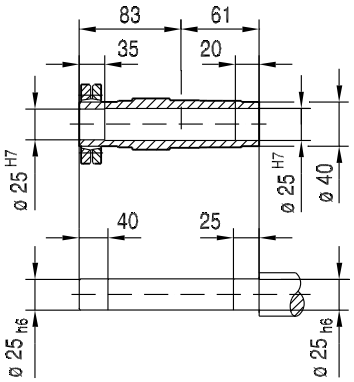




	DR63..	DR71S	DR71M	DR80S	DR80M	DR90M	DR90L	DR100M
AC	132	139	139	156	156	179	179	197
AD	105	119	119	128	128	140	140	157
ADS	105	129	129	139	139	150	150	158
L	388	399	424	434	465	469	489	519
LS	443	467	492	515	546	562	582	612
LB	191	202	227	237	268	272	292	322
LBS	246	270	295	318	349	365	385	415

2.10 Selection tables for K..9 / CMP

2.10.1 Selection tables for K..19 / CMP

M_{aDyn} [Nm]		CMP						
	i	40M	50S	50M	50L	63S	63M	71S
K..19	4.50	16	22	44	66	47	>88	82
	5.16	19	25	50	75	54	>88	>88
	5.54	20	27	54	81	58	>88	>88
	6.41	23	32	63	>88	68	>88	>88
	6.91	25	34	68	>88	73	>88	>88
	8.09	29	40	79		85		
	9.58	35	47					
	10.32	36	50	>83	>83	>83	>83	>83
	11.84	42	57	>86	>86	>86	>86	>86
	12.70	45	61	>88	>88	>88	>88	>88
	14.69	52	71	>88	>88	>88	>88	>88
	15.84	56	77	>88	>88	>88	>88	>88
	18.55	66	>88	>88		>88		
	21.98	78	>88					
	24.06	85	>88					
	26.88							
	27.16	>66	>66	>66	>66	>66	>66	>66
	29.14							
	29.29	>67	>67	>67	>67	>67	>67	>67
	31.74							
	34.29	>70	>70	>70		>70		
	40.63	>73	>73					
	44.48	>75	>75					
	49.69							
	53.88							
	58.68							

m [kg]		CMP						
	s	40M	50S	50M	50L	63S	63M	71S
K..19	2	5.7	7.4	8.3	9.2	9.5	11	12
KF: + 0.5 kg / KA: + -0.3 kg / KAF: + 0.1 kg								

CMP..	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/']	KF [Nm/']	KA [Nm/']	KAF [Nm/']
	4.50	4500	95	5.1	4.4	8.5	8.5
	5.16	4500	95	5.1	4.4	8.5	8.5
	5.54	4500	95	5.1	4.4	8.5	8.5
	6.41	4500	95	5.1	4.4	8.5	8.5
	6.91	4500	95	5.1	4.4	8.5	8.5
	8.09	4500	95	5.1	4.5	8.6	8.6
	9.58	4500	95	5.1	4.5	8.6	8.6
	10.32	4500	93	6.2	5.2	12	12
	11.84	4500	93	6.2	5.2	12	12
	12.70	4500	93	5.1	4.5	8.6	8.6
	14.69	4500	93	6.2	5.2	12	12
	15.84	4500	93	6.2	5.2	12	12
K..19	18.55	4500	93	6.2	5.2	12	12
2	21.98	4500	93	6.2	5.2	12	12
	24.06	4500	93	6.2	5.2	12	12
	26.88	4500	93	6.2	5.2	12	12
	27.16	4500	91	6.2	5.2	12	12
	29.14	4500	93	6.2	5.2	12	12
	29.29	4500	91	6.2	5.2	12	12
	31.74	4500	93	6.2	5.2	12	12
	34.29	4500	91	6.2	5.2	12	12
	40.63	4500	91	6.2	5.2	12	12
	44.48	4500	91	6.2	5.2	12	12
	49.69	4500	91	6.2	5.2	12	12
	53.88	4500	91	6.2	5.2	12	12
	58.68	4500	91	6.2	5.2	12	12

CMP..							F_{Ramax}				F_{Rapk}			
n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aEmerg-Off}$ [Nm]	n_{ak} [rpm]	J_G 10^{-4} [kgm^2]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
	4.50	80	88	132	433	0.38	2010	1620	2500	2500	1890	1520	2340	2340
	5.16	80	88	132	424	0.30	2140	1720	2650	2650	2010	1620	2490	2490
	5.54	80	88	132	419	0.27	2200	1780	2730	2730	2080	1670	2570	2570
	6.41	80	88	132	410	0.21	2340	1890	2900	2900	2210	1780	2740	2740
	6.91	80	88	132	407	0.18	2420	1950	3000	3000	2290	1840	2830	2830
	8.09	80	88	132	399	0.14	2590	2080	3200	3200	2450	1970	3030	3030
	9.58	63	69	104	731	0.11	2910	2340	3600	3600	2780	2240	3450	3450
	10.32	76	83	124	102	0.22	2720	2190	3370	3370	2560	2070	3180	3180
	11.84	79	86	129	90	0.18	2850	2300	3530	3530	2700	2170	3340	3340
	12.70	80	88	132	83	0.16	2930	2360	3630	3630	2760	2220	3420	3420
	14.69	80	88	132	82	0.13	3110	2510	3860	3860	2940	2370	3640	3640
	15.84	80	88	132	81	0.12	3210	2590	3980	3980	3040	2450	3760	3760
K..19	18.55	80	88	132	81	0.092	3430	2760	4250	4250	3250	2620	4030	4030
2	21.98	80	88	132	81	0.072	3680	2960	4500	4500	3490	2820	4330	4330
	24.06	80	88	132	81	0.063	3820	3080	4500	4500	3630	2920	4500	4500
	26.88	80	88	132	80	0.054	3990	3220	4500	4500	3800	3060	4500	4500
	27.16	60	66	99	38	0.13	4090	3290	4500	4500	3900	3150	4500	4500
	29.14	80	88	132	80	0.048	4120	3320	4500	4500	3930	3160	4500	4500
	29.29	61	67	100	36	0.11	4200	3380	4500	4500	4010	3230	4500	4500
	31.74	80	88	132	80	0.042	4260	3440	4500	4500	4070	3280	4500	4500
	34.29	64	70	105	31	0.090	4370	3570	4500	4500	4240	3410	4500	4500
	40.63	67	73	110	27	0.071	4350	3630	4500	4500	4310	3610	4500	4500
	44.48	69	75	112	24	0.062	4340	3620	4500	4500	4290	3600	4500	4500
	49.69	70	77	116	22	0.053	4330	3620	4500	4500	4280	3600	4500	4500
	53.88	70	77	116	22	0.047	4330	3620	4500	4500	4280	3600	4500	4500
	58.68	70	77	116	22	0.042	4330	3620	4500	4500	4280	3600	4500	4500

2.10.2 Selection tables for K..29 / CMP

M_{aDyn} [Nm]		CMP								
	i	50S	50M	50L	63S	63M	63L	71S	71M	80S
K..29 2	3.19	16	31	47	34	65	92	58	93	83
	3.92	19	38	57	41	80	113	72	115	102
	5.10	25	50	75	54	104	>121	93	>121	>121
	5.75	28	56	84	61	117	>123	105	>123	>123
	6.95	34	68	102	73	>123	>123	>123	>123	>123
	7.48	36	72	107	77	>135	>135	134	>135	>135
	8.53	42	83	125	90	>134		>134		
	9.17	44	88	131	95	>143	>143	>143	>143	>143
	9.90	49	97		104					
	11.94	58	114	>143	123	>143	>143	>143	>143	>143
	13.47	65	129	>143	139	>143	>143	>143	>143	>143
	16.29	79	>143	>143	>143	>143	>143	>143	>143	>143
	19.99	97	>143	>143	>143	>143		>143		
	22.08	104	>115	>115	>115	>115	>115	>115	>115	>115
	23.19	112	>143		>143					
	24.91	118	>119	>119	>119	>119	>119	>119	>119	>119
	27.23	132								
	29.69	>143								
	30.11	>126	>126	>126	>126	>126	>126	>126	>126	>126
	33.15									
	35.83									
	36.96	>134	>134	>134	>134	>134		>134		
	38.90									
	42.87	>140	>140		>140					
	50.35	>143								
	54.89	>143								
	61.28									
	66.25									
	71.93									

m [kg]		CMP								
	s	50S	50M	50L	63S	63M	63L	71S	71M	80S
K..29	2	8.9	9.8	11	11	12	14	14	15	21
KF: + 1.3 kg / KA: + -0.1 kg / KA: + 1.0 kg										

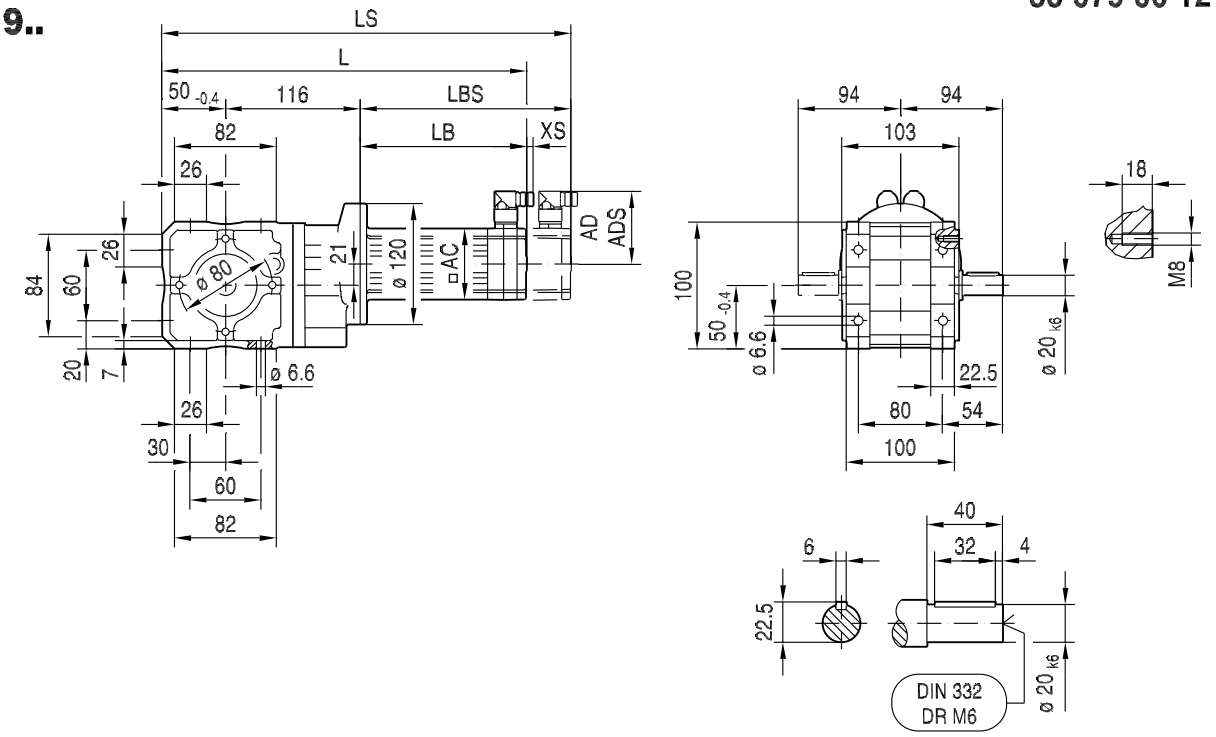
CMP..	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/']	KF [Nm/']	KA [Nm/']	KAF [Nm/']
K..29 2	3.19	4500	95	8.3	7.4	16	16
	3.92	4500	95	8.3	7.4	16	16
	5.10	4500	95	8.4	7.5	17	17
	5.75	4500	95	8.4	7.5	17	17
	6.95	4500	95	8.4	7.5	17	17
	7.48	4500	93	10	8.8	25	25
	8.53	4500	95	8.4	7.5	17	17
	9.17	4500	93	10	8.8	25	25
	9.90	4500	95	8.4	7.5	17	17
	11.94	4500	93	10	8.8	25	25
	13.47	4500	93	10	8.8	25	25
	16.29	4500	93	10	8.8	25	25
	19.99	4500	93	10	8.8	25	25
	22.08	4500	91	8.6	7.6	18	18
	23.19	4500	93	10	8.8	25	25
	24.91	4500	91	8.6	7.6	18	18
	27.23	4500	93	10	8.8	25	25
	29.69	4500	93	10	8.8	25	25
	30.11	4500	91	8.6	7.6	18	18
	33.15	4500	93	10	8.8	25	25
	35.83	4500	93	10	8.8	25	25
	36.96	4500	91	8.6	7.6	18	18
	38.90	4500	93	10	8.8	25	25
	42.87	4500	91	8.6	7.6	18	18
	50.35	4500	91	8.6	7.6	18	18
	54.89	4500	91	8.6	7.6	18	18
	61.28	4500	91	8.6	7.6	18	18
	66.25	4500	91	8.6	7.6	18	18
	71.93	4500	91	8.6	7.6	18	18

CMP..							F_{Ramax}				F_{Rapk}			
n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aEmerg-Off}$ [Nm]	n_{ak} [rpm]	J_G 10^{-4} [kgm^2]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
K..29 2	3.19	110	121	182	1082	1.6	1830	2330	1860	1860	1700	2210	1700	1700
	3.92	126	138	205	722	1.1	1910	2450	1920	1920	1770	2320	1760	1760
	5.10	110	121	182	1080	0.68	2260	2820	2320	2320	2120	2690	2160	2160
	5.75	112	123	184	1030	0.55	2370	2950	2440	2440	2230	2810	2270	2270
	6.95	112	123	184	1007	0.39	2580	3180	2660	2660	2430	3040	2490	2490
	7.48	123	135	200	138	0.74	2300	2990	2300	2300	2110	2820	2080	2080
	8.53	122	134	200	755	0.27	2740	3400	2830	2830	2580	3240	2650	2650
	9.17	130	143	210	112	0.55	2470	3210	2480	2480	2270	3030	2240	2240
	9.90	110	121	182	707	0.21	3000	3660	3120	3120	2840	3510	2940	2940
	11.94	130	143	210	112	0.37	2810	3590	2840	2840	2600	3400	2590	2590
	13.47	130	143	210	111	0.30	2970	3780	3010	3010	2760	3580	2770	2770
	16.29	130	143	210	111	0.22	3240	4080	3300	3300	3020	3880	3050	3050
	19.99	130	143	210	111	0.16	3550	4430	3640	3640	3320	4220	3380	3380
	22.08	105	115	172	47	0.33	3820	4700	3950	3950	3610	4500	3710	3710
	23.19	130	143	210	110	0.12	3790	4700	3900	3900	3560	4490	3630	3630
	24.91	109	119	178	42	0.27	3980	4900	4120	4120	3760	4690	3870	3870
	27.23	130	143	210	110	0.098	4060	5020	4190	4190	3820	4790	3920	3920
	29.69	130	143	210	110	0.086	4210	5190	4360	4360	3970	4960	4080	4080
	30.11	115	126	189	35	0.20	4250	5230	4400	4400	4020	5000	4130	4130
	33.15	130	143	210	110	0.073	4410	5420	4580	4580	4170	5180	4290	4290
	35.83	130	143	210	110	0.065	4560	5580	4740	4740	4310	5340	4450	4450
	36.96	122	134	200	28	0.14	4560	5600	4730	4730	4310	5360	4430	4430
	38.90	130	143	210	110	0.057	4720	5760	4910	4910	4470	5520	4620	4620
	42.87	128	140	210	24	0.11	4790	5890	4970	4970	4540	5640	4670	4670
	50.35	130	143	210	22	0.090	5020	6000	5300	5300	4830	5990	4980	4980
	54.89	130	143	210	23	0.079	5020	6000	5510	5510	4970	6000	5180	5180
	61.28	130	143	210	23	0.068	5020	6000	5770	5770	4970	6000	5440	5440
	66.25	130	143	210	22	0.060	5020	6000	5970	5970	4970	6000	5630	5630
	71.93	130	143	210	23	0.053	5020	6000	6000	6000	4970	6000	5840	5840

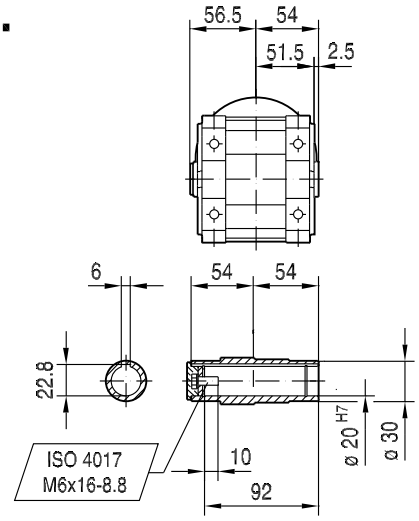
2.11 Dimension sheets for K..19 / CMP

33 079 00 12

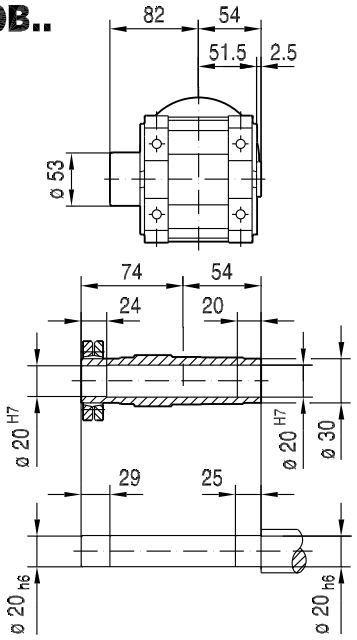
K19..



KA19B..



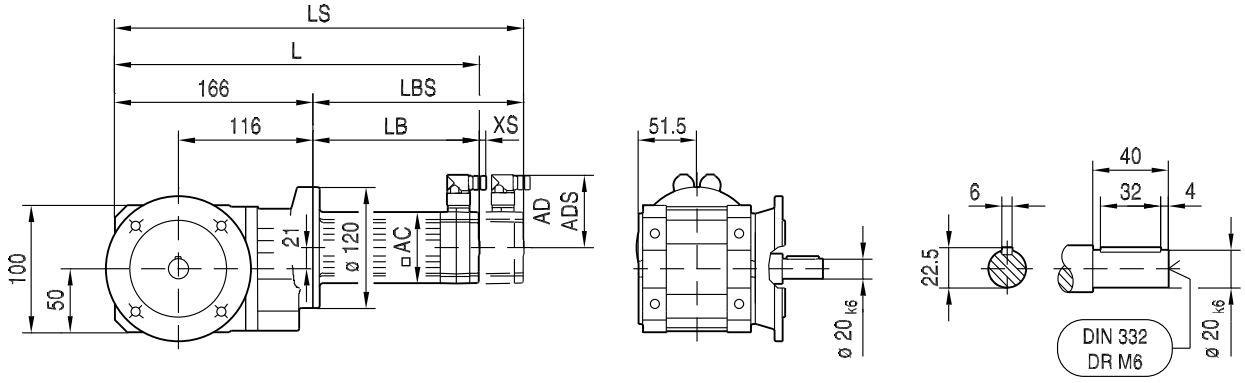
KH19B..



	CMP40M	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP71S	
AC	57	73	73	73	88	88	116	
AD	78	86	86	86	92	92	102	
ADS	78	86	86	86	92	92	104	
L	309	311	350	389	346	396	338	
LS	339	340	379	418	374	424	403	
LB	143	145	184	223	180	230	172	
LBS	173	174	213	252	208	258	237	
XS	19	18	18	18	14	14	11	

33 080 00 12

KF19..



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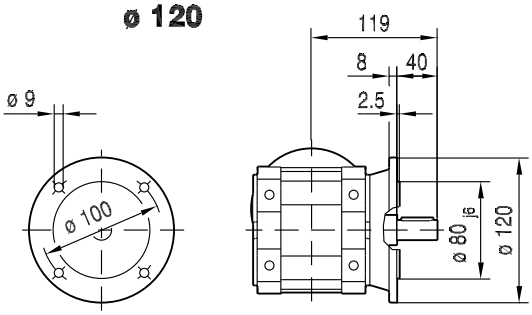

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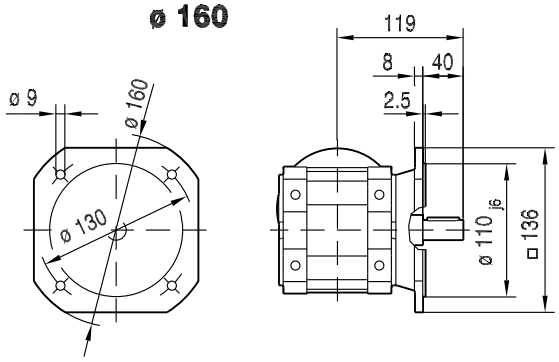
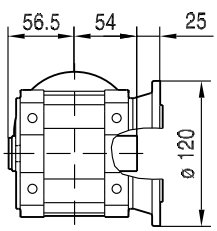


KAF19..

ø 120



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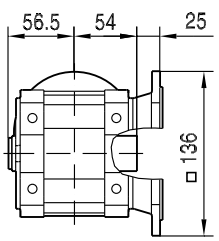
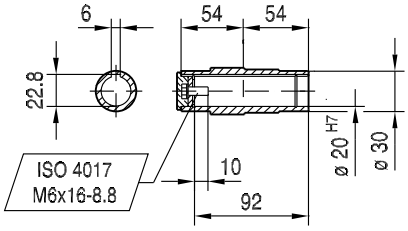
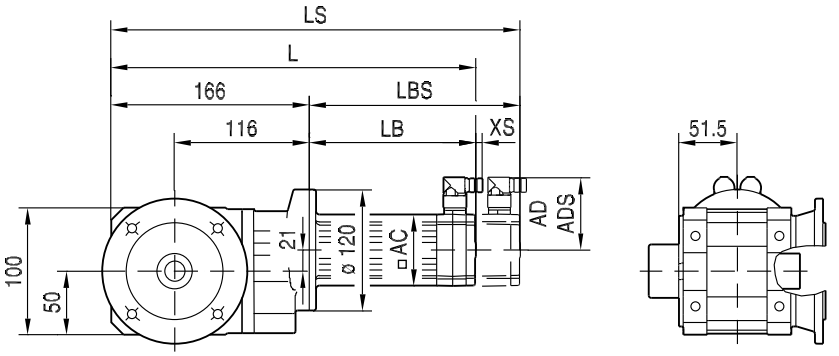




	CMP40M	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP71S	
AC	57	73	73	73	88	88	116	
AD	78	86	86	86	92	92	102	
ADS	78	86	86	86	92	92	104	
L	309	311	350	389	346	396	338	
LS	339	340	379	418	374	424	403	
LB	143	145	184	223	180	230	172	
LBS	173	174	213	252	208	258	237	
XS	19	18	18	18	14	14	11	

33 081 00 12

KHF19..



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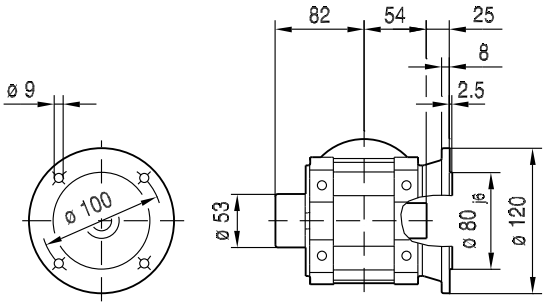
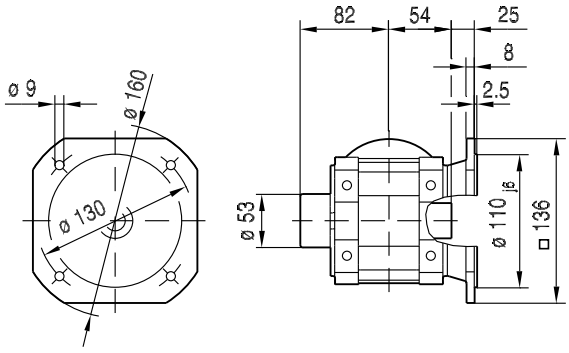
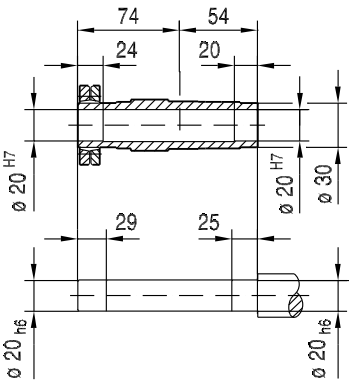


ø 160

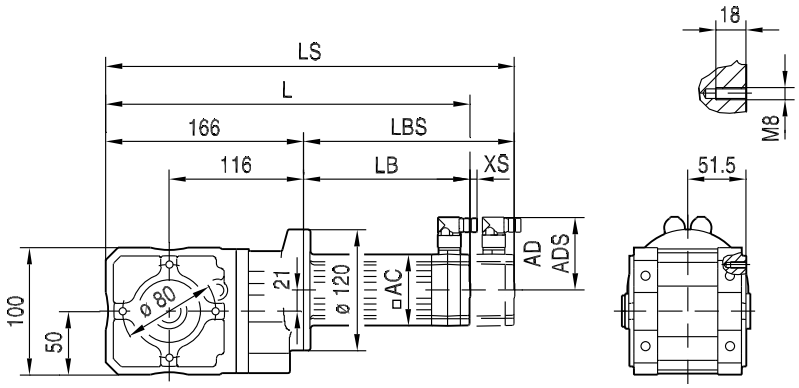




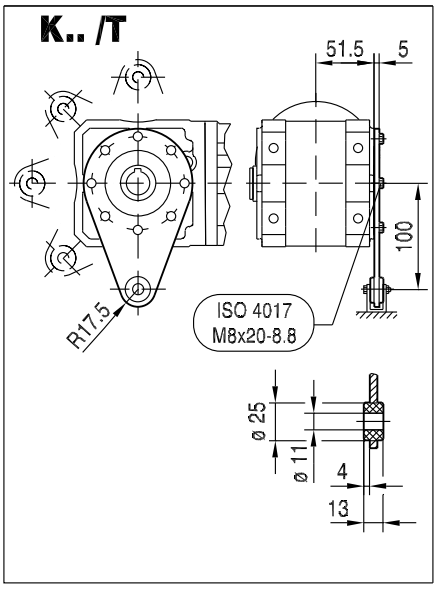
	CMP40M	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP71S	
AC	57	73	73	73	88	88	116	
AD	78	86	86	86	92	92	102	
ADS	78	86	86	86	92	92	104	
L	309	311	350	389	346	396	338	
LS	339	340	379	418	374	424	403	
LB	143	145	184	223	180	230	172	
LBS	173	174	213	252	208	258	237	
XS	19	18	18	18	14	14	11	

33 082 00 12

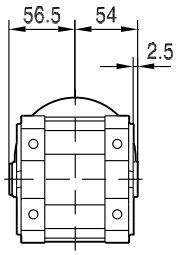
KA19..

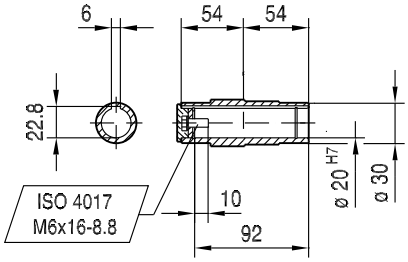


K.. /T

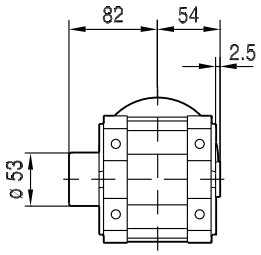


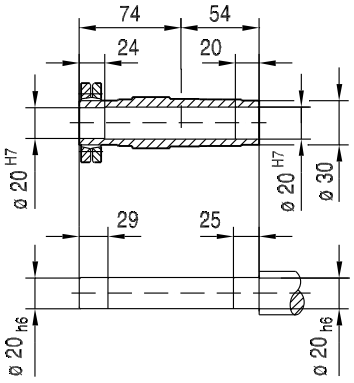
KA19..





KH19..



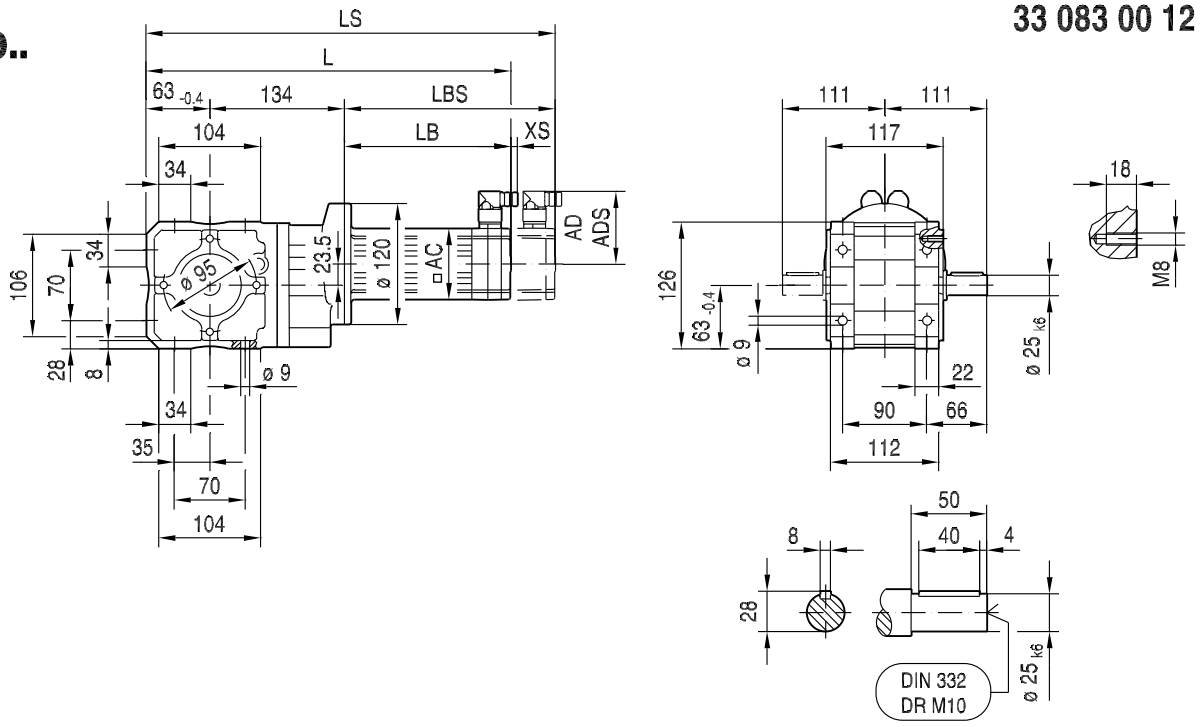


	CMP40M	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP71S	
AC	57	73	73	73	88	88	116	
AD	78	86	86	86	92	92	102	
ADS	78	86	86	86	92	92	104	
L	309	311	350	389	346	396	338	
LS	339	340	379	418	374	424	403	
LB	143	145	184	223	180	230	172	
LBS	173	174	213	252	208	258	237	
XS	19	18	18	18	14	14	11	

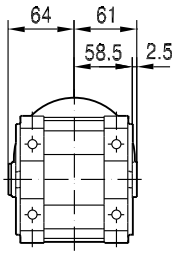
2.12 Dimension sheets for K..29 / CMP

33 083 00 12

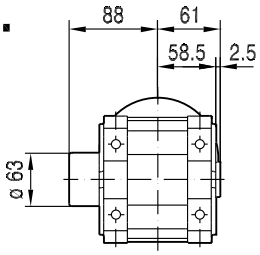
K29..



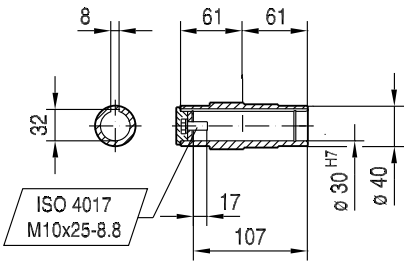
KA29B..



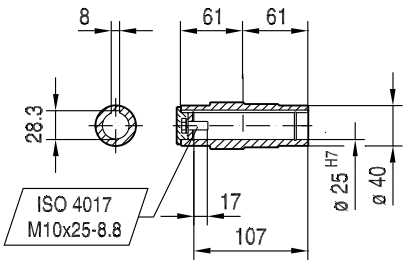
KH29B..

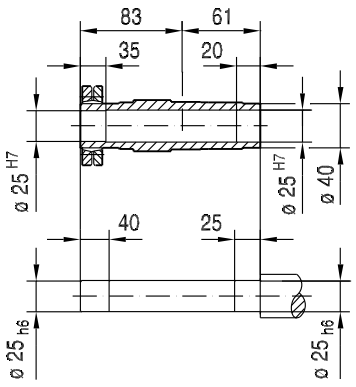


ø 30 H7
DIN 6885-3



ø 25 H7

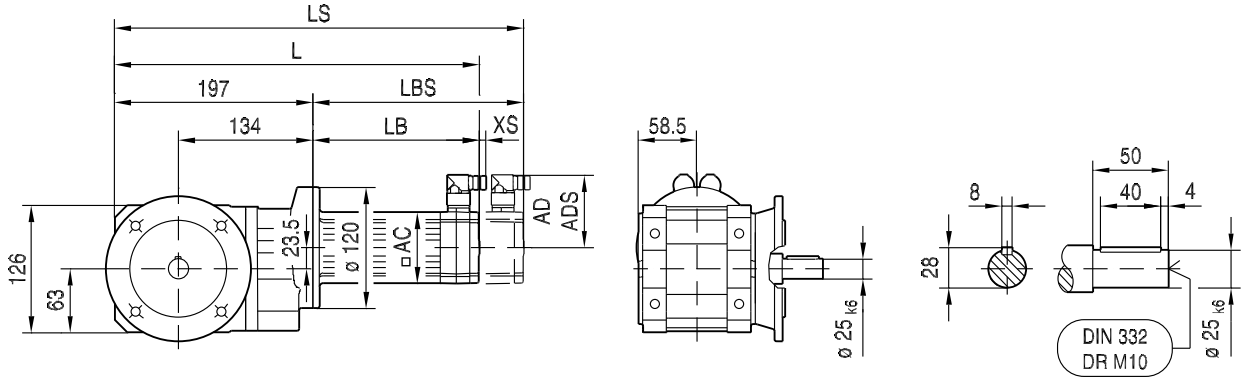




	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP63L	CMP71S	CMP71M
AC	73	73	73	88	88	88	116	116
AD	86	86	86	92	92	92	102	102
ADS	86	86	86	92	92	92	104	104
L	342	381	420	377	427	480	369	397
LS	371	410	449	405	455	509	434	462
LB	145	184	223	180	230	283	172	200
LBS	174	213	252	208	258	312	237	265
XS	18	18	18	14	14	14	11	11

33 084 00 12

KF29..



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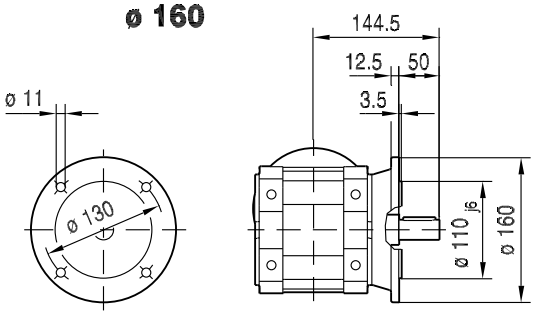

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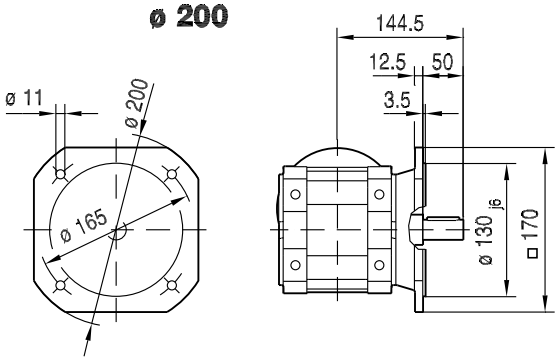
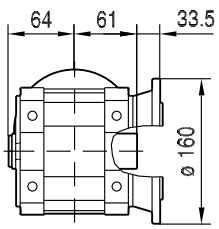
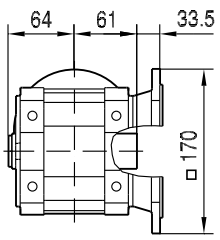


KAF29..

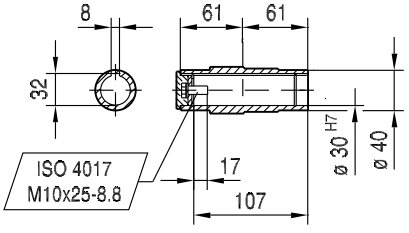
ø 160



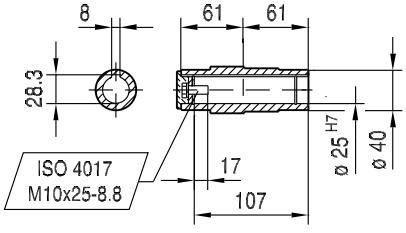
ø 200



ø 30 H7
DIN 6885-3



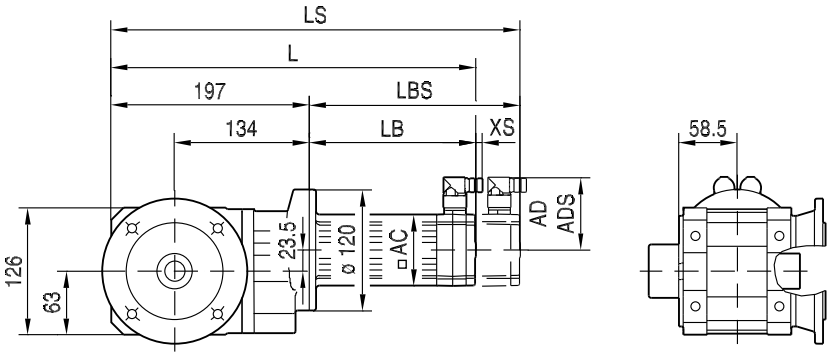
ø 25 H7



	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP63L	CMP71S	CMP71M
AC	73	73	73	88	88	88	116	116
AD	86	86	86	92	92	92	102	102
ADS	86	86	86	92	92	92	104	104
L	342	381	420	377	427	480	369	397
LS	371	410	449	405	455	509	434	462
LB	145	184	223	180	230	283	172	200
LBS	174	213	252	208	258	312	237	265
XS	18	18	18	14	14	14	11	11

33 085 00 12

KHF29..



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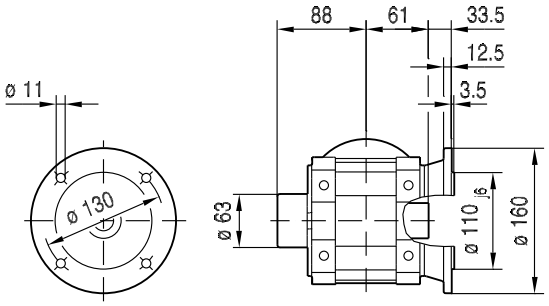

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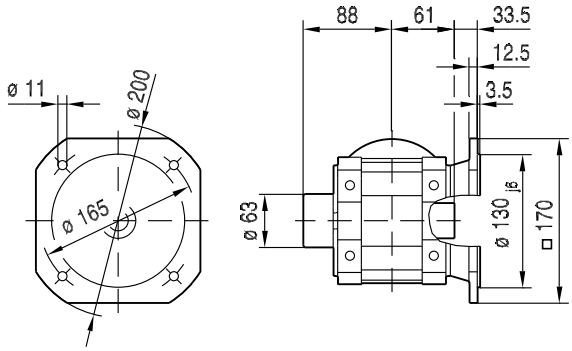
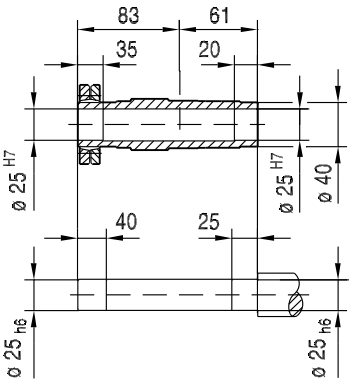
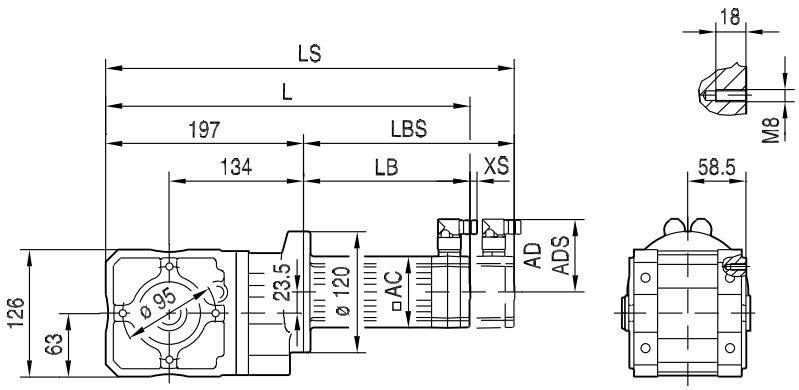




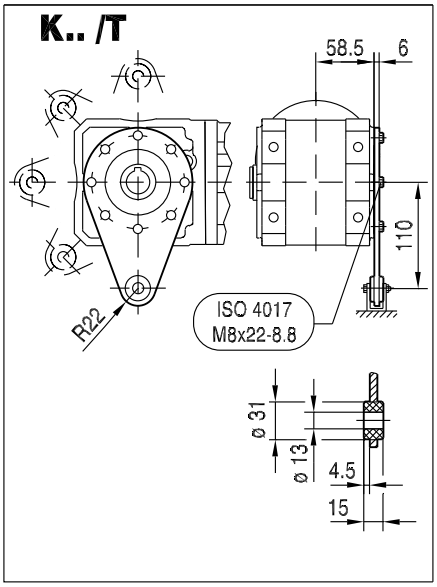
	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP63L	CMP71S	CMP71M
AC	73	73	73	88	88	88	116	116
AD	86	86	86	92	92	92	102	102
ADS	86	86	86	92	92	92	104	104
L	342	381	420	377	427	480	369	397
LS	371	410	449	405	455	509	434	462
LB	145	184	223	180	230	283	172	200
LBS	174	213	252	208	258	312	237	265
XS	18	18	18	14	14	14	11	11

33 086 00 12

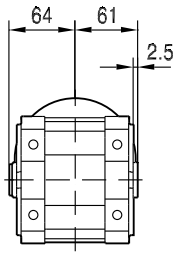
KA29..



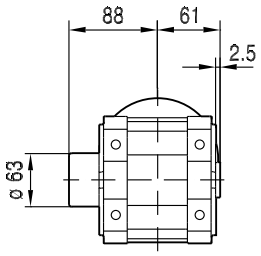
K.. /T



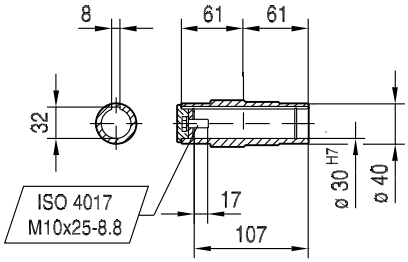
KA29..



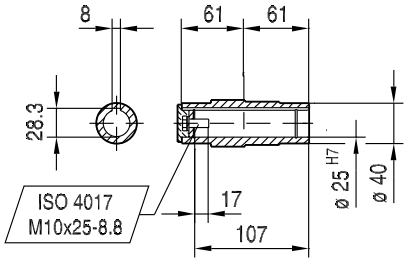
KH29..

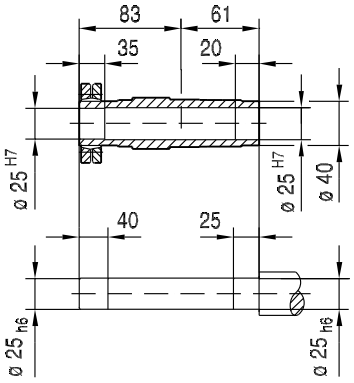


ø 30 H7
DIN 6885-3



ø 25 H7





	CMP50S	CMP50M	CMP50L	CMP63S	CMP63M	CMP63L	CMP71S	CMP71M
AC	73	73	73	88	88	88	116	116
AD	86	86	86	92	92	92	102	102
ADS	86	86	86	92	92	92	104	104
L	342	381	420	377	427	480	369	397
LS	371	410	449	405	455	509	434	462
LB	145	184	223	180	230	283	172	200
LBS	174	213	252	208	258	312	237	265
XS	18	18	18	14	14	14	11	11

2.13 Selection tables for K..9 / DRL

2.13.1 Selection tables for K..19 / DRL

M_{aDyn} [Nm]	i	DRL						
		71S		71M		80S		80M
		D1	D2	D1	D2	D1	D2	D1
K..19  2	4.50	21	36	30	60	43	>88	56
	5.16	25	42	34	69	49	>88	64
	5.54	26	45	37	74	53	>88	68
	6.41	30	52	43	85	61	>88	79
	6.91	33	56	46	>88	66	>88	85
	8.09	38	65	54		77		>88
	9.58	46		64				
	10.32	48	82	67	>83	>83	>83	>83
	11.84	55	>86	77	>86	>86	>86	>86
	12.70	59	>88	83	>88	>88	>88	>88
	14.69	68	>88	>88	>88	>88	>88	>88
	15.84	74	>88	>88	>88	>88	>88	>88
	18.55	86	>88	>88		>88		>88
	21.98	>88		>88				
	24.06	>88		>88				
	26.88							
	27.16	>66	>66	>66	>66	>66	>66	>66
	29.14							
	29.29	>67	>67	>67	>67	>67	>67	>67
	31.74							
	34.29	>70	>70	>70		>70		>70
	40.63	>73		>73				
	44.48	>75		>75				
	49.69							
	53.88							
	58.68							

m [kg]		DRL			
	s	71S	71M	80S	80M
K..19	 2	12	13	15	18
KF: + 0.5 kg / KA: + -0.3 kg / KAF: + 0.1 kg					

DRL..	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/°]	KF [Nm/°]	KA [Nm/°]	KAF [Nm/°]
	4.50	4500	95	5.1	4.4	8.5	8.5
	5.16	4500	95	5.1	4.4	8.5	8.5
	5.54	4500	95	5.1	4.4	8.5	8.5
	6.41	4500	95	5.1	4.4	8.5	8.5
	6.91	4500	95	5.1	4.4	8.5	8.5
	8.09	4500	95	5.1	4.5	8.6	8.6
	9.58	4500	95	5.1	4.5	8.6	8.6
	10.32	4500	93	6.2	5.2	12	12
	11.84	4500	93	6.2	5.2	12	12
	12.70	4500	93	5.1	4.5	8.6	8.6
	14.69	4500	93	6.2	5.2	12	12
	15.84	4500	93	6.2	5.2	12	12
K..19	18.55	4500	93	6.2	5.2	12	12
2	21.98	4500	93	6.2	5.2	12	12
	24.06	4500	93	6.2	5.2	12	12
	26.88	4500	93	6.2	5.2	12	12
	27.16	4500	91	6.2	5.2	12	12
	29.14	4500	93	6.2	5.2	12	12
	29.29	4500	91	6.2	5.2	12	12
	31.74	4500	93	6.2	5.2	12	12
	34.29	4500	91	6.2	5.2	12	12
	40.63	4500	91	6.2	5.2	12	12
	44.48	4500	91	6.2	5.2	12	12
	49.69	4500	91	6.2	5.2	12	12
	53.88	4500	91	6.2	5.2	12	12
	58.68	4500	91	6.2	5.2	12	12

DRL.. n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aEmerg-Off}$ [Nm]	n_{ak} [rpm]	J_G 10^{-4} [kgm^2]	F_{Ramax} K [N]	KF [N]	KA [N]	KAF [N]	F_{Rapk} K [N]	KF [N]	KA [N]	KAF [N]
	4.50	80	88	132	433	0.38	2010	1620	2500	2500	1890	1520	2340	2340
	5.16	80	88	132	424	0.30	2140	1720	2650	2650	2010	1620	2490	2490
	5.54	80	88	132	419	0.27	2200	1780	2730	2730	2080	1670	2570	2570
	6.41	80	88	132	410	0.21	2340	1890	2900	2900	2210	1780	2740	2740
	6.91	80	88	132	407	0.18	2420	1950	3000	3000	2290	1840	2830	2830
	8.09	80	88	132	399	0.14	2590	2080	3200	3200	2450	1970	3030	3030
	9.58	63	69	104	731	0.11	2910	2340	3600	3600	2780	2240	3450	3450
	10.32	76	83	124	102	0.22	2720	2190	3370	3370	2560	2070	3180	3180
	11.84	79	86	129	90	0.18	2850	2300	3530	3530	2700	2170	3340	3340
	12.70	80	88	132	83	0.16	2930	2360	3630	3630	2760	2220	3420	3420
	14.69	80	88	132	82	0.13	3110	2510	3860	3860	2940	2370	3640	3640
	15.84	80	88	132	81	0.12	3210	2590	3980	3980	3040	2450	3760	3760
K..19	18.55	80	88	132	81	0.092	3430	2760	4250	4250	3250	2620	4030	4030
2	21.98	80	88	132	81	0.072	3680	2960	4500	4500	3490	2820	4330	4330
	24.06	80	88	132	81	0.063	3820	3080	4500	4500	3630	2920	4500	4500
	26.88	80	88	132	80	0.054	3990	3220	4500	4500	3800	3060	4500	4500
	27.16	60	66	99	38	0.13	4090	3290	4500	4500	3900	3150	4500	4500
	29.14	80	88	132	80	0.048	4120	3320	4500	4500	3930	3160	4500	4500
	29.29	61	67	100	36	0.11	4200	3380	4500	4500	4010	3230	4500	4500
	31.74	80	88	132	80	0.042	4260	3440	4500	4500	4070	3280	4500	4500
	34.29	64	70	105	31	0.090	4370	3570	4500	4500	4240	3410	4500	4500
	40.63	67	73	110	27	0.071	4350	3630	4500	4500	4310	3610	4500	4500
	44.48	69	75	112	24	0.062	4340	3620	4500	4500	4290	3600	4500	4500
	49.69	70	77	116	22	0.053	4330	3620	4500	4500	4280	3600	4500	4500
	53.88	70	77	116	22	0.047	4330	3620	4500	4500	4280	3600	4500	4500
	58.68	70	77	116	22	0.042	4330	3620	4500	4500	4280	3600	4500	4500

2.13.2 Selection tables for K..29 / DRL

M_{aDyn} [Nm]		DRL							
	i	71S		71M		80S		80M	90L
		D1	D2	D1	D2	D1	D2	D1	D1
K..29 2	3.19	15	26	21	42	30	76	39	76
	3.92	19	32	26	52	37	93	48	93
	5.10	24	41	34	68	48	>121	63	>121
	5.75	27	46	38	76	55	>123	71	>123
	6.95	33	56	46	92	66	>123	86	>123
	7.48	35	59	49	97	70	>135	90	>135
	8.53	41	69	57	113	81	>134	105	
	9.17	43	72	60	119	85	>143	111	>143
	9.90	47	80	66		94		>121	
	11.94	56	94	78	>143	111	>143	>143	>143
	13.47	63	106	88	>143	125	>143	>143	>143
	16.29	76	129	106	>143	>143	>143	>143	>143
	19.99	93	>143	130	>143	>143	>143	>143	
	22.08	100	>115	>115	>115	>115	>115	>115	>115
	23.19	108	>143	>143		>143		>143	
	24.91	113	>119	>119	>119	>119	>119	>119	>119
	27.23	127		>143					
	29.69	138		>143					
	30.11	>126	>126	>126	>126	>126	>126	>126	>126
	33.15								
	35.83								
	36.96	>134	>134	>134	>134	>134	>134	>134	
	38.90								
	42.87	>140	>140	>140		>140		>140	
	50.35	>143		>143					
	54.89	>143		>143					
	61.28								
	66.25								
	71.93								

m [kg]		DRL				
	s	71S	71M	80S	80M	90L
K..29	2	13	14	17	19	27
KF: + 1.3 kg / KA: + -0.1 kg / KAF: + 1.0 kg						

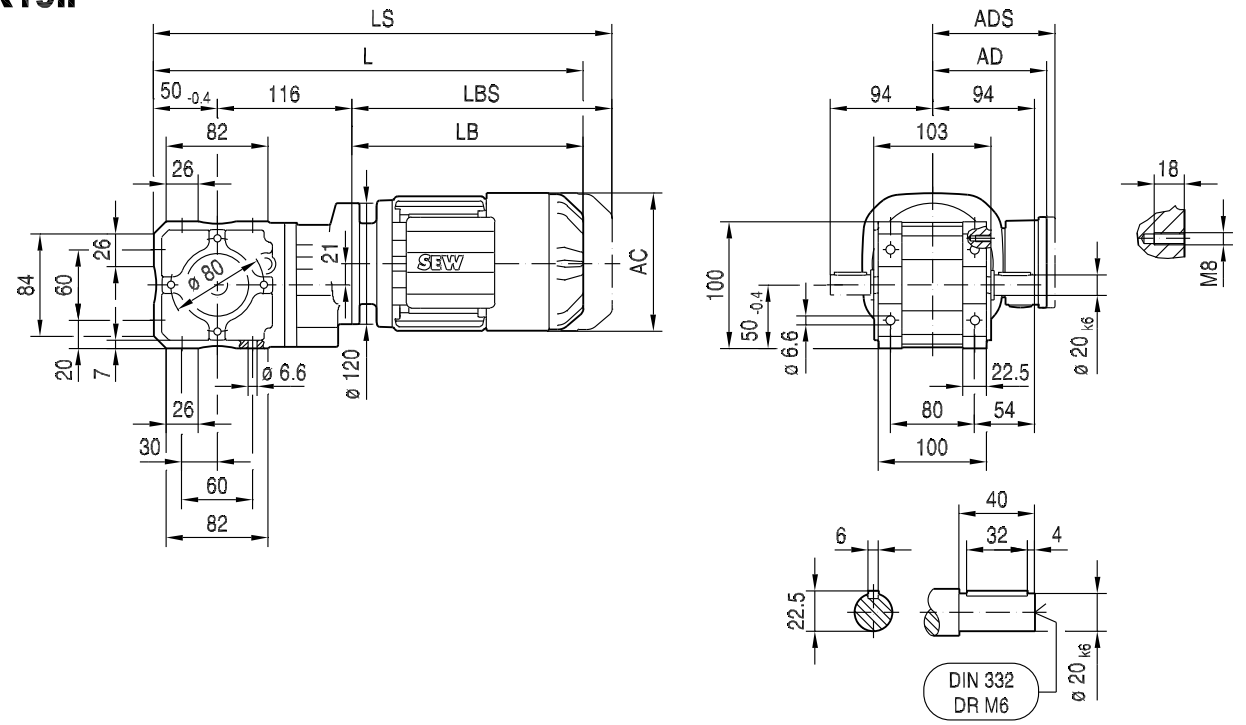
DRL..	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/']	KF [Nm/']	KA [Nm/']	KAF [Nm/']
K..29 2	3.19	4500	95	8.3	7.4	16	16
	3.92	4500	95	8.3	7.4	16	16
	5.10	4500	95	8.4	7.5	17	17
	5.75	4500	95	8.4	7.5	17	17
	6.95	4500	95	8.4	7.5	17	17
	7.48	4500	93	10	8.8	25	25
	8.53	4500	95	8.4	7.5	17	17
	9.17	4500	93	10	8.8	25	25
	9.90	4500	95	8.4	7.5	17	17
	11.94	4500	93	10	8.8	25	25
	13.47	4500	93	10	8.8	25	25
	16.29	4500	93	10	8.8	25	25
	19.99	4500	93	10	8.8	25	25
	22.08	4500	91	8.6	7.6	18	18
	23.19	4500	93	10	8.8	25	25
	24.91	4500	91	8.6	7.6	18	18
	27.23	4500	93	10	8.8	25	25
	29.69	4500	93	10	8.8	25	25
	30.11	4500	91	8.6	7.6	18	18
	33.15	4500	93	10	8.8	25	25
	35.83	4500	93	10	8.8	25	25
	36.96	4500	91	8.6	7.6	18	18
	38.90	4500	93	10	8.8	25	25
	42.87	4500	91	8.6	7.6	18	18
	50.35	4500	91	8.6	7.6	18	18
	54.89	4500	91	8.6	7.6	18	18
	61.28	4500	91	8.6	7.6	18	18
	66.25	4500	91	8.6	7.6	18	18
	71.93	4500	91	8.6	7.6	18	18

DRL..							F_{Ramax}				F_{Rapk}			
n_e = 1400		M_{amax}	M_{apk}	$M_{aEmerg-Off}$	n_{ak}	J_G 10^{-4}	K	KF	KA	KAF	K	KF	KA	KAF
	i	[Nm]	[Nm]	[Nm]	[rpm]	[kgm^2]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]
	3.19	110	121	182	1082	1.6	1830	2330	1860	1860	1700	2210	1700	1700
	3.92	126	138	205	722	1.1	1910	2450	1920	1920	1770	2320	1760	1760
	5.10	110	121	182	1080	0.68	2260	2820	2320	2320	2120	2690	2160	2160
	5.75	112	123	184	1030	0.55	2370	2950	2440	2440	2230	2810	2270	2270
	6.95	112	123	184	1007	0.39	2580	3180	2660	2660	2430	3040	2490	2490
	7.48	123	135	200	138	0.74	2300	2990	2300	2300	2110	2820	2080	2080
	8.53	122	134	200	755	0.27	2740	3400	2830	2830	2580	3240	2650	2650
	9.17	130	143	210	112	0.55	2470	3210	2480	2480	2270	3030	2240	2240
	9.90	110	121	182	707	0.21	3000	3660	3120	3120	2840	3510	2940	2940
	11.94	130	143	210	112	0.37	2810	3590	2840	2840	2600	3400	2590	2590
	13.47	130	143	210	111	0.30	2970	3780	3010	3010	2760	3580	2770	2770
	16.29	130	143	210	111	0.22	3240	4080	3300	3300	3020	3880	3050	3050
	19.99	130	143	210	111	0.16	3550	4430	3640	3640	3320	4220	3380	3380
K..29	22.08	105	115	172	47	0.33	3820	4700	3950	3950	3610	4500	3710	3710
 2	23.19	130	143	210	110	0.12	3790	4700	3900	3900	3560	4490	3630	3630
	24.91	109	119	178	42	0.27	3980	4900	4120	4120	3760	4690	3870	3870
	27.23	130	143	210	110	0.098	4060	5020	4190	4190	3820	4790	3920	3920
	29.69	130	143	210	110	0.086	4210	5190	4360	4360	3970	4960	4080	4080
	30.11	115	126	189	35	0.20	4250	5230	4400	4400	4020	5000	4130	4130
	33.15	130	143	210	110	0.073	4410	5420	4580	4580	4170	5180	4290	4290
	35.83	130	143	210	110	0.065	4560	5580	4740	4740	4310	5340	4450	4450
	36.96	122	134	200	28	0.14	4560	5600	4730	4730	4310	5360	4430	4430
	38.90	130	143	210	110	0.057	4720	5760	4910	4910	4470	5520	4620	4620
	42.87	128	140	210	24	0.11	4790	5890	4970	4970	4540	5640	4670	4670
	50.35	130	143	210	22	0.090	5020	6000	5300	5300	4830	5990	4980	4980
	54.89	130	143	210	23	0.079	5020	6000	5510	5510	4970	6000	5180	5180
	61.28	130	143	210	23	0.068	5020	6000	5770	5770	4970	6000	5440	5440
	66.25	130	143	210	22	0.060	5020	6000	5970	5970	4970	6000	5630	5630
	71.93	130	143	210	23	0.053	5020	6000	6000	6000	4970	6000	5840	5840

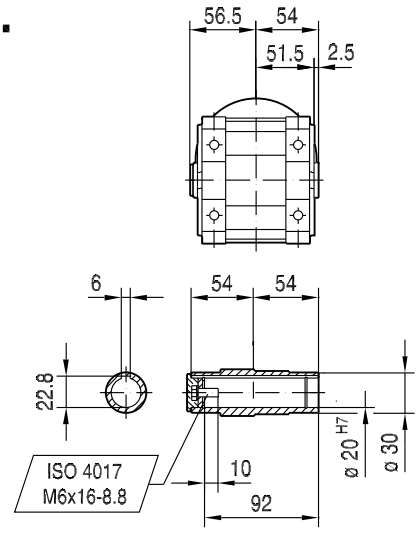
2.14 Dimension sheets for K..19 / DRL

33 095 00 12

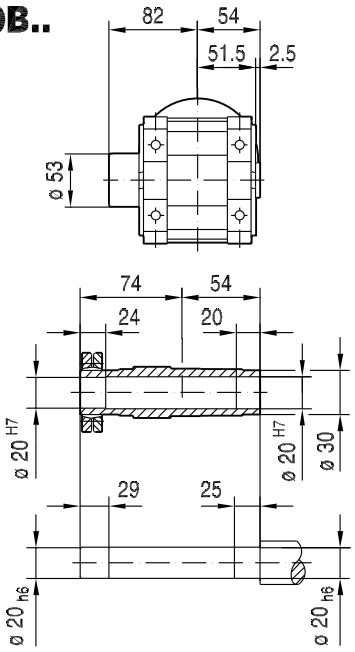
K19..



KA19B..



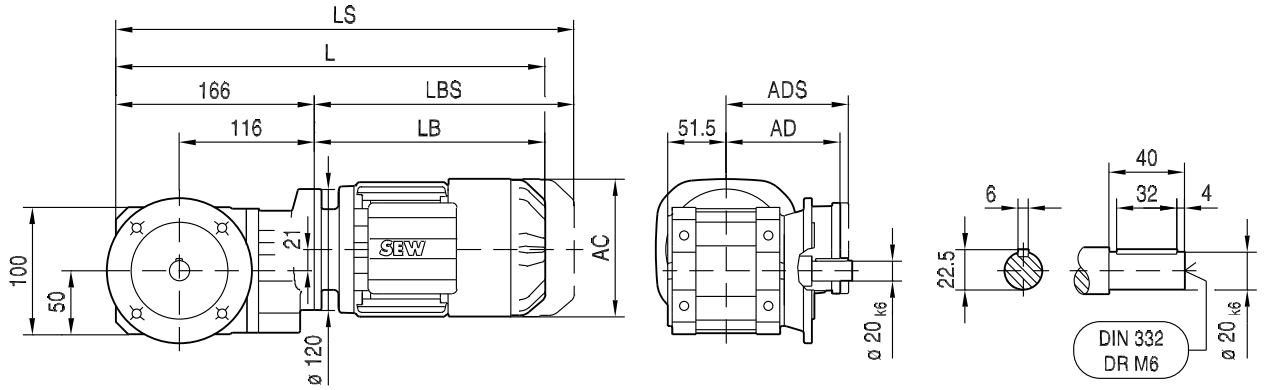
KH19B..



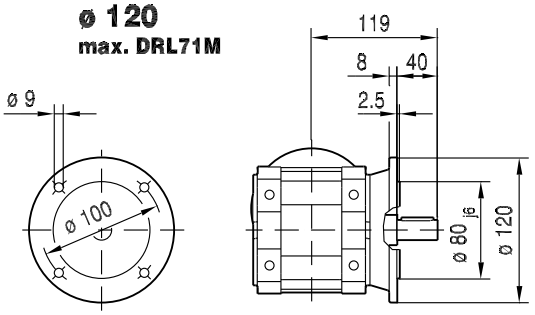
	DRL71S	DRL71M	DRL80S	DRL80M				
AC	139	139	156	156				
AD	119	119	128	128				
ADS	129	129	139	139				
L	454	479	498	529				
LS	518	543	578	609				
LB	288	313	332	363				
LBS	352	377	412	443				

33 096 00 12

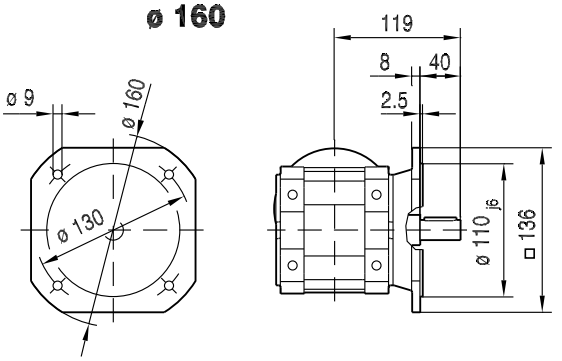
KF19..



ø 120
max. DRL71M

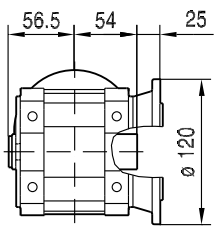


ø 160

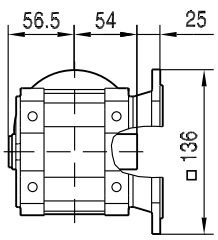


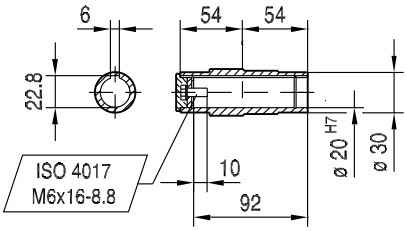
KAF19..

ø 120
max. DRL71M



ø 160

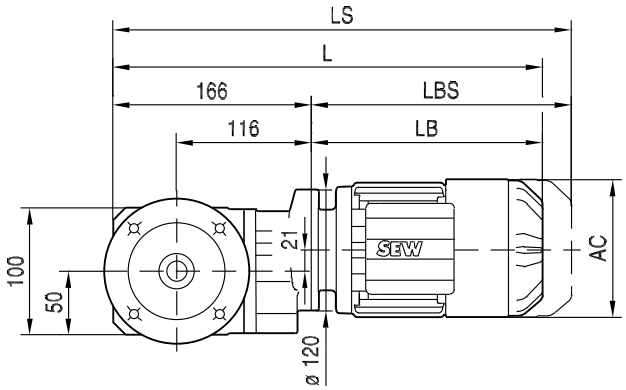




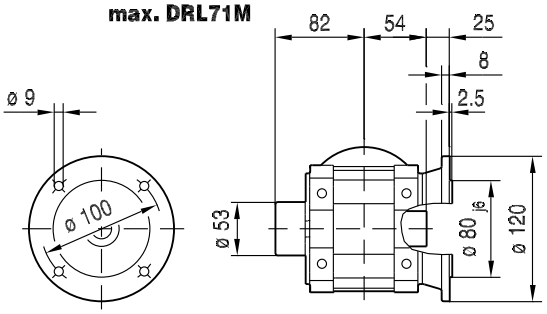
	DRL71S	DRL71M	DRL80S	DRL80M				
AC	139	139	156	156				
AD	119	119	128	128				
ADS	129	129	139	139				
L	454	479	498	529				
LS	518	543	578	609				
LB	288	313	332	363				
LBS	352	377	412	443				

33 097 00 12

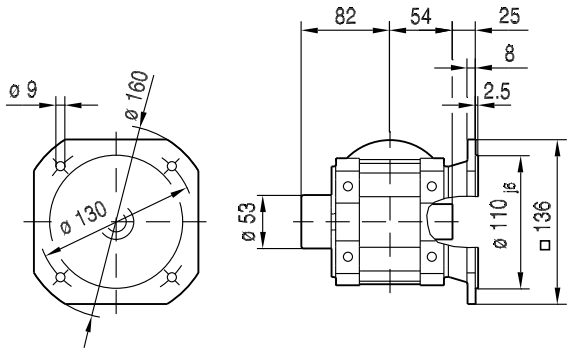
KHF19..

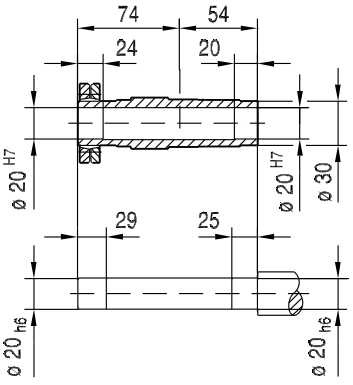


ø 120
max. DRL71M



ø 160

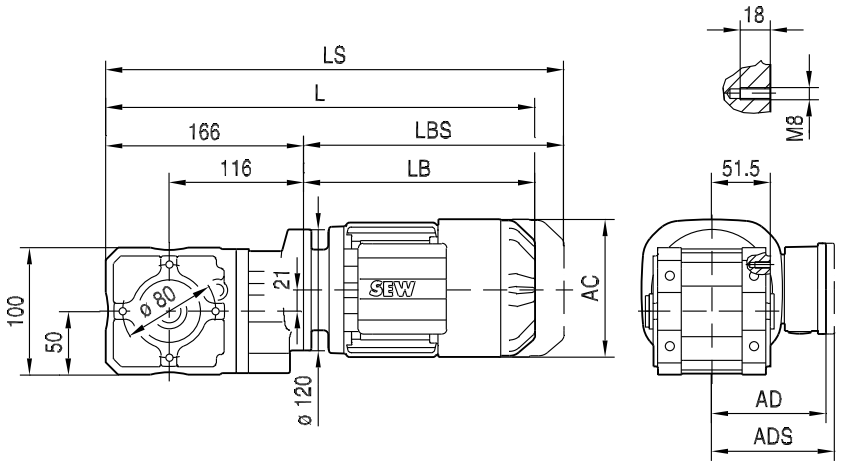


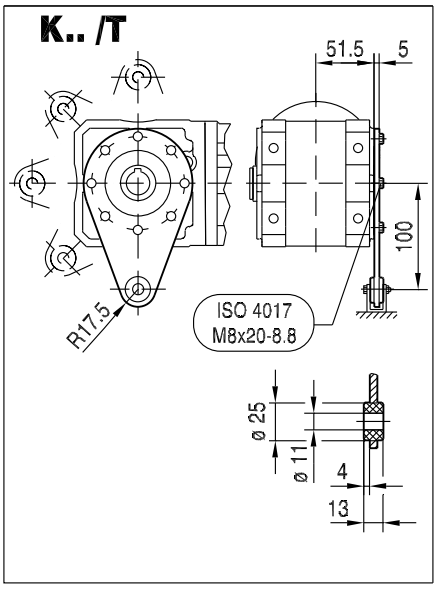


	DRL71S	DRL71M	DRL80S	DRL80M				
AC	139	139	156	156				
AD	119	119	128	128				
ADS	129	129	139	139				
L	454	479	498	529				
LS	518	543	578	609				
LB	288	313	332	363				
LBS	352	377	412	443				

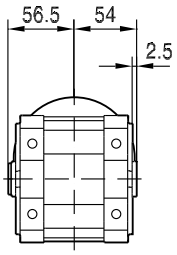
33 098 00 12

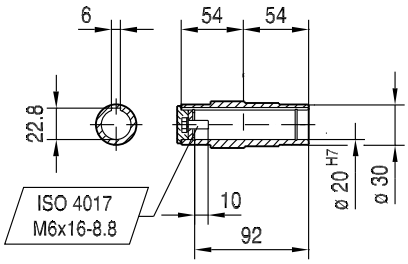
KA19..



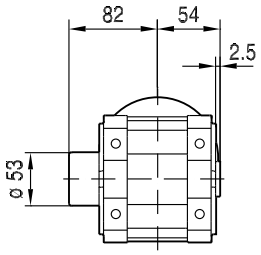


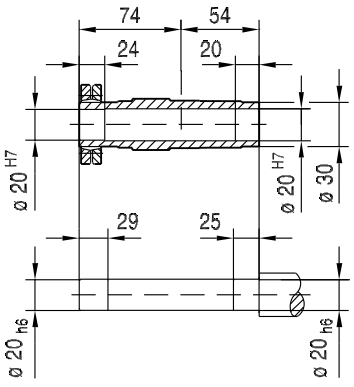
KA19..





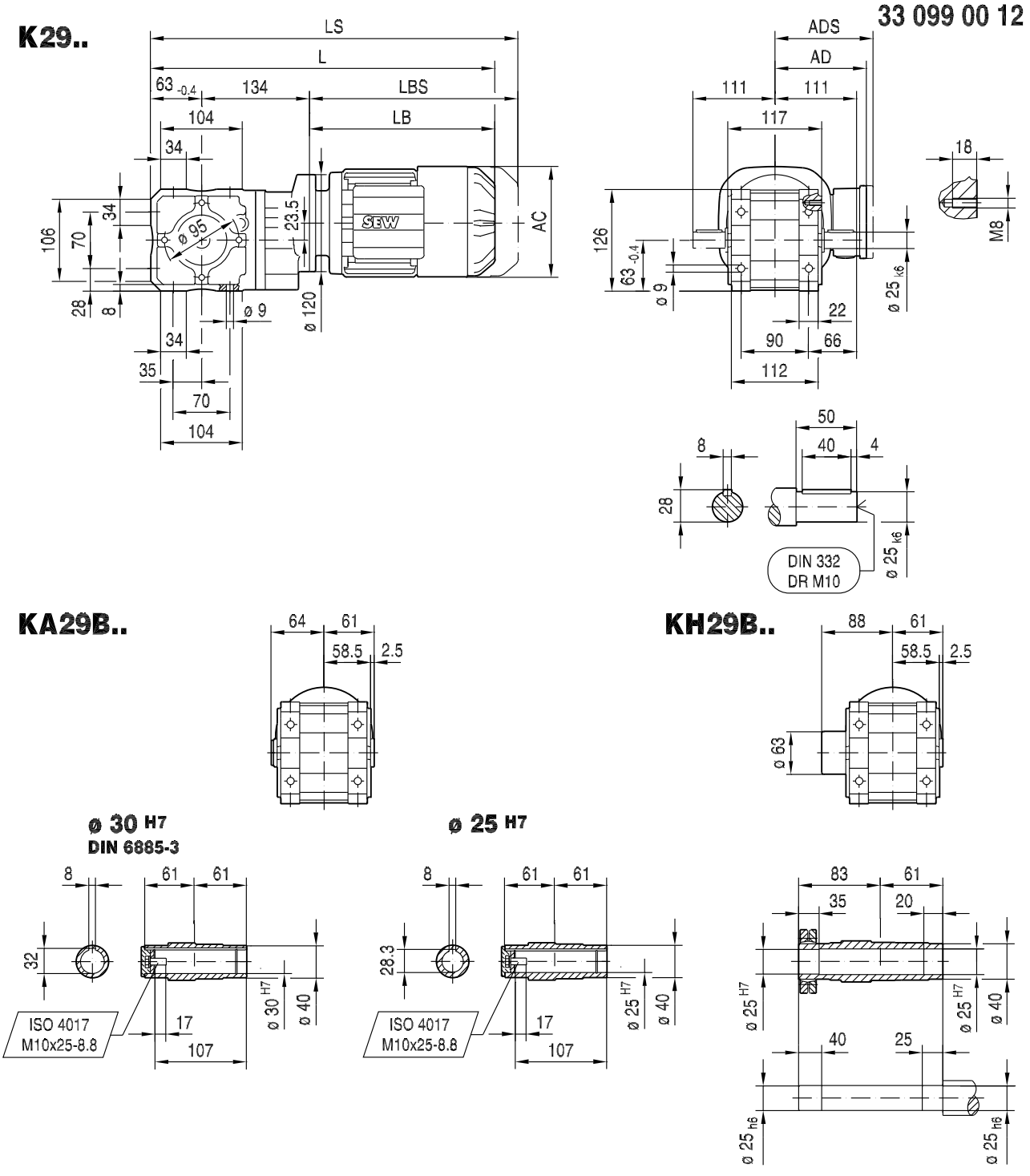
KH19..





	DRL71S	DRL71M	DRL80S	DRL80M				
AC	139	139	156	156				
AD	119	119	128	128				
ADS	129	129	139	139				
L	454	479	498	529				
LS	518	543	578	609				
LB	288	313	332	363				
LBS	352	377	412	443				

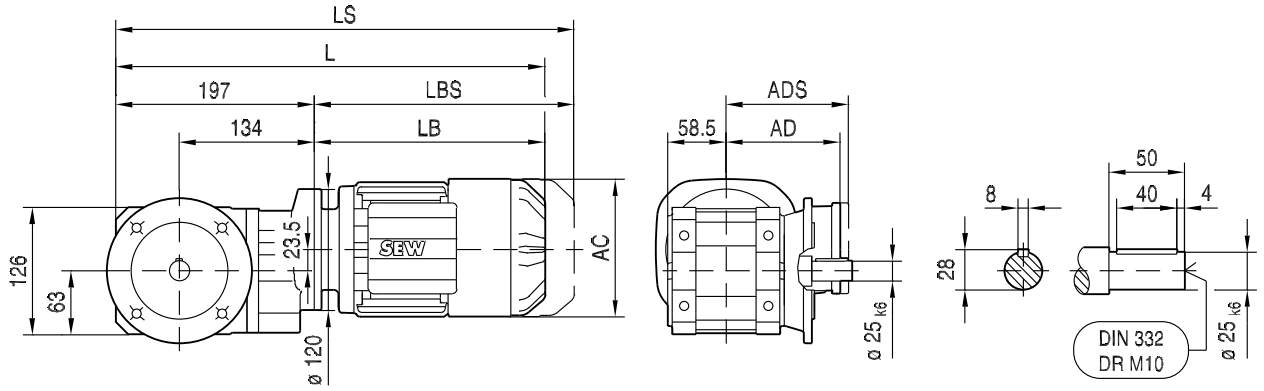
2.15 Dimension sheets for K..29 / DRL



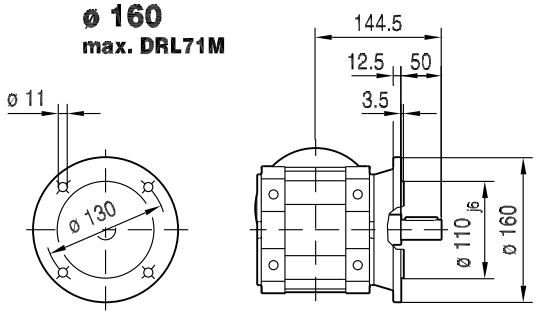
	DRL71S	DRL71M	DRL80S	DRL80M	DRL90L	DRL100L		
AC	139	139	156	156	179	197		
AD	119	119	128	128	140	157		
ADS	129	129	139	139	150	158		
L	485	510	529	560	577	636		
LS	549	574	609	640	663	723		
LB	288	313	332	363	380	439		
LBS	352	377	412	443	466	526		

33 100 00 12

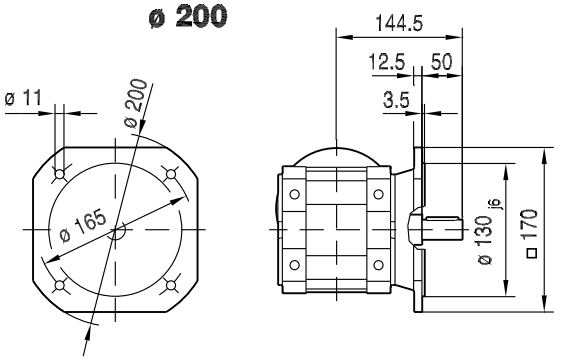
KF29..



ø 160
max. DRL71M

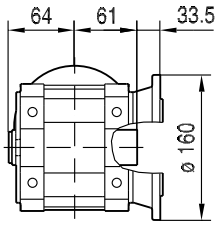


ø 200

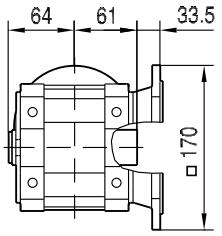


KAF29..

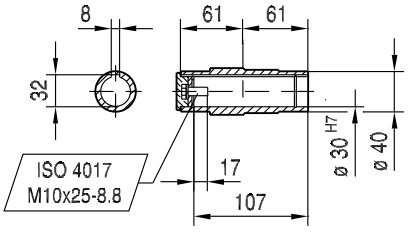
ø 160
max. DRL71M



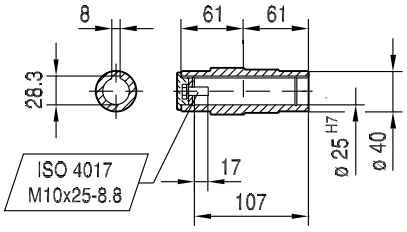
ø 200



ø 30 H7
DIN 6885-3



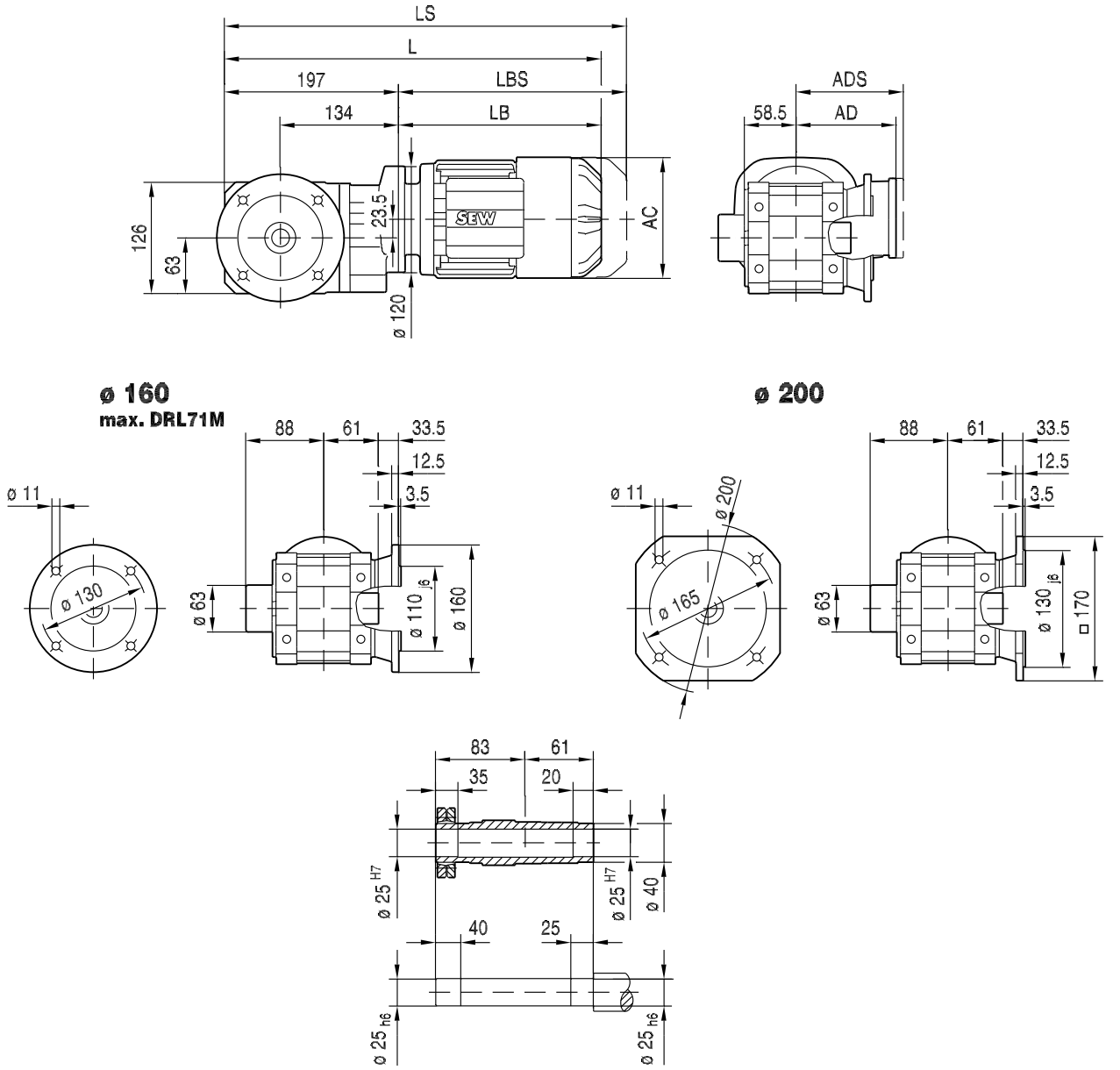
ø 25 H7



	DRL71S	DRL71M	DRL80S	DRL80M	DRL90L	DRL100L		
AC	139	139	156	156	179	197		
AD	119	119	128	128	140	157		
ADS	129	129	139	139	150	158		
L	485	510	529	560	577	636		
LS	549	574	609	640	663	723		
LB	288	313	332	363	380	439		
LBS	352	377	412	443	466	526		

33 101 00 12

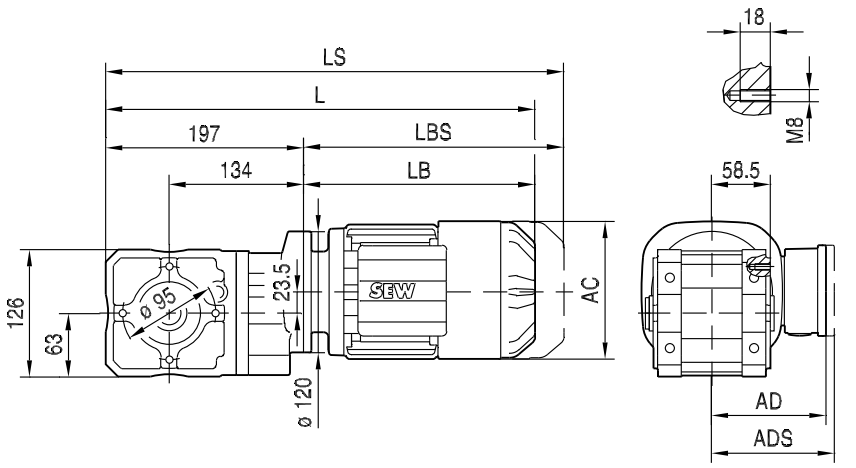
KHF29..



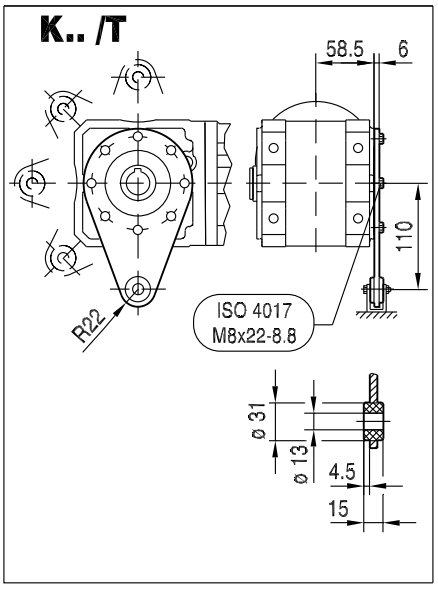
	DRL71S	DRL71M	DRL80S	DRL80M	DRL90L	DRL100L		
AC	139	139	156	156	179	197		
AD	119	119	128	128	140	157		
ADS	129	129	139	139	150	158		
L	485	510	529	560	577	636		
LS	549	574	609	640	663	723		
LB	288	313	332	363	380	439		
LBS	352	377	412	443	466	526		

33 102 00 12

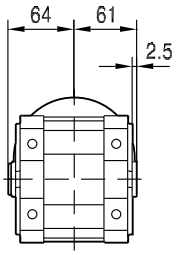
KA29..



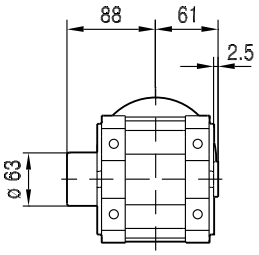
K.. /T



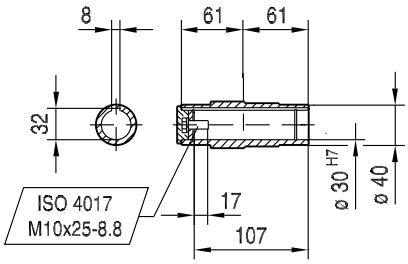
KA29..



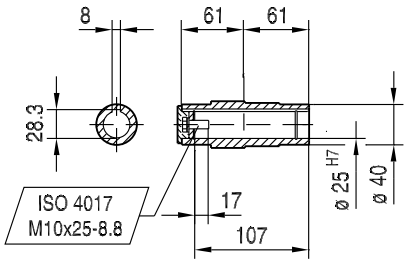
KH29..

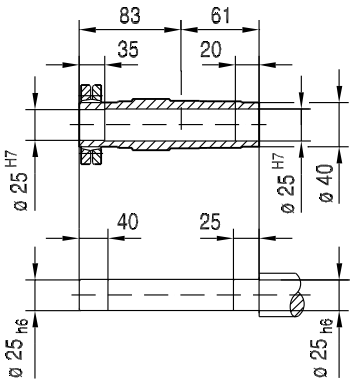


ø 30 H7
DIN 6885-3



ø 25 H7





	DRL71S	DRL71M	DRL80S	DRL80M	DRL90L	DRL100L		
AC	139	139	156	156	179	197		
AD	119	119	128	128	140	157		
ADS	129	129	139	139	150	158		
L	485	510	529	560	577	636		
LS	549	574	609	640	663	723		
LB	288	313	332	363	380	439		
LBS	352	377	412	443	466	526		

2.16 Selection tables for K..9 / DRC

2.16.1 Selection tables for K..19 / DRC

			DRC1		DRC2			
	na_1 [rpm]	na_{2000} [rpm]	M_a [Nm]	M_{apk} [Nm]	M_a [Nm]	M_{apk} [Nm]	M_a Emerg.Off [Nm]	i
	0.22	444	11	28	31	77	132	4.50
	0.19	388	13	32	35	>88	132	5.16
	0.18	361	14	35	38	>88	132	5.54
	0.16	312	16	40	44	>88	132	6.41
	0.14	289	17	43	47	>88	132	6.91
	0.12	247	20	51			132	8.09
	0.10	209	24	60			104	9.58
	0.10	194	25	64	69	>83	124	10.32
	0.08	169	29	73	>79	>86	129	11.84
	0.08	157	31	78	>80	>88	132	12.70
	0.07	136	36	>88	>80	>88	132	14.69
	0.06	126	39	>88	>80	>88	132	15.84
K..19	0.05	108	46	>88			132	18.55
2	0.05	91	54	>88			132	21.98
	0.04	83	59	>88			132	24.06
	0.04	74					132	26.88
	0.04	74	>60	>66	>60	>66	99	27.16
	0.03	69					132	29.14
	0.03	68	>61	>67	>61	>67	100	29.29
	0.03	63					132	31.74
	0.03	58	>64	>70			105	34.29
	0.02	49	>67	>73			110	40.63
	0.02	45	>69	>75			112	44.48
	0.02	40					116	49.69
	0.02	37					116	53.88
	0.02	34					116	58.68

m [kg]			DRC1	DRC2		
K..19	**2**		24	30		
KF: + 0.5 kg / KA: + -0.3 kg / KAF: + 0.1 kg						

DRC..				F_{Ramax}				F_{Rapk}			
n_e = 1400	i	φ /R [']	J_G 10^{-4} [kgm^2]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
	4.50	-	0.38	2010	1620	2500	2500	1890	1520	2340	2340
	5.16	-	0.30	2140	1720	2650	2650	2010	1620	2490	2490
	5.54	-	0.27	2200	1780	2730	2730	2080	1670	2570	2570
	6.41	-	0.21	2340	1890	2900	2900	2210	1780	2740	2740
	6.91	-	0.18	2420	1950	3000	3000	2290	1840	2830	2830
	8.09	-	0.14	2590	2080	3200	3200	2450	1970	3030	3030
	9.58	-	0.11	2910	2340	3600	3600	2780	2240	3450	3450
	10.32	-	0.22	2720	2190	3370	3370	2560	2070	3180	3180
	11.84	-	0.18	2850	2300	3530	3530	2700	2170	3340	3340
	12.70	-	0.16	2930	2360	3630	3630	2760	2220	3420	3420
	14.69	-	0.13	3110	2510	3860	3860	2940	2370	3640	3640
	15.84	-	0.12	3210	2590	3980	3980	3040	2450	3760	3760
K..19	18.55	-	0,092	3430	2760	4250	4250	3250	2620	4030	4030
2	21.98	-	0,072	3680	2960	4500	4500	3490	2820	4330	4330
	24.06	-	0,063	3820	3080	4500	4500	3630	2920	4500	4500
	26.88	-	0,054	3990	3220	4500	4500	3800	3060	4500	4500
	27.16	-	0.13	4090	3290	4500	4500	3900	3150	4500	4500
	29.14	-	0,048	4120	3320	4500	4500	3930	3160	4500	4500
	29.29	-	0.11	4200	3380	4500	4500	4010	3230	4500	4500
	31.74	-	0,042	4260	3440	4500	4500	4070	3280	4500	4500
	34.29	-	0,090	4370	3570	4500	4500	4240	3410	4500	4500
	40.63	-	0,071	4350	3630	4500	4500	4310	3610	4500	4500
	44.48	-	0,062	4340	3620	4500	4500	4290	3600	4500	4500
	49.69	-	0,053	4330	3620	4500	4500	4280	3600	4500	4500
	53.88	-	0,047	4330	3620	4500	4500	4280	3600	4500	4500
	58.68	-	0,042	4330	3620	4500	4500	4280	3600	4500	4500

2.16.2 Selection tables for K..29 / DRC

			DRC1		DRC2			
	na_1 [rpm]	na_{2000} [rpm]	M_a [Nm]	M_{apk} [Nm]	M_a [Nm]	M_{apk} [Nm]	M_a Emerg.Off [Nm]	i
K..29 2	0.31	627	8.0	20	22	55	182	3.19
	0.26	510	9.9	25	27	67	205	3.92
	0.20	392	13	32	35	87	182	5.10
	0.17	348	14	36	39	98	184	5.75
	0.14	288	17	44	48	119	184	6.95
	0.13	267	18	46	50	125	200	7.48
	0.12	234	21	54	58	>134	200	8.53
	0.11	218	23	56	61	>143	210	9.17
	0.10	202	25	62			182	9.90
	0.08	168	29	74	80	>143	210	11.94
	0.07	148	33	83	90	>143	210	13.47
	0.06	123	40	100	109	>143	210	16.29
	0.05	100	49	123	>130	>143	210	19.99
	0.05	91	53	>115	>105	>115	172	22.08
	0.04	86	57	143			210	23.19
	0.04	80	60	>119	>109	>119	178	24.91
	0.04	73	67	>143			210	27.23
	0.03	67	73	>143			210	29.69
	0.03	66	73	>126	>115	>126	189	30.11
	0.03	60					210	33.15
	0.03	56					210	35.83
	0.03	54	89	>134	>122	>134	200	36.96
	0.03	51					210	38.90
	0.02	47	103	>140			210	42.87
	0.02	40	121	>143			210	50.35
	0.02	36	>130	>143			210	54.89
	0.02	33					210	61.28
	0.02	30					210	66.25
	0.01	28					210	71.93

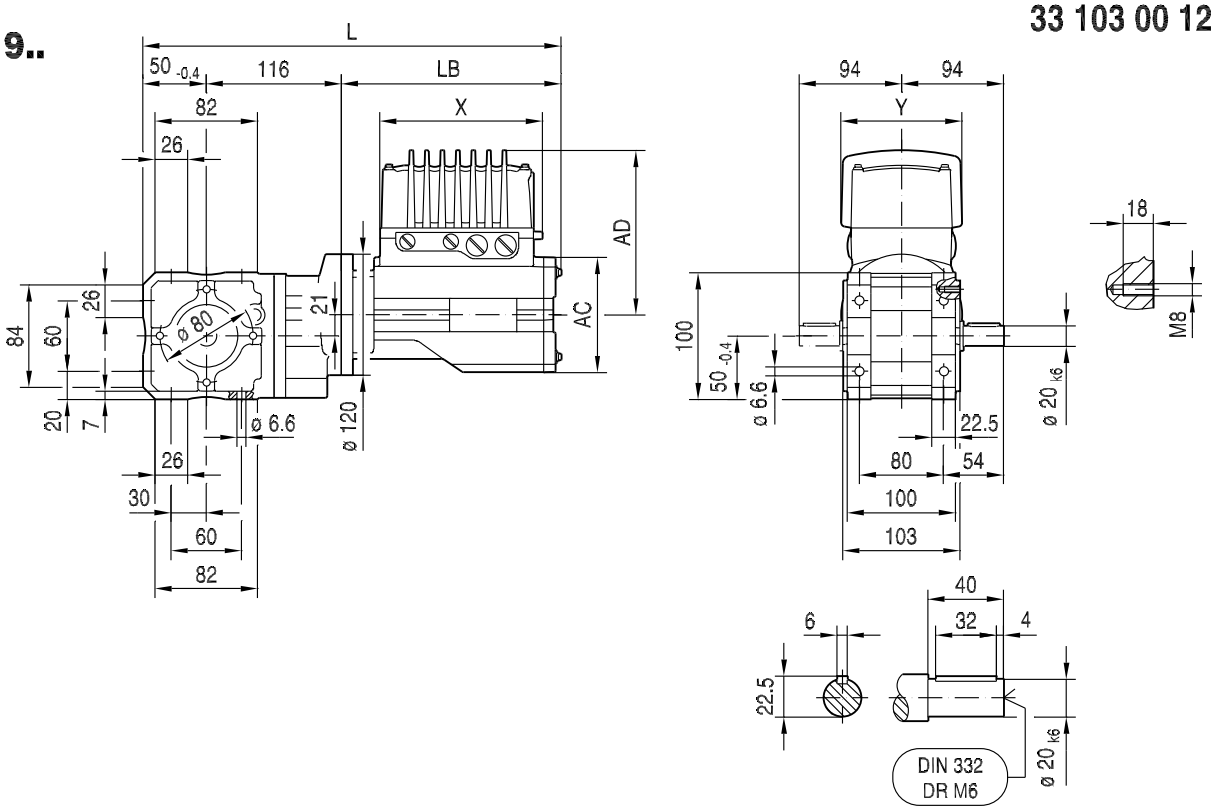
m [kg]			DRC1	DRC2		
K..29	2		26	32		
KF: + 1.3 kg / KA: + -0.1 kg / KAF: + 1.0 kg						

DRC..				F_{Ramax}				F_{Rapk}			
n_e = 1400	i	φ /R [']	J_G 10^{-4} [kgm^2]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
K..29 2	3.19	-	1.6	1830	2330	1860	1860	1700	2210	1700	1700
	3.92	-	1.1	1910	2450	1920	1920	1770	2320	1760	1760
	5.10	-	0.68	2260	2820	2320	2320	2120	2690	2160	2160
	5.75	-	0.55	2370	2950	2440	2440	2230	2810	2270	2270
	6.95	-	0.39	2580	3180	2660	2660	2430	3040	2490	2490
	7.48	-	0.74	2300	2990	2300	2300	2110	2820	2080	2080
	8.53	-	0.27	2740	3400	2830	2830	2580	3240	2650	2650
	9.17	-	0.55	2470	3210	2480	2480	2270	3030	2240	2240
	9.90	-	0.21	3000	3660	3120	3120	2840	3510	2940	2940
	11.94	-	0.37	2810	3590	2840	2840	2600	3400	2590	2590
	13.47	-	0.30	2970	3780	3010	3010	2760	3580	2770	2770
	16.29	-	0.22	3240	4080	3300	3300	3020	3880	3050	3050
	19.99	-	0.16	3550	4430	3640	3640	3320	4220	3380	3380
	22.08	-	0.33	3820	4700	3950	3950	3610	4500	3710	3710
	23.19	-	0.12	3790	4700	3900	3900	3560	4490	3630	3630
	24.91	-	0.27	3980	4900	4120	4120	3760	4690	3870	3870
	27.23	-	0,098	4060	5020	4190	4190	3820	4790	3920	3920
	29.69	-	0,086	4210	5190	4360	4360	3970	4960	4080	4080
	30.11	-	0.20	4250	5230	4400	4400	4020	5000	4130	4130
	33.15	-	0,073	4410	5420	4580	4580	4170	5180	4290	4290
	35.83	-	0,065	4560	5580	4740	4740	4310	5340	4450	4450
	36.96	-	0.14	4560	5600	4730	4730	4310	5360	4430	4430
	38.90	-	0,057	4720	5760	4910	4910	4470	5520	4620	4620
	42.87	-	0.11	4790	5890	4970	4970	4540	5640	4670	4670
	50.35	-	0,090	5020	6000	5300	5300	4830	5990	4980	4980
	54.89	-	0,079	5020	6000	5510	5510	4970	6000	5180	5180
	61.28	-	0,068	5020	6000	5770	5770	4970	6000	5440	5440
	66.25	-	0,060	5020	6000	5970	5970	4970	6000	5630	5630
	71.93	-	0,053	5020	6000	6000	6000	4970	6000	5840	5840

2.17 Dimension sheets for K..19 / DRC

33 103 00 12

K19..



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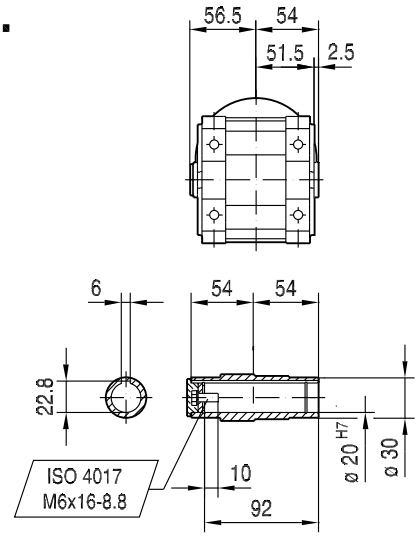

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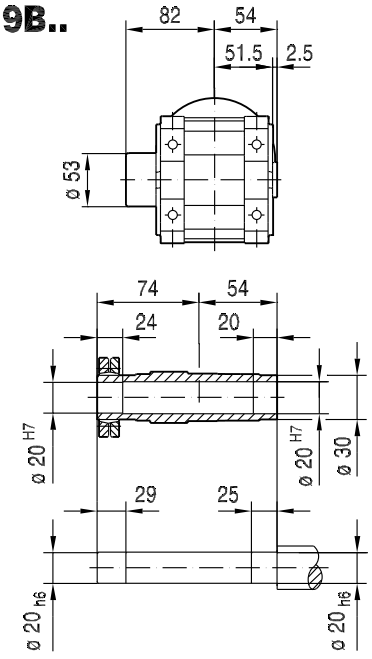
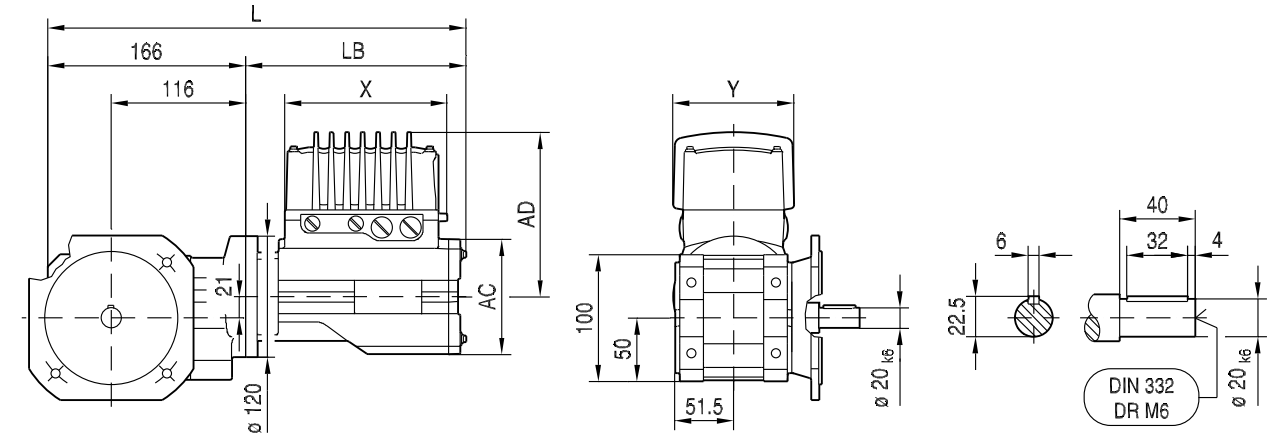


	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	460	476						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 104 00 12

KF19..



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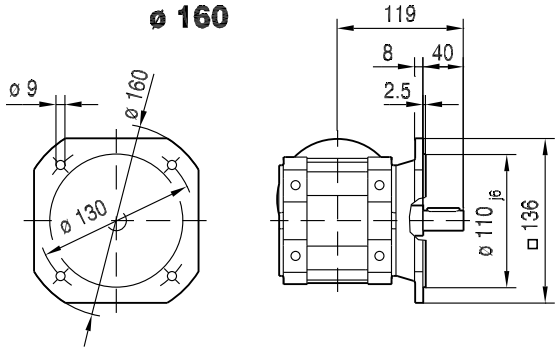
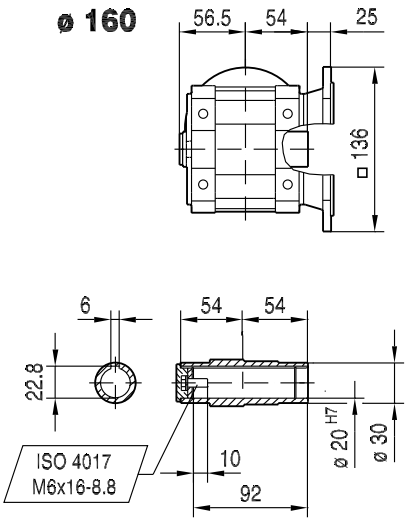


KAF19..

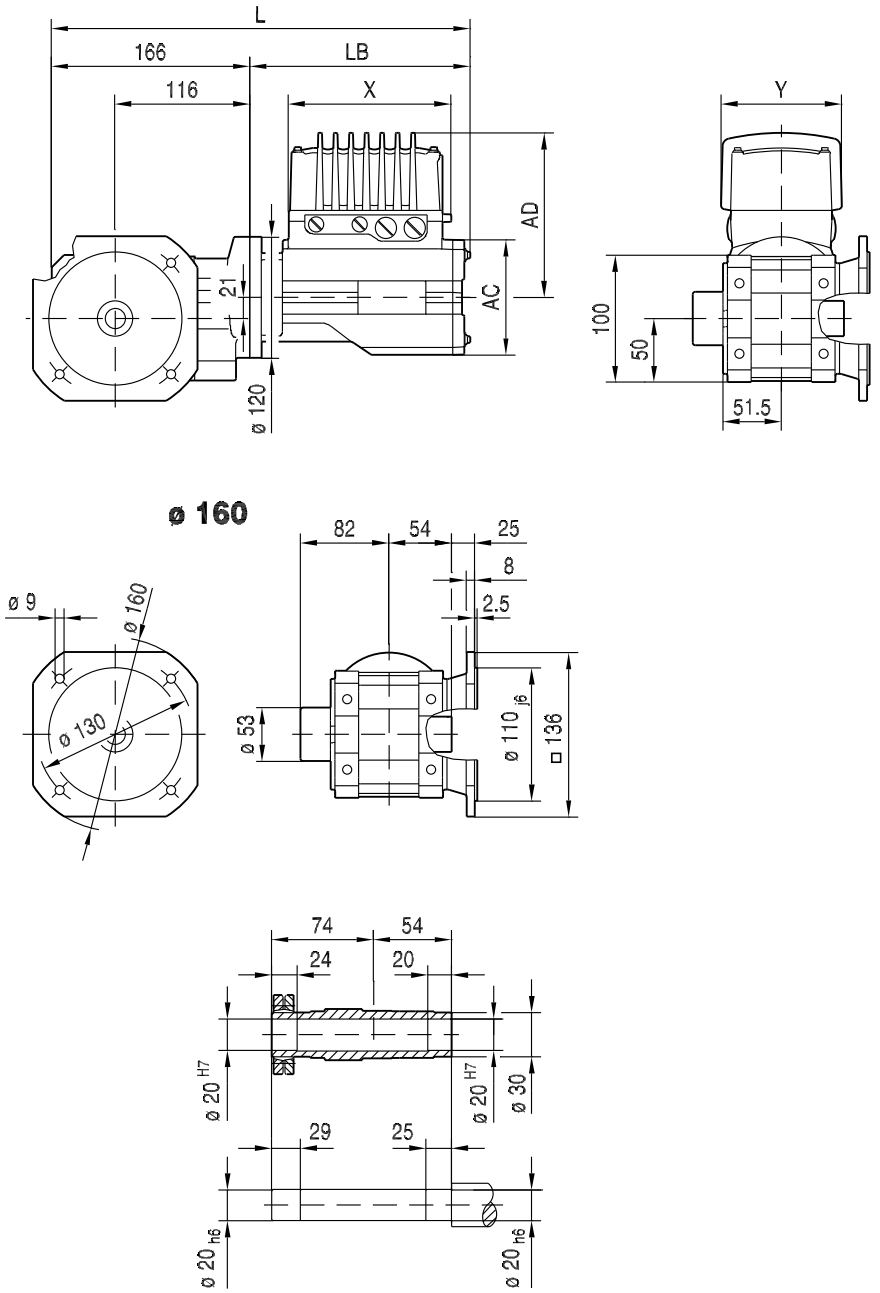
ø 160



	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	460	476						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 105 00 12

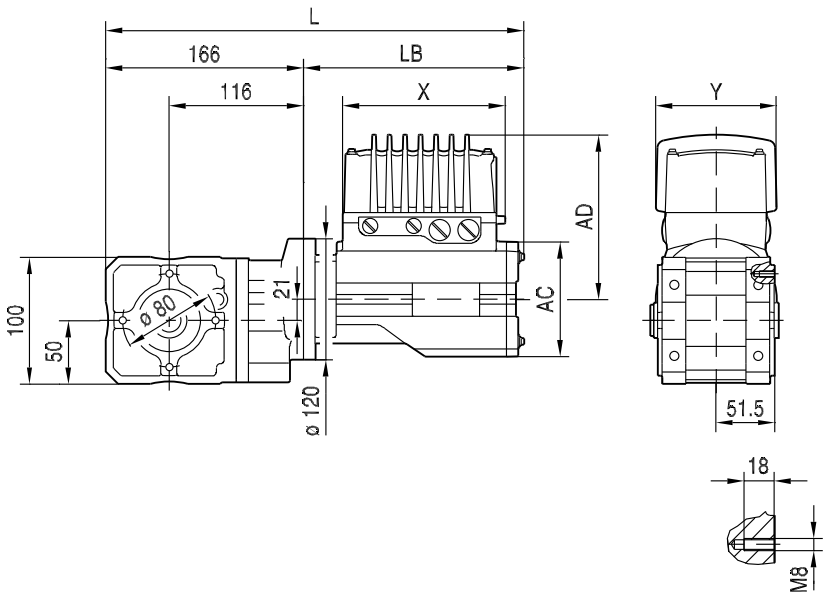
KHF19..



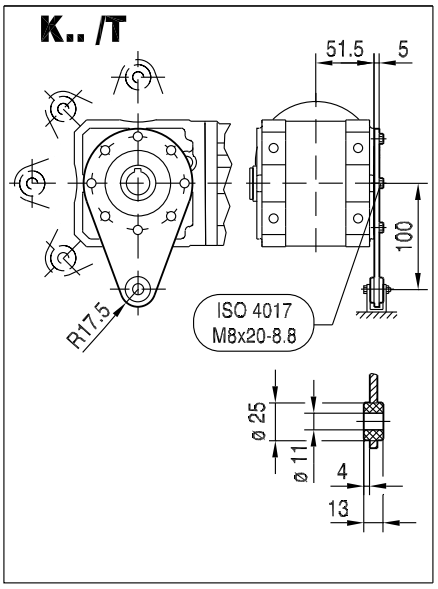
	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	460	476						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 106 00 12

KA19..



K.. /T



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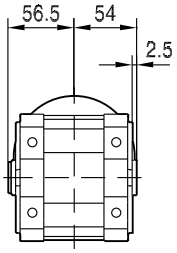
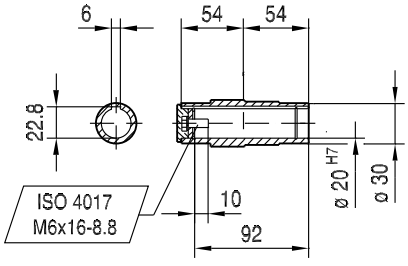
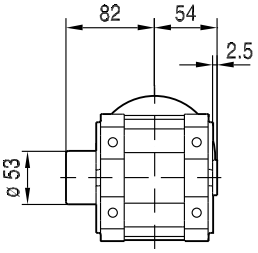
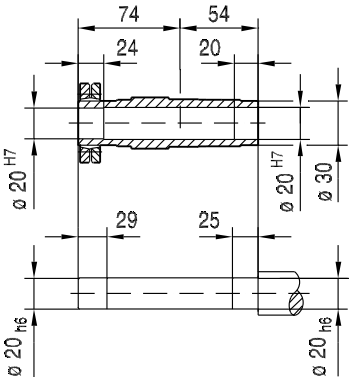




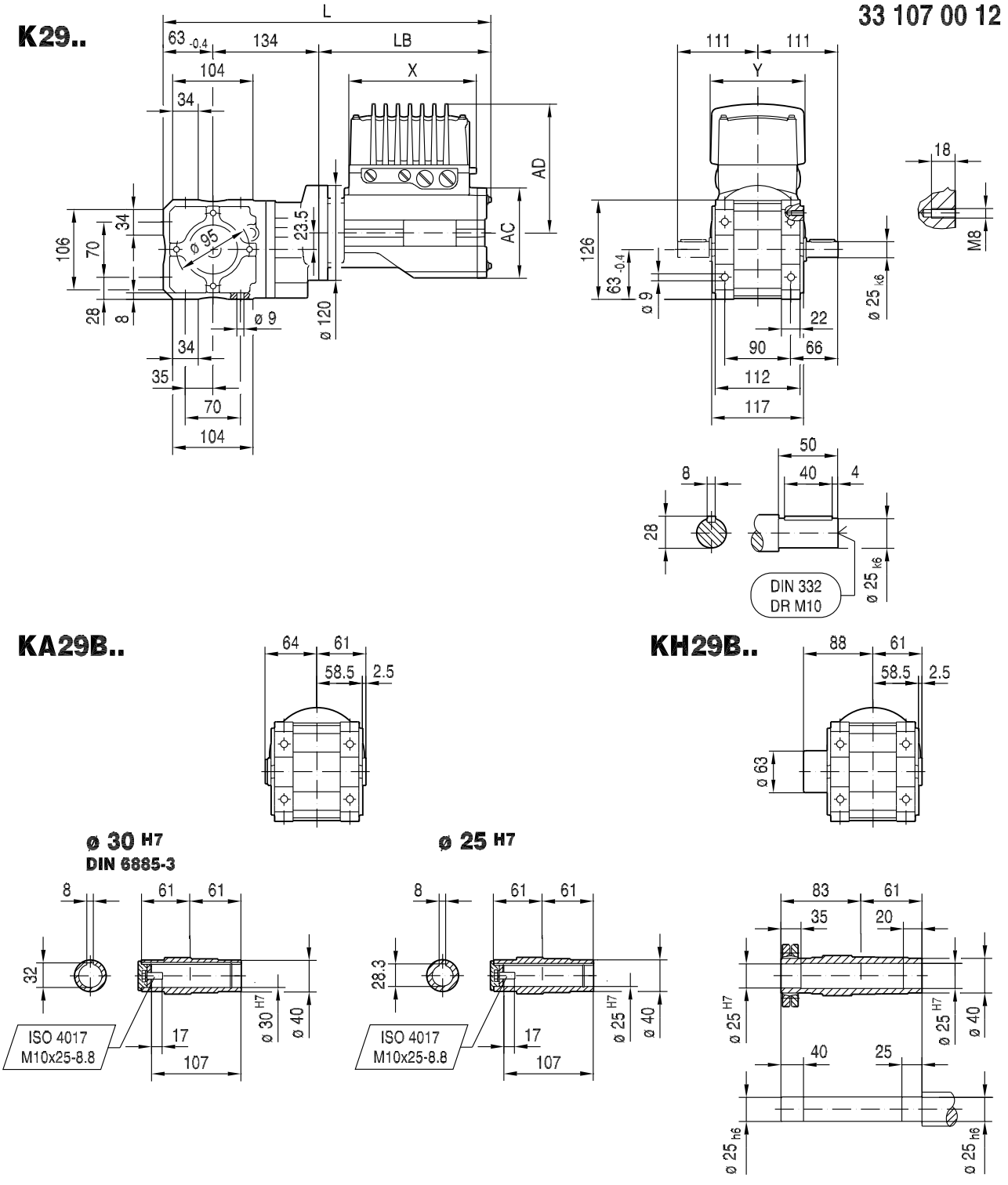
KH19..





	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	460	476						
LB/LBS	294	310						
X	202	223						
Y	134	160						

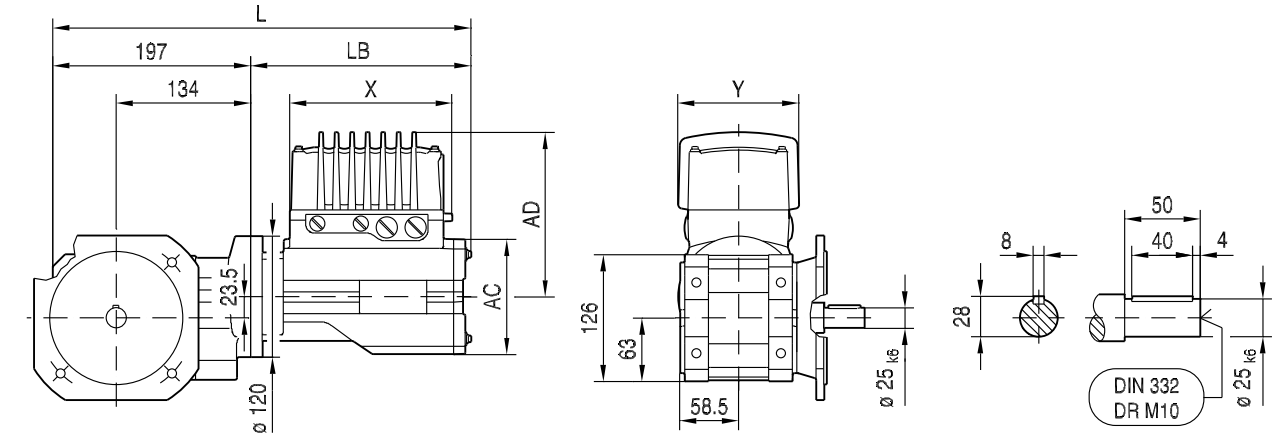
2.18 Dimension sheets for K..29 / DRC

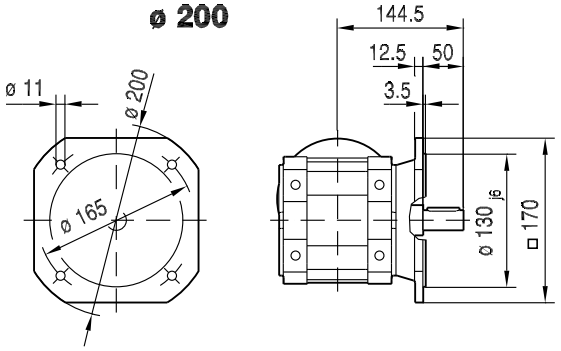


	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	491	507						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 108 00 12

KF29..





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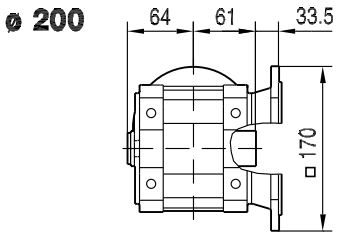

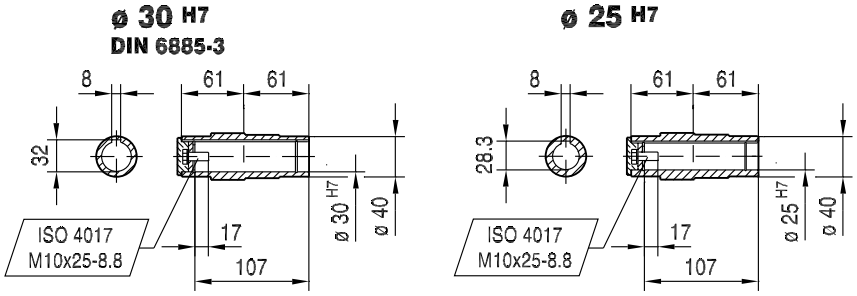

	DRC1	DRC2						
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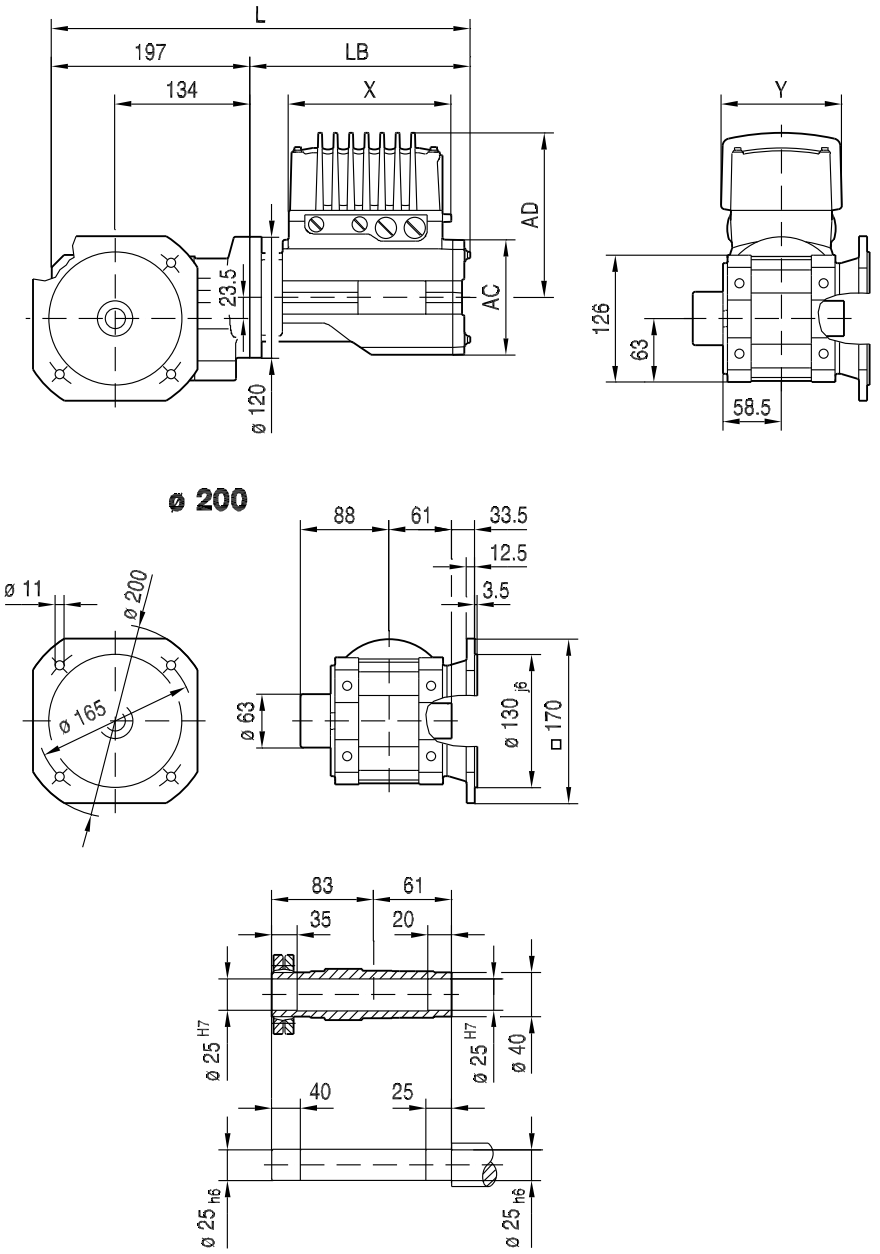
AD/ADS	185	218						
L/LS	491	507						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 109 00 12

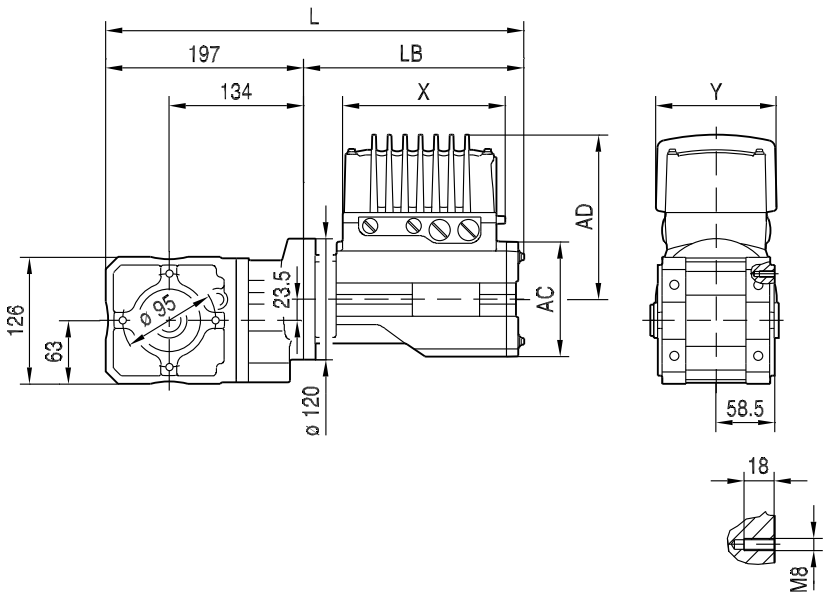
KHF29..



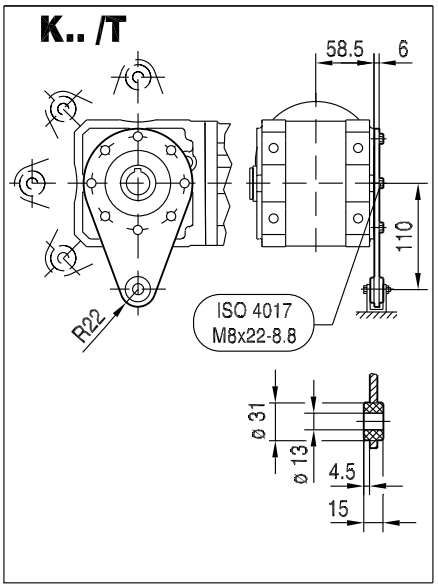
	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	491	507						
LB/LBS	294	310						
X	202	223						
Y	134	160						

33 110 00 12

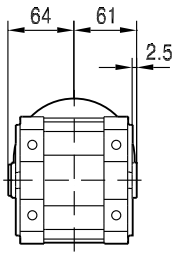
KA29..



K.. /T



KA29..



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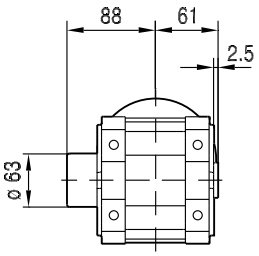

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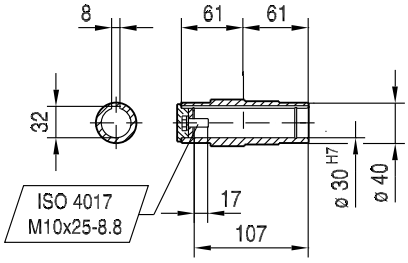

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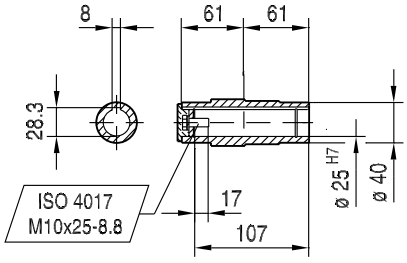
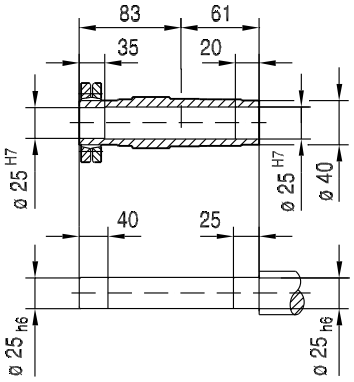


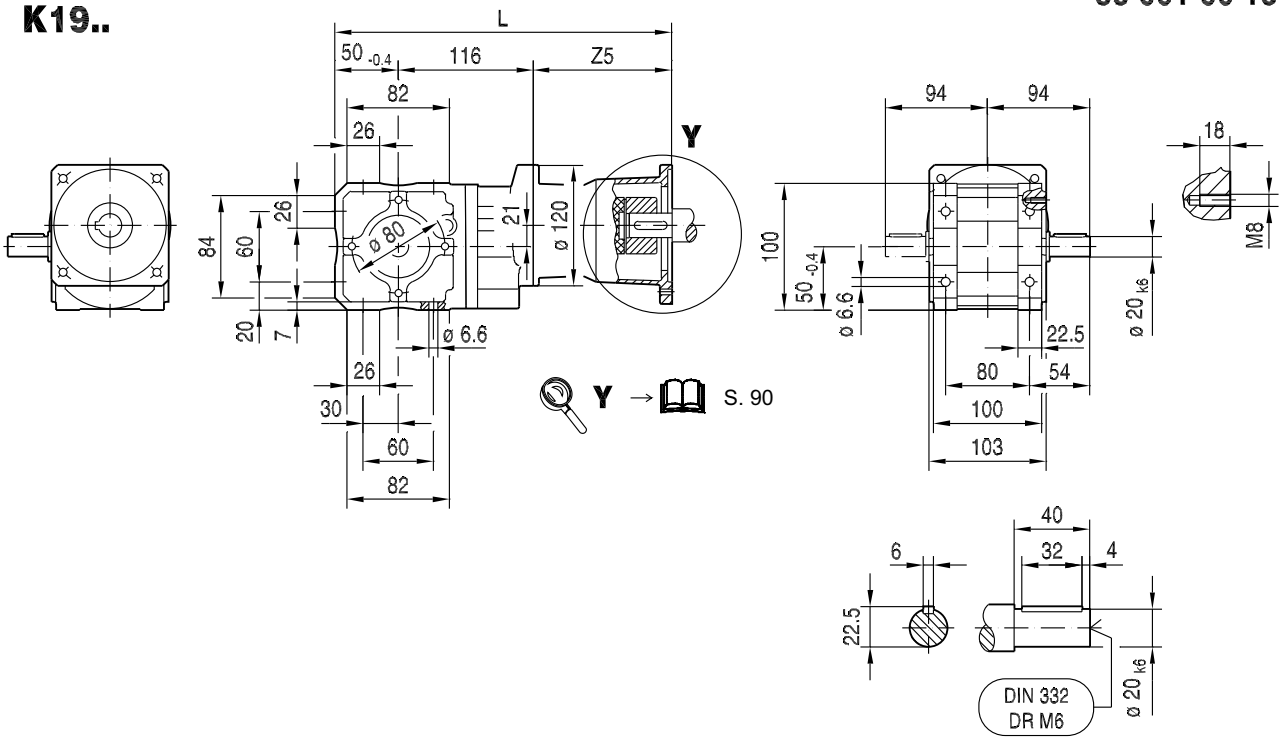


	DRC1	DRC2						
AC	128	154						
AD/ADS	185	218						
L/LS	491	507						
LB/LBS	294	310						
X	202	223						
Y	134	160						

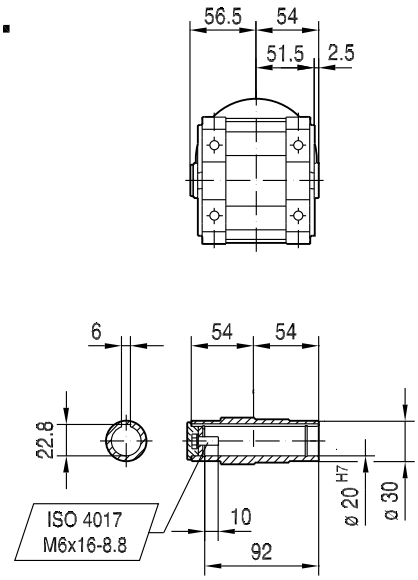
2.19 Dimension sheets for K..19 / AQA, AQH

33 001 00 13

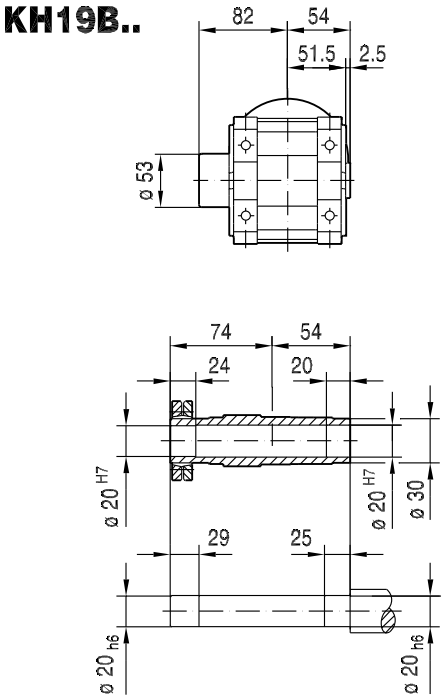
K19..



KA19B..



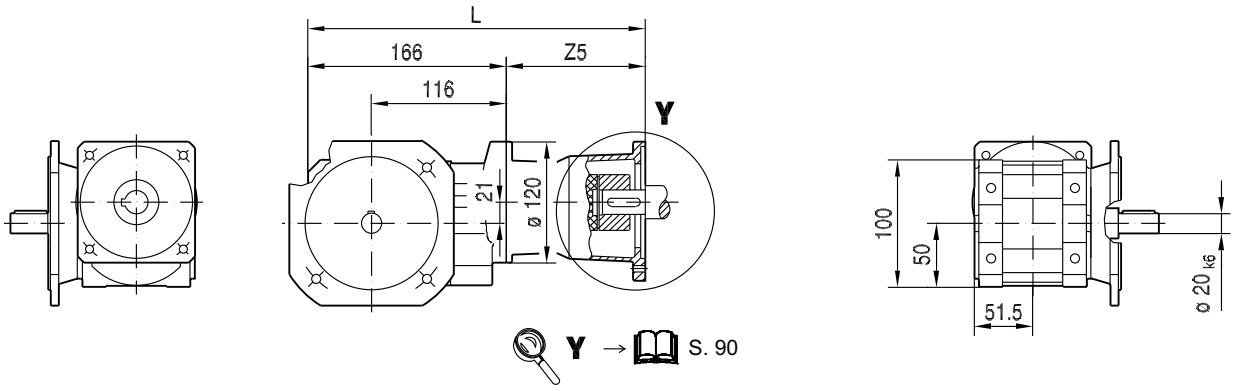
KH19B..

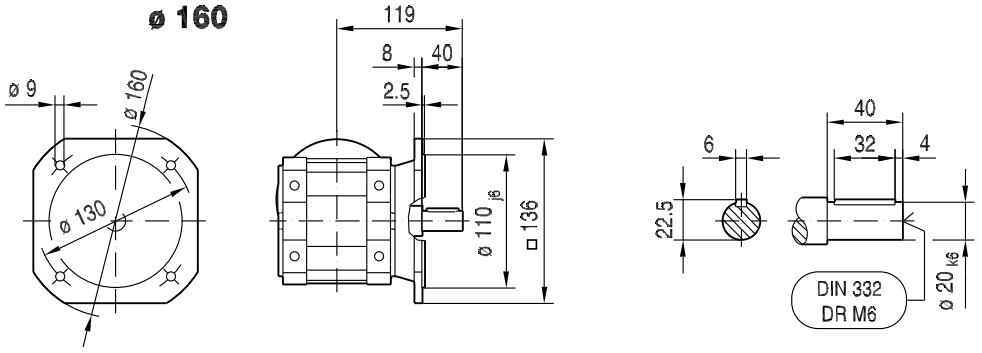


	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	271	296	310	319				

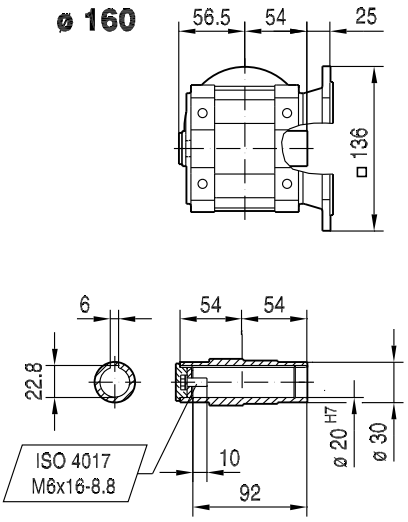
33 002 00 13

KF19..





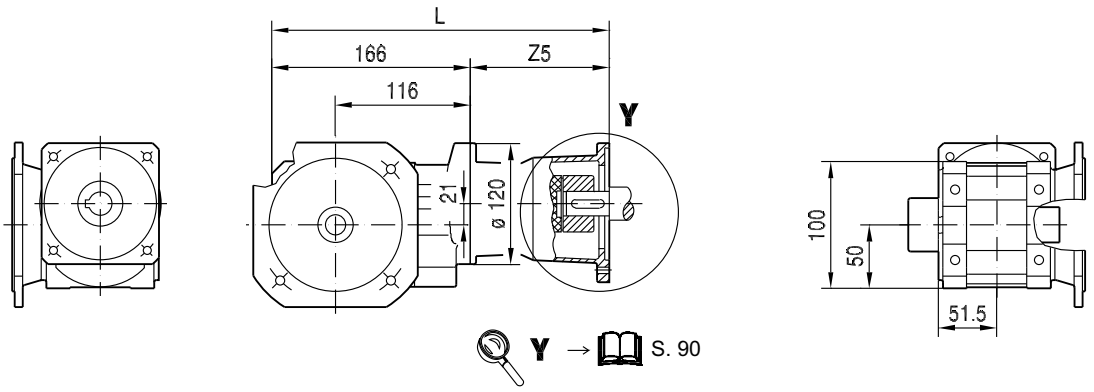
KAF19..

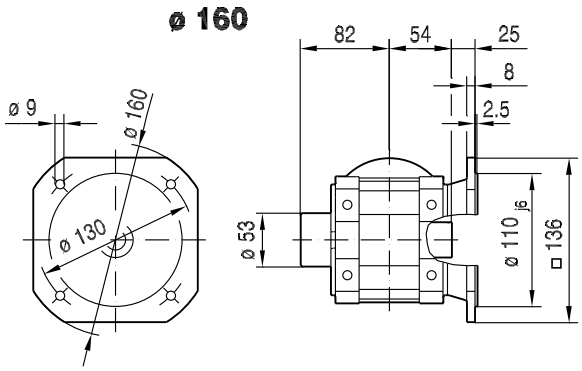


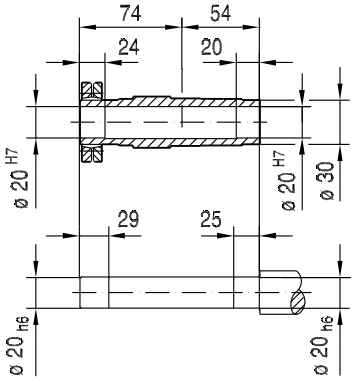
	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	271	296	310	319				

33 003 00 13

KHF19..



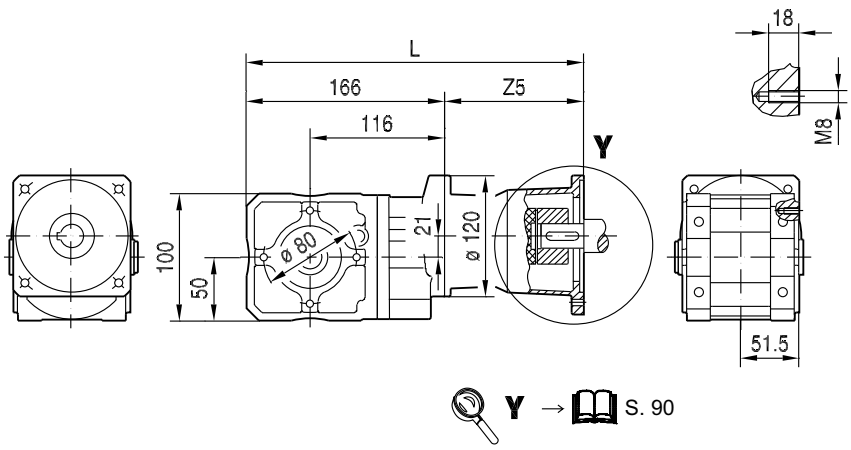




	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	271	296	310	319				

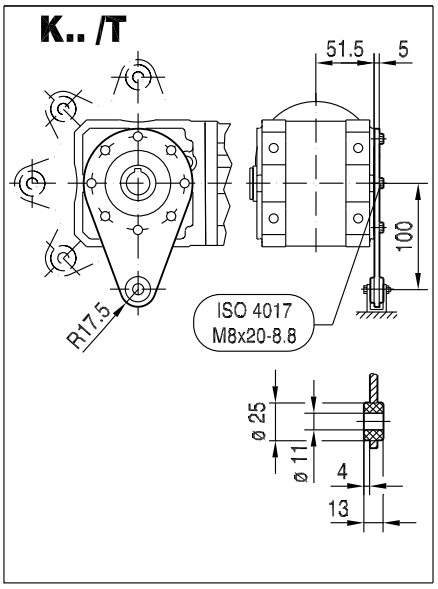
33 004 00 13

KA19..

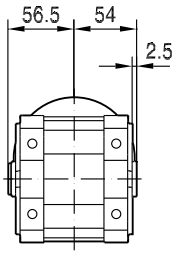


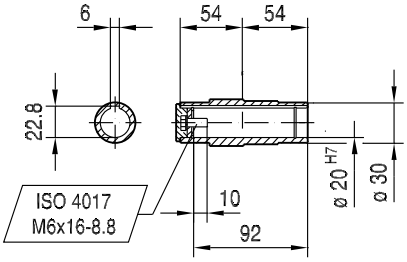
Y → S. 90

K.. /T

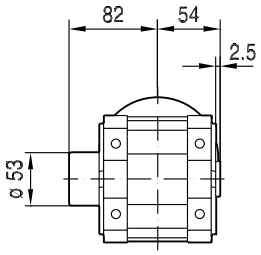


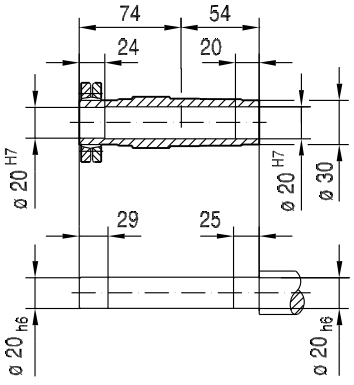
KA19..





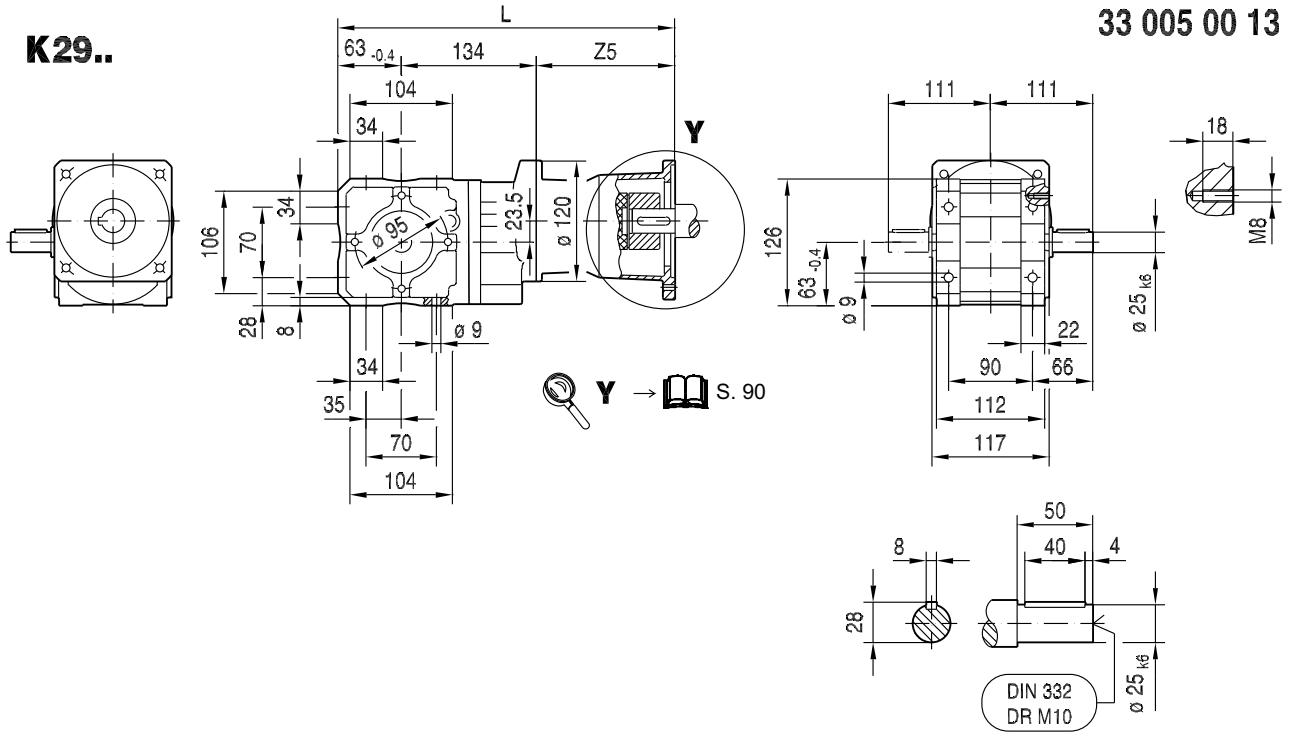
KH19..

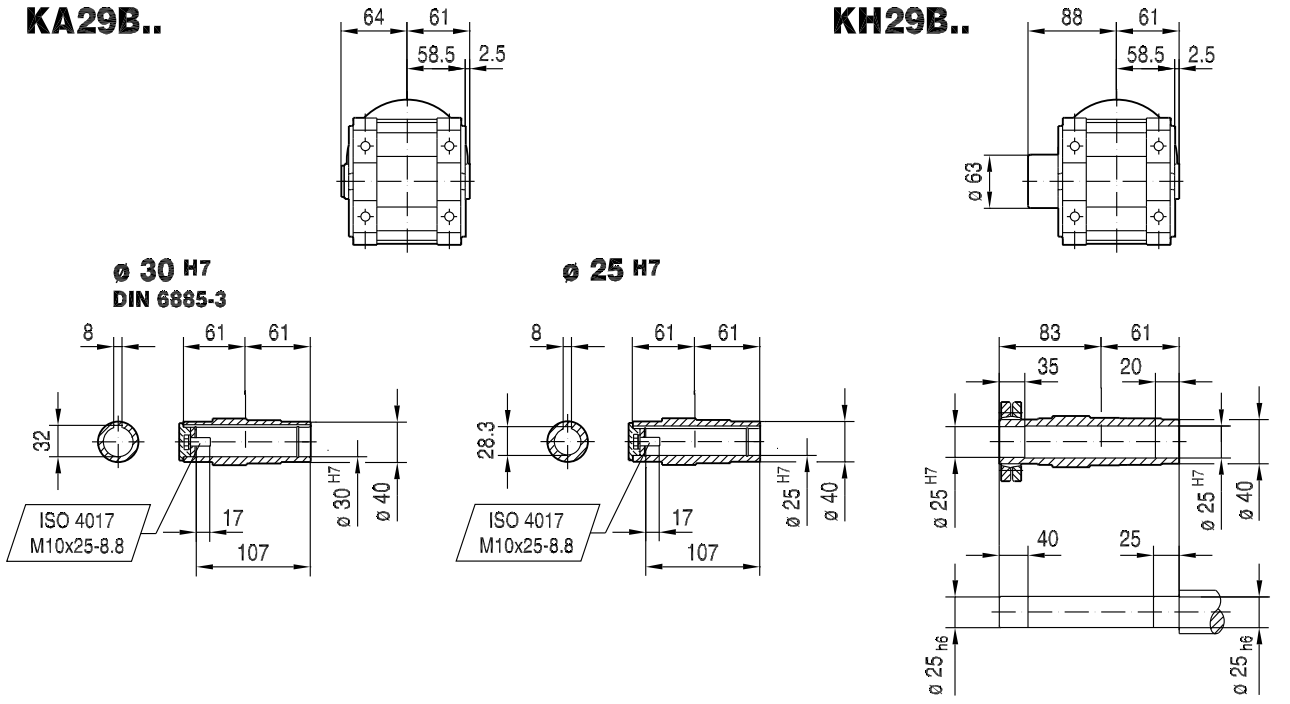




	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	271	296	310	319				

2.20 Dimension sheets for K..29 / AQA, AQH

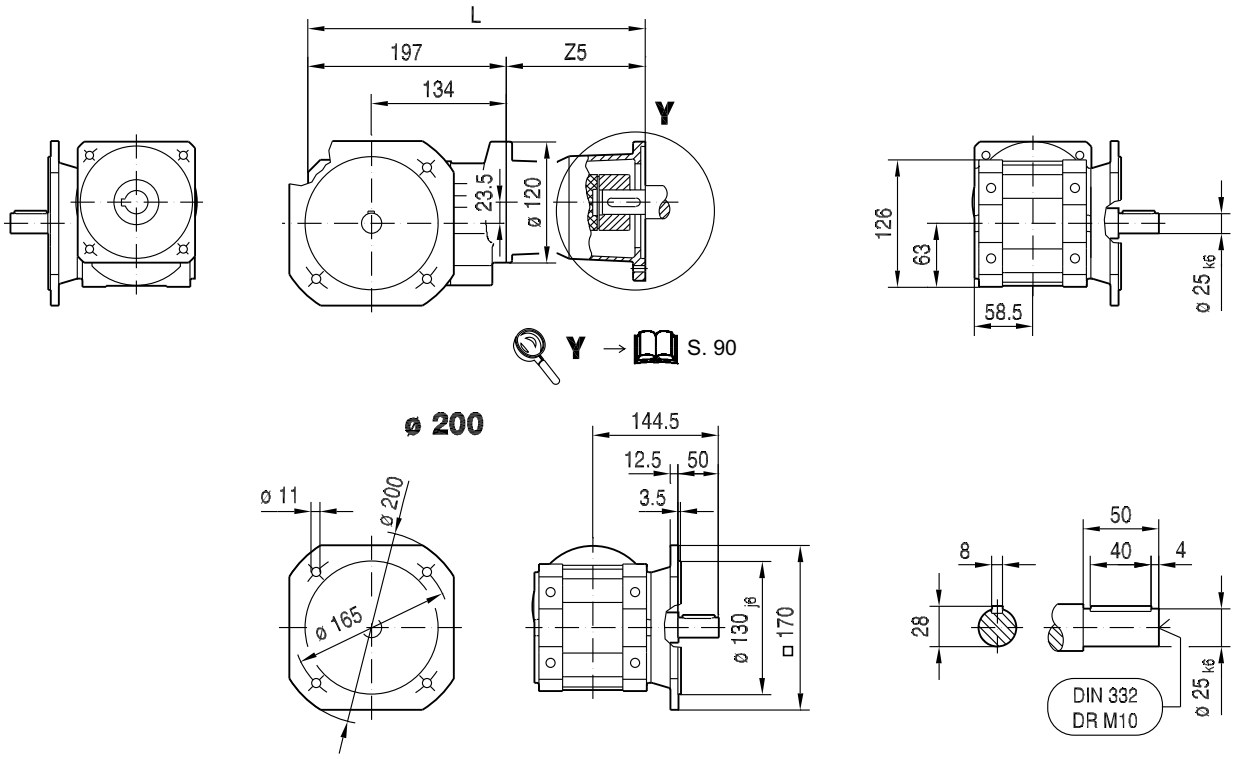




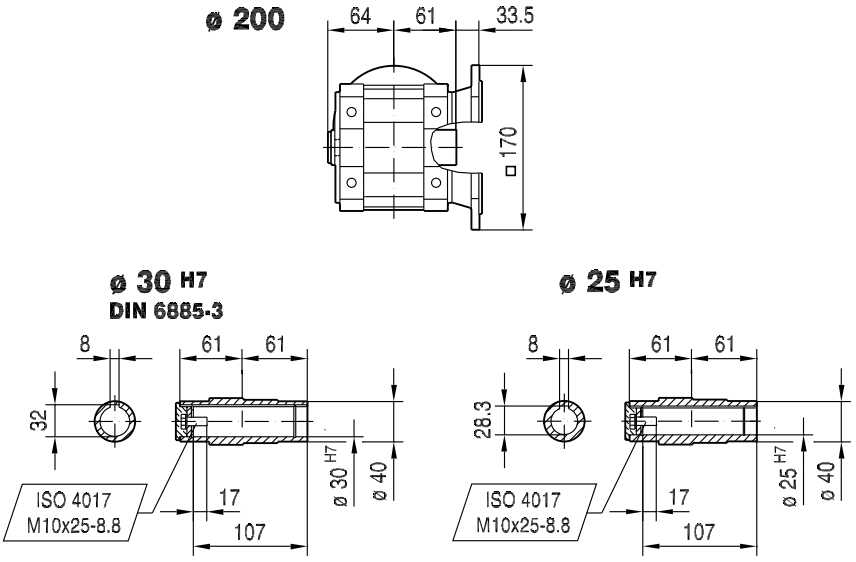
	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	302	327	341	350				

33 006 00 13

KF29..



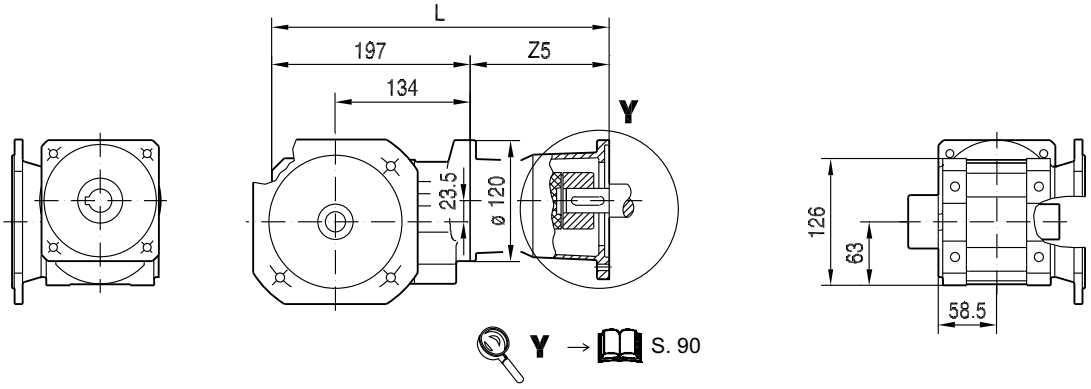
KAF29..

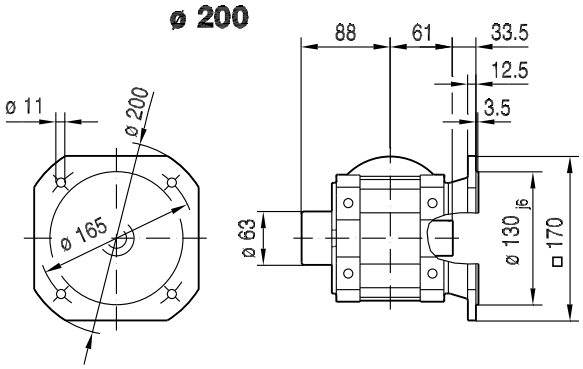


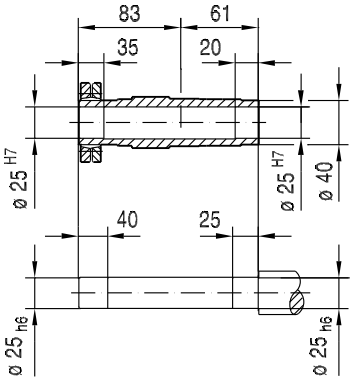
	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	302	327	341	350				

33 007 00 13

KHF29..



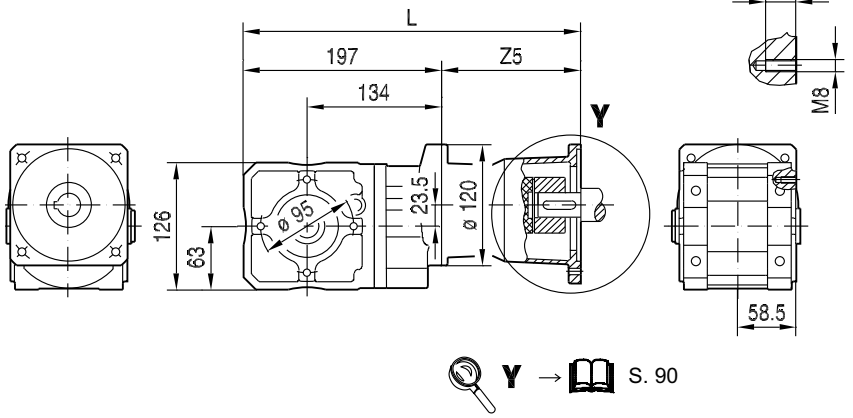




	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	302	327	341	350				

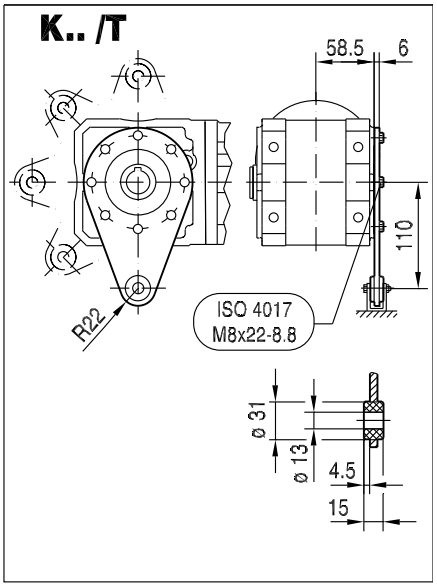
33 008 00 13

KA29..

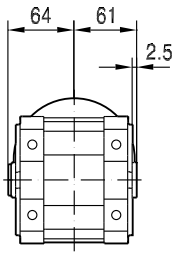


Y → S. 90

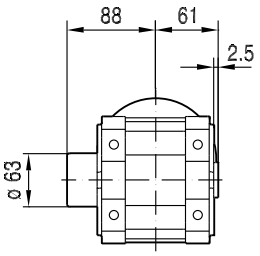
K.. /T



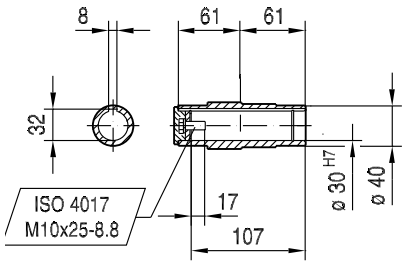
KA29..



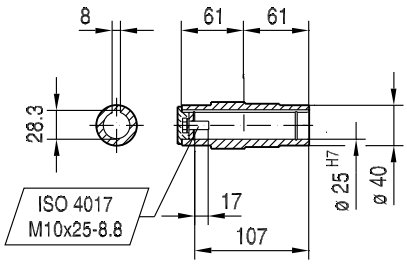
KH29..

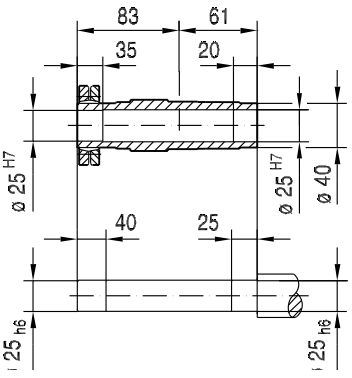


ø 30 H7
DIN 6885-3



ø 25 H7





	AQ80/1-3	AQ100/1-2	AQ100/3-4	AQ115/1-3				
Z5	104.5	129.5	143.5	152.5				
L	302	327	341	350				

2.21 Selection tables for K..9 / AQ

2.21.1 Selection tables for K..19 / AQ

[Nm]		AQ. M_{amax} | M_{apk} | $M_{aEmergOff}$											
	i	80/1-3			100/1-4			115/1-2			115/3		
K..19  2	4.50	35	38	57	59	65	97	59	65	97	59	65	97
	5.16	37	41	61	64	70	105	64	70	105	64	70	105
	5.54	38	42	63	66	73	109	66	73	109	66	73	109
	6.41	40	44	66	71	78	117	71	78	117	71	78	117
	6.91	41	45	67	74	81	121	74	81	121	74	81	121
	8.09	43	47	70	59	65	97	59	65	97	59	65	97
	9.58	45	50	75	45	50	75	45	50	75	45	50	75
	10.32	76	83	124	76	83	124	76	83	124	76	83	124
	11.84	79	86	129	79	86	129	79	86	129	79	86	129
	12.70	80	88	132	80	88	132	80	88	132	80	88	132
	14.69	80	88	132	80	88	132	80	88	132	80	88	132
	15.84	80	88	132	80	88	132	80	88	132	80	88	132
	18.55	80	88	132	80	88	132	80	88	132	80	88	132
	21.98	80	88	132	80	88	132	80	88	132	80	88	132
	24.06	80	88	132	80	88	132	80	88	132	80	88	132
	26.88												
	27.16	60	66	99	60	66	99	60	66	99	60	66	99
	29.14												
	29.29	61	67	100	61	67	100	61	67	100	61	67	100
	31.74												
	34.29	64	70	105	64	70	105	64	70	105	64	70	105
	40.63	67	73	109	67	73	109	67	73	109	67	73	109
	44.48	69	75	112	69	75	112	69	75	112	69	75	112
	49.69												
	53.88												
	58.68												

m [kg]		AQ.			
	s	80/1-3	100/1-4	115/1-2	115/3
K..19	 2	7.6	8.3	8.8	8.8
KF: + 0.5 kg / KA: + -0.3 kg / KAF: + 0.1 kg					

		AQ.			
		80/1-3	100/1-4	115/1-2	115/3
J_A 10^{-4}	[kgm²]	0.77	1.4	1.4	3.1
c_{TA}	[Nm/']	0.25	0.25	0.25	0.625

K..19							F_{Ramax}				F_{Rapk}			
n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aEmerg-Off}$ [Nm]	n_{ak} [rpm]	J_{GA} 10^{-4} [kgm²]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
	4.50	80	88	132	433	0.38	2010	1620	2500	2500	1890	1520	2340	2340
	5.16	80	88	132	424	0.30	2140	1720	2650	2650	2010	1620	2490	2490
	5.54	80	88	132	419	0.27	2200	1780	2730	2730	2080	1670	2570	2570
	6.41	80	88	132	410	0.21	2340	1890	2900	2900	2210	1780	2740	2740
	6.91	80	88	132	407	0.18	2420	1950	3000	3000	2290	1840	2830	2830
	8.09	80	88	132	399	0.14	2590	2080	3200	3200	2450	1970	3030	3030
	9.58	63	69	104	731	0.11	2910	2340	3600	3600	2780	2240	3450	3450
	10.32	76	83	124	102	0.22	2720	2190	3370	3370	2560	2070	3180	3180
	11.84	79	86	129	90	0.18	2850	2300	3530	3530	2700	2170	3340	3340
	12.70	80	88	132	83	0.16	2930	2360	3630	3630	2760	2220	3420	3420
	14.69	80	88	132	82	0.13	3110	2510	3860	3860	2940	2370	3640	3640
	15.84	80	88	132	81	0.12	3210	2590	3980	3980	3040	2450	3760	3760
K..19	18.55	80	88	132	81	0.092	3430	2760	4250	4250	3250	2620	4030	4030
2	21.98	80	88	132	81	0.072	3680	2960	4500	4500	3490	2820	4330	4330
	24.06	80	88	132	81	0.063	3820	3080	4500	4500	3630	2920	4500	4500
	26.88	80	88	132	80	0.054	3990	3220	4500	4500	3800	3060	4500	4500
	27.16	60	66	99	38	0.13	4090	3290	4500	4500	3900	3150	4500	4500
	29.14	80	88	132	80	0.048	4120	3320	4500	4500	3930	3160	4500	4500
	29.29	61	67	100	36	0.11	4200	3380	4500	4500	4010	3230	4500	4500
	31.74	80	88	132	80	0.042	4260	3440	4500	4500	4070	3280	4500	4500
	34.29	64	70	105	31	0.090	4370	3570	4500	4500	4240	3410	4500	4500
	40.63	67	73	110	27	0.071	4350	3630	4500	4500	4310	3610	4500	4500
	44.48	69	75	112	24	0.062	4340	3620	4500	4500	4290	3600	4500	4500
	49.69	70	77	116	22	0.053	4330	3620	4500	4500	4280	3600	4500	4500
	53.88	70	77	116	22	0.047	4330	3620	4500	4500	4280	3600	4500	4500
	58.68	70	77	116	22	0.042	4330	3620	4500	4500	4280	3600	4500	4500

AQ.	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/']	KF [Nm/']	KA [Nm/']	KAF [Nm/']
	4.50	4500	95	-	-	-	-
	5.16	4500	95	-	-	-	-
	5.54	4500	95	-	-	-	-
	6.41	4500	95	-	-	-	-
	6.91	4500	95	-	-	-	-
	8.09	4500	95	-	-	-	-
	9.58	4500	95	-	-	-	-
	10.32	4500	93	-	-	-	-
	11.84	4500	93	-	-	-	-
	12.70	4500	93	-	-	-	-
	14.69	4500	93	-	-	-	-
	15.84	4500	93	-	-	-	-
K..19	18.55	4500	93	-	-	-	-
2	21.98	4500	93	-	-	-	-
	24.06	4500	93	-	-	-	-
	26.88	4500	93	-	-	-	-
	27.16	4500	91	-	-	-	-
	29.14	4500	93	-	-	-	-
	29.29	4500	91	-	-	-	-
	31.74	4500	93	-	-	-	-
	34.29	4500	91	-	-	-	-
	40.63	4500	91	-	-	-	-
	44.48	4500	91	-	-	-	-
	49.69	4500	91	-	-	-	-
	53.88	4500	91	-	-	-	-
	58.68	4500	91	-	-	-	-

2.21.2 Selection tables for K..29 / AQ

[Nm]		AQ. M_{amax} | M_{apk} | $M_{aEmergOff}$											
	i	80/1-3			100/1-4			115/1-2			115/3		
K..29 2	3.19	33	36	54	62	51	76	62	51	76	62	68	102
	3.92	37	41	61	69	62	93	69	62	93	69	76	114
	5.10	42	46	69	78	81	121	78	81	121	78	86	129
	5.75	44	48	72	82	90	135	82	90	135	82	90	135
	6.95	47	52	78	88	97	145	88	97	145	88	97	145
	7.48	76	84	126	123	117	175	123	117	175	123	135	200
	8.53	50	55	82	88	97	145	88	97	145	88	97	145
	9.17	85	94	141	130	143	210	130	143	210	130	143	210
	9.90	52	57	85	69	76	114	69	76	114	69	76	114
	11.94	97	107	160	130	143	210	130	143	210	130	143	210
	13.47	101	111	166	130	143	210	130	143	210	130	143	210
	16.29	108	119	178	130	143	210	130	143	210	130	143	210
	19.99	116	128	192	130	143	210	130	143	210	130	143	210
	22.08	105	115	172	105	115	172	105	115	172	105	115	172
	23.19	120	132	198	130	143	210	130	143	210	130	143	210
	24.91	109	119	178	109	119	178	109	119	178	109	119	178
	27.23	119	131	196	119	131	196	119	131	196	119	131	196
	29.69	123	135	200	123	135	200	123	135	200	123	135	200
	30.11	115	126	189	115	126	189	115	126	189	115	126	189
	33.15												
	35.83												
	36.96	122	134	200	122	134	200	122	134	200	122	134	200
	38.90												
	42.87	128	140	210	128	140	210	128	140	210	128	140	210
	50.35	130	143	210	130	143	210	130	143	210	130	143	210
	54.89	130	143	210	130	143	210	130	143	210	130	143	210
	61.28												
	66.25												
	71.93												

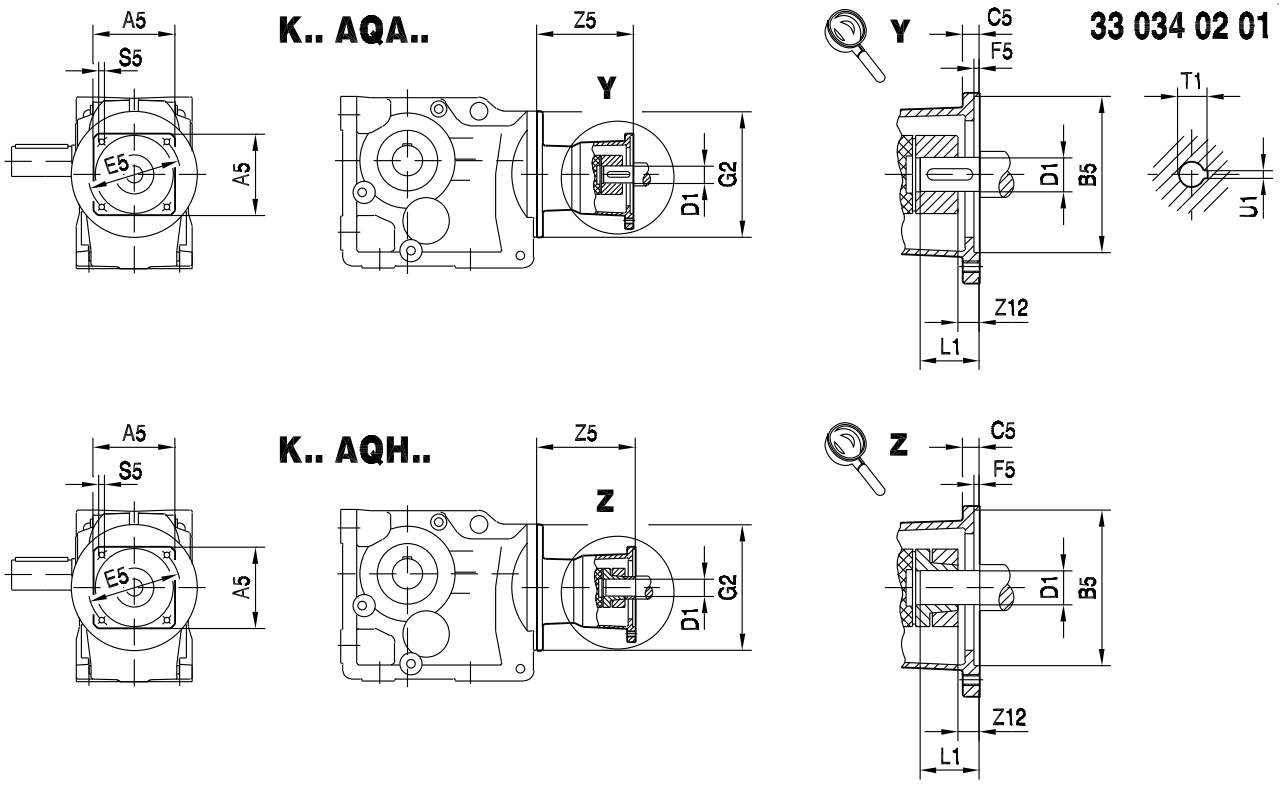
m [kg]		AQ.			
	s	80/1-3	100/1-4	115/1-2	115/3
K..29	2	9.0	9.7	10	10
KF: + 1.3 kg / KA: + -0.1 kg / KAF: + 1.0 kg					

		AQ.			
		80/1-3	100/1-4	115/1-2	115/3
J_A 10^{-4}	[kgm^2]	0.77	1.4	1.4	3.1
c_{TA}	[Nm/']	0.25	0.25	0.25	0.625

K..29							F_{Ramax}				F_{Rapk}			
n_e = 1400	i	M_{amax} [Nm]	M_{apk} [Nm]	$M_{aEmerg-Off}$ [Nm]	n_{ak} [rpm]	J_{GA} 10^{-4} [kgm^2]	K [N]	KF [N]	KA [N]	KAF [N]	K [N]	KF [N]	KA [N]	KAF [N]
K..29 2	3.19	110	121	182	1082	1.6	1830	2330	1860	1860	1700	2210	1700	1700
	3.92	126	138	205	722	1.1	1910	2450	1920	1920	1770	2320	1760	1760
	5.10	110	121	182	1080	0.68	2260	2820	2320	2320	2120	2690	2160	2160
	5.75	112	123	184	1030	0.55	2370	2950	2440	2440	2230	2810	2270	2270
	6.95	112	123	184	1007	0.39	2580	3180	2660	2660	2430	3040	2490	2490
	7.48	123	135	200	138	0.74	2300	2990	2300	2300	2110	2820	2080	2080
	8.53	122	134	200	755	0.27	2740	3400	2830	2830	2580	3240	2650	2650
	9.17	130	143	210	112	0.55	2470	3210	2480	2480	2270	3030	2240	2240
	9.90	110	121	182	707	0.21	3000	3660	3120	3120	2840	3510	2940	2940
	11.94	130	143	210	112	0.37	2810	3590	2840	2840	2600	3400	2590	2590
	13.47	130	143	210	111	0.30	2970	3780	3010	3010	2760	3580	2770	2770
	16.29	130	143	210	111	0.22	3240	4080	3300	3300	3020	3880	3050	3050
	19.99	130	143	210	111	0.16	3550	4430	3640	3640	3320	4220	3380	3380
	22.08	105	115	172	47	0.33	3820	4700	3950	3950	3610	4500	3710	3710
	23.19	130	143	210	110	0.12	3790	4700	3900	3900	3560	4490	3630	3630
	24.91	109	119	178	42	0.27	3980	4900	4120	4120	3760	4690	3870	3870
	27.23	130	143	210	110	0.098	4060	5020	4190	4190	3820	4790	3920	3920
	29.69	130	143	210	110	0.086	4210	5190	4360	4360	3970	4960	4080	4080
	30.11	115	126	189	35	0.20	4250	5230	4400	4400	4020	5000	4130	4130
	33.15	130	143	210	110	0.073	4410	5420	4580	4580	4170	5180	4290	4290
	35.83	130	143	210	110	0.065	4560	5580	4740	4740	4310	5340	4450	4450
	36.96	122	134	200	28	0.14	4560	5600	4730	4730	4310	5360	4430	4430
	38.90	130	143	210	110	0.057	4720	5760	4910	4910	4470	5520	4620	4620
	42.87	128	140	210	24	0.11	4790	5890	4970	4970	4540	5640	4670	4670
	50.35	130	143	210	22	0.090	5020	6000	5300	5300	4830	5990	4980	4980
	54.89	130	143	210	23	0.079	5020	6000	5510	5510	4970	6000	5180	5180
	61.28	130	143	210	23	0.068	5020	6000	5770	5770	4970	6000	5440	5440
	66.25	130	143	210	22	0.060	5020	6000	5970	5970	4970	6000	5630	5630
	71.93	130	143	210	23	0.053	5020	6000	6000	6000	4970	6000	5840	5840

AQ.	i	n_{epk} [rpm]	η [%]	c_{TG} K [Nm/']	KF [Nm/']	KA [Nm/']	KAF [Nm/']
K..29 2	3.19	4500	95	-	-	-	-
	3.92	4500	95	-	-	-	-
	5.10	4500	95	-	-	-	-
	5.75	4500	95	-	-	-	-
	6.95	4500	95	-	-	-	-
	7.48	4500	93	-	-	-	-
	8.53	4500	95	-	-	-	-
	9.17	4500	93	-	-	-	-
	9.90	4500	95	-	-	-	-
	11.94	4500	93	-	-	-	-
	13.47	4500	93	-	-	-	-
	16.29	4500	93	-	-	-	-
	19.99	4500	93	-	-	-	-
	22.08	4500	91	-	-	-	-
	23.19	4500	93	-	-	-	-
	24.91	4500	91	-	-	-	-
	27.23	4500	93	-	-	-	-
	29.69	4500	93	-	-	-	-
	30.11	4500	91	-	-	-	-
	33.15	4500	93	-	-	-	-
	35.83	4500	93	-	-	-	-
	36.96	4500	91	-	-	-	-
	38.90	4500	93	-	-	-	-
	42.87	4500	91	-	-	-	-
	50.35	4500	91	-	-	-	-
	54.89	4500	91	-	-	-	-
	61.28	4500	91	-	-	-	-
	66.25	4500	91	-	-	-	-
	71.93	4500	91	-	-	-	-

2.22 Dimension sheets for AQ



	A5	B5	C5	E5	F5	S5	Z12 (AQA)	Z12 (AQH)	D1	L1	T1	U1
AQ_80/1	82	60	8	75	3.5	M5	5.5	5.5	11	23	12.8	4
AQ_80/2	82	60	8	75	3.5	M5	5.5	5.5	14	30	16.3	5
AQ_80/3	82	50	8	95	3	M6	5.5	5.5	14	30	16.3	5
AQ_100/1	100	80	10	100	4	M6	0	0	14	30	16.3	5
AQ_100/2	100	95	12	115	4	M8	0	0	14	30	16.3	5
AQ_100/3	100	80	10	100	4	M6	2	14	19	40	21.8	6
AQ_100/4	100	95	12	115	4	M8	2	14	19	40	21.8	6
AQ_115/1	115	95	12	130	5	M8	11	23	19	40	21.8	6
AQ_115/2	115	110	12	130	5	M8	11	23	19	40	21.8	6
AQ_115/3	115	110	12	130	5	M8	16	16	24	50	27.3	8
AQ_140/1	140	110	15	165	5	M10	16	16	24	50	27.3	8
AQ_140/2	140	130	15	165	5	M10	16	16	24	50	27.3	8
AQ_140/3	140	130	15	165	5	M10	22	22	32	60	35.3	10
AQ_140/4	140	130	15	165	5	M10	22	22	28	60	31,3	8
AQ_160/1	162	155	15	190	5	M10	22	22	32	60	35,3	10
AQ_190/1	190	130	16	215	5	M12	24	24	32	60	35.3	10
AQ_190/2	190	180	16	215	5	M12	24	24	32	60	35.3	10
AQ_190/3	190	180	16	215	5	M12	34	34	38	80	41.3	10

A5: Square dimension
B5: Centering Ø
C5: Flange thickness
E5: Hole circle Ø
F5: Centering depth
S5: Tapped hole
D1: Coupling bore Ø
L1: Max. motor shaft insertion depth

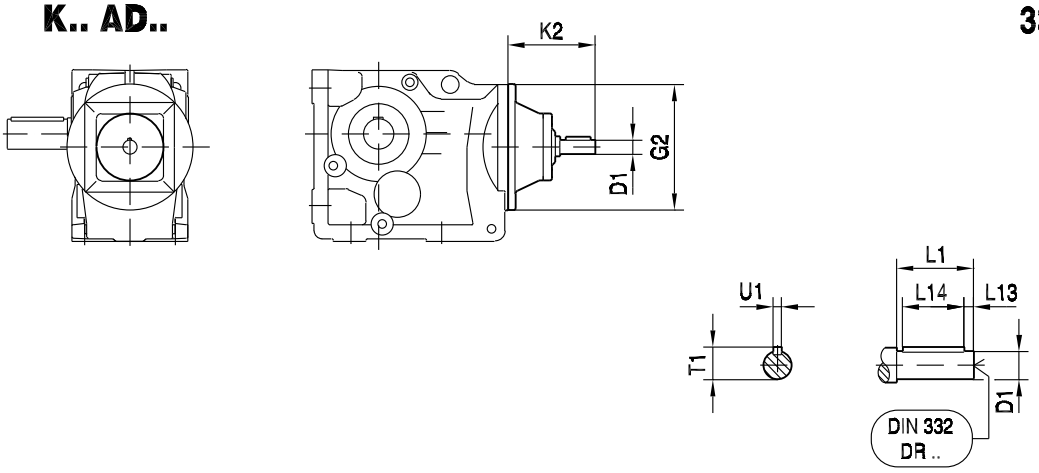
2.23 Selection tables for K..9 / AD

i	n_a [rpm]	M_{amax} [Nm]	P_e [kW]	F_{Ra} [N] 1)	F_{Re} [N]	φ (/R)	⚠				m [kg]
K..19 AD.. , n_e = 1400 rpm											**80 Nm**
44.48	31	69	0.26	4340	640	-	-				
40.63	34	67	0.28	4350	645	-	-				
34.29	41	64	0.31	4370	645	-	-				
29.29	48	61	0.35	4200	640	-	-	**K**	**19**	**AD1**	**6.0**
27.16	52	60	0.37	4090	640	-	-	**KF**	**19**	**AD1**	**6.5**
24.06	58	80	0.54	3820	240	-	-	**KA**	**19**	**AD1**	**5.7**
21.98	64	80	0.59	3680	225	-	-	**KAF**	**19**	**AD1**	**6.1**
18.55	75	80	0.69	3430	184	-	-				
15.84	88	80	0.81	3210	142	-	-				
14.69	95	80	0.87	3110	119	-	-				
12.70	110	80	1.0	2930	70	-	-				
11.84	118	79	1.1	2850	1600	-	-				
10.32	136	76	1.2	2720	1590	-	-				
9.58	146	63	1.0	2910	605	-	-				
8.09	173	80	1.6	2590	1310	-	-	**K**	**19**	**AD2**	**7.1**
6.91	203	80	1.8	2420	1280	-	-	**KF**	**19**	**AD2**	**7.7**
6.41	219	80	2.0	2340	1260	-	-	**KA**	**19**	**AD2**	**6.9**
5.54	253	80	2.3	2200	1230	-	-	**KAF**	**19**	**AD2**	**7.3**
5.16	271	80	2.4	2140	1210	-	-				
4.50	311	74	2.6	2060	1230	-	-				
K..29 AD.. , n_e = 1400 rpm											**130 Nm**
54.89	26	130	0.40	5020	445	-	-				
50.35	28	130	0.43	5020	430	-	-				
42.87	33	128	0.50	4790	420	-	-				
36.96	38	122	0.55	4560	420	-	-	**K**	**29**	**AD1**	**7.4**
30.11	46	115	0.63	4250	420	-	-	**KF**	**29**	**AD1**	**8.8**
29.69	47	128	0.69	4230	2	-	-	**KA**	**29**	**AD1**	**7.3**
27.23	51	126	0.74	4100	6	-	-	**KAF**	**29**	**AD1**	**8.4**
24.91	56	109	0.72	3980	410	-	-				
23.19	60	120	0.83	3880	8	-	-				
22.08	63	105	0.78	3820	405	-	-				
19.99	70	130	1.0	3550	1540	-	-				
16.29	86	130	1.3	3240	1520	-	-				
13.47	104	130	1.5	2970	1490	-	-				
11.94	117	130	1.7	2810	1470	-	-				
9.90	141	110	1.7	3000	1230	-	-				
9.17	153	130	2.3	2470	1410	-	-	**K**	**29**	**AD2**	**8.6**
8.53	164	110	2.0	2820	1180	-	-	**KF**	**29**	**AD2**	**9.9**
7.48	187	123	2.6	2300	1380	-	-	**KA**	**29**	**AD2**	**8.4**
6.95	201	110	2.5	2590	1150	-	-	**KAF**	**29**	**AD2**	**9.5**
5.75	243	112	3.0	2370	1080	-	-				
5.10	275	110	3.4	2260	1050	-	-				
3.92	358	126	5.0	1910	790	-	-				
3.19	439	110	5.3	1830	810	-	-				

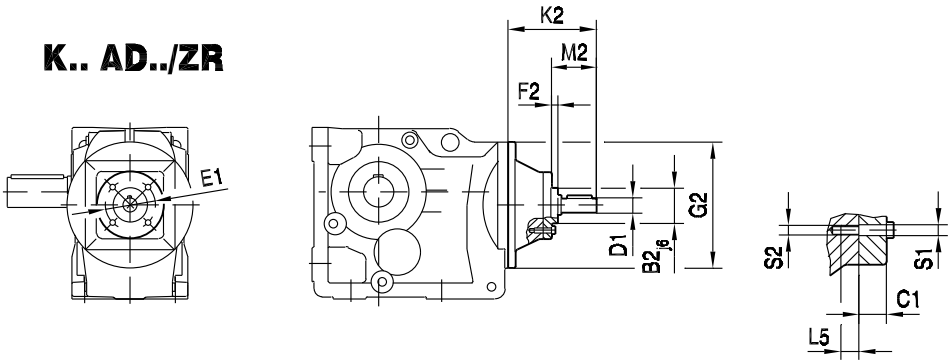
2.24 Dimension sheets for AD

K.. AD..

33 039 02 01



K.. AD../ZR



		B2	C1	E1	F2	G2	K2	L5	M2	S1	S2	D1	L1	L13	L14	T1	U1
K..19, K..29	**AD1**	-	-	-	-	120	102	-	-	-	-	16	40	4	32	18	5
	AD2 , AD2/ZR	55	13.5	80	8		130	12	50	9	M8	19	40	4	32	21.5	6

3 Customer Benefits

- Low energy consumption, in particular in combination with DRC motors
- Cost-efficient purchasing price
- Low life cycle costs
- Real efficiency >90% (up to 95%)
- Sustainable and future-proof investment
- Compatible with existing solutions
- Wide range of SEW motors and adapters can be mounted via the LIA interface
- Can be combined with DRC, DR, LSPM, DRU and CMP motors
- Versatile use
- Reduced number of variants due to variable mounting options (3 base strips)
- Cost savings in the design / processing / logistics
- Universal mounting position M1 to M6 (except for M4)
- Compact overall drive
- All housings available in foot- and shaft-mounted design

4 Documentation and Project Planning Tools

4.1 Publications

The following documentation will be available at the time of the sales launch:

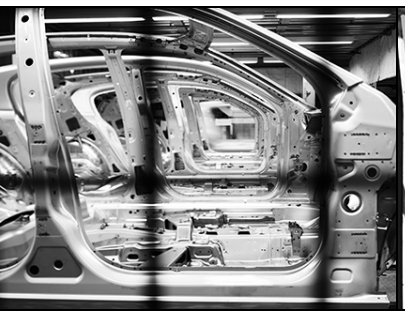
Publication	Edition	Part number	
		German	English
Launch package "Two-Stage Helical-Bevel Gear Unit Sizes K..19 and K..29"	09/2013	20201737	20201753
Latest news "Two-Stage Helical-Bevel Gear Unit Sizes K..19 and K..29"	09/2013	20202938	20202946
Operating instructions "Gear Units R..7, F..7, K..7,K..9, S..7, SPIROPLAN® W"	09/2013	20200536	20200552
Flyer "Setting Standards: K..19 + K..29"	08/2013	20108532	20108540

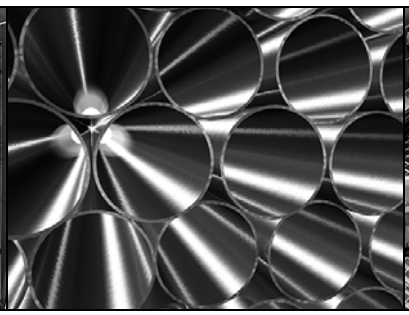
4.2 Online documentation and CAD data

The documentation for the K..9 gear units is available on the documentation page of the SEW-EURODRIVE website. CAD data are available in DriveGate®.

4.3 Project planning tool

Gear units K..19 / K..29 are available in SEW-Workbench version 2.12 and later.



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