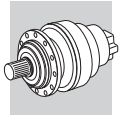
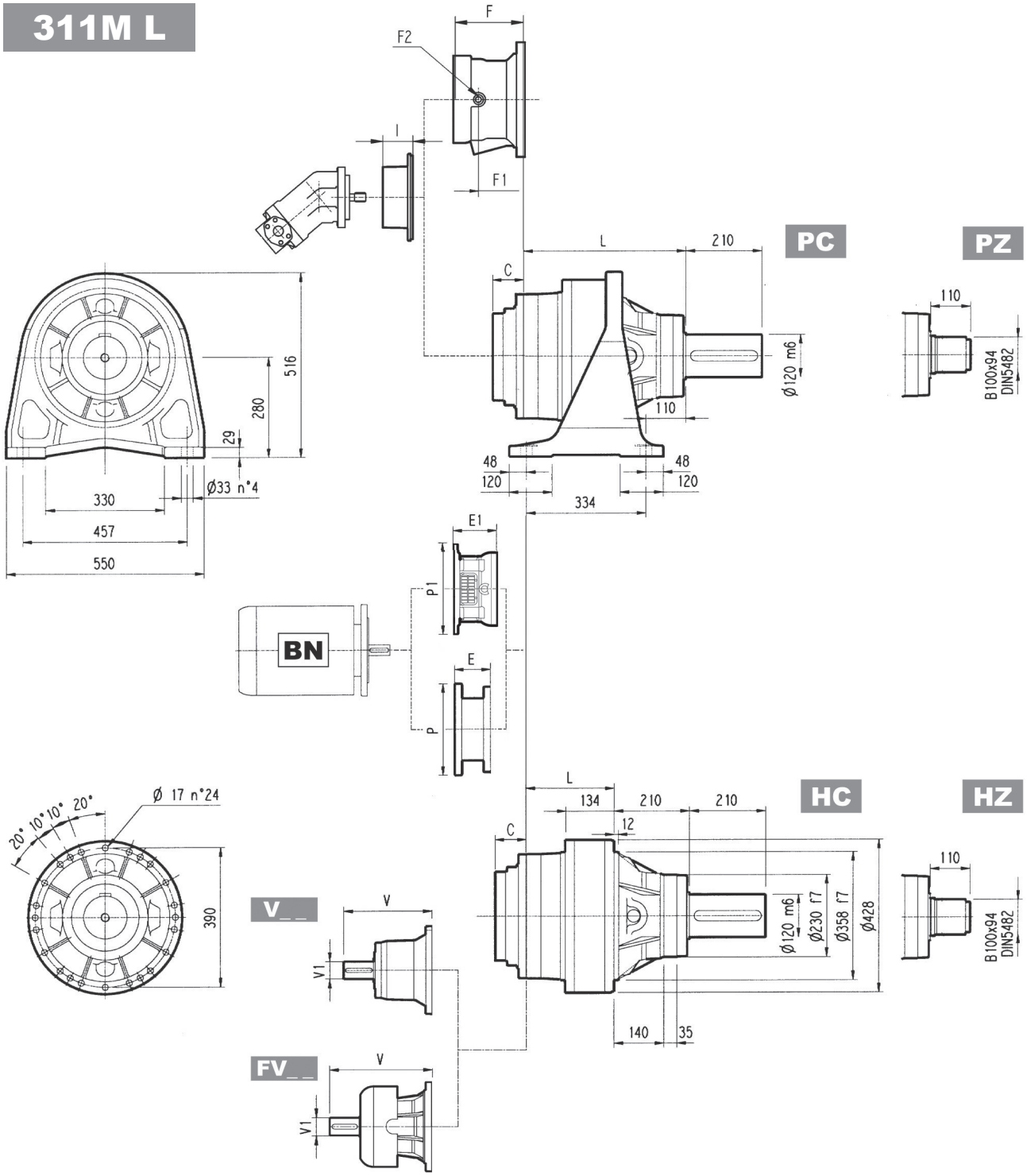


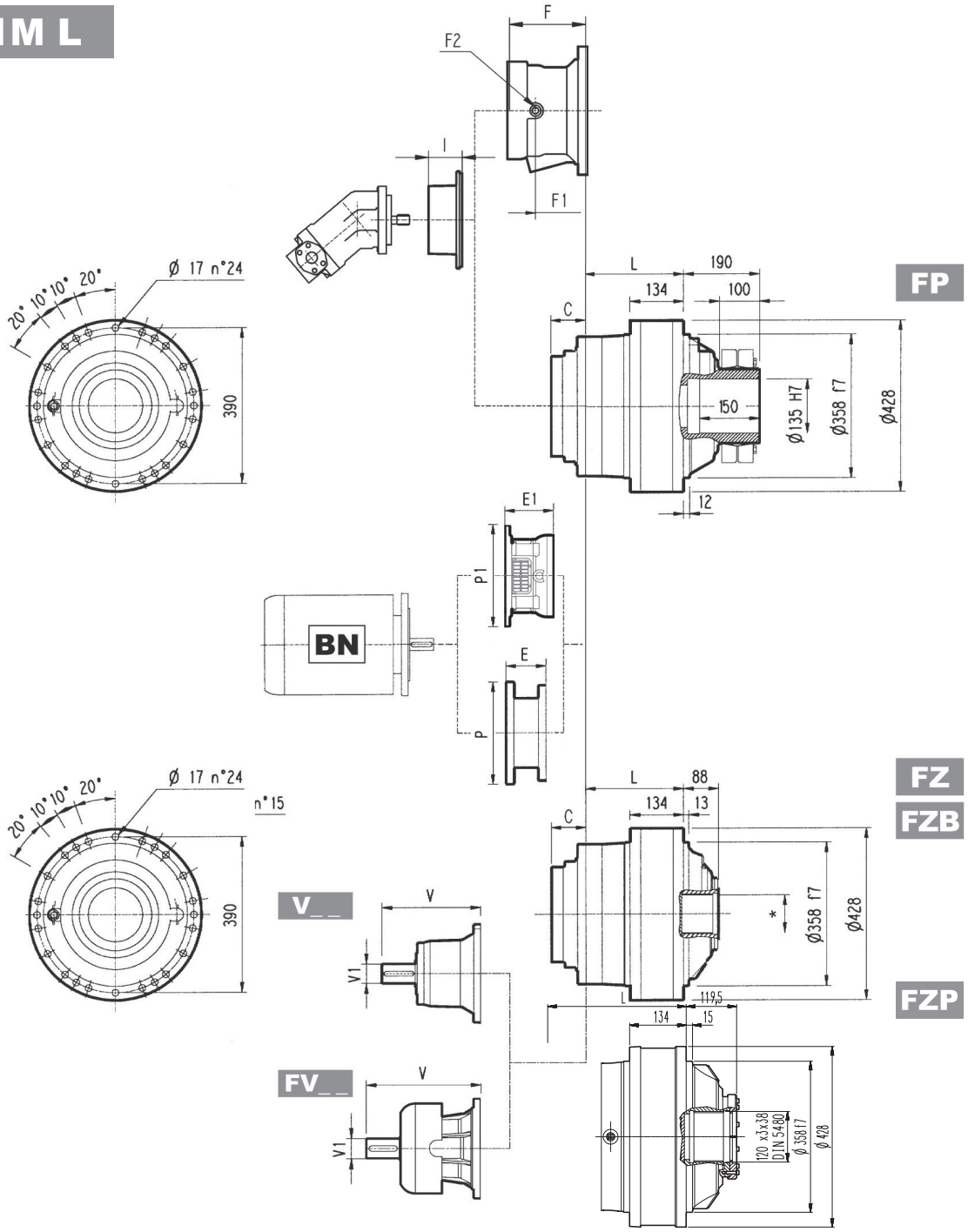
311M L



	L				Kg			
	PC - PZ	HC - HZ	FZ - FZP	FP	PC - PZ	HC - HZ	FZ - FZP	FP
311 L1	325	115	115	115	250	180	160	170
311 L2	458	248	248	248	295	225	205	215
311 L3	547	337	337	337	307	237	217	227
311 L4	612	402	402	402	314	244	224	234

	V	V1	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg	C	Input	I	F	F1	F2	Type	Input	Kg
311 L1	348	80	55	—	—	—	456	80	85	—	—	—	81	D		—	—	—	—	—	—
311 L2	315	80	35	313	60	28	375	80	48	363	60	34	51	B		201	153	1/4 G	6	B	28
311 L3	239	48	15	—	—	—	276	48	17	—	—	—	37	A		145	95	1/4 G	5	A	16
311 L4	137.5	24	6	158	38	7	—	—	—	—	—	—	37	A	461	105	65	1/4 G	4	A	10

311M L



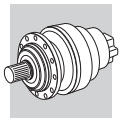
	PF 160		PF 180		PF 200		PF225		PF 250	
	E1	P1	E1	P1	E1	P1	E1	P1	E1	P1
311M L1	—	—	—	—	—	—	250	580	250	580
311M L2	—	—	—	—	197	530	227	530	227	550
311M L3	165	400	165	400	195	400	195	450	—	—
311M L4	165	400	165	400	—	—	—	—	—	—

Bemerkung: Für R Design kontaktieren Sie den technischen Service von Bonfiglioli

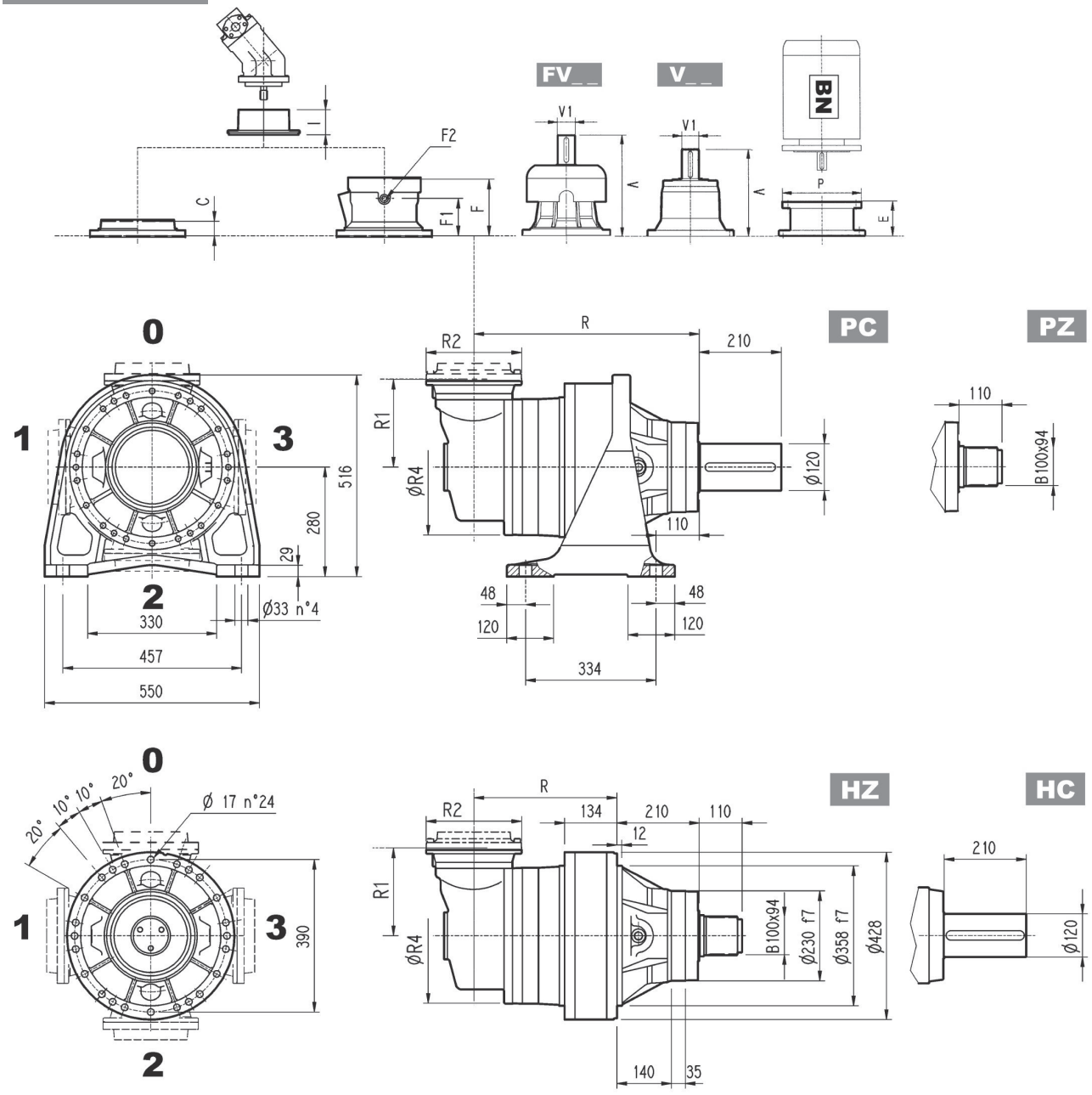
* Abmessungen finden Sie auf Seite 356

FZB	**M_{2max} = 66900 Nm**
FP	**M_{2max} = 55000 Nm**

	P71		P80		P90		P100		P112		P132		P160		P180		P200		P225		P250	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
311 L1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	267	400	297	450	297	550
311 L2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	195	350	186	400	216	450	216	550
311 L3	—	—	—	—	—	—	—	—	—	—	114	300	144	350	144	350	174	400	—	—	—	—
311 L4	65	160	84	200	84	200	94	250	94	250	114	300	144	350	—	—	—	—	—	—	—	—



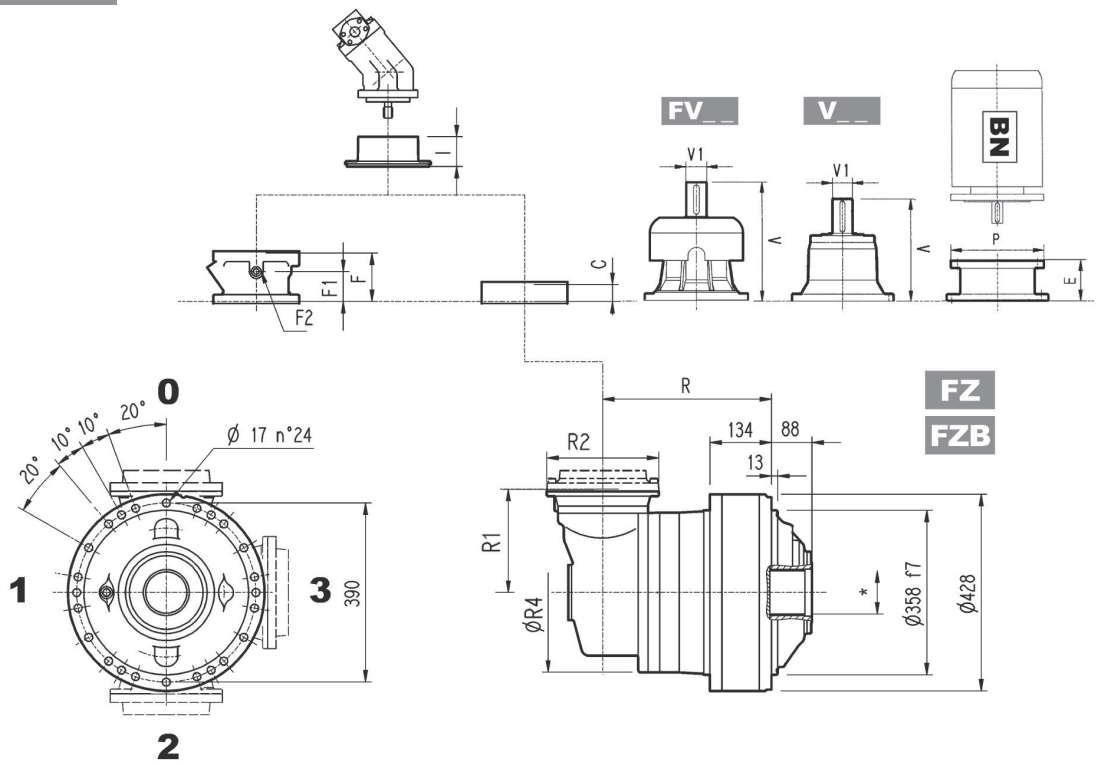
311M R

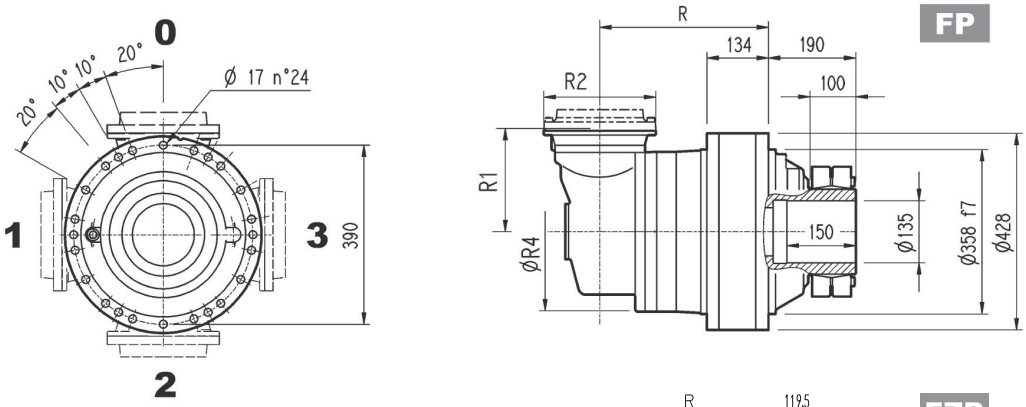


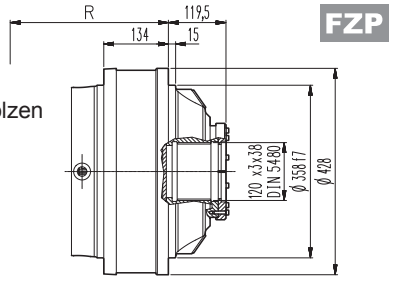
	R				R1	R2	R4	Kg			
	PC-PZ	HC-HZ	FZ - FZP	FP				PC-PZ	HC-HZ	FZ - FZP	FP
311 R2 (B)	550	340	340	340	345	292	400	380	310	290	300
311 R2 (C)	550	340	340	340	390	292	480	390	320	300	310
311 R3	577	367	367	367	225	245	375	345	275	255	265
311 R4	639	429	429	429	140	186	244	327	257	237	247

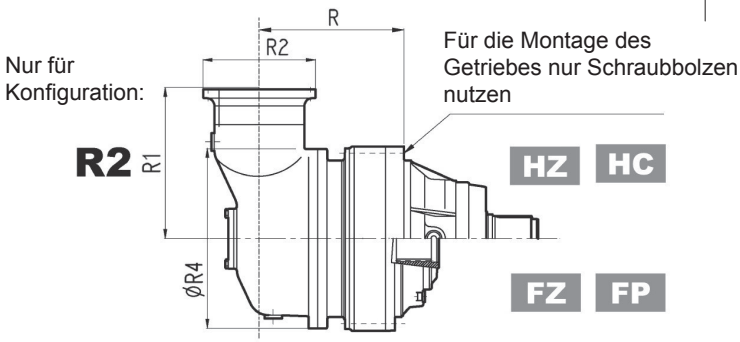
	V	V1	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg	C	Input	I	F	F1	F2	Type	Input	Kg
311 R2 (B)	307	60	23	—	—	—	357	60	28	—	—	—	45	B	461	195	147	1/4 G	6	B	28
311 R2 (C)	307	60	23	—	—	—	357	60	28	—	—	—	45	B		195	147	1/4 G	6	B	28
311 R3	239	48	15	—	—	—	276	48	17	—	—	—	37	A		145	95	1/4 G	5	A	16
311 R4	137.5	24	6	158	38	7	—	—	—	—	—	—	37	A		105	65	1/4 G	4	A	10

311M R









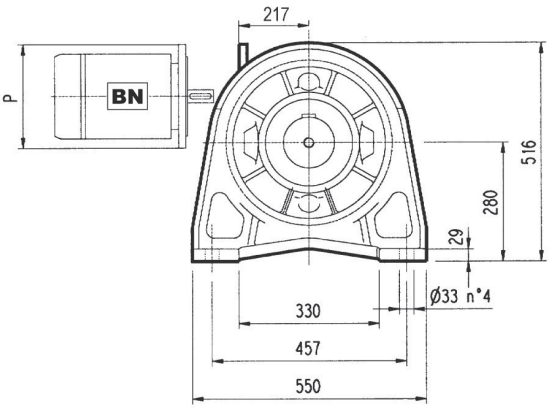
FZB	M_{2max} = 66900 Nm

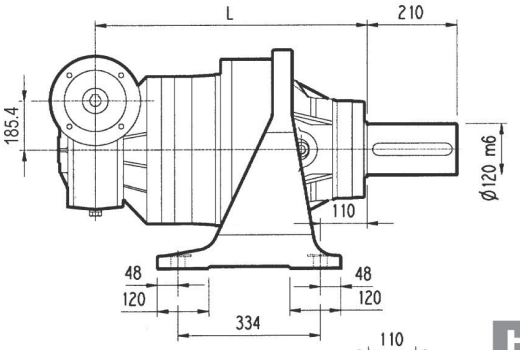
FP	M_{2max} = 55000 Nm

* Abmessungen finden Sie auf Seite 356

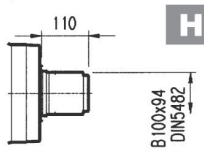
	P71		P80		P90		P100		P112		P132		P160		P180		P200		P225		P250	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
311 R2 (B)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	152	350	182	400	212	450	193	550
311 R2 (C)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	152	350	182	400	212	450	193	550
311 R3	—	—	—	—	—	—	—	—	—	—	114	300	144	350	144	350	174	400	—	—	—	—
311 R4	65	160	84	200	84	200	94	250	94	250	114	300	144	350	—	—	—	—	—	—	—	—

3/V 11M L3

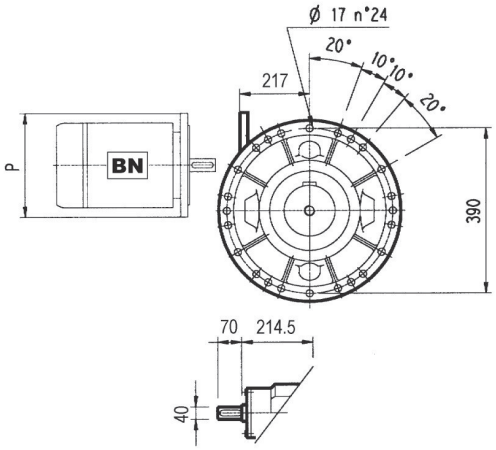


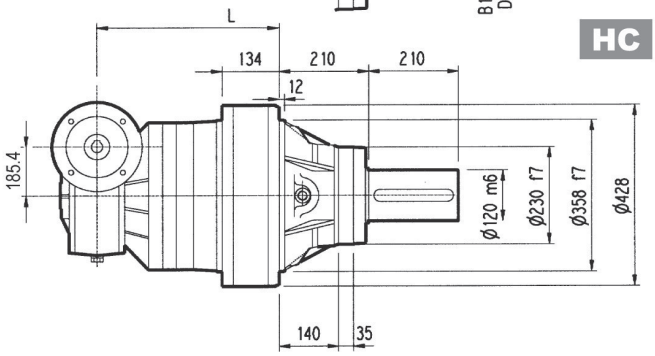


PC

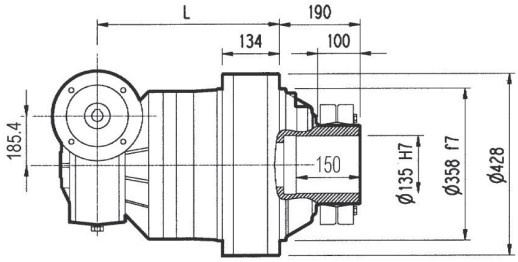


HZ PZ

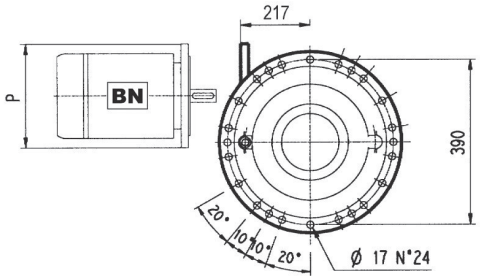


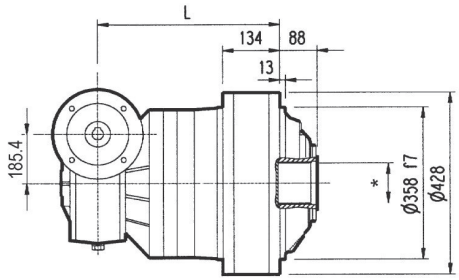


HC

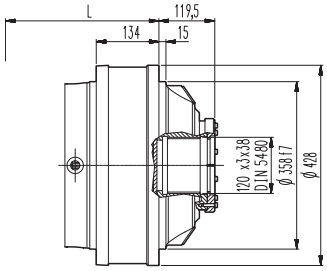


FP





FZ
FZB



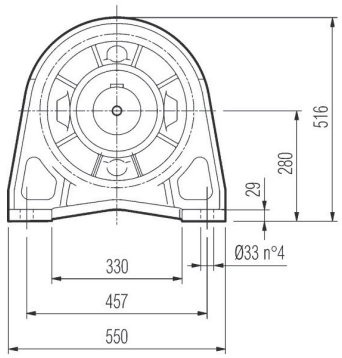
FZP

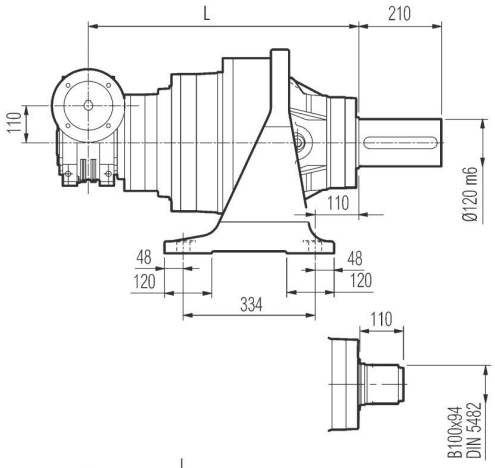
* Abmessungen finden Sie auf Seite 356

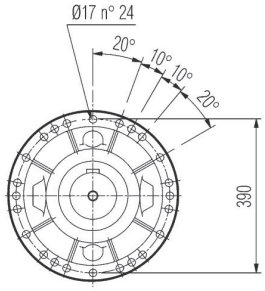
FZB	**M_{2max} = 66900 Nm**
FP	**M_{2max} = 55000 Nm**

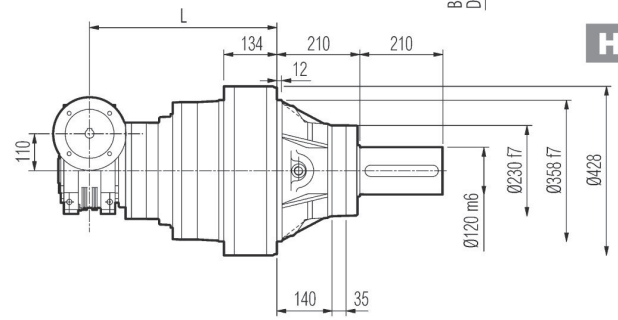
	L				Kg				P80	P90	P100	P112	P132	P160	P180
	PC - PZ	HC - HZ	FZ	FP	PC - PZ	HC - HZ	FZ	FP	P	P	P	P	P	P	P
3/V 11 L3	659	449	449	449	390	320	300	310	—	—	250	250	300	350	350

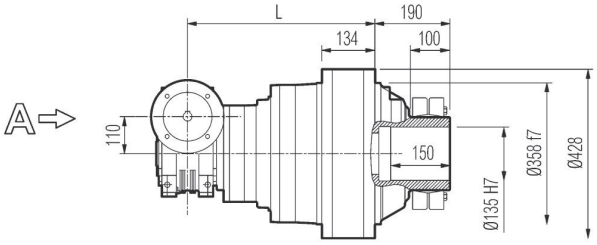
3/V 11M L4

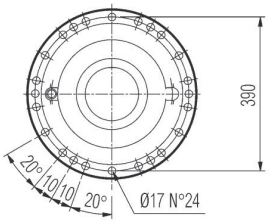


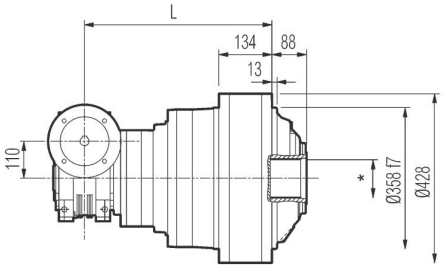


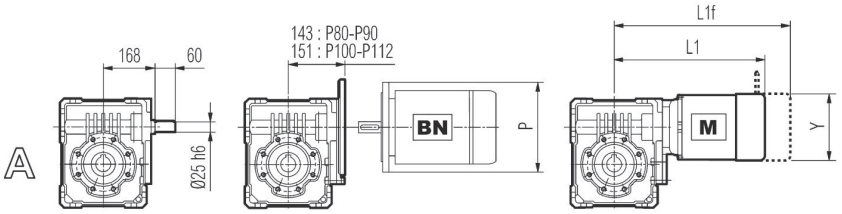


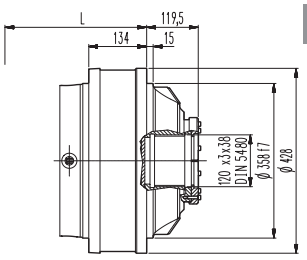










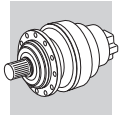


FZB	M_{2max} = 66900 Nm	FP	M_{2max} = 55000 Nm

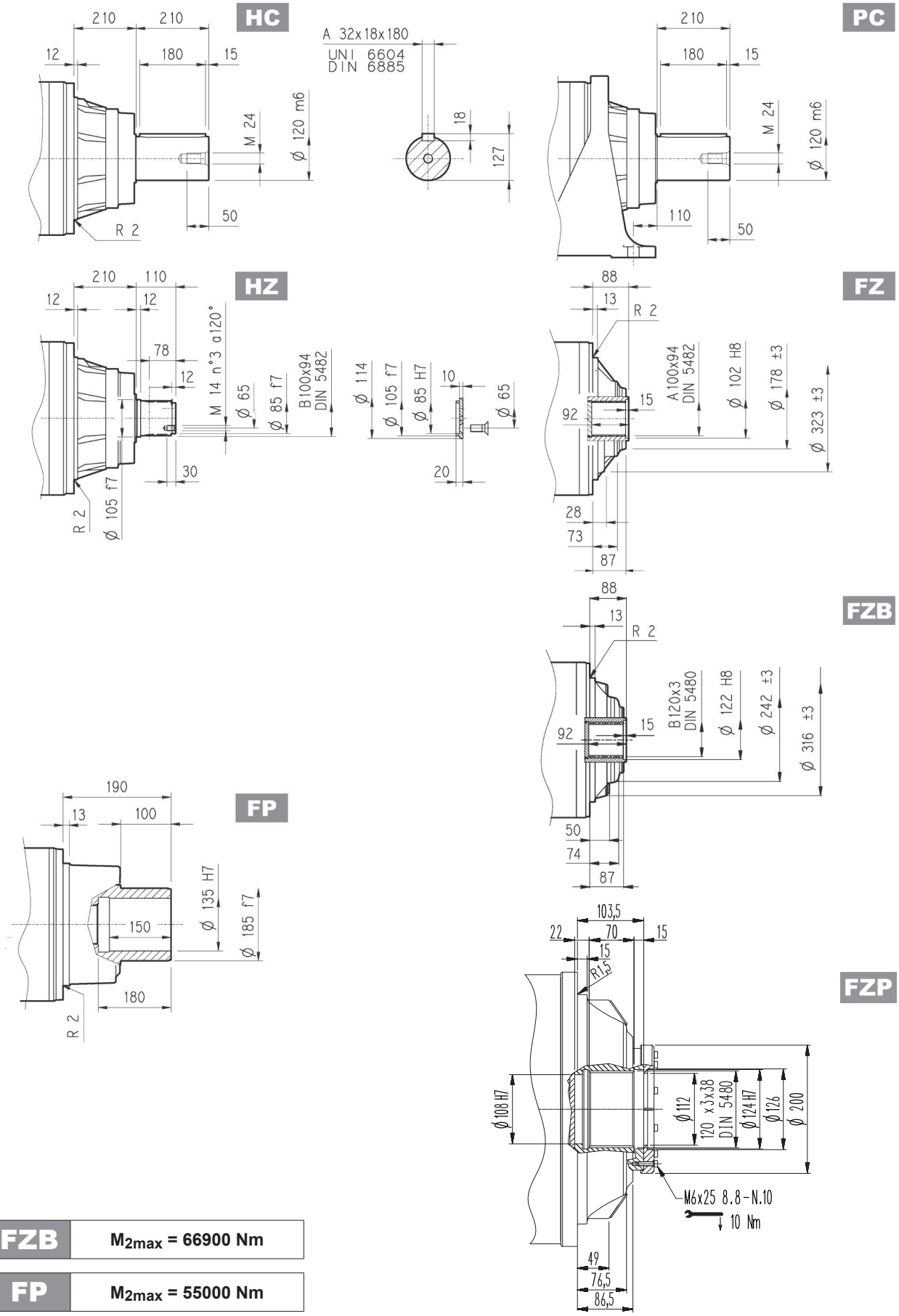
* Abmessungen finden Sie auf Seite 356

	L				Kg			
	PC - PZ	HC - HZ	FZ - FZP	FP	PC - PZ	HC - HZ	FZ - FZP	FP
3/V 11 L4	707	497	497	497	340	270	250	260

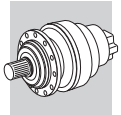
	P80	P90	P100	P112	S2 + M2S			S3 + M3S			S3 + M3L		
	P	P	P	P	L1	L1f	Y	L1	L1f	Y	L1	L1f	Y
3/V 11 L4	200	200	250	250	364	440	156	407	503	193	439	530	193



311M L 311M R 3/V 11M L



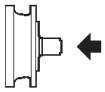
FZB	**M_{2max} = 66900 Nm**
FP	**M_{2max} = 55000 Nm**

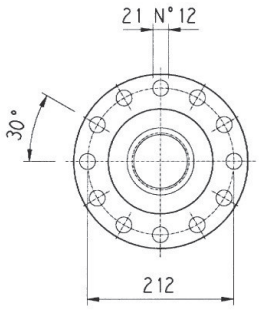


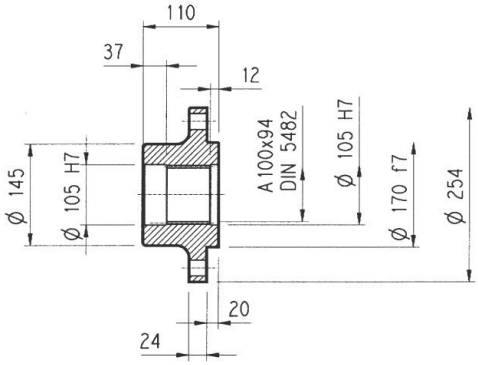
311M L 311M R 3/V 11M L

Flansch

W0A



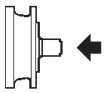


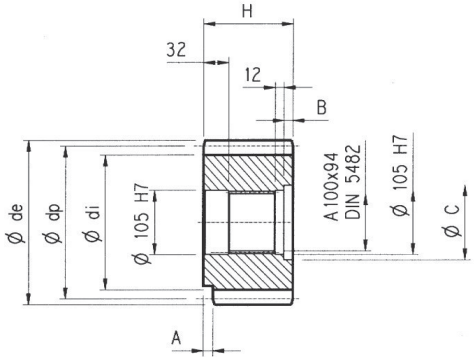


Material: Stahl C40

Ritzel

P...



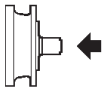


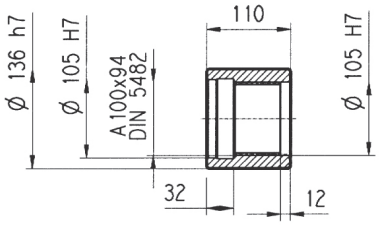
α = 20°

	m	z	x	dp	di	de	H	A	B	C	Material
PLQ	12	23	—	276	246	300	110	—	—	—	Einsatzstahl 18NiCrMo5 Einsatzgehärtet
PPD	16	13	0.500	208	184	252.5	145	—	35	116	Vergüteter Stahl 39NiCrMo3
PPF	16	15	0.450	240	215	280	125	—	15	120	

Naben

M0A

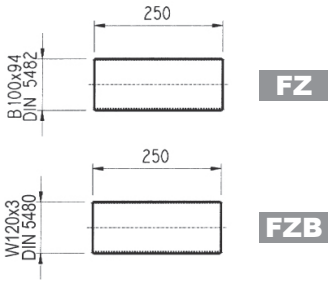




Material: Stahl 16CrNi4

Vielkeilwellen

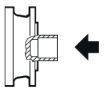
B0A

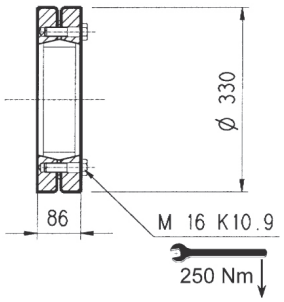


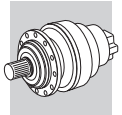
Material: Einsatzstahl 18NiCrMo5 UNI 5331
muss einsatzgehärtet werden 50-55 HRC

Schrumpfscheibe

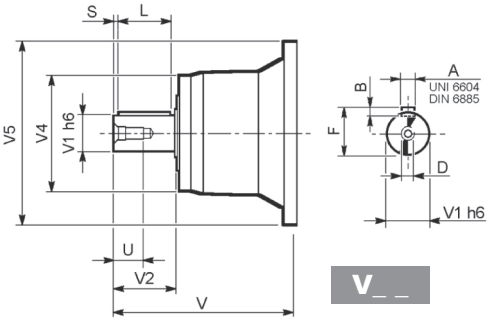
G0A

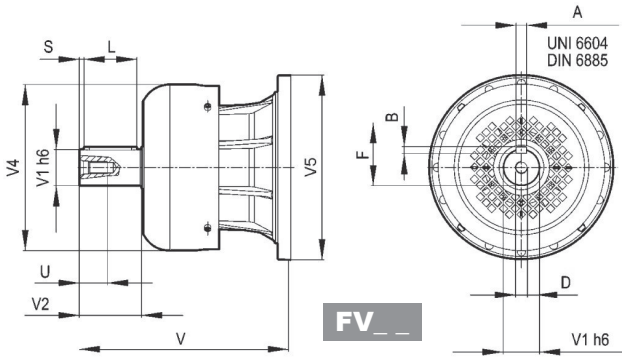






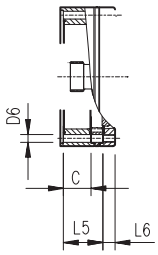
311M L 311M R

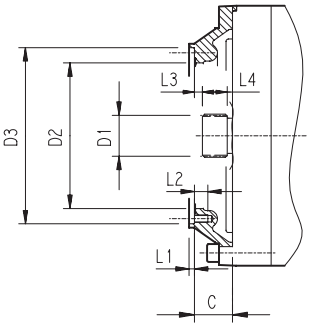


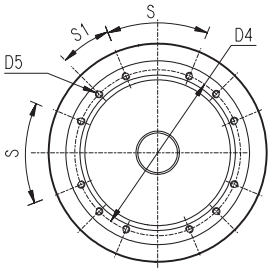


		V	V1	V2	V4	V5	A	B	F	L	S	D	U
311 L1	V11B	348	80	130	200	428	22	14	85	110	10	M16	36
	FV11B	456	80	130	347.5	428	22	14	85	110	10	M16	36
311 L2	V07B	315	80	130	200	345	22	14	85	110	10	M16	36
	FV07B	375	80	130	347.5	348	22	14	85	110	10	M16	36
	V07A	313	60	105	155	345	18	11	64	90	7.5	M16	36
	FV07A	363	60	105	309	348	18	11	64	90	7.5	M16	36
311 L3	V05B	239	48	82	155	245	14	9	51.5	70	6	M16	36
	FV05B	276	48	82	219.5	244	14	9	51.5	70	6	M16	36
311 L4	V01A	137.5	24	36	120	186	8	7	27	30	3	M8	19
	V01B	158	38	58	120	186	10	8	41	50	4	M12	28
311 R2 (B)(C)	V06B	307	60	105	155	292	18	11	64	90	7.5	M16	36
	FV06B	357	60	105	309	292	18	11	64	90	7.5	M16	36
311 R3	V05B	239	48	82	155	245	14	9	51.5	70	6	M16	36
	FV05B	276	48	82	219.5	244	14	9	51.5	70	6	M16	36
311 R4	V01A	137.5	24	36	120	186	8	7	27	30	3	M8	19
	V01B	158	38	58	120	186	10	8	41	50	4	M12	28

311M L 311M R

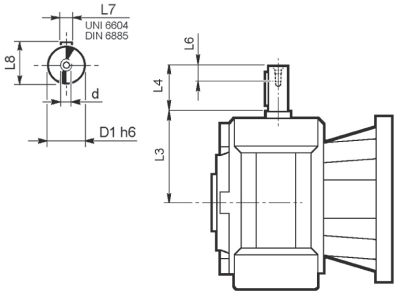






		C	D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6	S	S1	Input
311 L1	V9AD	81	80x74 DIN 5482	270	335 H7	314	M16 n°8	—	5	30	8.5	40	—	—	60°	30°	D
311 L2	V9AB	51	58x53 DIN 5482	195	236 H7	222	M10 n°12	—	4	18	11	22	—	—	45°	22.5°	B
311 L3	V9AA	37	40x36 DIN 5482	140	178 H7	165	M10 n°8	—	4	18	9	18	—	—	45°	45°	A
311 L4	V9AA	37	40x36 DIN 5482	140	178 H7	165	M10 n°8	11	4	—	9	18	65	18	45°	45°	A
311 R3	V9AA	37	40x36 DIN 5482	140	178 H7	165	M10 n°8	11	4	18	9	18	—	—	45°	45°	A
311 R2 (B) (C)	V9AB	45	58x53 DIN 5482	195	236 H7	222	M10 n°12	—	4	18	11	22	—	—	45°	22.5°	B
311 R4	V9AA	37	40x36 DIN 5482	140	178 H7	165	M10 n°8	11	4	—	9	18	37	18	45°	45°	A

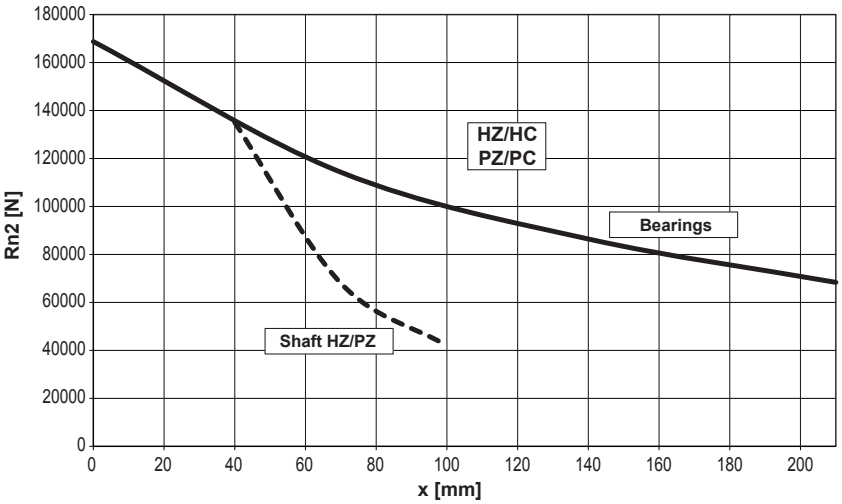
3/V 11M L

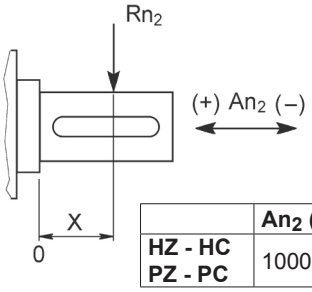


	D1 h6	L3	L4	L6	L7	L8	d
3/V 11 L3_HS	40	214.5	70	20	12	43	M8
3/V 11 L4_HS	25	168	60	19	8	28	M8

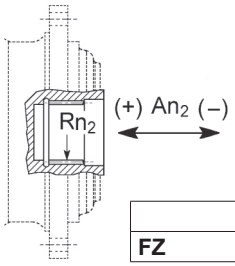
311M L 311M R 3/V 11M L

An der Abtriebswelle zulässige Radial- und Axialkräfte für einen Wert von $Fh_2 : n_2 \cdot h = 100000$





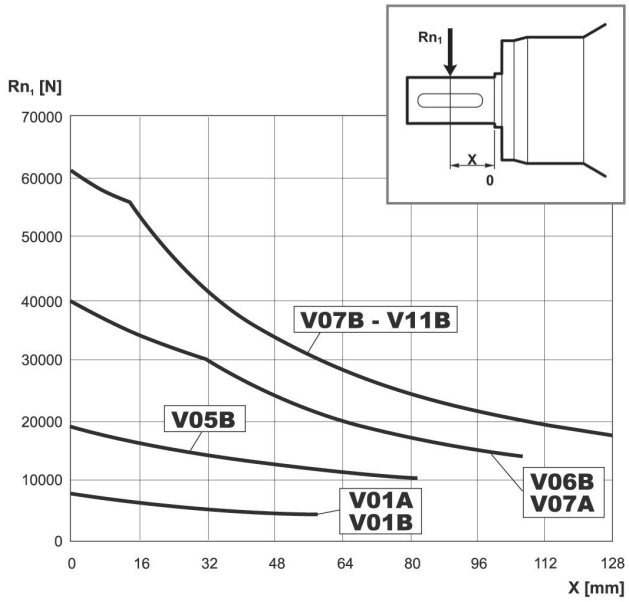
	An_2 (+)	An_2 (-)
HZ - HC PZ - PC	100000	70000

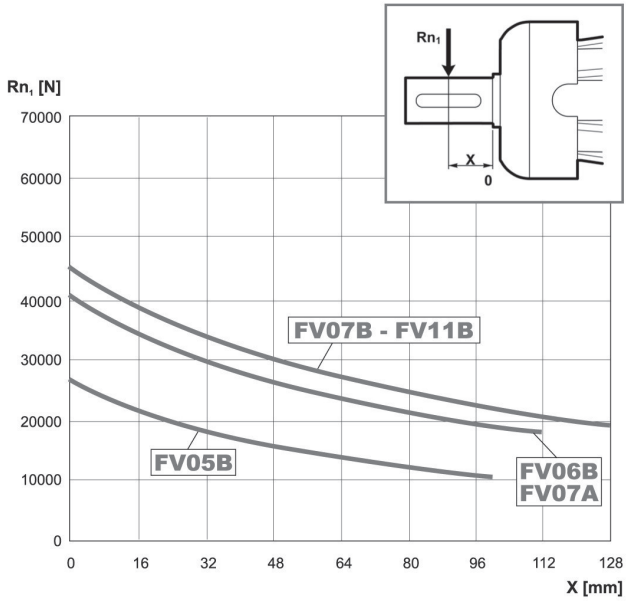


	Rn_2	An_2 (+/-)
FZ	30170	27850

Korrekturfaktor fh_2 für Wellenbelastungen	$Fh_2 = n_2 \cdot h$		10000	25000	50000	100000	500000	1000000
	fh_2	FZ	**2.15**	**1.59**	**1.26**	**1.00**	**0.58**	**0.46**
		HC - PC	**1.93**	**1.52**	**1.23**	**1.00**	**0.62**	**0.50**
		HZ - PZ	**1.24**	**1.00**	**1.00**	**1.00**	**0.62**	**0.50**

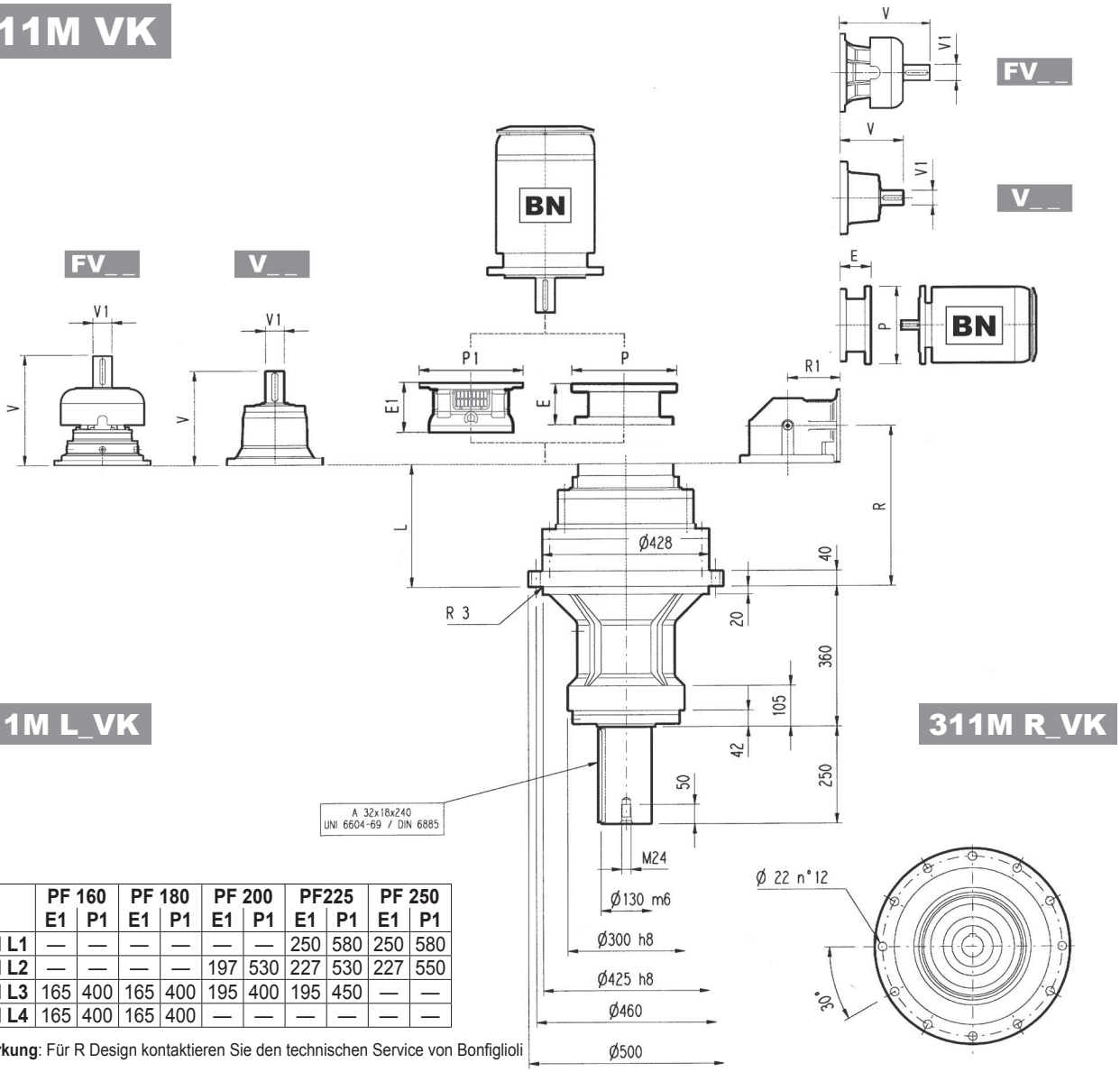
An der Antriebswelle zulässige Radiallasten für einen Wert von $Fh_1 : n_1 \cdot h = 250000$





Korrekturfaktor fh_1 für Wellenbelastungen	$Fh_1 = n_1 \cdot h$	250000	500000	1000000	2000000	5000000	10000000
	fh_1	**1**	**0.79**	**0.63**	**0.50**	**0.37**	**0.29**

311M VK



311M L_VK

311M R_VK

	PF 160		PF 180		PF 200		PF225		PF 250	
	E1	P1	E1	P1	E1	P1	E1	P1	E1	P1
311M L1	—	—	—	—	—	—	250	580	250	580
311M L2	—	—	—	—	197	530	227	530	227	550
311M L3	165	400	165	400	195	400	195	450	—	—
311M L4	165	400	165	400	—	—	—	—	—	—

Bemerkung: Für R Design kontaktieren Sie den technischen Service von Bonfiglioli

	L	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg
311 L1	129	295	348	80	55	—	—	—	456	80	85	—	—	—
311 L2	262	340	315	80	35	313	60	28	375	80	48	363	60	34
311 L3	351	350	239	48	15	—	—	—	276	48	17	—	—	—
311 L4	416	360	137.5	24	6	158	38	7	—	—	—	—	—	—

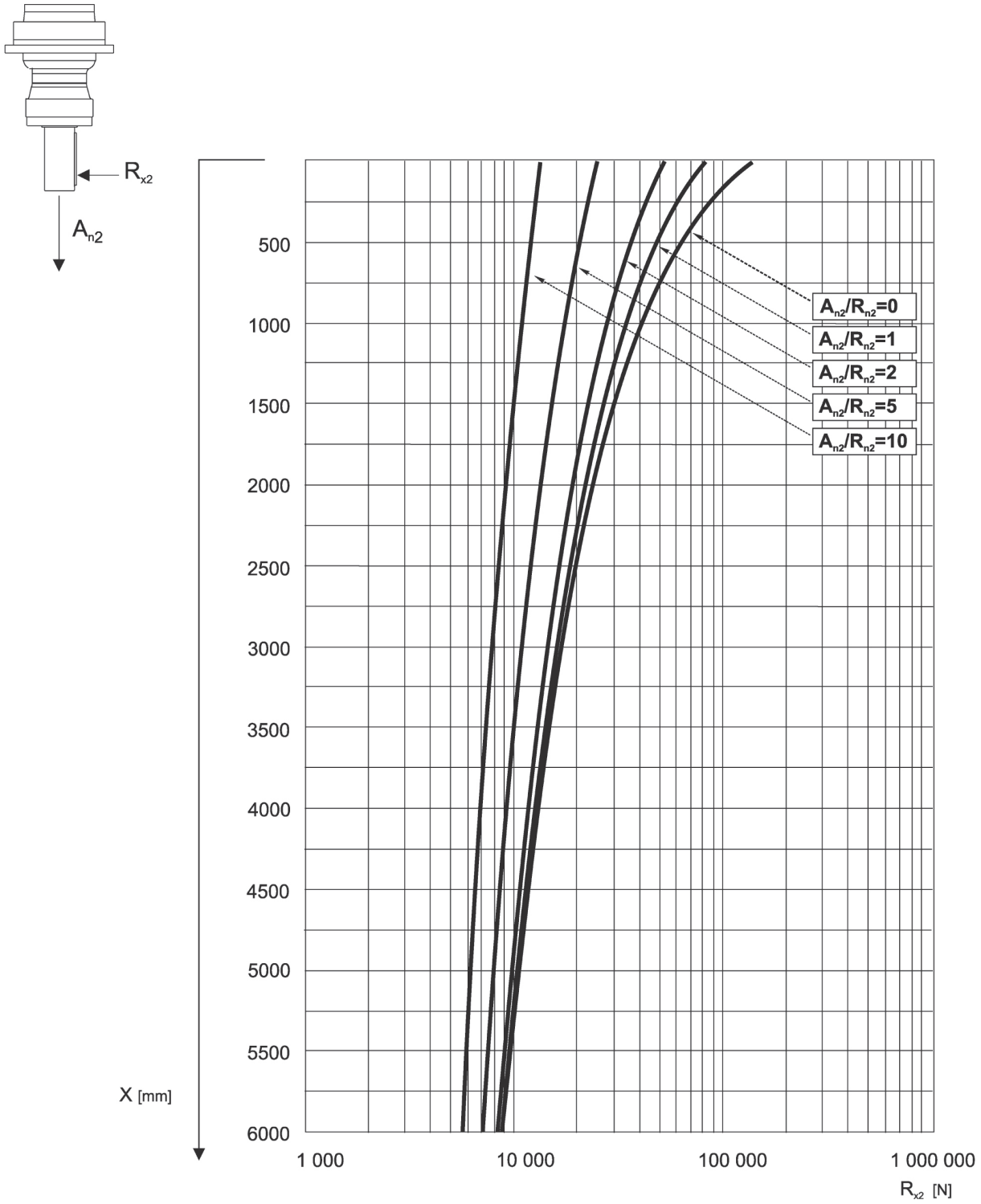
	P71		P80		P90		P100		P112		P132		P160		P180		P200		P225		P250	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
311 L2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	195	350	186	400	216	450	216	550
311 L3	—	—	—	—	—	—	—	—	—	—	114	300	144	350	144	350	174	400	—	—	—	—
311 L4	65	160	84	200	84	200	94	250	94	250	114	300	144	350	—	—	—	—	—	—	—	—

	R	R1	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg	V	V1	Kg
311 R2 (B)	354	345	420	307	60	23	—	—	—	357	60	28	—	—	—
311 R2 (C)	354	390	430	307	60	23	—	—	—	357	60	28	—	—	—
311 R3	381	225	385	239	48	15	—	—	—	276	48	17	—	—	—
311 R4	443	140	360	137.5	24	6	158	38	7	—	—	—	—	—	—

	P71		P80		P90		P100		P112		P132		P160		P180		P200		P225		P250	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
311 R2 (B)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	152	350	182	400	212	450	193	550
311 R2 (C)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	152	350	182	400	212	450	193	550
311 R3	—	—	—	—	—	—	—	—	—	—	114	300	144	350	144	350	174	400	—	—	—	—
311 R4	65	160	84	200	84	200	94	250	94	250	114	300	144	350	—	—	—	—	—	—	—	—

311M VK

Das nachstehende Diagramm ermöglicht das Berechnen der zulässigen, auf die Welle des Getriebes einwirkende externe Radialkraft, die sich auf die Distanz x von der Wellenschulter bezieht.
Die Kurven beziehen sich auf den Wert, der sich aus dem Verhältnis zwischen der Axialkraft An_2 und der Radialkraft Rn_2 fur n_2 = 10 min-1 und einer Dauer von 10000 Std. ergibt.

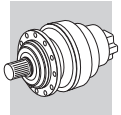


311M L

350

49210 Nm

n_1 min^{-1}		i	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	P_t kW	P (IEC)	Rn_2 [N] MC	MZ	HC/PC	HZ/PZ	FZ	$M_{2\,max}$ Nm
1500	311ML1	4.09	367	16600	200	35	200 ... 250	—	—	33300	42400	9080	58300
	311ML1	5.25	286	17500	200	35	200 ... 250	—	—	35800	45700	9870	58300
	311ML1	6.23	241	18200	200	35	200 ... 250	—	—	37700	48100	10400	58300
	311ML2	14.0	107	20300	115	26.0	180 ... 250	—	—	48100	61400	13700	58300
	311ML2	16.7	90	20900	115	26.0	180 ... 250	—	—	50800	64700	14500	58300
	311ML2	18.0	83	25300	115	26.0	180 ... 250	—	—	51900	66200	14900	58300
	311ML2	21.5	70	20800	115	26.0	180 ... 250	—	—	54700	69800	15800	58300
	311ML2	25.5	59	22800	115	26.0	180 ... 250	—	—	57600	73400	16700	58300
	311ML2	27.6	54	28200	115	26.0	180 ... 250	—	—	59000	75200	17200	58300
	311ML2	32.7	46	28900	115	26.0	180 ... 250	—	—	62100	79200	18200	58300
	311ML2	38.8	39	27200	115	26.0	180 ... 250	—	—	65300	83300	19200	58300
	311ML3	50.5	29.7	27600	60	18.0	132 ... 200	—	—	70700	90200	21000	58300



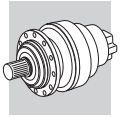
311M L

350

49210 Nm

n_1 min^{-1}		i	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	P_t kW	P (IEC)	Rn_2 [N] MC	MZ	HC/PC	HZ/PZ	FZ	$M_{2\,max}$ Nm
1500	**311ML3**	**60.2**	24.9	30700	60	18.0	132 ... 200	—	—	74500	95100	22300	58300
	311ML3	**71.1**	21.1	32200	60	18.0	132 ... 200	—	—	78300	99900	23500	58300
	311ML3	**77.3**	19.4	32600	60	18.0	132 ... 200	—	—	80300	100000	24200	58300
	311ML3	**89.3**	16.8	34500	60	18.0	132 ... 200	—	—	83900	100000	25400	58300
	311ML3	**104**	14.5	36100	60	18.0	132 ... 200	—	—	87700	100000	26700	58300
	311ML3	**115**	13.1	34000	51	18.0	132 ... 200	—	—	90400	100000	27600	58300
	311ML3	**133**	11.3	34600	45	18.0	132 ... 200	—	—	94600	100000	29000	58300
	311ML3	**147**	10.2	34900	41	18.0	132 ... 200	—	—	97400	100000	30000	58300
	311ML3	**161**	9.3	35200	38	18.0	132 ... 200	—	—	98000	100000	30900	58300
	311ML3	**171**	8.8	35300	36	18.0	132 ... 200	—	—	98000	100000	31500	58300
	311ML3	**191**	7.8	32000	28.8	18.0	132 ... 200	—	—	98000	100000	32700	58300
	311ML3	**203**	7.4	35700	30	18.0	132 ... 200	—	—	98000	100000	33400	58300
	311ML3	**245**	6.1	36200	25.4	18.0	132 ... 200	—	—	98000	100000	35500	58300
	311ML3	**291**	5.2	27500	16.2	18.0	132 ... 200	—	—	98000	100000	37600	58300
	311ML4	**348**	4.3	45700	23.3	11.0	71 ... 160	—	—	100100	102100	39900	58300
	311ML4	**410**	3.7	46000	19.9	11.0	71 ... 160	—	—	102500	104600	42200	58300
	311ML4	**512**	2.9	46300	16.0	11.0	71 ... 160	—	—	105800	107900	45400	58300
	311ML4	**568**	2.6	41000	12.8	11.0	71 ... 160	—	—	107300	109500	47000	58300
	311ML4	**627**	2.4	41700	11.8	11.0	71 ... 160	—	—	108900	111100	48600	58300
	311ML4	**825**	1.8	43500	9.4	11.0	71 ... 160	—	—	113200	115500	53300	58300
	311ML4	**986**	1.5	44800	8.1	11.0	71 ... 160	—	—	116200	118500	56500	58300
	311ML4	**1058**	1.4	45300	7.6	11.0	71 ... 160	—	—	117300	119700	57900	58300
	311ML4	**1230**	1.2	46300	6.7	11.0	71 ... 160	—	—	119900	122300	60800	58300
	311ML4	**1415**	1.1	41200	5.2	11.0	71 ... 160	—	—	122300	124800	63800	58300
	311ML4	**1680**	0.89	36500	3.9	11.0	71 ... 160	—	—	125300	127900	65000	58300
	311ML4	**1766**	0.85	41300	4.1	11.0	71 ... 160	—	—	126200	128800	65000	58300
	311ML4	**2096**	0.72	36500	3.1	11.0	71 ... 160	—	—	129400	132000	65000	58300
1000	**311ML1**	**4.09**	244	18800	200	42	200 ... 250	—	—	37600	47900	10400	58300
	311ML1	**5.25**	190	19700	200	42	200 ... 250	—	—	40500	51600	11300	58300
	311ML1	**6.23**	160	20500	200	42	200 ... 250	—	—	42600	54400	12000	58300
	311ML2	**14.0**	71	22900	115	31.2	180 ... 250	—	—	54400	69300	15700	58300
	311ML2	**16.7**	60	23600	115	31.2	180 ... 250	—	—	57300	73100	16600	58300
	311ML2	**18.0**	56	28600	115	31.2	180 ... 250	—	—	58600	74700	17000	58300
	311ML2	**21.5**	47	23500	115	31.2	180 ... 250	—	—	61800	78800	18100	58300
	311ML2	**25.5**	39	25100	109	31.2	180 ... 250	—	—	65000	83000	19100	58300
	311ML2	**27.6**	36	30100	115	31.2	180 ... 250	—	—	66600	84900	19600	58300
	311ML2	**32.7**	31	30400	103	31.2	180 ... 250	—	—	70100	89400	20800	58300
	311ML2	**38.8**	25.8	27200	78	31.2	180 ... 250	—	—	73800	94100	22000	58300
	311ML3	**50.5**	19.8	29300	60	21.6	132 ... 200	—	—	79800	100000	24000	58300
	311ML3	**60.2**	16.6	34600	60	21.6	132 ... 200	—	—	84200	100000	25500	58300
	311ML3	**71.1**	14.1	36400	59	21.6	132 ... 200	—	—	88500	100000	26900	58300
	311ML3	**77.3**	12.9	34100	51	21.6	132 ... 200	—	—	90700	100000	27700	58300
	311ML3	**89.3**	11.2	39000	50	21.6	132 ... 200	—	—	94700	100000	29000	58300
	311ML3	**104**	9.6	40600	45	21.6	132 ... 200	—	—	98000	100000	30500	58300
	311ML3	**115**	8.7	35300	35	21.6	132 ... 200	—	—	98000	100000	31600	58300
	311ML3	**133**	7.5	35700	31	21.6	132 ... 200	—	—	98000	100000	33200	58300
	311ML3	**147**	6.8	35900	28.0	21.6	132 ... 200	—	—	98000	100000	34300	58300
	311ML3	**161**	6.2	36200	25.8	21.6	132 ... 200	—	—	98000	100000	35400	58300
	311ML3	**171**	5.9	36300	24.4	21.6	132 ... 200	—	—	98000	100000	36100	58300
	311ML3	**191**	5.2	32000	19.2	21.6	132 ... 200	—	—	98000	100000	37400	58300
	311ML3	**203**	4.9	36800	20.8	21.6	132 ... 200	—	—	98200	100200	38200	58300
	311ML3	**245**	4.1	38000	17.8	21.6	132 ... 200	—	—	100900	103000	40700	58300
	311ML3	**291**	3.4	29400	11.6	21.6	132 ... 200	—	—	103400	105500	43100	58300
	311ML4	**348**	2.9	46400	15.8	13.2	71 ... 160	—	—	106100	108200	45700	58300
	311ML4	**410**	2.4	46700	13.4	13.2	71 ... 160	—	—	108600	110800	48300	58300

B



311M L

350

49210 Nm

n_1 min^{-1}		i	n_2 min^{-1}	M_{n2} Nm	P_{n1} kW	P_t kW	P (IEC)	Rn_2 [N] MC	MZ	HC/PC	HZ/PZ	FZ	$M_{2\,max}$ Nm
	311ML4	**512**	2	47300	10.9	13.2	71 ... 160	—	—	112100	114400	52000	58300
	311ML4	**568**	1.8	43700	9.1	13.2	71 ... 160	—	—	113700	116100	53800	58300
1000	**311ML4**	**627**	1.6	44400	8.4	13.2	71 ... 160	—	—	115400	117700	55600	58300
	311ML4	**825**	1.2	46400	6.7	13.2	71 ... 160	—	—	120000	122400	61000	58300
	311ML4	**986**	1	47700	5.7	13.2	71 ... 160	—	—	123100	125600	64700	58300
	311ML4	**1058**	0.94	47800	5.3	13.2	71 ... 160	—	—	124300	126900	65000	58300
	311ML4	**1230**	0.81	47800	4.6	13.2	71 ... 160	—	—	127000	129600	65000	58300
	311ML4	**1415**	0.71	41300	3.4	13.2	71 ... 160	—	—	129600	132300	65000	58300
	311ML4	**1680**	0.6	36500	2.6	13.2	71 ... 160	—	—	132800	135500	65000	58300
	311ML4	**1766**	0.57	41300	2.8	13.2	71 ... 160	—	—	133800	136500	65000	58300
	311ML4	**2096**	0.48	36500	2.1	13.2	71 ... 160	—	—	137100	139900	65000	58300
500	**311ML1**	**4.09**	122	23100	200	70	200 ... 250	—	—	46200	59000	13100	58300
	311ML1	**5.25**	95	24300	200	70	200 ... 250	—	—	49800	63600	14200	58300
	311ML1	**6.23**	80	24700	200	70	200 ... 250	—	—	52500	66900	15100	58300
	311ML2	**14.0**	36	26800	106	52	180 ... 250	—	—	66900	85400	19800	58300
	311ML2	**16.7**	29.9	29000	97	52	180 ... 250	—	—	70600	90000	20900	58300
	311ML2	**18.0**	27.8	31400	97	52	180 ... 250	—	—	72100	92000	21500	58300
	311ML2	**21.5**	23.3	28100	73	52	180 ... 250	—	—	76100	97000	22800	58300
	311ML2	**25.5**	19.6	28400	62	52	180 ... 250	—	—	80100	100000	24100	58300
	311ML2	**27.6**	18.1	32600	66	52	180 ... 250	—	—	82000	100000	24700	58300
	311ML2	**32.7**	15.3	33200	56	52	180 ... 250	—	—	86300	100000	26200	58300
	311ML2	**38.8**	12.9	27200	39	52	180 ... 250	—	—	90800	100000	27700	58300
	311ML3	**50.5**	9.9	32400	37	36	132 ... 200	—	—	98000	100000	30300	58300
	311ML3	**60.2**	8.3	41600	40	36	132 ... 200	—	—	98000	100000	32100	58300
	311ML3	**71.1**	7.0	42800	35	36	132 ... 200	—	—	98000	100000	33900	58300
	311ML3	**77.3**	6.5	36100	26.8	36	132 ... 200	—	—	98000	100000	34900	58300
	311ML3	**89.3**	5.6	44600	28.6	36	132 ... 200	—	—	98000	100000	36600	58300
	311ML3	**104**	4.8	45500	25.2	36	132 ... 200	—	—	98500	100500	38500	58300
	311ML3	**115**	4.4	37600	18.8	36	132 ... 200	—	—	99900	102000	39800	58300
	311ML3	**133**	3.8	38600	16.6	36	132 ... 200	—	—	102100	104200	41800	58300
	311ML3	**147**	3.4	39200	15.3	36	132 ... 200	—	—	103500	105700	43200	58300
	311ML3	**161**	3.1	39900	14.2	36	132 ... 200	—	—	104900	107000	44600	58300
	311ML3	**171**	2.9	40300	13.5	36	132 ... 200	—	—	105800	108000	45400	58300
	311ML3	**191**	2.6	32000	9.6	36	132 ... 200	—	—	107500	109700	47200	58300
	311ML3	**203**	2.5	41200	11.6	36	132 ... 200	—	—	108400	110600	48100	58300
	311ML3	**245**	2.0	41200	9.6	36	132 ... 200	—	—	111400	113700	51300	58300
	311ML3	**291**	1.7	33200	6.5	36	132 ... 200	—	—	114200	116500	54300	58300
	311ML4	**348**	1.4	48200	8.2	22.0	71 ... 160	—	—	117100	119500	57600	58300
	311ML4	**410**	1.2	48600	7.0	22.0	71 ... 160	—	—	119900	122300	60900	58300
	311ML4	**512**	0.98	49200	5.7	22.0	71 ... 160	—	—	123800	126300	65000	58300
	311ML4	**568**	0.88	47800	5.0	22.0	71 ... 160	—	—	125600	128200	65000	58300
	311ML4	**627**	0.80	47800	4.5	22.0	71 ... 160	—	—	127400	130000	65000	58300
	311ML4	**825**	0.61	47800	3.4	22.0	71 ... 160	—	—	132500	135200	65000	58300
	311ML4	**986**	0.51	47800	2.9	22.0	71 ... 160	—	—	135900	138700	65000	58300
	311ML4	**1058**	0.47	47800	2.7	22.0	71 ... 160	—	—	137300	140100	65000	58300
	311ML4	**1230**	0.41	47800	2.3	22.0	71 ... 160	—	—	140300	143100	65000	58300
	311ML4	**1415**	0.35	41300	1.7	22.0	71 ... 160	—	—	143100	146000	65000	58300
	311ML4	**1680**	0.30	36500	1.3	22.0	71 ... 160	—	—	146600	149600	65000	58300
	311ML4	**1766**	0.28	41300	1.4	22.0	71 ... 160	—	—	147700	150700	65000	58300
	311ML4	**2096**	0.24	36500	1.0	22.0	71 ... 160	—	—	151400	154400	65000	58300

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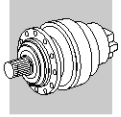
	i	M_{n2} [Nm]						P_1	Pt	n_1	n_{1max}	M_b		M_{2max}
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$							
	1:	10000	25000	50000	100000	500000	1000000	[kW]	[kW]	[min^{-1}]	[min^{-1}]	[Nm]		[Nm]
R2	12.0	24880	24320	24320	24320	15600	12670	150	75	1500	2500	3200	6L	58300
	15.4	31190	31190	31190	30110	18580	15090	150	75	1500	2500	3200	6L	58300
	18.3	36470	31040	27480	27190	20950	17020	150	75	1500	2500	2600	6K	58300
	16.6	45390	43900	35650	28960	17870	14510	150	90	1500	2500	3200	6L	58300
	21.3	47810	41400	36690	34490	21280	17280	150	90	1500	2500	2600	6K	58300
	25.3	36470	31040	27480	27190	23990	19490	150	90	1500	2500	2100	6G	58300



311M R

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49210 Nm

	i	M_{n2} [Nm]						P_1	Pt	n_1	n_{1max}	M_b		M_{2max}
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$							
	1:	10000	25000	50000	100000	500000	1000000	[kW]	[kW]	[min-1]	[min-1]	[Nm]		[Nm]
R3	53.0	32410	32420	32420	27690	17090	13880	85	40	2000	4000	800	5G	58300
	63.2	41360	39670	38580	31340	19340	15710	85	40	2000	4000	800	5G	58300
	68.0	41500	41400	36690	32980	20350	16530	85	40	2000	4000	800	5G	58300
	81.1	47810	41400	36690	35010	23030	18700	85	40	2000	4000	800	5G	58300
	96.3	33520	32020	32020	32020	23990	19490	77	40	2000	4000	500	5C	58300
	104	47810	41400	36690	35010	27420	22270	85	40	2000	4000	500	5C	58300
	124	41250	41170	36690	35010	28570	23200	77	40	2000	4000	400	5B	58300
	147	36470	31040	27480	27190	27190	23670	55	40	2000	4000	400	5B	58300
R4	154	49210	38650	31380	25490	15730	12780	35	22	2000	4000	400	5B	58300
	182	49210	43410	35250	28630	17670	14350	35	22	2000	4000	330	4H	58300
	198	47810	41400	36690	30360	18730	15220	35	22	2000	4000	260	4F	58300
	229	49210	46590	41340	33570	20710	16830	35	22	2000	4000	260	4F	58300
	266	49210	46590	45450	37310	23010	18700	35	22	2000	4000	260	4F	58300
	294	47810	41400	36690	35010	24670	20040	35	22	2000	4000	160	4D	58300
	341	47810	41400	36690	35010	27410	22260	33	22	2000	4000	160	4D	58300
	413	47810	41400	36690	35010	29500	23960	27	22	2000	4000	160	4D	58300
	438	47810	41400	36690	35010	28930	23490	26	22	2000	4000	100	4D	58300
	490	33520	32020	32020	32020	23990	19490	16.2	22	2000	4000	100	4B	58300
	520	41250	41170	36690	35010	28570	23200	18.8	22	2000	4000	100	4B	58300
	629	41250	41170	36690	35010	28570	23200	15.5	22	2000	4000	100	4B	58300
	746	36470	31040	27480	27190	27190	23670	11.6	22	2000	4000	100	4B	58300