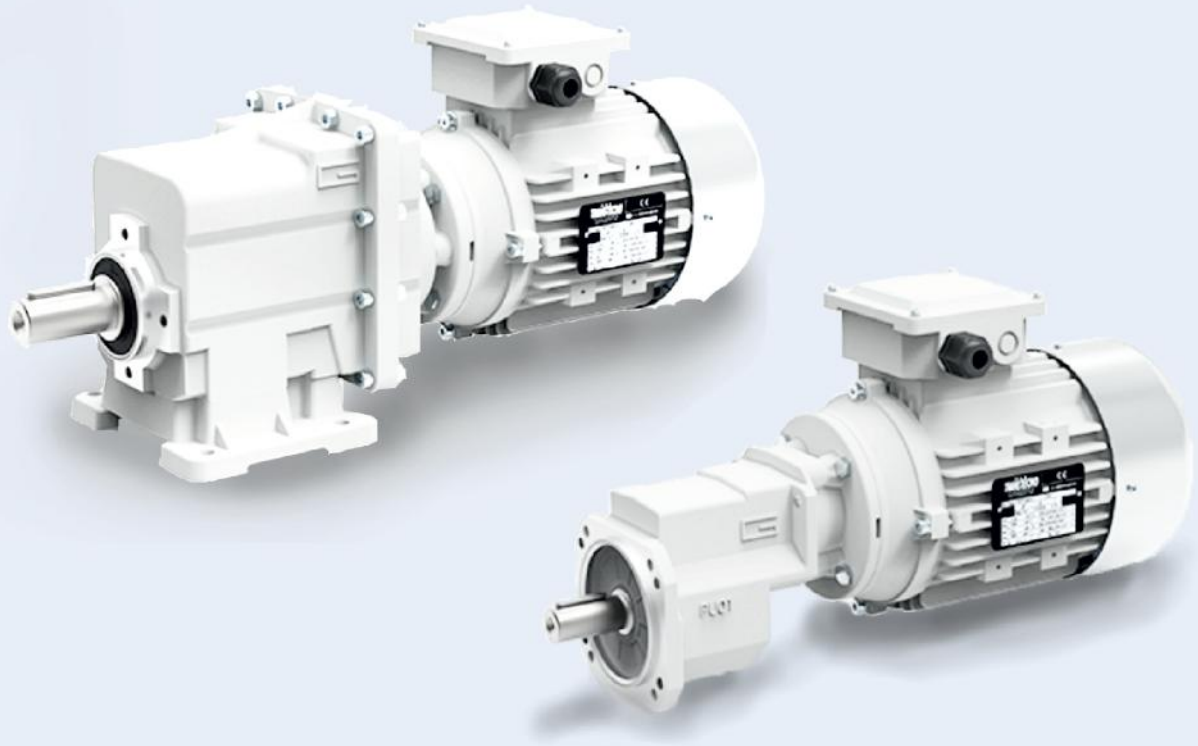


VYBO GEARS

Prevodovky pre všeobecné a ťažké prevádzky - sila, robustnosť a kompaktibilita

VYBO Electric s.r.o.

SOLUTIONS FOR INDUSTRY

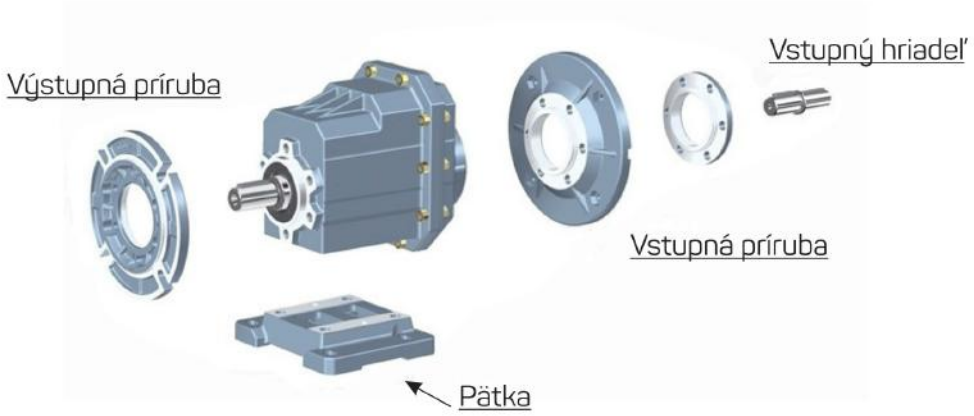
Zhrnutie

Nová čelná prevodovka série HG je modulový konštrukčný systém. Môže byť zostavený spoločne so všetkými motormi verzií IEC-B5 a B14. Tieto prevodové motory môžu byť zostavené vo všeobecných polohách a pri rôznych aplikáciách

Produktové charakteristiky

- Modularita;
- Vysoká účinnosť;
- Nízka hlučnosť;
- Priestorovo efektívny, rafinovaný dizajn;
- Univerzálna montáž;
- Ľahké hliníkové puzdro;
- Tvrdé a odolné ozubené kolesá v karbonizácii;
- Multištruktúra, môže byť kombinovaný v mnohých formách, aby spĺňal potreby všetkých druhov prenosových podmienok.

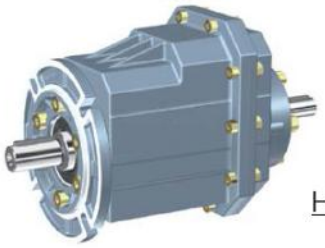
Časti konštrukcie



HG..P (IEC)

HG..HS

HGF..P (IEC)

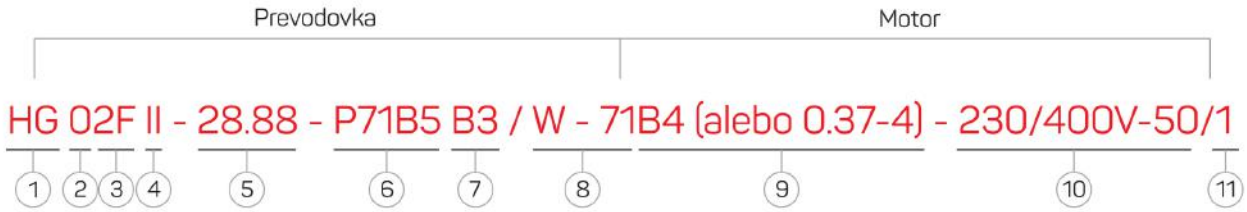


HGF..HS (IEC)

HGZ..P (IEC)

HGZ..P (IEC)

Kódovanie



Komentáre
HG: kód radu prevodoviek
Špecifický kód prevodovky 01, 02, 03 ,04
1). P znamená pätkové upevnenie 2). F: B5 s prírubou 3). U: B14 s prírubou / bez pätiek
1). MO/BO veľkosť pätky / bez príruby 2).I, II, III: B5 Špecifikácia výstupnej príruby
Prevodový pomer pomer prevodovky i
1). IEC Motorové adaptéry 2). HS: Vstup hriadeľa
Montážna poloha
Poloha skrinky svorkovnice (W = štandard)
1). Žiadne značenie znamená bez motora 2). Veľkosť motora a počet pólov
Napätie - frekvencia
Frekvencia

Technické parametre

Výkon P

$$P_1 = \frac{P2}{\eta} \text{ [kW]}$$

$$P_{1n} \geq P_1 \cdot f_s \text{ [kW]}$$

P_1	Vstupný výkon
P_2	Výstupný výkon
P_{1n}	Menovitý príkon motora
f_s	Prevádzkový faktor
η	Účinnosť prenosu

HG rad čelných prevodoviek má 2 stupne

Rotačná rýchlosť n

n 1 Vstupná rýchlosť prevodovky

n 2 Výstupná rýchlosť prevodovky

Prevodový pomrer i

$$i = \frac{n1}{n2}$$

Obvyklý prevodový pomer je desatinný zlomok s 2 radix bodmi identifikovanými vo výberových tabuľkách.

Krútiaci moment M

$$M2 = \frac{9550 \cdot P1 \cdot n}{n2} \text{ [Nm]}$$

$M2n \geq M2 \cdot fs$ [Nm]

M2 - Výstupný moment

M2n - Menovitý výstupný moment

P1 - Príkon

η - Účinnosť prenosu

fs - Prevádzkový faktor

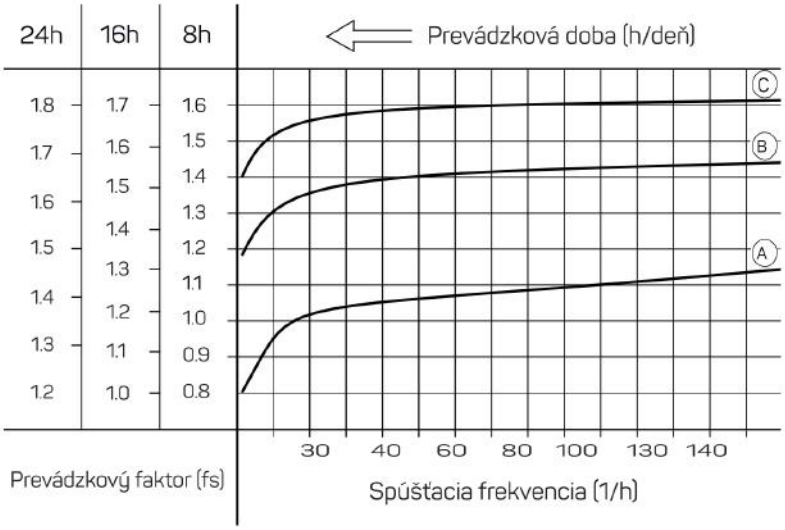
Prevádzkový faktor fs

Servisný faktor prevodovky závisí predovšetkým na troch parametroch:

- Aplikačný režim A / B/ C

- Denná prevádzková doba

- Spúštacia frekvencia



Záťažová klasifikácia

K ≤ 0.2 krivka A
Jednotná záťaž
0,2<K ≤ 3 krivka B
Mierne otrasy
3<K ≤ 10
Ťažké otrasy

Faktor zrýchlenia hmoty

Faktor zrýchlenia hmoty sa vypočítala nasledovne:

$$fa = \frac{Jc}{Jm}$$

Faktor zrýchlenia hmoty.

Všetky vonkajšie hmotnostné momenty zotrvačnosti [kgm 2] Jm Moment zotrvačnosti na strane motora [kgm 2].

Ak je faktor zrýchlenia hmoty fa > 10, kontaktujte našu technickú podporu.

Ak chcete zachovať servisnú životnosť prevodovky, použitý faktor f s, vybraný z katalógu musí byť rovný alebo mierne vyšší ako f s .

Radiálne zaťaženie Fr

Pri stanovení výsledného radiálneho zaťaženia sa musí do úvahy vziať druh prenosových prvkov, ktoré sú namontované na konci hriadeľa. Rôzne prenosové prvky korešpondujú s nasledujúcimi faktormi f z:

Prenosový prvok	Faktor prenosového prvku Fz	Komentáre
Prevodovka	1.00	≥ 17 zubov
	1.15	< 17 zubov
Reťazové kolesá	1.00	≥ 20 zubov
	1.25	< 20 zubov
	1.40	< 13 zubov
Úzky V-remeň	1.75	Vplyv ťahovej sily
Ploché remenice	2.50	Vplyv ťahovej sily
Ozubený oheň	2.50	Vplyv ťahovej sily

Radiálne sily pôsobiace na motore alebo hriadeli prevodovky sa vypočítajú nasledovne:

$$Fr = \frac{M \ 2000 \ fz}{d0} [N]$$

Fr Výsledné radiálne zaťaženie [N]
M Krútiaci moment na hriadeli [Nm]

d0 Stredný priemer nasadeného prenosového prvku v [mm]

fz Faktor prenosového prvku
Povolená radiálna sila zaťaženia na hriadeľ sa vypočíta podľa tohto vzorca:

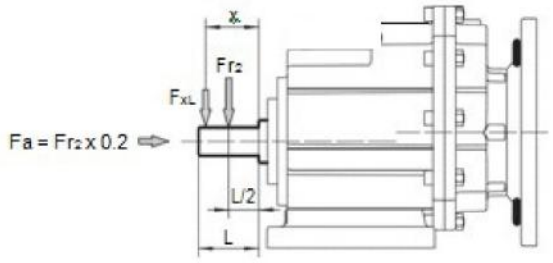
$$\leq \frac{Fr2 \cdot a \ FxL}{(b+x)} [N]$$

Fr2 Prípustné radiálne zaťaženie (x = L/2) pre prevodovky s pätkou v súlade s výberovými tabuľkami [N] a, b konštanta prevodovky pre prepočet priečnej sily [mm]

	HG 01	HG 02	HG 03	HG 04
a	103	116.5	130	147
b	83	91.5	100	112

Radiálne a axiálne zaťaženia výstupného hriadeľa Fr2, Fa

Radiálne a axiálne zaťaženia výstupného hriadeľa
Fr2, Fa



n2 [min $^{-1}$]		10	40	60	80	100	120	150	180	250	400
Fr2 [N]	HG 01	2500	2500	2180	1980	1840	1630	1400	1320	1080	920
	HG 02	5000	5000	4370	3970	3680	3470	2710	2550	2150	1840
	HG 03	6500	6500	5550	5040	4510	3800	3530	3320	2800	2390
	HG 04	8000	8000	6590	5990	5230	4570	4240	3900	3350	2860

Výberové tabuľky

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs			Page

P 1n - Menovitý výkon hnacieho motora [kW]

n_2 - Výstupné otáčky [r/min]

M_{2n} - Menovitý výstupný krútiaci

M_{2max} - Moment [Nm]; Prípustný výstupný moment [Nm]

i - Prevodový pomer

f_s - Prevádzkový faktor

 Typ prevodovky

 Typ motora

Výberový príklad

Prevodovky

Príklad: Požadovaný krútiaci moment na poháňaný stroj je 400Nm, pracuje 6 hodín denne, jednotné nárazové zaťaženie, spúšťacia frekvencia je 400 krát za hodinu, Ø200mm výstupná príruba, n 2 =30 r/min.

$$M\ 2n \geq M\ 2 \cdot fs = 400 \times 1.05 = 420[Nm]\ i$$

$$i = \frac{n_1}{n_2} = \frac{1400}{30} = 46.67$$

HGF04 II - P90B5 - 44.18

Prevodový motor

Príklad: Požadovaný výkon hnacieho stroja je 1kW, pracuje 8 hodín denne, mierne nárazové zaťaženie, nepretržité spustenie, B7 pätka,

n 2 =95 r/min.

$$i = \frac{n1}{n2} = \frac{1400}{95} = 14.74$$

$$P_{1n} \geq P_1 \cdot f_s = \frac{P_2}{\eta} \cdot f_s = \frac{1}{0.96} \times 1.35 = 1.41[k\ W]$$

Prevodové pomery a vstup pre elektromotor

HG..01..P(IEC)

i	63B5	71B5 71B14	80B5 80B14	90B5 90B14
53.33				
45.89				
40.10				
35.47				
28.50				
23.56				
19.83				
17.86				
14.62				
13.80*				
11.90				
9.81				
9.17				
7.72				
5.69				
4.63				
3.82				

HG..02..P(IEC)

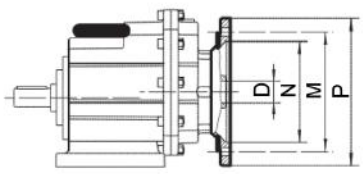
i	63B5	71B5 71B14	80B5 80B14	90B5 90B14
54.00*				
46.46*				
40.60*				
35.91*				
28.88*				
23.85*				
20.08*				
17.10				
14.81*				
13.21				
12.05				
9.93				
8.78				
7.39				
5.45				
4.43				
3.66				

HG..03..P(IEC)

i	71B5	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
51.30*					
44.18*					
38.63					
34.20*					
30.57					
24.99					
21.15*					
19.24*					
18.21*					
15.30*					
13.30*					
12.60					
10.93*					
9.08					
7.93*					
6.31					
5.48					
4.50					
3.74					

HG..04..P(IEC)

i	80B5 80B14	90B5 90B14	100B5 100B14	112B5 112B14
51.30*				
44.18*				
38.63				
34.20*				
30.57				
24.99				
21.15*				
19.24*				
18.21*				
15.30*				
13.30*				
12.60				
10.93*				
9.08				
7.93*				
6.31				
5.48				
4.50				
3.74				



IEC	63B5	71B5	71B14	80B5	80B14	90B5	90B14	100B5	100B14	112B5	112B14
D_{E8}	11	14		19		24		28		28	
P	140	160	105	200	140	200	140	250	160	250	160
M	115	130	85	165	115	165	115	215	130	215	130
N	95	110	70	130	95	130	95	180	110	180	110

Výberové tabuľky prevodovky

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
0.12	26.3	42	53.33	2.9	**HG01**	**63B5**	**6314**	21
	30.5	36	45.89	3.3	**HGF01**	**63B5**	**6314**	21
	34.9	32	40.10	3.8	**HGZ01**	**63B5**	**6314**	21
	39.5	28	35.47	4.3				
	49.1	22	28.50	5.4				
	59.4	18.5	23.56	6.5				
	70.6	15.6	19.83	7.7				
	78.4	14.0	17.86	7.1				
	95.8	11.5	14.62	10.4				
	101	10.8	13.80*	9.2				
	118	9.4	11.90	12.8				
	143	7.7	9.81	13.0				
	153	7.2	9.17	11.1				
	181	6.1	7.72	13.2				
	246	4.5	5.69	13.4				
	302	3.6	4.63	16.5				
	366	3.0	3.82	20.0				
0.18	16.9	98	53.33	1.2	**HG01**	**71B5**	**7116**	21
	19.6	84	45.89	1.4	**HGF01**	**71B5**	**7116**	21
	22.4	74	40.10	1.6	**HGZ01**	**71B5**	**7116**	21
	25.4	65	35.47	1.8				
	31.6	52	28.50	2.3				
	26.3	63	53.33	1.9	**HG01**	**63B5**	**6324**	21
	30.5	54	45.89	2.2	**HGF01**	**63B5**	**6324**	21
	34.9	47	40.10	2.5	**HGZ01**	**63B5**	**6324**	21
	39.5	42	35.47	2.9				
	49.1	34	28.50	3.6				
	59.4	28	23.56	4.3				
	70.6	23	19.83	5.1				
	78.4	21	17.86	4.8				
	95.8	17.2	14.62	7.0				
	101	16.3	13.80*	6.1				
	118	14.0	11.90	8.6				
	143	11.6	9.81	8.6				
	153	10.8	9.17	7.4				
	181	9.1	7.72	8.8				
	246	6.7	5.69	8.9				
	302	5.5	4.63	11.0				
	366	4.5	3.82	13.3				
	16.7	99	54.00*	2.0	**HG02**	**71B5**	**7116**	23
	19.4	85	46.46*	2.3	**HGF02**	**71B5**	**7116**	23
	22.2	74	40.60*	2.7	**HGZ02**	**71B5**	**7116**	23
	25.1	66	35.91*	3.0				
	31.2	53	28.88*	3.8				
	25.9	64	54.00*	3.1	**HG02**	**63B5**	**6324**	23
	30.1	55	46.46*	3.7	**HGF02**	**63B5**	**6324**	23
	34.5	48	40.60*	4.2	**HGZ02**	**63B5**	**6324**	23

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
0.25	16.9	136	53.33	0.88	**HG01**	**71B5/B14**	**7126**	21
	19.6	117	45.89	1.0	**HGF01**	**71B5/B14**	**7126**	21
	22.4	102	40.10	1.2	**HGZ01**	**71B5/B14**	**7126**	21
	25.4	90	35.47	1.3				
	31.6	73	28.50	1.7				
	26.3	87	53.33	1.4	**HG01**	**71B5/B14**	**7114**	21
	30.5	75	45.89	1.6	**HGF01**	**71B5/B14**	**7114**	21
	34.9	66	40.10	1.8	**HGZ01**	**71B5/B14**	**7114**	21
	39.5	58	35.47	2.1				
	49.1	47	28.50	2.6				
	59.4	39	23.56	3.1				
	70.6	32	19.83	3.7				
	78.4	29	17.86	3.4				
	95.8	24	14.62	5.0				
	101	23	13.80*	4.4				
	118	19.5	11.90	6.2				
	143	16.1	9.81	6.2				
	153	15.0	9.17	5.3				
	181	12.6	7.72	6.3				
	246	9.3	5.69	6.4				
	302	7.6	4.63	7.9				
	366	6.3	3.82	9.6				
	16.7	138	54.00*	1.5	**HG02**	**71B5/B14**	**7126**	23
	19.4	118	46.46*	1.7	**HGF02**	**71B5/B14**	**7126**	23
	22.2	103	40.60*	1.9	**HGZ02**	**71B5/B14**	**7126**	23
	25.1	91	35.91*	2.2				
	31.2	74	28.88*	2.7				
	25.9	88	54.00*	2.3	**HG02**	**71B5/B14**	**7114**	23
	30.1	76	46.46*	2.6	**HGF02**	**71B5/B14**	**7114**	23
	34.5	66	40.60*	3.0	**HGZ02**	**71B5/B14**	**7114**	23
	39.0	59	35.91*	3.4				
	48.5	47	28.88*	4.2				
0.37	22.4	151	40.10	0.79	**HG01**	**80B5/B14**	**8016**	21
	25.4	134	35.47	0.90	**HGF01**	**80B5/B14**	**8016**	21
	31.6	107	28.50	1.1	**HGZ01**	**80B5/B14**	**8016**	21
	38.2	89	23.56	1.4				
	26.3	129	53.33	0.93	**HG01**	**71B5/B14**	**7124**	21
	30.5	111	45.89	1.1	**HGF01**	**71B5/B14**	**7124**	21
	34.9	97	40.10	1.2	**HGZ01**	**71B5/B14**	**7124**	21
	39.5	86	35.47	1.4				
	49.1	69	28.50	1.7				
	59.4	57	23.56	2.1				
	70.6	48	19.83	2.5				
	78.4	43	17.86	2.3				
	95.8	35	14.62	3.4				
	101	33	13.80*	3.0				
	118	29	11.90	4.2				
	143	24	9.81	4.2				
	153	22	9.17	3.6				
	181	19	7.72	4.3				
	246	14	5.69	4.4				
	302	11	4.63	5.3				
	366	9	3.82	6.5				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
0.37	16.7	204	54.00*	1.0	**HG02**	**80B5/B14**	**8016**	23
	19.4	175	46.46*	1.1	**HGF02**	**80B5/B14**	**8016**	23
	22.2	153	40.60*	1.3	**HGZ02**	**80B5/B14**	**8016**	23
	25.1	135	35.91*	1.5				
	31.2	109	28.88*	1.8				
	25.9	131	54.00*	1.5	**HG02**	**71B5/B14**	**7124**	23
	30.1	113	46.46*	1.8	**HGF02**	**71B5/B14**	**7124**	23
	34.5	98	40.60*	2.0	**HGZ02**	**71B5/B14**	**7124**	23
	39.0	87	35.91*	2.3				
	48.5	70	28.88*	2.9				
	58.7	58	23.85*	3.5				
	81.9	41	17.10	3.9				
	17.5	193	51.30*	1.6	**HG03**	**80B5/B14**	**8016**	25
	20.4	167	44.18*	1.8	**HGF03**	**80B5/B14**	**8016**	25
	23.3	146	38.63	2.1	**HGZ03**	**80B5/B14**	**8016**	25
	26.3	129	34.20*	2.3				
	29.4	115	30.57	2.6				
	27.3	124	51.30*	2.4	**HG03**	**71B5**	**7124**	25
	31.7	107	44.18*	2.8	**HGF03**	**71B5**	**7124**	25
	36.2	94	38.63	3.2	**HGZ03**	**71B5**	**7124**	25
	40.9	83	34.20*	3.6				
0.55	31.6	160	28.50	0.75	**HG01**	**80B5/B14**	**8026**	21
	38.2	132	23.56	0.91	**HGF01**	**80B5/B14**	**8026**	21
	45.4	111	19.83	1.1	**HGZ01**	**80B5/B14**	**8026**	21
	34.9	144	40.10	0.8	**HG01**	**80B5/B14**	**8014**	21
	39.5	128	35.47	0.9	**HGF01**	**80B5/B14**	**8014**	21
	49.1	103	28.50	1.2	**HGZ01**	**80B5/B14**	**8014**	21
	59.4	85	23.56	1.4				
	70.6	71	19.83	1.7				
	78.4	64	17.86	1.6				
	95.8	53	14.62	2.3				
	101	50	13.80*	2.0				
	118	43	11.90	2.8				
	143	35	9.81	2.8				
	153	33	9.17	2.4				
	181	28	7.72	2.9				
	246	20	5.69	2.9				
	302	17	4.63	3.6				
	366	14	3.82	4.4				
	19.4	260	46.46*	0.77	**HG02**	**80B5/B14**	**8026**	23
	22.2	227	40.60*	0.88	**HGF02**	**80B5/B14**	**8026**	23
	25.1	201	35.91*	1.0	**HGZ02**	**80B5/B14**	**8026**	23
	31.2	162	28.88*	1.2				
	37.7	134	23.85*	1.5				
	25.9	194	54.00*	1.0	**HG02**	**80B5/B14**	**8014**	23
	30.1	167	46.46*	1.2	**HGF02**	**80B5/B14**	**8014**	23
	34.5	146	40.60*	1.4	**HGZ02**	**80B5/B14**	**8014**	23
	39.0	129	35.91*	1.5				
	48.5	104	28.88*	1.9				
	58.7	86	23.85*	2.3				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
0.55	69.7	72	20.08*	2.8	**HG02**	**80B5/B14**	**8014**	23
	81.9	62	17.10	2.6	**HGF02**	**80B5/B14**	**8014**	23
	94.5	53	14.81*	3.7	**HGZ02**	**80B5/B14**	**8014**	23
	17.5	287	51.30*	1.0	**HG03**	**80B5/B14**	**8026**	25
	20.4	248	44.18*	1.2	**HGF03**	**80B5/B14**	**8026**	25
	23.3	216	38.63	1.4	**HGZ03**	**80B5/B14**	**8026**	25
	26.3	192	34.20*	1.6				
	29.4	171	30.57	1.8				
	27.3	185	51.30*	1.6	**HG03**	**80B5/B14**	**8014**	25
	31.7	159	44.18*	1.9	**HGF03**	**80B5/B14**	**8014**	25
	36.2	139	38.63	2.2	**HGZ03**	**80B5/B14**	**8014**	25
	40.9	123	34.20*	2.4				
	45.8	110	30.57	2.7				
	56.0	90	24.99	3.3				
0.75	49.1	140	28.50	0.86	**HG01**	**80B5/B14**	**8024**	21
	59.4	116	23.56	1.0	**HGF01**	**80B5/B14**	**8024**	21
	70.6	97	19.83	1.2	**HGZ01**	**80B5/B14**	**8024**	21
	78.4	88	17.86	1.1				
	95.8	72	14.62	1.7				
	101	68	13.80*	1.5				
	118	58	11.90	2.1				
	143	48	9.81	2.1				
	153	45	9.17	1.8				
	181	38	7.72	2.1				
	246	28	5.69	2.1				
	302	23	4.63	2.6				
	366	19	3.82	3.2				
	31.2	221	28.88*	0.91	**HG02**	**90B5/B14**	**90S6**	23
	37.7	182	23.85*	1.1	**HGF02**	**90B5/B14**	**90S6**	23
	44.8	153	20.08*	1.3	**HGZ02**	**90B5/B14**	**90S6**	23
	30.1	228	46.46*	0.88	**HG02**	**80B5/B14**	**8024**	23
	34.5	199	40.60*	1.0	**HGF02**	**80B5/B14**	**8024**	23
	39.0	176	35.91*	1.1	**HGZ02**	**80B5/B14**	**8024**	23
	48.5	142	28.88*	1.4				
	58.7	117	23.85*	1.7				
	69.7	99	20.08*	2.0				
	81.9	84	17.10	1.9				
	94.5	73	14.81*	2.7				
	106	65	13.21	2.5				
	116.2	59	12.05	3.4				
	141	49	9.93	3.3				
	159	43	8.78	2.8				
	189	36	7.39	3.3				
	257	27	5.45	3.7				
	97.0	71	28.88*	2.8	**HG02**	**80B5/B14**	**8012**	23
	117.4	59	23.85*	3.4	**HGF02**	**80B5/B14**	**8012**	23
	139.4	49	20.08*	4.1	**HGZ02**	**80B5/B14**	**8012**	23
	163.7	42	17.10	3.8				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
0.75	17.5	392	51.30*	0.77	**HG03**	**90B5/B14**	**90S6**	25
	20.4	338	44.18*	0.89	**HGF03**	**90B5/B14**	**90S6**	25
	23.3	295	38.63	1.0	**HGZ03**	**90B5/B14**	**90S6**	25
	26.3	261	34.20*	1.1				
	29.4	234	30.57	1.3				
	36.0	191	24.99	1.6				
	27.3	252	51.30*	1.2	**HG03**	**80B5/B14**	**8024**	25
	31.7	217	44.18*	1.4	**HGF03**	**80B5/B14**	**8024**	25
	36.2	190	38.63	1.6	**HGZ03**	**80B5/B14**	**8024**	25
	40.9	168	34.20*	1.8				
	45.8	150	30.57	2.0				
	56.0	123	24.99	2.4				
	66.2	104	21.15*	2.7				
	72.8	94	19.24*	3.0				
	76.9	89	18.21*	3.1				
	91.5	75	15.30*	3.7				
	105	65	13.30*	3.8				
	111	62	12.60	4.0				
	17.5	392	51.30*	1.3	**HG04**	**90B5/B14**	**90S6**	27
	20.4	338	44.18*	1.5	**HGF04**	**90B5/B14**	**90S6**	27
	23.3	295	38.63	1.7	**HGZ04**	**90B5/B14**	**90S6**	27
	26.3	261	34.20*	1.8				
	29.4	234	30.57	2.1				
	27.3	252	51.30*	2.0	**HG04**	**80B5/B14**	**8024**	27
	31.7	217	44.18*	2.3	**HGF04**	**80B5/B14**	**8024**	27
	36.2	190	38.63	2.6	**HGZ04**	**80B5/B14**	**8024**	27
	40.9	168	34.20*	2.9				
	45.8	150	30.57	3.2				
	56.0	123	24.99	3.9				
	66.2	104	21.15*	4.0				
1.1	70.6	143	19.83	0.84	**HG01**	**90B5/B14**	**90S4**	21
	78.4	129	17.86	0.78	**HGF01**	**90B5/B14**	**90S4**	21
	95.8	105	14.62	1.1	**HGZ01**	**90B5/B14**	**90S4**	21
	101	99	13.80*	1.0				
	118	86	11.90	1.4				
	143	71	9.81	1.4				
	153	66	9.17	1.2				
	181	56	7.72	1.4				
	246	41	5.69	1.5				
	302	33	4.63	1.8				
	366	28	3.82	2.2				
	285	35	9.81	2.8	**HG01**	**80B5/B14**	**8022**	21
	305	33	9.17	2.4	**HGF01**	**80B5/B14**	**8022**	21
	363	28	7.72	2.9	**HGZ01**	**80B5/B14**	**8022**	21
	492	20	5.69	2.9				
	605	17	4.63	3.6				
	733	14	3.82	4.4				
	39.0	259	35.91*	0.77	**HG02**	**90B5/B14**	**90S4**	23
	48.5	208	28.88*	1.0	**HGF02**	**90B5/B14**	**90S4**	23
	58.7	172	23.85*	1.2	**HGZ02**	**90B5/B14**	**90S4**	23
	69.7	145	20.08*	1.4				
	81.9	123	17.10	1.3				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
1.1	94.5	107	14.81*	1.9	**HG02**	**90B5/B14**	**90S4**	23
	106	95	13.21	1.7	**HGF02**	**90B5/B14**	**90S4**	23
	116	87	12.05	2.3	**HGZ02**	**90B5/B14**	**90S4**	23
	141	72	9.93	2.2				
	159	63	8.78	1.9				
	189	53	7.39	2.3				
	257	39	5.45	2.5				
	316	32	4.43	3.1				
	383	26	3.66	3.8				
	27.3	370	51.30*	0.81	**HG03**	**90B5/B14**	**90S4**	25
	31.7	318	44.18*	0.94	**HGF03**	**90B5/B14**	**90S4**	25
	36.2	278	38.63	1.1	**HGZ03**	**90B5/B14**	**90S4**	25
	40.9	246	34.20*	1.2				
	45.8	220	30.57	1.4				
	56.0	180	24.99	1.7				
	66.2	152	21.15*	1.8				
	72.8	139	19.24*	2.0				
	76.9	131	18.21*	2.1				
	91.5	110	15.30*	2.5				
	72.5	139	38.63	2.2	**HG03**	**80B5/B14**	**8022**	25
	81.9	123	34.20*	2.4	**HGF03**	**80B5/B14**	**8022**	25
	91.6	110	30.57	2.7	**HGZ03**	**80B5/B14**	**8022**	25
	112.0	90	24.99	3.3				
	132.4	76	21.15*	3.7				
	145.5	69	19.24*	4.0				
	153.8	66	18.21*	4.3				
	27.3	370	51.30*	1.4	**HG04**	**90B5/B14**	**90S4**	27
	31.7	318	44.18*	1.6	**HGF04**	**90B5/B14**	**90S4**	27
	36.2	278	38.63	1.8	**HGZ04**	**90B5/B14**	**90S4**	27
	40.9	246	34.20*	1.9				
	45.8	220	30.57	2.2				
	56.0	180	24.99	2.7				
	66.2	152	21.15*	2.8				
	72.8	139	19.24*	3.0				
	76.9	131	18.21*	3.2				
	91.5	110	15.30*	3.8				
	105	96	13.30*	3.7				
1.5	118	117	11.90	1.0	**HG01**	**90B5/B14**	**90L4**	21
	143	96	9.81	1.0	**HGF01**	**90B5/B14**	**90L4**	21
	153	90	9.17	0.9	**HGZ01**	**90B5/B14**	**90L4**	21
	181	76	7.72	1.1				
	246	56	5.69	1.1				
	302	45	4.63	1.3				
	366	38	3.82	1.6				
	305	45	9.17	1.8	**HG01**	**90B5/B14**	**90S2**	21
	363	38	7.72	2.1	**HGF01**	**90B5/B14**	**90S2**	21
	492	28	5.69	2.1	**HGZ01**	**90B5/B14**	**90S2**	21
	605	23	4.63	2.6				
	733	19	3.82	3.2				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
1.5	58.7	234	23.85*	0.85	**HG02**	**90B5/B14**	**90L4**	23
	69.7	197	20.08*	1.0	**HGF02**	**90B5/B14**	**90L4**	23
	81.9	168	17.10	1.0	**HGZ02**	**90B5/B14**	**90L4**	23
	94.5	145	14.81*	1.4				
	106	130	13.21	1.2				
	116	118	12.05	1.7				
	141	98	9.93	1.6				
	159	86	8.78	1.4				
	189	73	7.39	1.7				
	257	54	5.45	1.9				
	316	44	4.43	2.3				
	383	36	3.66	2.8				
	212	65	13.21	2.5	**HG02**	**90B5/B14**	**90S2**	23
	232	59	12.05	3.4	**HGF02**	**90B5/B14**	**90S2**	23
	282	49	9.93	3.3	**HGZ02**	**90B5/B14**	**90S2**	23
	319	43	8.78	2.8				
	379	36	7.39	3.3				
	514	27	5.45	3.7				
	40.9	336	34.20*	0.89	**HG03**	**90B5/B14**	**90L4**	25
	45.8	300	30.57	1.0	**HGF03**	**90B5/B14**	**90L4**	25
	56.0	245	24.99	1.2	**HGZ03**	**90B5/B14**	**90L4**	25
	66.2	208	21.15*	1.3				
	72.8	189	19.24*	1.5				
	76.9	179	18.21*	1.6				
	91.5	150	15.30*	1.9				
	105	131	13.30*	1.9				
	111	124	12.60	2.0				
	128	107	10.93*	1.7				
	154	89	9.08	2.0				
	177	78	7.93*	2.3				
	222	62	6.31	2.9				
	255	54	5.48	2.8				
	311	44	4.50	3.4				
	374	37	3.74	4.1				
	256	54	10.93*	3.4	**HG03**	**90B5/B14**	**90S2**	25
	308	45	9.08	4.0	**HGF03**	**90B5/B14**	**90S2**	25
	353	39	7.93*	4.6	**HGZ03**	**90B5/B14**	**90S2**	25
	26.3	523	34.20*	0.92	**HG04**	**100B5/B14**	**100L6**	27
	29.4	467	30.57	1.0	**HGF04**	**100B5/B14**	**100L6**	27
	36.0	382	24.99	1.3	**HGZ04**	**100B5/B14**	**100L6**	27
	27.3	504	51.30*	1.0	**HG04**	**90B5/B14**	**90L4**	27
	31.7	434	44.18*	1.2	**HGF04**	**90B5/B14**	**90L4**	27
	36.2	379	38.63	1.3	**HGZ04**	**90B5/B14**	**90L4**	27
	40.9	336	34.20*	1.4				
	45.8	300	30.57	1.6				
	56.0	245	24.99	2.0				
	66.2	208	21.15*	2.0				
	72.8	189	19.24*	2.2				
	76.9	179	18.21*	2.3				
	91.5	150	15.30*	2.8				
	105	131	13.30*	2.7				
	111	124	12.60	2.8				
	128	107	10.93*	2.6				
	154	89	9.08	3.1				
	177	78	7.93*	3.3				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
2.2	66.2	305	21.15*	0.92	**HG03**	**100B5/B14**	**100LA4**	25
	72.8	277	19.24*	1.0	**HGF03**	**100B5/B14**	**100LA4**	25
	76.9	262	18.21*	1.1	**HGZ03**	**100B5/B14**	**100LA4**	25
	91.5	220	15.30*	1.1				
	105	192	13.30*	1.3				
	111	182	12.60	1.4				
	128	157	10.93*	1.1				
	154	131	9.08	1.4				
	177	114	7.93*	1.6				
	222	91	6.31	2.0				
	255	79	5.48	1.9				
	311	65	4.50	2.3				
	374	54	3.74	2.8				
	308	65	9.08	2.8	**HG03**	**90B5/B14**	**90L2**	25
	353	57	7.93*	3.2	**HGF03**	**90B5/B14**	**90L2**	25
	444	45	6.31	4.0	**HGZ03**	**90B5/B14**	**90L2**	25
	511	39	5.48	3.8				
	36.0	560	24.99	0.86	**HG04**	**112B5/B14**	**112M6**	27
	42.6	474	21.15*	0.9	**HGF04**	**112B5/B14**	**112M6**	27
	46.8	431	19.24*	1.0	**HGZ04**	**112B5/B14**	**112M6**	27
	49.4	408	18.21*	1.0				
	40.9	493	34.20*	1.0	**HG04**	**100B5/B14**	**100LA4**	27
	45.8	440	30.57	1.1	**HGF04**	**100B5/B14**	**100LA4**	27
	56.0	360	24.99	1.3	**HGZ04**	**100B5/B14**	**100LA4**	27
	66.2	305	21.15*	1.4				
	72.8	277	19.24*	1.5				
	76.9	262	18.21*	1.6				
	91.5	220	15.30*	1.9				
	105	192	13.30*	1.8				
	111	182	12.60	1.9				
	128	157	10.93*	1.8				
	154	131	9.08	2.1				
	177	114	7.93*	2.3				
	222	91	6.31	2.9				
	255	79	5.48	2.9				
	311	65	4.50	3.5				
	374	54	3.74	4.3				
3	91.5	301	15.30*	0.93	**HG03**	**100B5/B14**	**100LB4**	25
	105	261	13.30*	1.0	**HGF03**	**100B5/B14**	**100LB4**	25
	111	248	12.60	1.0	**HGZ03**	**100B5/B14**	**100LB4**	25
	128	215	10.93*	0.8				
	154	178	9.08	1.0				
	177	156	7.93*	1.2				
	222	124	6.31	1.5				
	255	108	5.48	1.4				
	311	88	4.50	1.7				
	374	73	3.74	2.0				
	45.8	601	30.57	0.80	**HG04**	**100B5/B14**	**100LB4**	27
	56.0	491	24.99	1.0	**HGF04**	**100B5/B14**	**100LB4**	27
	66.2	416	21.15*	1.0	**HGZ04**	**100B5/B14**	**100LB4**	27
	72.8	378	19.24*	1.1				

P_{1n} [kW]	n_2 [r/min]	M_{2n} [Nm]	i	fs				Strana
3	76.9	358	18.21*	1.2	**HG04**	**100B5/B14**	**100LB4**	27
	91.5	301	15.30*	1.4	**HGF04**	**100B5/B14**	**100LB4**	27
	105	261	13.30*	1.3	**HGZ04**	**100B5/B14**	**100LB4**	27
	111	248	12.60	1.4				
	128	215	10.93*	1.3				
	154	178	9.08	1.6				
	177	156	7.93*	1.7				
	222	124	6.31	2.1				
	255	108	5.48	2.1				
	311	88	4.50	2.6				
	374	73	3.74	3.1				
	308	89	9.08	3.1	**HG04**	**100B5/B14**	**100L2**	27
	353	78	7.93*	3.3	**HGF04**	**100B5/B14**	**100L2**	27
	444	62	6.31	4.2	**HGZ04**	**100B5/B14**	**100L2**	27
	511	54	5.48	4.3				
4	177	208	7.93*	0.87	**HG03**	**112B5/B14**	**112M4**	25
	222	165	6.31	1.1	**HGF03**	**112B5/B14**	**112M4**	25
	255	144	5.48	1.0	**HGZ03**	**112B5/B14**	**112M4**	25
	311	118	4.50	1.3				
	374	98	3.74	1.5				
	105	348	13.30*	1.0	**HG04**	**112B5/B14**	**112M4**	27
	111	330	12.60	1.1	**HGF04**	**112B5/B14**	**112M4**	27
	128	286	10.93*	1.0	**HGZ04**	**112B5/B14**	**112M4**	27
	154	238	9.08	1.2				
	177	208	7.93*	1.3				
	222	165	6.31	1.6				
	255	144	5.48	1.6				
	311	118	4.50	2.0				
	374	98	3.74	2.3				
	308	119	9.08	2.4	**HG04**	**112B5/B14**	**112M2**	27
	353	104	7.93*	2.5	**HGF04**	**112B5/B14**	**112M2**	27
	444	83	6.31	3.1	**HGZ04**	**112B5/B14**	**112M2**	27
	511	72	5.48	3.2				
	622	59	4.50	3.9				

Výkonové parametre / HG.. HS..

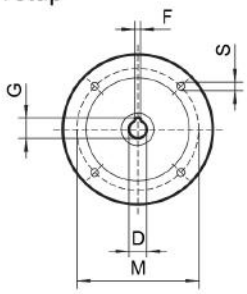
M_{2max} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]		Strana
120	1400	53.3	0.34	26.3	**HG01-HS**	22
120	1400	45.9	0.40	30.5	**HGF01-HS**	22
120	1400	40.1	0.46	34.9	**HGZ01-HS**	22
120	1400	35.5	0.52	39.5		
120	1400	28.5	0.64	49.1		
120	1400	23.6	0.78	59.4		
120	1400	19.8	0.92	70.6		
100	1400	17.9	0.86	78.4		
120	1400	14.6	1.25	95.7		
100	1400	13.8	1.10	101		
120	1400	11.9	1.54	118		
100	1400	9.8	1.56	143		
80	1400	9.2	1.34	153		
80	1400	7.7	1.58	181		
60	1400	5.7	1.61	246		
60	1400	4.6	1.98	302		
60	1400	3.8	2.40	367		
200	1400	54.0	0.57	25.9	**HG02-HS**	24
200	1400	46.5	0.66	30.1	**HGF02-HS**	24
200	1400	40.6	0.75	34.5	**HGZ02-HS**	24
200	1400	35.9	0.85	39.0		
200	1400	28.9	1.06	48.5		
200	1400	23.9	1.28	58.7		
200	1400	20.1	1.52	69.7		
160	1400	17.1	1.43	81.9		
200	1400	14.8	2.06	94.6		
160	1400	13.2	1.85	106		
200	1400	12.1	2.53	116		
160	1400	9.9	2.46	141		
120	1400	8.8	2.08	159		
120	1400	7.4	2.49	190		
100	1400	5.5	2.80	257		
100	1400	4.4	3.45	316		
100	1400	3.7	4.18	383		

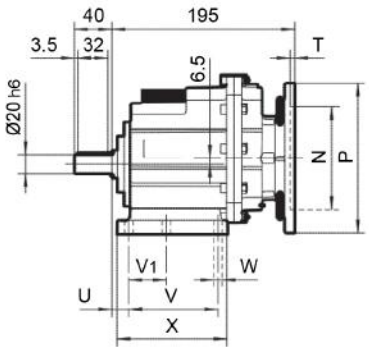
M_{2max} [Nm]	n_1 [r/min]	i	P_{1n} [kW]	n_2 [r/min]		Strana
300	1400	51.3	0.89	27.3	**HG03-HS**	26
300	1400	44.2	1.04	31.7	**HGF03-HS**	26
300	1400	38.6	1.19	36.2	**HGZ03-HS**	26
300	1400	34.2	1.34	40.9		
300	1400	30.6	1.50	45.8		
300	1400	25.0	1.83	56.0		
280	1400	21.2	2.02	66.2		
280	1400	19.2	2.22	72.8		
280	1400	18.2	2.35	76.9		
280	1400	15.3	2.79	91.5		
250	1400	13.3	2.86	105		
250	1400	12.6	3.03	111		
180	1400	10.9	2.51	128		
180	1400	9.1	3.02	154		
180	1400	7.9	3.46	176		
180	1400	6.3	4.36	222		
150	1400	5.5	4.17	255		
150	1400	4.5	5.09	311		
150	1400	3.7	6.12	374		
500	1400	51.3	1.49	27.3	**HG04-HS**	28
500	1400	44.2	1.73	31.7	**HGF04-HS**	28
500	1400	38.6	1.98	36.2	**HGZ04-HS**	28
480	1400	34.2	2.14	40.9		
480	1400	30.6	2.40	45.8		
480	1400	25.0	2.93	56.0		
420	1400	21.2	3.03	66.2		
420	1400	19.2	3.34	72.8		
420	1400	18.2	3.52	76.9		
420	1400	15.3	4.19	91.5		
350	1400	13.3	4.01	105		
350	1400	12.6	4.24	111		
280	1400	10.9	3.91	128		
280	1400	9.1	4.70	154		
260	1400	7.9	4.99	176		
260	1400	6.3	6.30	222		
230	1400	5.5	6.40	255		
230	1400	4.5	7.80	311		
230	1400	3.7	9.38	374		

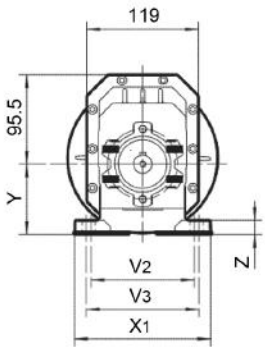
Rozmery

HG01..P(IEC)

Vstup

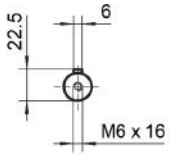






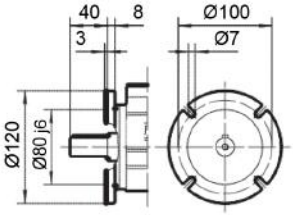
HGF01..P(IEC)

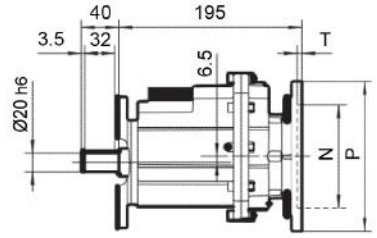
Výstup



I

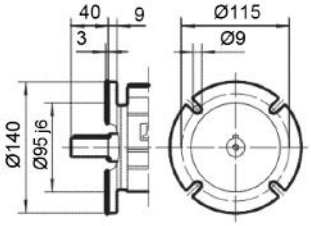
Ø120

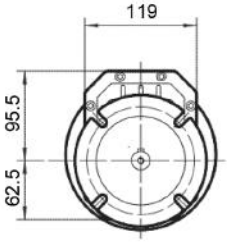




II

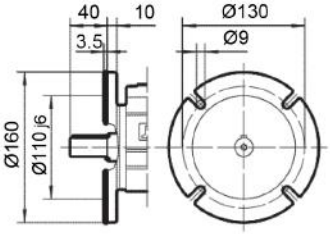
Ø140



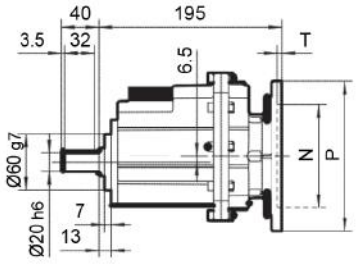


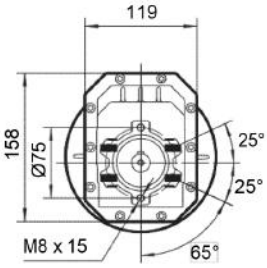
III

Ø160



HGZ01..P(IEC)



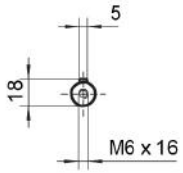


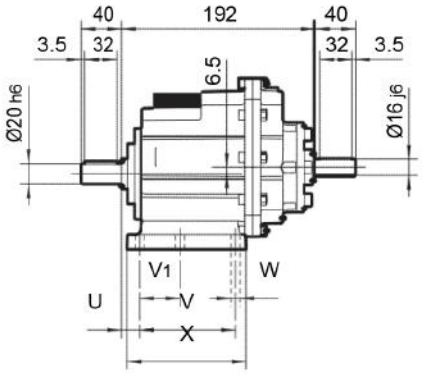
IEC	D	F	G	P	M	N	S	T
63B5	11	4	12.8	140	115	95	9	5
71B5	14	5	16.3	160	130	110	9	5
71B14	14	5	16.3	105	85	70	7	5
80B5	19	6	21.8	200	165	130	11	5
80B14	19	6	21.8	120	100	80	7	5
90B5	24	8	27.3	200	165	130	11	5
90B14	24	8	27.3	140	115	95	9	5

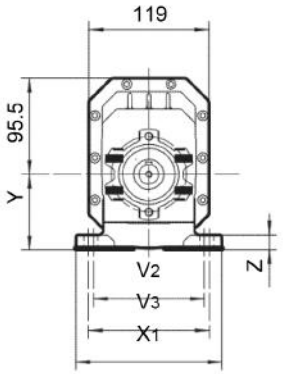
Kód pätky	U	V	V_1	V_2	V_3	W	X	X_1	Y	Z
B01	18	87	50	110	—	9	118	130	85	15
M01	18	80	—	110	120	9	118	145	75	15
M02	25	85	—	110	120	9	112	145	75	15
B02	18	107.5	60	—	130	11	136	155	95	17

HG01..HS

Vstup

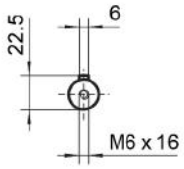


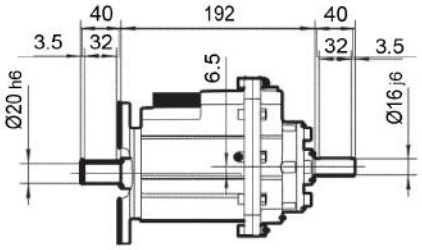


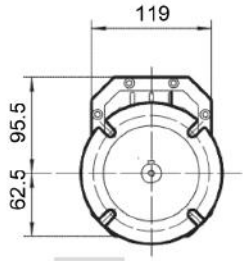


HGF01..HS

Výstup

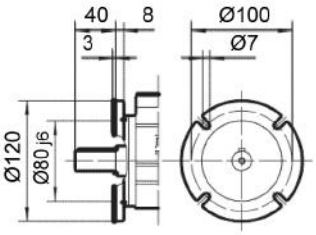






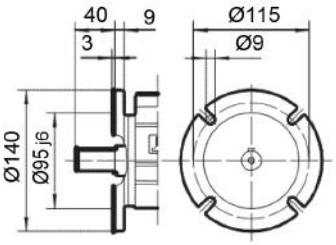
I

Ø120



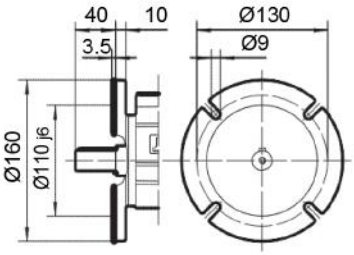
II

Ø140

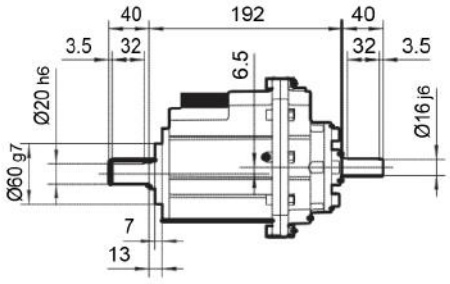


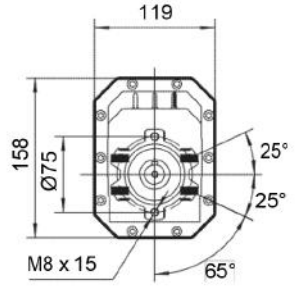
III

Ø160



HGZ01..(IEC)

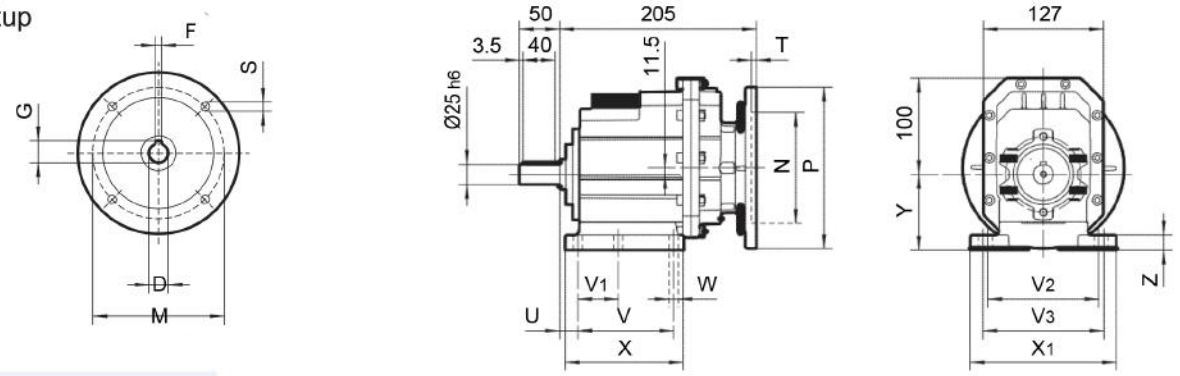




Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B01	18	87	50	110	—	9	118	130	85	15
M01	18	80	—	110	120	9	118	145	75	15
M02	25	85	—	110	120	9	112	145	75	15
B02	18	107.5	60	—	130	11	136	155	95	17

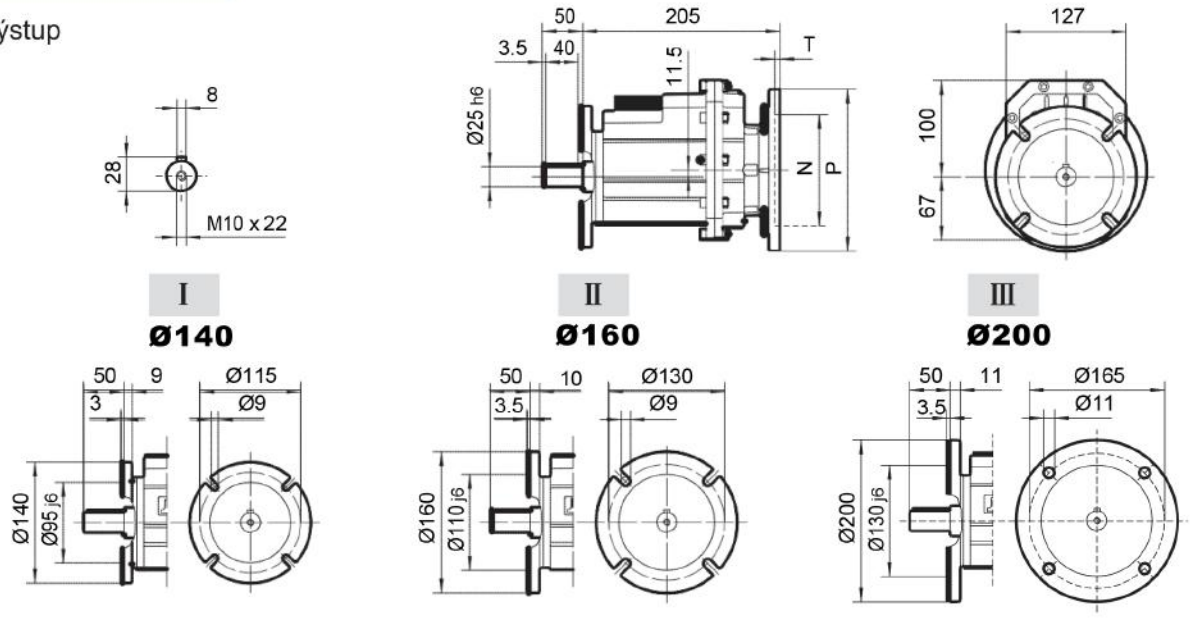
HG02..P(IEC)

Vstup

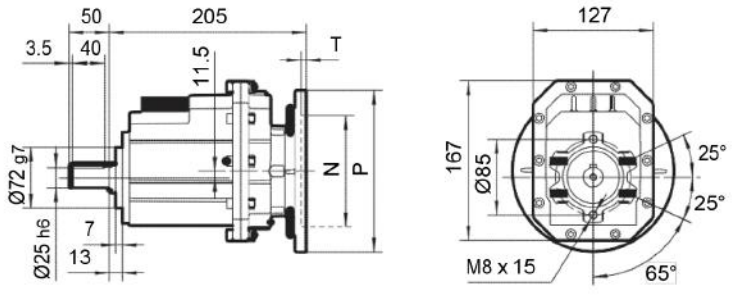


HGF02..P(IEC)

Výstup



HGZ02..P(IEC)

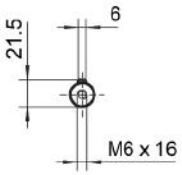


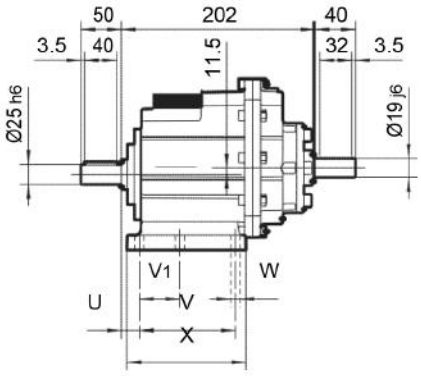
IEC	D	F	G	P	M	N	S	T
63B5	11	4	12.8	140	115	95	9	5
71B5	14	5	16.3	160	130	110	9	5
71B14	14	5	16.3	105	85	70	7	5
80B5	19	6	21.8	200	165	130	11	5
80B14	19	6	21.8	120	100	80	7	5
90B5	24	8	27.3	200	165	130	11	5
90B14	24	8	27.3	140	115	95	9	5

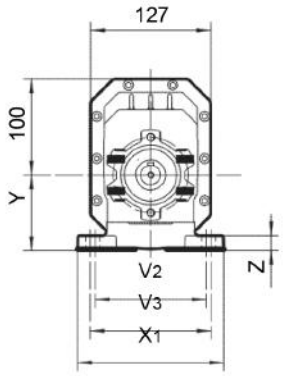
Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B02	18	107.5	60	—	130	11	136	155	100	17
M02	25	85	—	110	120	9	112	145	80	15
M01	18	80	—	110	120	9	118	145	80	15
B01	18	87	50	110	—	9	118	130	90	15

HG02..HS

Vstup

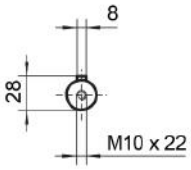


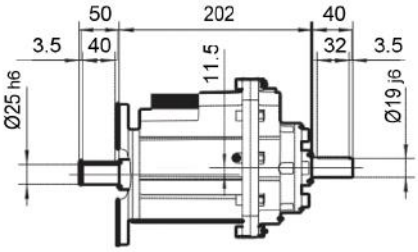


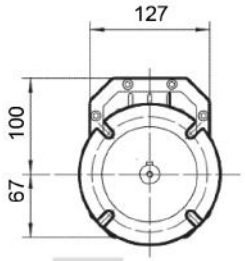


HGF02..HS

Výstup

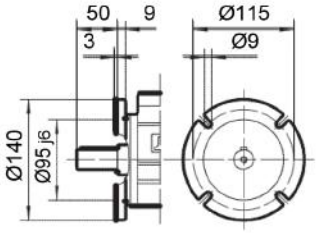






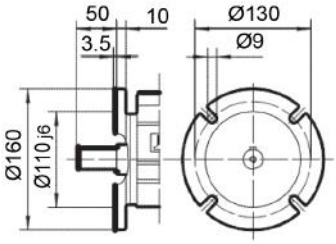
I

Ø140



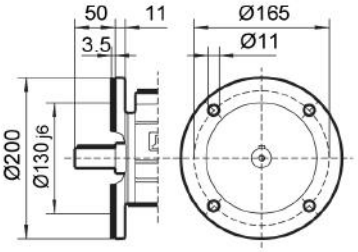
II

Ø160

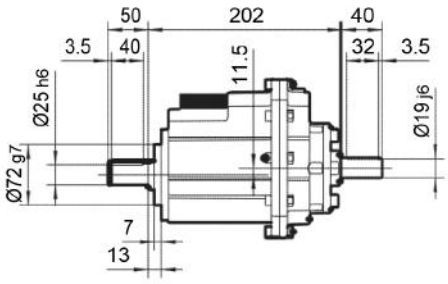


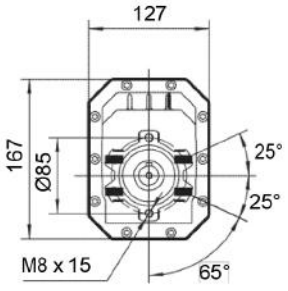
III

Ø200



HGZ02..HS

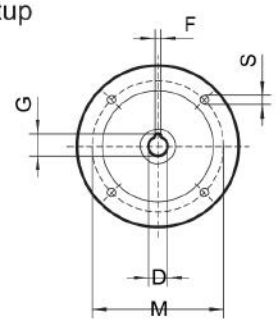


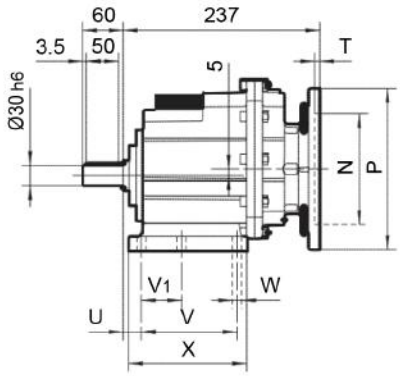


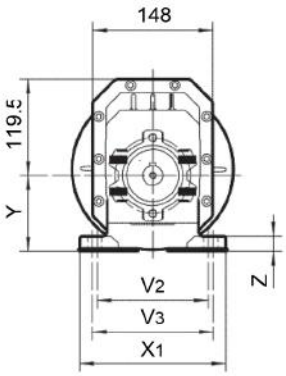
Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B02	18	107.5	60	—	130	11	136	155	100	17
M02	25	85	—	110	120	9	112	145	80	15
M01	18	80	—	110	120	9	118	145	80	15
B01	18	87	50	110	—	9	118	130	90	15

HG03..P(IEC)

Vstup

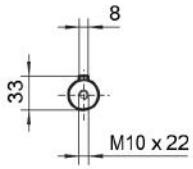


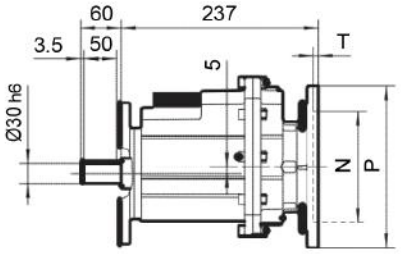


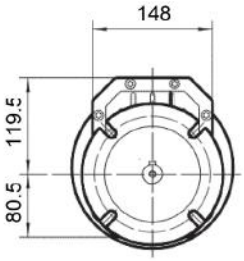


HGF03..P(IEC)

Výstup

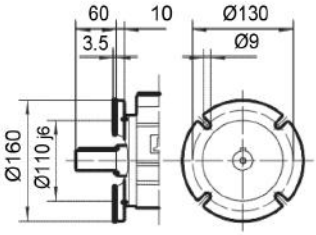






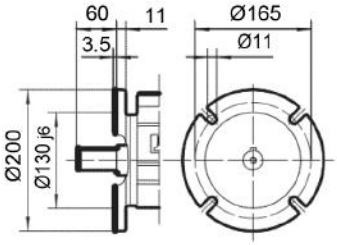
I

Ø160



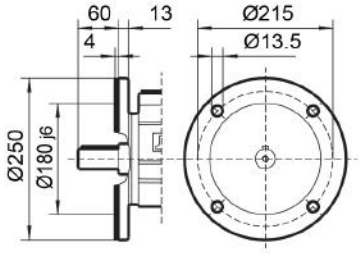
II

Ø200

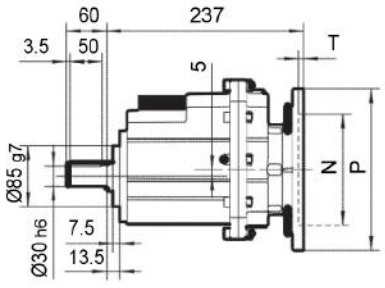


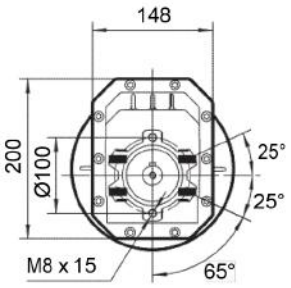
III

Ø250



HGZ03..P(IEC)



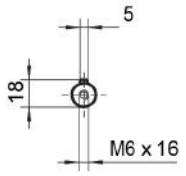


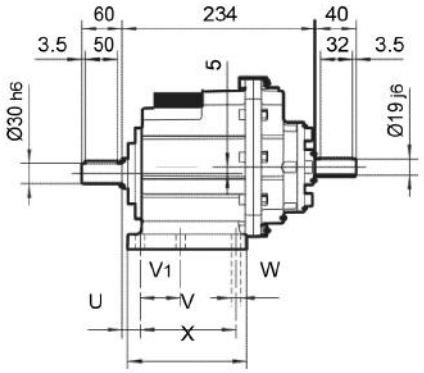
IEC	D	F	G	P	M	N	S	T
71B5	14	5	16.3	160	130	110	9	5
80B5	19	6	21.8	200	165	130	11	5
80B14	19	6	21.8	120	100	80	7	5
90B5	24	8	27.3	200	165	130	11	5
90B14	24	8	27.3	140	115	95	9	5
100/112B5	28	8	31.3	250	215	180	13.5	5
100/112B14	28	8	31.3	160	130	110	9	5

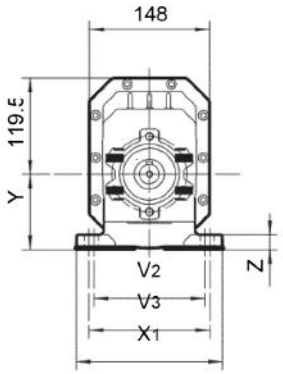
Kód pätky	U	V	V_1	V_2	V_3	W	X	X_1	Y	Z
B03	18	130	70	—	160	11	156	190	110	20
M03	30	100	—	135	150	11	150	190	110	18
M04	32	110	—	170	185	14	150	230	110	20
B04	20.5	130	—	170	—	14	168	205	105	20

HG03..HS

Vstup

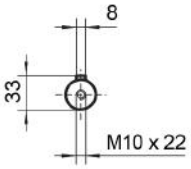


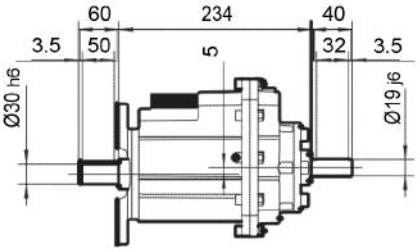


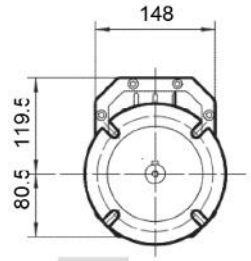


HGF03..HS

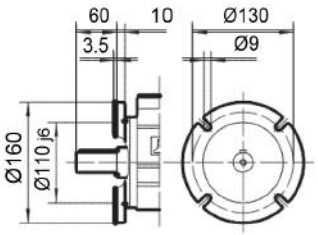
Výstup



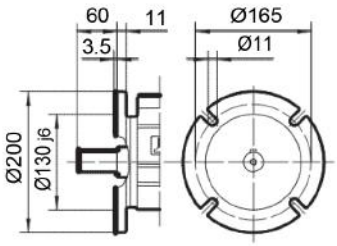




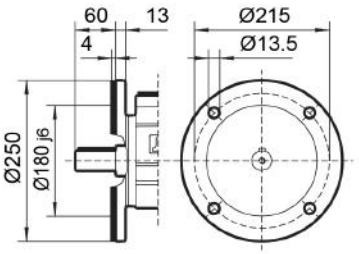
I **Ø160**



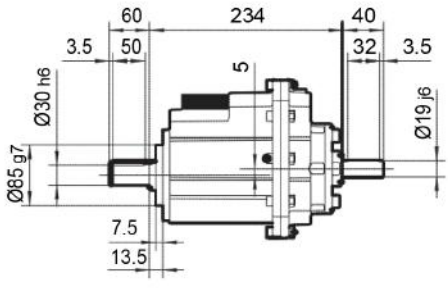
II **Ø200**

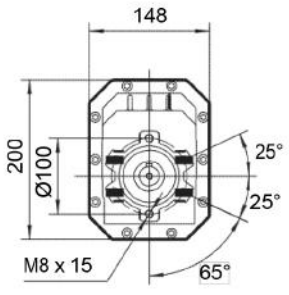


III **Ø250**



HGZ03..HS

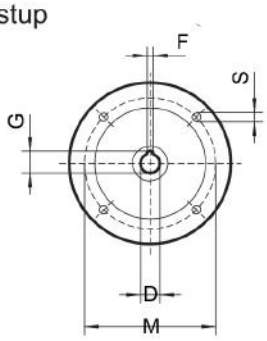


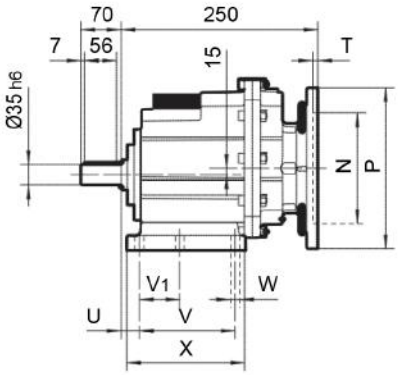


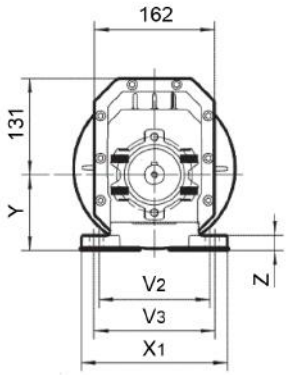
Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B03	18	130	70	—	160	11	156	190	110	20
M03	30	100	—	135	150	11	150	190	110	18
M04	32	110	—	170	185	14	150	230	110	20
B04	20.5	130	—	170	—	14	168	205	105	20

HG04..P(IEC)

Vstup

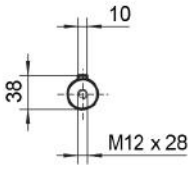


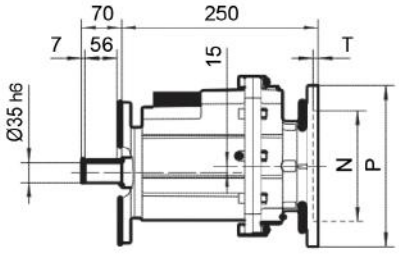


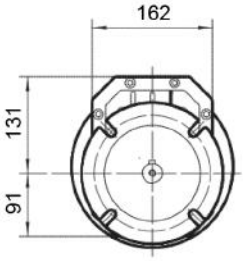


HGF04..P(IEC)

Výstup

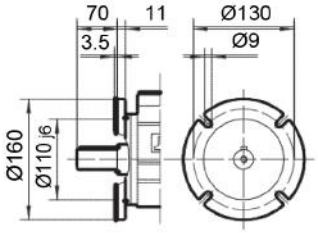






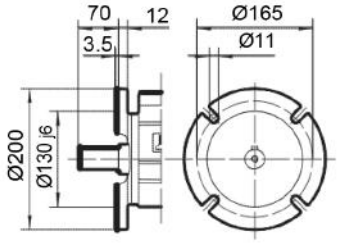
I

Ø160



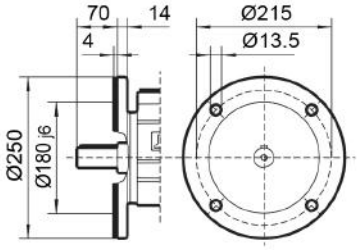
II

Ø200

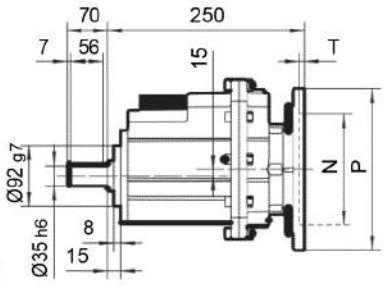


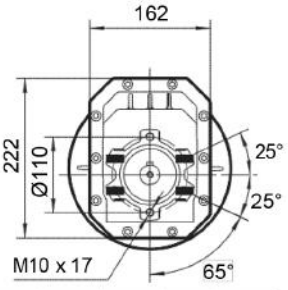
III

Ø250



HGZ04..P(IEC)



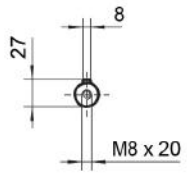


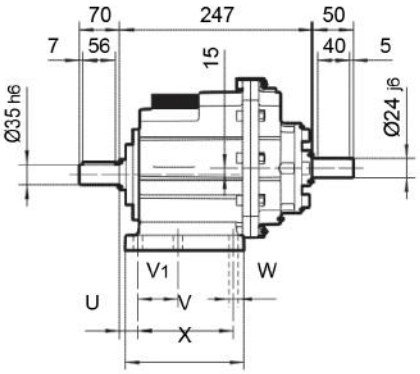
IEC	D	F	G	P	M	N	S	T
80B5	19	6	21.8	200	165	130	11	5
80B14	19	6	21.8	120	100	80	7	5
90B5	24	8	27.3	200	165	130	11	5
90B14	24	8	27.3	140	115	95	9	5
100/112B5	28	8	31.3	250	215	180	13.5	5
100/112B14	28	8	31.3	160	130	110	9	5

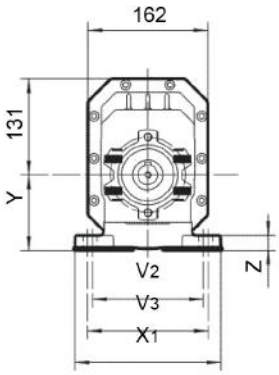
Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B04	23.5	130	—	170	—	14	168	205	115	20
B05	19.5	149.5	—	180	—	14	185	215	130	20
M04	35	110	—	170	185	14	150	230	120	20
M03	33	100	—	135	150	11	150	190	120	18
B03	21	130	70	—	160	11	156	190	120	20

HG04..HS

Vstup

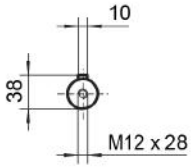


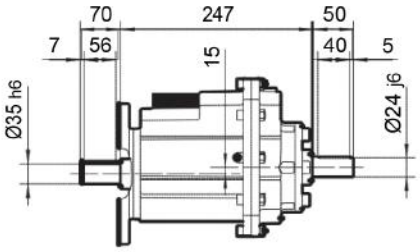


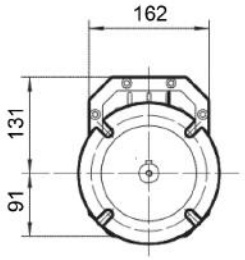


HGF04..HS

Výstup

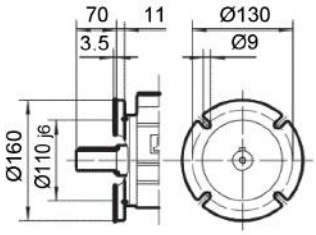






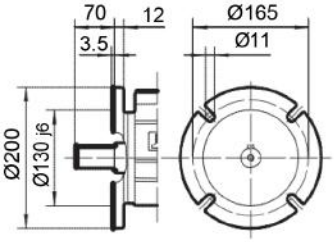
I

Ø160



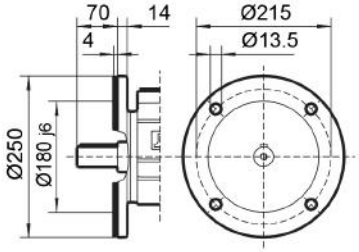
II

Ø200

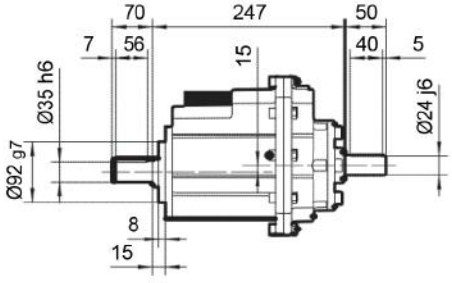


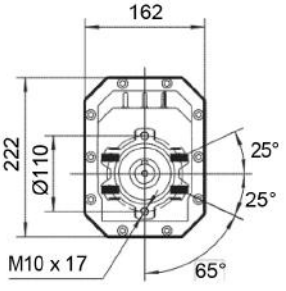
III

Ø250



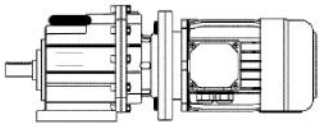
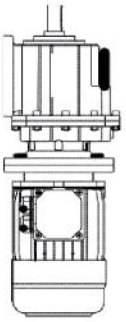
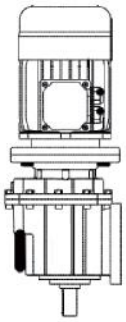
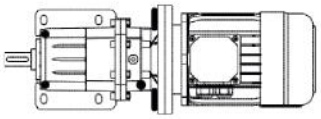
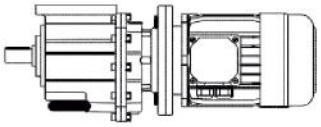
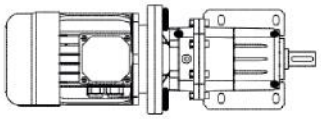
HGZ04..HS

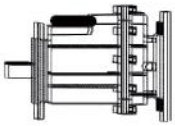
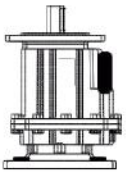
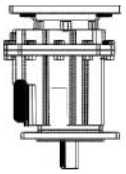


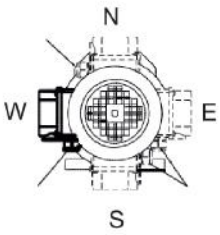


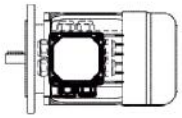
Kód pätky	U	V	V1	V2	V3	W	X	X1	Y	Z
B04	23.5	130	—	170	—	14	168	205	115	20
B05	19.5	149.5	—	180	—	14	185	215	130	20
M04	35	110	—	170	185	14	150	230	120	20
M03	33	100	—	135	150	11	150	190	120	18
B03	21	130	70	—	160	11	156	190	120	20

Montážna poloha a orientácia skrine svorkovnice

HG.. M1	M2	M4	M5
			
M3			**M6**
			

HGF.. M1	M2	M4
		





	°C -50 0 +50 +100		ISO	SHELL	MOBIL	BP	
HG..	-10 Standard	+40	VG 220	Shell Omala 220	Mobilgear 630	BP GR-XP 220 BP Energol	
	-20	+25	VG 150 VG 100	Shell Omala 100	Mobilgear 627	BP Energol GR-XP 100	
	-30	+10	VG 68-46 VG 32	Shell Tellus T 32	Mobil D.T.E. 13M		
	-40	-20	VG 22 VG 15	Shell Tellus T 15	Mobil D.T.E. 11M	BP Energol HLP-HM 15	
	-40	+80	VG 220	Shell Omala HD 220	Mobil SHC 630		
	-40	+40	VG 150	Shell Omala HD 150	Mobil SHC 629		
	-40	+10	VG 32		Mobil SHC 624		

Množstvo maziva

Typ prevodovky	Množstvo v litroch					jednotka:Liter(L)
	M1	M2	M3	M4	M5	M6
HG..01..	0.4	0.6	0.4	0.3	0.3	0.3
HG..02..	0.5	0.7	0.5	0.4	0.4	0.4
HG..03..	0.8	1.1	0.8	0.6	0.6	0.6
HG..04..	1.2	1.6	1	1	0.9	0.9

Kontakt

HLAVNÝ ZÁVOD

VYBO ELECTRIC s.r.o.
Radlinského 514/18
052 01 Spišská Nová Ves
Slovenská republika

ŠPECIÁLNE PORADENSTVO

tel.: +421 907 937 187
e-mail: obchod@vyboelectric.eu
www.vyboelectric.sk

SOLUTIONS FOR INDUSTRY