FRP680

HELICAL GEARBOXES

- for feeding systems
- single stage
- IEC and NEMA motor coupling

CONTENTS

Description, Designation

The gearbox FRP680 is expressly designed to be fitted on screw conveyor feeding systems; the gearbox output does not match specific standard but a wide range of feeders with adapters and shafts to the customer's needs.

Input is provided with clamp coupling or traditional bore/keyway system and adapter for IEC or NEMA motor fitting.

The one-piece aluminium die-cast body is abundantly sized to avoid any harmful vibration to the feeding system and to withstand heavy operations.

Helical gears - made of alloy steel, casehardened, tempered and shaved - are designed and verified according to ISO 6336 and DIN 3990.

Bearings are calculated for at least 10,000 running hour average lifetime.

Keyways according to DIN 6884.

The gearboxes are delivered filled with synthetic long-life oil (without plugs), in the appropriate quantity to install them in any mounting position without any prior specification.

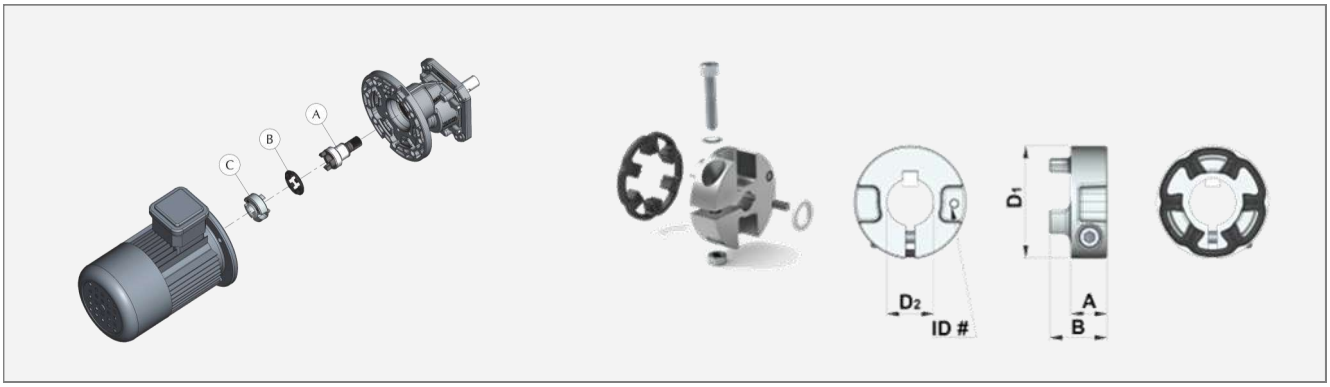
GEARBOX DESIGNATION

F	RP-G	680	SQ (🗋 10)	3.94 (🗋 5-6)	IEC80 (🗋 7)	B14 (🗋 7)	680.01. ... (🗋 11)
M F S	RP-G	680	SQ SQ/1 B5 B5/1 B5/140 B5/160	2.52 . . . 7.91	IEC71-80-90 NEMA56C-140TC	B5 B14	Output shaft
			Output flange type	Reduction ratio	Motor size	Motor mounting	
		Gearbox size					
	Gearbox type						

M = Geared motor
F = with input flange
S = without input flange

Coupling, Service factor

RP680



Advantages:
- IEC/NEMA adapters and couplings to fit on already assembled and greased gearbox
- Elimination of fretting corrosion between key and keyway
- Gearbox/motor connection with zero backlash
- Allowed angular misalignment 1° max.
- High torsional rigidity

G Type	Motor	Kit Part No.	RP	Mt	Mt_1	Mt_2	A	B	D_1	D_2	ID#
				[Nm]	[Nm]	[Nm]	[mm]	[mm]	[mm]	[mm]	
G5	IEC	KG5.014 KG5.019 KG5.024	680 680 680	8.9 - 10	30 40 70	12 - 17 20 - 25 30 - 40	14.5	23	45 45 52	14 19 24	514 519 524
				[in-lb]	[in-lb]	[in-lb]	[in]	[in]	[in]	[in]	
G5	NEMA	KG5.N56 KG5.N140	680 680	79 - 89	398 531	266 - 310 354 - 398	0.57	0.91	1.77 2.05	5/8 7/8	5N56 5N140

SERVICE FACTOR
of the gearbox
Service factor FS1.0 is meant as typical of 8-10 hours/day operation, with uniform load and starts/ stops lower than 6 per hour and ambient temperature between 15 and 35 Celsius.
Should other operation conditions occur, the service factors of the two tables have to be multiplied.
The ratio between the drive's maximum output torque M_2 and application torque $M_{(app)}$ defines the drive's Duty Factor that must be equal or bigger than the Service Factor SF.
For max. ambient temperature exceeding 40 °C or below 0 °C, please ask our Pre-sales Service.

Charge Type				Start-Stops per hour		
hours	uniform **SF_1**	variable **SF_1**	with shocks **SF_1**	number	**SF_2**	**$SF = SF_1 \times SF_2$**
8	1.0	1.2	1.4	6	1.0	
16	1.2	1.4	1.6	60	1.1	
24	1.4	1.6	1.8	120	1.2	

Versions

FRP-G 680 SQ - FRP-G 680 SQ/1

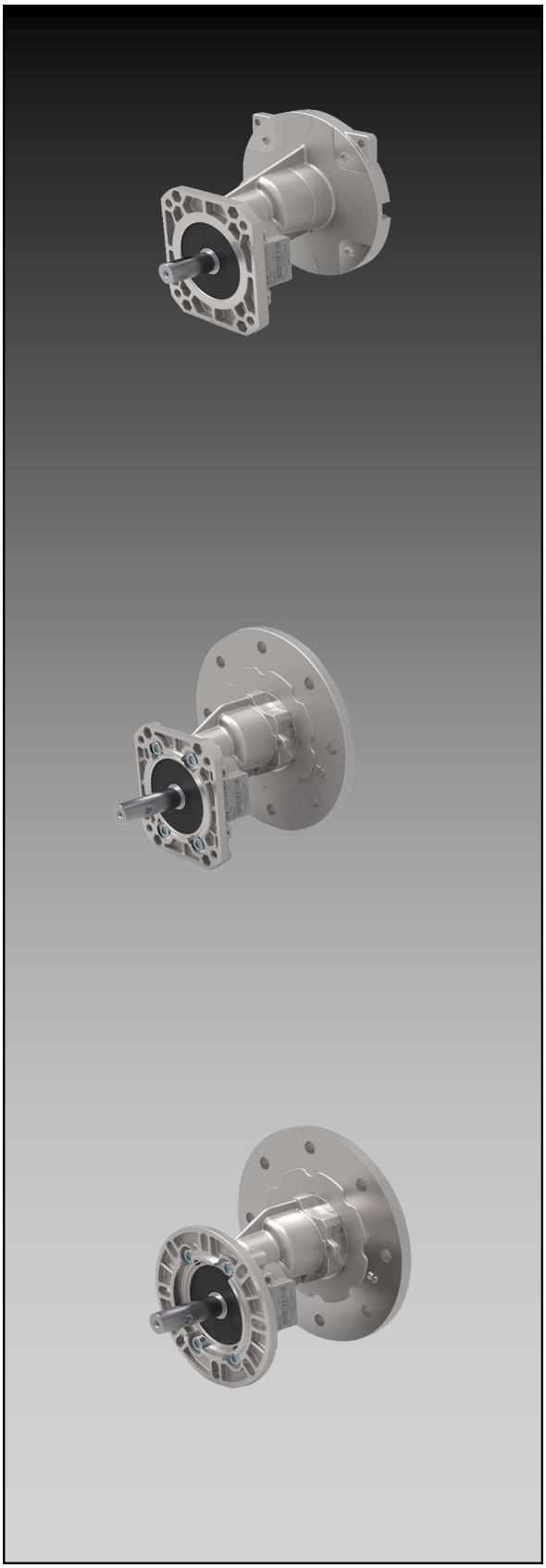
Helical gearboxes with one gear set
SQ - Square output flange, 127 mm PCD spigot fixing
SQ/1 - Flange as above but without spigot

FRP-G 680 B5 - FRP-G 680 B5/1

Helical gearboxes with one gear set
B5 - Square output flange, 100 mm PCD spigot fixing
B5/1 - Flange as above but without spigot

FRP-G 680 B5/140 - FRP-G 680 B5/160

Helical gearboxes with one gear set
B5/140 - Output flange with IEC63-B5 dimensions
B5/160 - Output flange with IEC71-B5 dimensions



MRP680 - 1400 rpm - 50 Hz

kW	in	ir	rpm	Nm	SF
0.25	2.5	2.54	551	4.2	>3.0
	3.0	2.95	475	4.9	>3.0
	3.2	3.19	439	5.3	>3.0
	3.5	3.50	400	5.8	>3.0
	3.9	3.94	355	6.6	>3.0
	4.2	4.17	336	7.0	>3.0
	4.7	4.69	299	7.8	>3.0
	5.1	5.07	276	8.5	>3.0
	6.2	6.15	228	10.3	>3.0
	6.7	6.67	210	11.1	2.9
	8.1	8.10	173	13.5	2.0
0.37	2.5	2.54	551	6.3	>3.0
	3.0	2.95	475	7.3	>3.0
	3.2	3.19	439	7.9	>3.0
	3.5	3.50	400	8.7	>3.0
	3.9	3.94	355	9.7	>3.0
	4.2	4.17	336	10.3	>3.0
	4.7	4.69	299	11.6	>3.0
	5.1	5.07	276	12.5	>3.0
	6.2	6.15	228	15.2	2.3
	6.7	6.67	210	16.5	2.0
	8.1	8.10	173	20.0	1.3
0.55	2.5	2.54	551	9.3	>3.0
	3.0	2.95	475	10.8	>3.0
	3.2	3.19	439	11.7	>3.0
	3.5	3.50	400	12.9	>3.0
	3.9	3.94	355	14.5	>3.0
	4.2	4.17	336	15.3	2.8
	4.7	4.69	299	17.2	2.4

kW	in	ir	rpm	Nm	SF
0.55	5.1	5.07	276	18.6	2.1
	6.2	6.15	228	22.6	1.5
	6.7	6.67	210	24.5	1.3
	8.1	8.10	173	29.8	0.9
0.75	2.5	2.54	551	12.7	>3.0
	3.0	2.95	475	14.8	>3.0
	3.2	3.19	439	16.0	2.9
	3.5	3.50	400	17.5	2.6
	3.9	3.94	355	19.8	2.2
	4.2	4.17	336	20.9	2.1
	4.7	4.69	299	23.5	1.7
	5.1	5.07	276	25.4	1.5
	6.2	6.15	228	30.8	1.1
	6.7	6.67	210	33.4	1.0
1.1	2.5	2.54	551	18.7	2.6
	3.0	2.95	475	21.7	2.3
	3.2	3.19	439	23.5	2.0
	3.5	3.50	400	25.7	1.8
	3.9	3.94	355	29.0	1.5
	4.2	4.17	336	30.7	1.4
	4.7	4.69	299	34.5	1.2
	5.1	5.07	276	37.3	1.0
1.5	2.5	2.54	551	25.5	1.9
	3.0	2.95	475	29.6	1.7
	3.2	3.19	439	32.0	1.4
	3.5	3.50	400	35.1	1.3
	3.9	3.94	355	39.5	1.1
	4.2	4.17	336	41.8	1.0

in - nominal reduction ratio
ir - real reduction ratio

	FRP680	SQ-SQ/1	B5-B5/1	B5/140	B5/160
Weights [kg]	IEC71	2.3	2.3	2.4	2.5
	IEC80-90	2.5	2.5	2.6	2.7
	NEMA 56	2.3	2.3	2.4	2.5
	NEMA 140	2.3	2.3	2.4	2.5

	FRP680
Oil [litres]	0.04 Shell Omala S4 WE 320

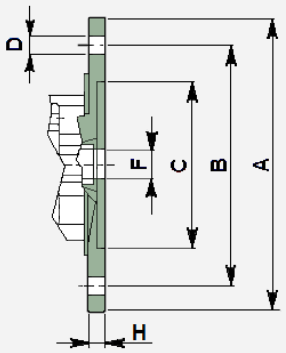
MRP680 - 1750 rpm - 60 Hz

kW	in	ir	rpm	Nm	SF
0.25	2.5	2.54	689	3.4	>3.0
	3.0	2.95	593	3.9	>3.0
	3.2	3.19	549	4.3	>3.0
	3.5	3.50	500	4.7	>3.0
	3.9	3.94	444	5.3	>3.0
	4.2	4.17	420	5.6	>3.0
	4.7	4.69	373	6.3	>3.0
	5.1	5.07	345	6.8	>3.0
	6.2	6.15	285	8.2	>3.0
	6.7	6.67	262	8.9	2.9
	8.1	8.10	216	10.8	2.0
0.37	2.5	2.54	689	5.0	>3.0
	3.0	2.95	593	5.8	>3.0
	3.2	3.19	549	6.3	>3.0
	3.5	3.50	500	6.9	>3.0
	3.9	3.94	444	7.8	>3.0
	4.2	4.17	420	8.3	>3.0
	4.7	4.69	373	9.3	>3.0
	5.1	5.07	345	10.0	>3.0
	6.2	6.15	285	12.2	2.3
	6.7	6.67	262	13.2	2.0
	8.1	8.10	216	16.0	1.3
0.55	2.5	2.54	689	7.5	>3.0
	3.0	2.95	593	8.7	>3.0
	3.2	3.19	549	9.4	>3.0
	3.5	3.50	500	10.3	>3.0
	3.9	3.94	444	11.6	>3.0
	4.2	4.17	420	12.3	2.8
	4.7	4.69	373	13.8	2.4

kW	in	ir	rpm	Nm	SF
0.55	5.1	5.07	345	14.9	2.1
	6.2	6.15	285	18.1	1.6
	6.7	6.67	262	19.6	1.3
	8.1	8.10	216	23.8	0.9
0.75	2.5	2.54	689	10.2	>3.0
	3.0	2.95	593	11.8	>3.0
	3.2	3.19	549	12.8	2.9
	3.5	3.50	500	14.0	2.7
	3.9	3.94	444	15.8	2.2
	4.2	4.17	420	16.7	2.1
	4.7	4.69	373	18.8	1.7
	5.1	5.07	345	20.3	1.5
	6.2	6.15	285	24.7	1.1
	6.7	6.67	262	26.8	1.0
1.1	2.5	2.54	689	14.9	2.6
	3.0	2.95	593	17.4	2.3
	3.2	3.19	549	18.8	2.0
	3.5	3.50	500	20.6	1.8
	3.9	3.94	444	23.2	1.5
	4.2	4.17	420	24.5	1.4
	4.7	4.69	373	27.6	1.2
	5.1	5.07	345	29.8	1.0
1.5	2.5	2.54	689	20.4	1.9
	3.0	2.95	593	23.7	1.7
	3.2	3.19	549	25.6	1.4
	3.5	3.50	500	28.1	1.3
	3.9	3.94	444	31.6	1.1
	4.2	4.17	420	33.5	1.0

in - nominal reduction ratio
ir - real reduction ratio

IEC - NEMA



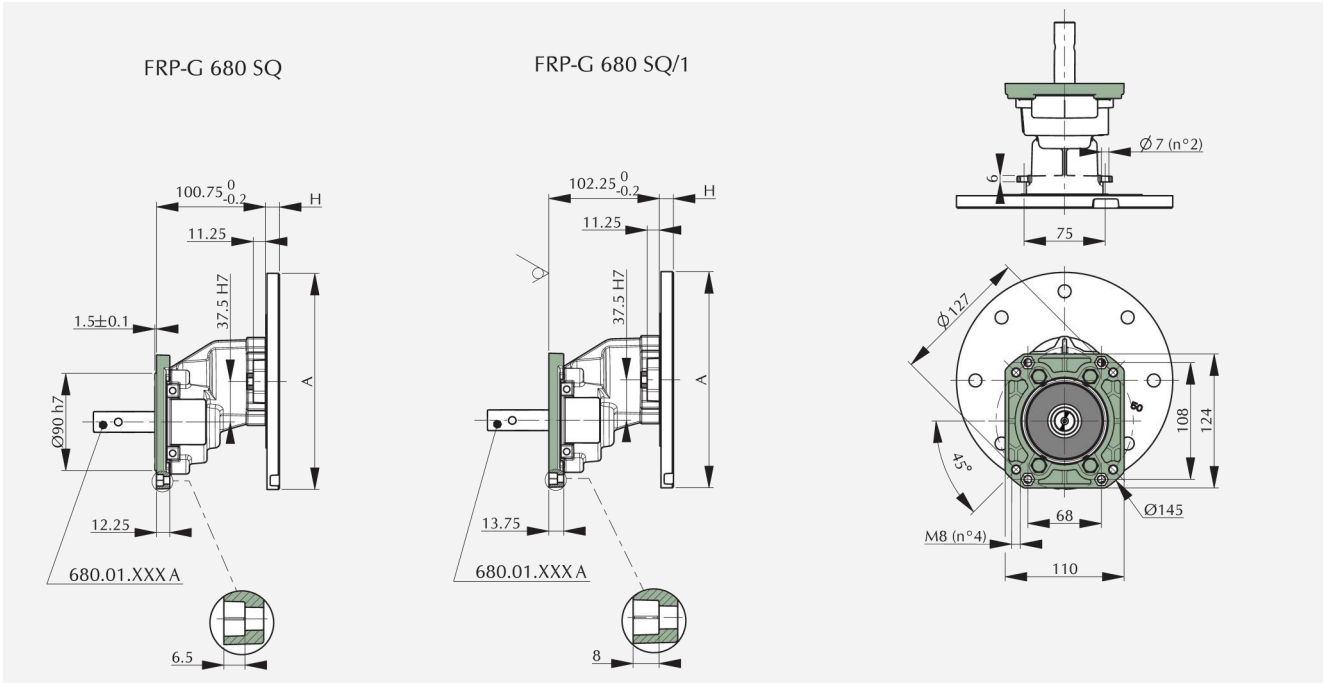
①	IEC						NEMA		
	71-B5	71-B14	80-B5	80-B14	90-B5 ③	90-B14 ③	56C	140TC	
A	160	105	200	120	200	140	165.10	165.10	
B	130	85	165	100	165	115	149.35	149.35	
C	110	70	130	80	130	95	114.30	114.30	
D	10	7	11	70	11	10	10.92	10.92	
F	14	14	19	19	24	24	16	22.35	
H	11.5	10.5	11.5	10	11.5	11	12.95	12.95	

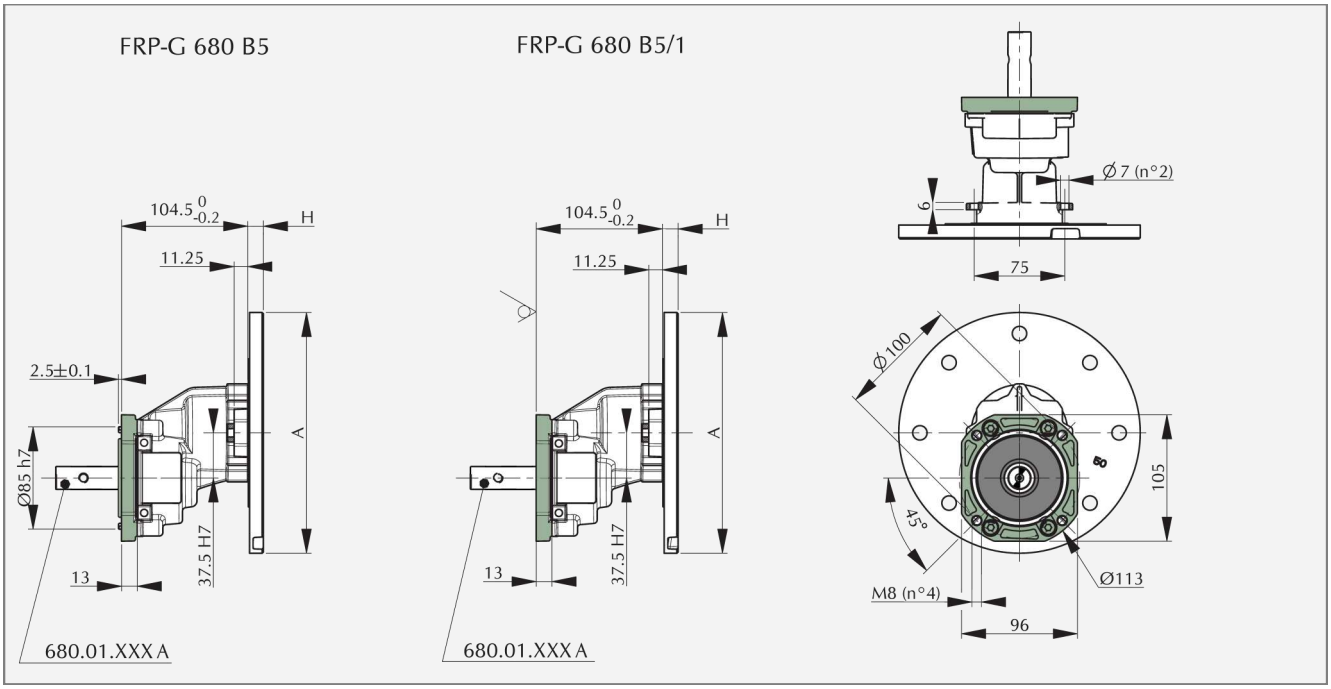
②	NEMA		IEC						
	NEMA 56C	NEMA 140TC	IEC 71-B5	IEC 71-B14	IEC 80-B5	IEC 80-B14	IEC 90-B5 ③	IEC 90-B14 ③	
A	6.50	6.50	6.30	4.13	7.87	4.72	7.87	5.51	
B	5.88	5.88	5.12	3.35	6.50	3.94	6.50	4.53	
C	4.50	4.50	4.33	2.76	5.12	3.15	5.12	3.74	
D	0.43	0.43	0.39	0.28	0.43	0.28	0.43	0.39	
F	0.63	0.88	0.55	0.55	0.75	0.75	0.94	0.94	
H	0.51	0.51	0.45	0.41	0.45	0.39	0.45	0.43	

① - Dimensions in mm
② - Dimensions in inches
③ - Contact our Technical-Commercial Service

Not binding dimensions and weights

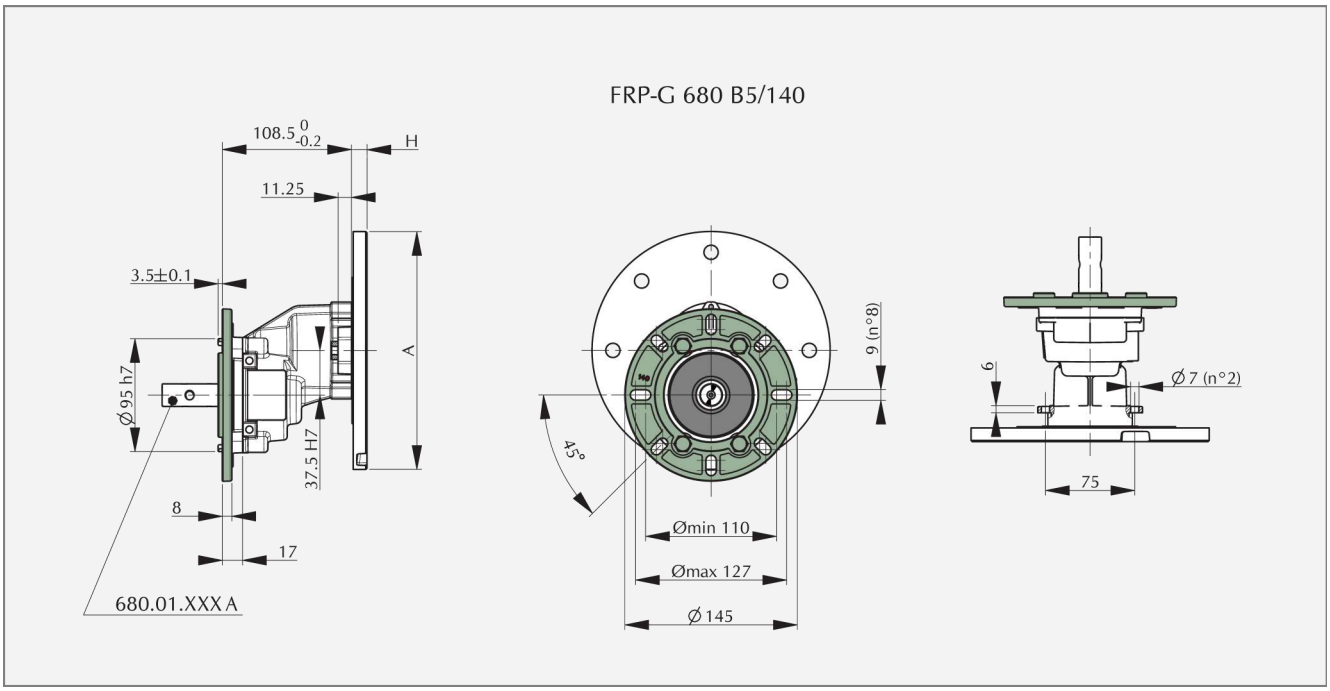
FRP680 - SQ - SQ/1 - B5 - B5/1

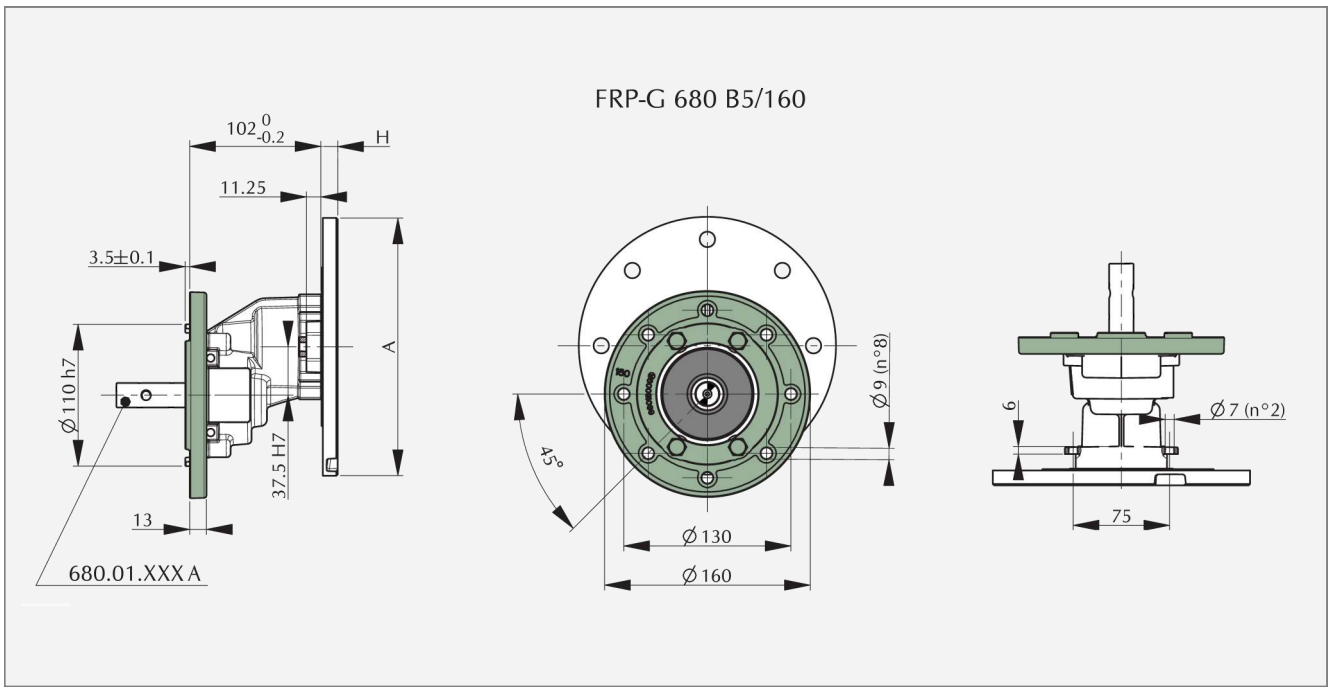




Dimensions A and H: see page 9
Dimensions 680.01.XYZ: see pages 10 and 11
Not binding dimensions and weights

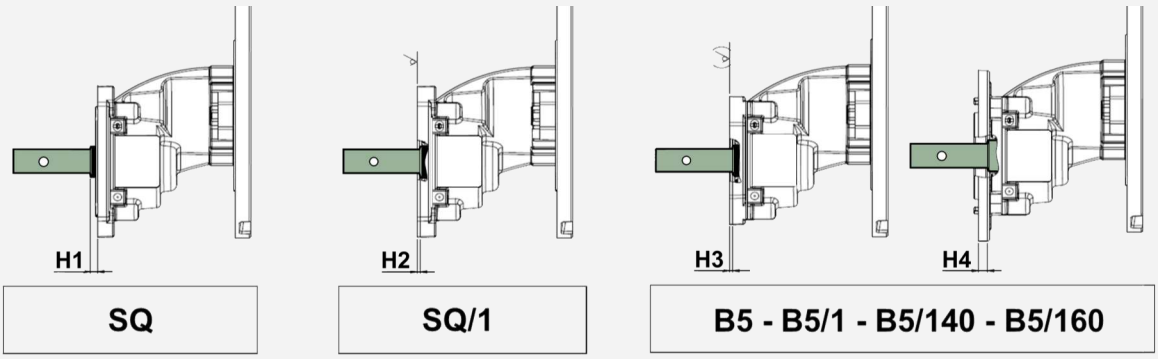
FRP680 - B5/140 - B5/160





Dimensions A and H: see page 9
Dimensions 680.01.XYZ: see pages 10 and 11
Not binding dimensions and weights

Output shaft selection

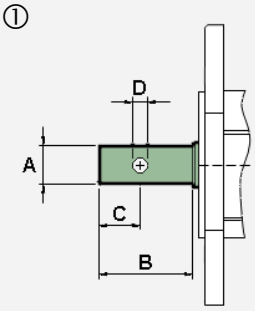


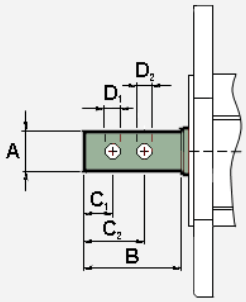
Shaft ID	SQ SQ/1	B5 B5/1	B5/140	B5/160	H1 F1	H1 F2	H2 F1	H2 F2	H3	H4 B5	H4 140	H4 160
680 01 001A	*				1.25	2.5	0.25	0				
680 01 002A	*				1.25	2.5	0.25	0				
680 01 003A			*	*							6.5	0
680 01 005A	*				1.25	2.5	0.25	0				
680 01 006A	*				1.25	2.5	0.25	0				
680 01 007A			*	*							6.5	0
680 01 009A			*	*							6.5	0
680 01 010A			*	*							6.5	0
680 01 011A			*	*							6.5	0
680 01 012A	*				1.25	2.5	0.25	0				
680 01 015A	*	*			1.25	2.5	0.25	0	2.5	2.5		
680 01 016A	*				1.25	2.5	0.25	0				
680 01 017A	*				1.25	2.5	0.25	0				
680 01 019A			*	*							6.5	0
680 01 020A			*	*							6.5	0
680 01 021A			*	*	1.25	2.5	0.25	0			6.5	0
680 01 022A	*				1.25	2.5	0.25	0				
680 01 023A	*				1.25	2.5	0.25	0				
680 01 024A	*				1.25	2.5	0.25	0				
680 01 025A	*	*			1.25	2.5	0.25	0	2.5	2.5		

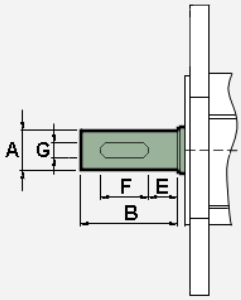
F1 - Bolted flange execution
F2 - Cast flange execution

Other shaft ends on demand
Not binding dimensions and weights

Output shaft dimensions

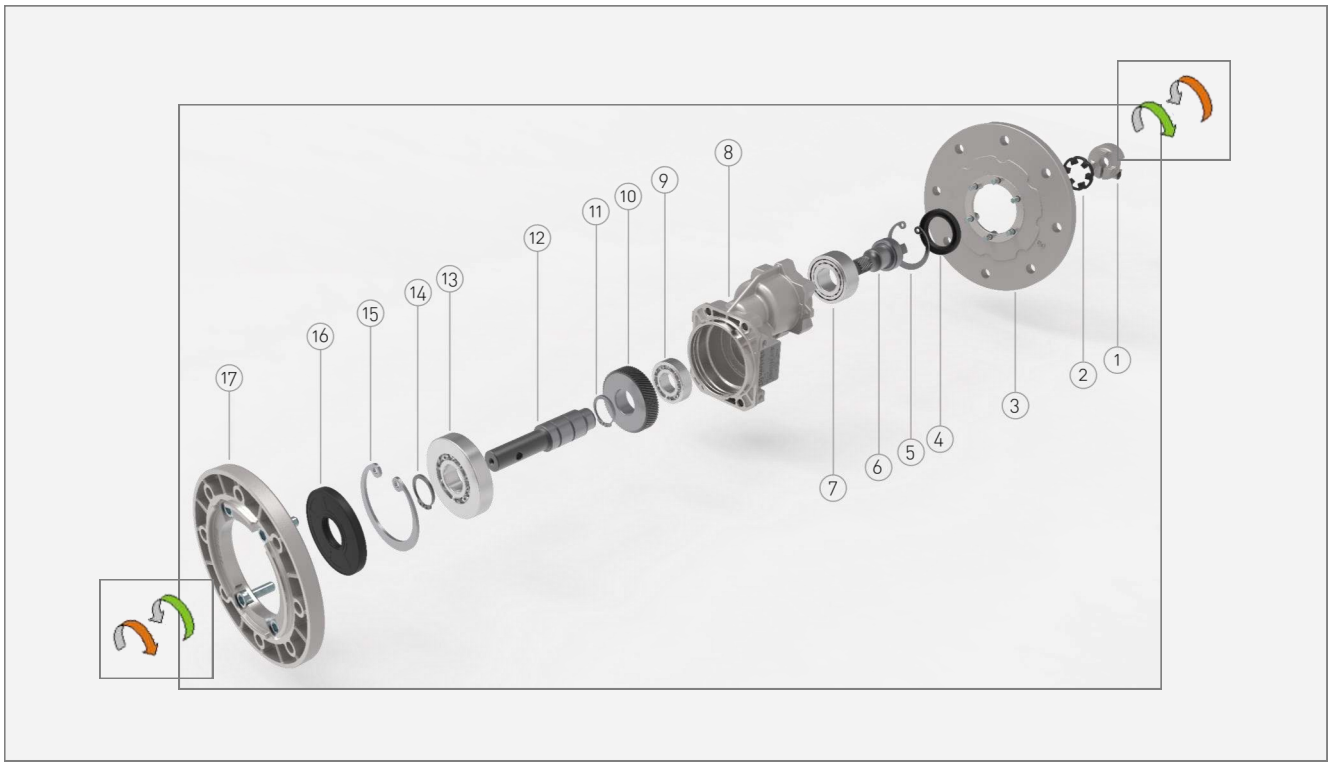
① 

② 

③ 

①	A	B	C	D	②	A	B	C_1	C_2	D_1	D_2	③	A	B	E	F	G
680 01 005A	16	50	21	7	680 01 016A	19	57	23	38	8.5	8.5	680 01 003A	19	40	5	30	6
680 01 010A	18.8	80	15	8.5	680 01 017A	19	57	23	38	6.5	6.5						
680 01 012A	19	40	14	6.5	680 01 015A	19.7	100	30	50	6	6						
680 01 001A	19	57	23	6.5	680 01 024A	20	57	23	38	6.5	6.5						
680 01 021A	19	77	38.5	6	680 01 024A	20	75	36.5	52.5	7	7						
680 01 009A	19.7	100	50	6	680 01 025A	22	52	23	38	6.5	6.5						
680 01 019A	20	52	23	6.5													
680 01 011A	20	84	30	6													
680 01 007A	21	52	23	6													
680 01 006A	21	57	23	6													
680 01 022A	22	54	20	8													
680 01 002A	22	57	23	8.5													
680 01 020A	22	80	15	8.5													

Not binding dimensions and weights



Item	Description
01	Motor coupling
02	Spider
03	Input flange
04	Input oil seal
05	Circlip
06	Pinion
07	Bearing
08	Body
09	Bearing

Pos.	Description
10	Gear
11	Circlip
12	Output shaft
13	Bearing
14	Circlip
15	Circlip
16	Output oil seal
17	Output flange