Our Manufacturing facility in Italy

INDEX

Technical characteristics	pag. 2-3
Higher service factor in compact size	pag. 4
Calculation of performance paramaters	pag. 5
Lubrication	pag. 6
Selection guide KW / SIZE / RATIO	pag. 7
Performance table 12-21	pag. 8
Performance table 30-60	pag. 9
Performance table 85-150	pag. 10
Performance table 300	pag. 11
Dimensions	pag. 12-13-14-15
List of components ROBUS	pag. 16-17-18-19
Weights	pag. 20

A

B

C

D

RB12-RB300 TECHNICAL CHARACTERISTICS

Uniquely contoured, rigid, precise, monobloc, cast iron Body, Base and Flange ensure extreme robustness.
In Robus 12, the main body comprises of a single piece aluminium casting with an optimum balance between weight, rigidity and precision.

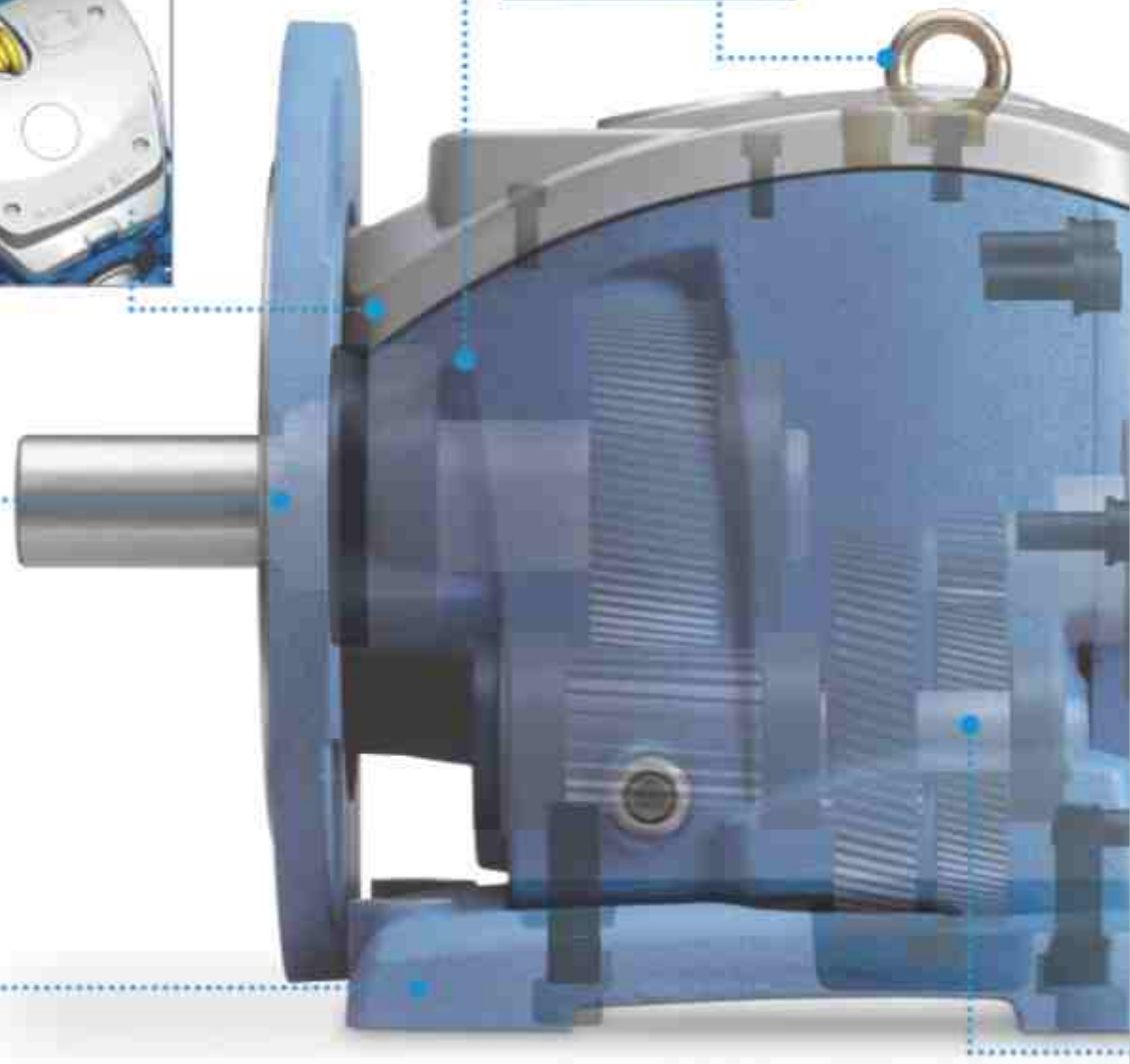
A large top cover in light weight aluminium alloy facilitates the inspection

Except Robus 12, all Robus sizes have a screw-on lifting eyebolt

*Modular design with detachable output flange and foot base allows easy and quick conversion between foot and flange mounting

A removable base enables easy conversion of foot mounted Robus 12 to flange mounting or universal mounting.

*These features available in Robus 12 only.



FLEXIBLE MOUNTING

Easy to examine and maintain

Minimum maintenance requirement.
All sizes are supplied with long-life synthetic oil.

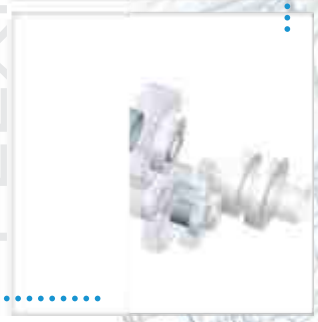
IEC flange and hollow shaft.

Choice of hollow input flanges permits direct mounting of any standard motor

Unique construction of Robus makes it possible to mount any size in any position.
This flexibility is achieved by:

+ ZZ shielded pre-lubricated bearings on input and output shaft

+6 interchangeable plugs, including one breather plug and a level plug please note that the vent plug also allows you to reduce the internal pressure on seals, and thus increases the efficiency of the gearbox



+ mechanical parts locked in their positions by snap rings and spacers. This also ensures better absorbtion of axial thrust and prolongs the life of bearings

ENGINEERED FOR HIGHER RELIABILITY

Use of high strength steels like 15CrMo4 and case hardening to 58 +2 HRC reduce the wear rate in wheels. All wheels are profile ground to Din 3962 class 6 accuracy for low noise and high efficiency.

The surface is exposed to a bombardment of micro-spheres that induces compression and increases further the fatigue resistance.

Shafts are made from 42CrMo4 steel and tempered to reach a hardness of 23-35 HRC, thus increasing their capacity to withstand shearing stesses.

If the mechanical robustness and the service factor of a helical gearbox are mainly influenced by the centre distance of the last stage, Robus confirms to be very robust (see “X2” at page 13).

Single stages ratios between 2 and 6, together with proper gears sizes, result mathematically in higher teeth number and size (module) of each wheel and a better fractioned load among the reduction stages. That influences both durability and torque transmission capability.

Dual bearing support on the input shaft assures precise alignment of the first stage gears and reduces vibrations and consequent gear wear.

Intermediate shaft is rigidly supported by 3 bearings, with no overhang wheel, thus imparting greater flexural strength and better meshing. This increases the overloading capacity and takes to lower noise.

Smaller overhang distance of output shaft from supporting bearing in order to withstand higher redial loads.

Oversized bearings size (page 15), in order to withstand higher loads.

Offered service factor

Which features determine the service factor offered by a helical gearbox ?

The service factor of a gearbox is its capacity to withstand operating load and overloads, a certain number of starts, the duration of operating time, mechanical shocks and vibrations. Thus, higher the service factor, greater is the possibility of trouble free operation and increased life. Without aiming to be completely exhaustive, we list here the main features that influence the service factor:

Amongst all parts, the last stage gears are subjected to highest mechanical stresses. Higher centre distance which in turn results in higher module considerably increases the service factor. ROBUS excels in the area (see measures at last page)

Compared to fractioned or Aluminium body, the monobloc cast-iron body of ROBUS provides higher rigidity and mechanical robustness. At the same time a one-piece body like that of ROBUS-12 is more rigid and reliable than a body compossed of several parts.

Use of high strength steels like 15CrMo4 and case hardening to 58 +2 HRC reduce the wear rate in wheels. All wheels are profile ground to Din 3962 class 6 accuracy for low noise and high efficiency.

The surface is exposed to a bombardment of micro-spheres that induces compression and increases further the fatigue resistance.

Shafts are made from 42CrMo4 steel and tempered to reach hardness of 23-35 HRC, thus increasing their capacity to withstand shearing stresses and torsion effect.

Optimal ratios (between 2 and 6) in the several stages, together with appropriate centre distances, result in higher number of teeth and size (module) of each wheel and better torque transmission fractioning through various stages. This improves the overall durability.

Dual bearing support on the input shaft ensures precise alignment of the first stage gears and reduces vibrations and consequent gear wear

An intermediate shaft rigidly supported by 3 bearings instead of 2, with no overhang wheel, imparts greater flexural strength and smoother meshing

Oversized bearings (see ROBUS bearing list), allow the gearbox to withstand higher operating loads

Mechanical parts locked in their position by snap rings and spacers. This ensures better absorbtion of axial thrust and prolongs the life of bearings

Smaller overhang of output shaft from supporting bearing in order to withstand higher radial loads

Rated output torque M_{n2} (Nm)
Torque output transmissible under uniform loading and referred to the input speed n_1 and the corresponding output speed n_2, The output torque can be calculated with the following formula:

$$M_{n2} = \frac{P_{n1}\,[kW] \cdot 9550}{n_2} \cdot \eta$$

Torque demand M_{r2} (Nm)
Torque calculated based on application requirements. It must be < M_{n2} of the chosen ROBUS unit.

Input power P_{n1} (kW)
This is the power value of the motor applied to the input shaft and corresponding to a certain input speed n_1, a service factor $f_s = 1$ and a duty service S_1.
It is even possible to calculate the motor size necessary by using the formula:

$$P_{n1}\,[kW] = \frac{M_{r2} \cdot n_2}{9550 \cdot \eta}$$

Since the value calculated in this way could not really correspond to an input power actually available in the IEC standardised motors, it will be necessary to choose, among the input powers available, the one which is immediately higher, checking this in the Rotomotive catalogue of the motors.

Efficiency η (%)

An inherent factor in the selection helical gear boxes is the efficiency η, defined as the ratio between the mechanical power coming out from the output shaft, and the power in the input shaft:

$$\eta = \frac{P_{n2}}{P_{n1}}$$

The efficiency in helical gearboxes is mainly determined by the gearing and bearing friction.
The efficiency of ROBUS varies with the nr of stages: it's 94% when the reduction stages are 3, 96% when the stages are 2. The starting efficiency is always less than the efficiency at rated speed.

Gear ratio i
It is the relationship of the input speed n_1 and the output speed n_2

$$i = \frac{n_1}{n_2}$$

In the combined, the total ratio is the result of the product of the ratio of the two single gearboxes.

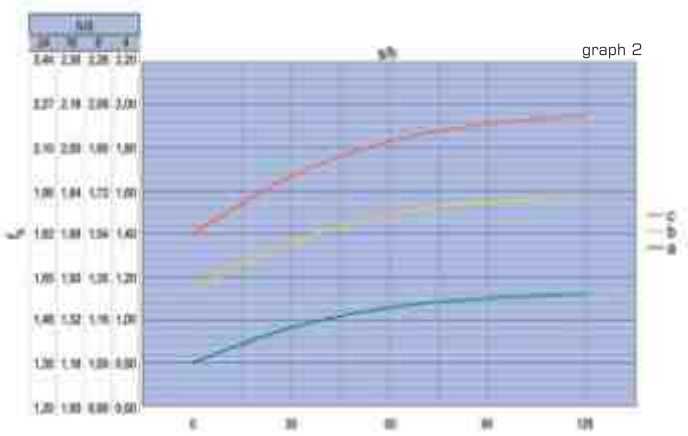
Input speed n_1 (rpm)
It is the speed the ROBUS unit is driven at.

Output speed n_2 (rpm)
It is the rotation speed of the output shaft.

Service factor f_s
It is a numeric value describing the ROBUS unit service duty. With unavoidable approximation, it takes into consideration:

- The daily working hours **h/d**
- The load classification (see table 2), and then the moment of inertia of the driven masses.
- The number of starts per hour **s/h**
- The presence of brake motors, for which it is necessary to multiply for 1.12 the service factor value deducted by the graph 2.
- The significance of the application in terms of safety, for example lifting of parts.

In the graph 2, the service factor f_{sr} required by a certain application can be attained, after having selected the proper "daily working hours" (h/d) column, by intersecting the number of starts per hour (s/h) and one of the a, b or c curves. The curves a, b and c are linked with the load classification described in the table 2.



graph 2

tab. 2

	load Classification	Application
c	uneven operation, heavy loads, larger masses to be accelerated	conveyors with violent jerks; compressors ad alternate pumps with 1 or more cylinders; machinery for bricks, tiles and clay; kneaders; milling machines; lifting winches with buckets; rotting furnaces; heavy fans or mining purposes; mixers for heavy materials; machine-tools; planing kinds; alternating saws; shears; tumbling barrels; vibrators; shredders; turntables
b	starting with moderate loads, uneven operating conditions, medium size masses to be accelerated	belt conveyors with varied load with transfer of bridge trucks for light duty; levelling machines; shakers and mixed for liquid with variable density and viscosity; machines for the food industry (kneading troughs, mincing machines, slicing machines, etc); sifting machines for sand gravel; textile industry machines; cranes, hoists, goodstifts; fertilizer scrapers; concrete mixers; folding machines; winches; crane mechanisms
a	easy starting, smooth operation, small masses be accelerated	belt conveyors for light material; centrifugal pumps; rotary gear pumps; screw feeders for light materials; lifts; bottling machines; auxiliary controls of tool machines; fans; power generators; fillers; small mixers

If, after the selection of the right M_{r2} and n_2 in the following performance tables, you don't find a ROBUS unit whose service factor f_s is > of the requested one f_{sr}, you can choose a ROBUS unit in which $M_{n2} > M_{r2}$.
In fact, in order to satisfy f_{sr}, you can choose another ROBUS unit whose output torque is > M_{c2} output torque, where:
$M_{c2} = M_{r2} \cdot f_{sr}$
Note: This rule is valid only if the new ROBUS unit that has been selected in this way has a service factor f_s > 1 in the performance tables.
From another point of view, the value of f_s in the performance tables refers to a case in which the effective torque requested by the application M_{r2} matches perfectly with the one appearing on the catalogue M_{n2}.
Whenever the torque indicated in the performance table is higher than the requested one, the offered service factor of the performance table can be increased according to the formula:

$$f_s \text{ real} = \frac{f_s \text{ on the table} \cdot M_{n2} \text{ on the table}}{M_{r2}}$$

The value of f_s calculated in this way must be ≥ f_{sr}.

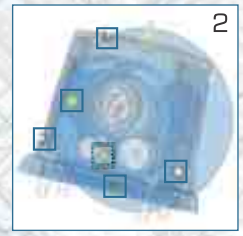
LUBRICATION

Each Robus is supplied with long-life synthetic oil and do not require any maintenance.
The oil quantity is suitable for B3 mounting position

ROBUS	Oil (lt)						ISO	Temp.	Oil Type
	B3	B6	B7	B8	V5	V6			
12	0,35	0,55	0,65	0,6	0,6	0,55	-	-10 +80°C	CENTOPLEX GLP-200-00BH*
21	0,3	0,75	0,95	0,95	1,3	0,85	220	+80°C	Mobil SHC 630 Shell Tivela S220 Klubersynth GH6-220
30	0,7	1,5	1,5	1,5	2,6	1,6			
60	1,1	2,2	2,2	2	3,9	3,6			
85	1,2	2,5	3,4	3,4	4,75	3,8			
150	2,3	6,3	6,5	6,5	8,8	6,7			
300	4,6	11,3	11,7	11,7	15,3	11,7			

After adapting the oil quantity, each Robus, can be mounted in ANY position, thus giving big advantages in the inventory reduction and interchangeability due to the following 3 characteristics:

ZZ shielded pre-lubricated bearings on input and output shaft



6 interchangeable plugs, including one breather plug and a level plug. Level and breather plug must be positioned according to this chart

Mechanical parts locked in their positions by circlips and spacers. This also ensures better absorbtion of axial thrust and prolongs the life of bearings

B5, V1 & V3 positions are for flange mounted

breather plug

level plug

filler plug

*Robus 12 is supplied ONLY with a solid plug and with Synthetic grease of NLGI 00 viscosity grade. The plug can be used for evacuating or topping up the grease.

SELECTION GUIDE KW / SIZE / RATIO

service factor fs =1.5

input n_1 = 1440 RPM

input PAM	63		71		80		90		100/112			132		160		180		
	11 mm		14 mm		19 mm		24 mm		28 mm			38 mm		42 mm		48 mm		
P_{n1} KW	0.12	0.18	0.25	0,37	0,55	0,75	1,1	1,5	2,2	3	3.7	5,5	7,5	11	15	18,5	22	
P_{n1} HP	0.18	0.25	0.35	0,5	0,75	1	1,5	2	3	4	5	7,5	10	15	20	25	30	
120				30	60	60	85	150	150	300	300							120
110																		110
100																		100
90				21	30		60	85										90
80	12	12	12						85	150		300						80
70																		70
60					21	30		60			150		300					60
55									60	85		150						55
50				12			30							300				50
45						21		30			85		150					45
40					12		21			60					300			40
35																		35
30											85							30
25																		25
20					12													20
15						12		21	30	60	60	85	150	150	300	300	300	15
10							12			30	30							10
5																		5

ROBUS ratio i:

= 3 stages

= 2 stages

PERFORMANCE TABLE 12-21

Service factor fs=1.5 @ 1440 RPM

ROBUS 12

Peak Torque = 120 Nm

	Rated Ratio		**3**	**5**	**8**	**10**	**13**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**	**100**	**110**	**120**
	Real Ratio		**2.93**	**5.03**	**7.58**	**9.97**	**12.75**	**15.02**	**19.86**	**24.7**	**30.12**	**35.26**	**39.33**	**46.05**	**50.21**	**55.15**	**59.43**	**64.26**	**69.59**	**75.68**	**81.22**	**85.05**	**92.5**	**99.54**	**109.43**	**119**
	Stage		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Input:	Robus 12 with 2 Pole / 2880 RPM motors																									
63, 71, 80	KW	Frame																								
	Speed		982.9	572.6	379.9	288.9	225.9	191.7	145.0	116.6	95.6	81.7	73.2	62.5	57.4	52.2	48.5	44.8	41.4	38.1	35.5	33.9	31.1	28.9	26.3	24.2
	0.18	63A	1.6	2.8	4.2	5.6	7.1	8.4	11.1	13.8	15.9	18.7	20.8	24.4	26.6	29.2	31.5	34.0	36.8	40.0	43.0	45.0	49.0	52.7	57.9	63.0
	0.25	63B	2.3	3.9	5.9	7.7	9.9	11.7	15.4	19.2	22.1	25.9	28.9	33.8	36.9	40.5	43.7	47.2	51.1	55.6	59.7	62.5	68.0	73.2	80.4	87.5
	0.37	71A	3.4	5.8	8.7	11.4	14.6	17.2	22.8	28.4	32.8	38.4	42.8	50.1	54.6	60.0	64.6	69.9	75.7	82.3	88.4	92.5	101	Robus 21		
	0.55	71B	5.0	8.6	12.9	17.0	21.8	25.6	33.9	42.2	48.7	57.0	63.6	74.5	81.2	89.2	96.1	104	Robus 21							Robus30
Output:	0.75	80A	6.8	11.7	17.6	23.2	29.7	35.0	46.2	57.5	66.4	77.7	86.7	102	Robus 21							Robus 30				
56B5	1.1	80B	10.0	17.2	25.9	34.0	43.5	51.3	67.8	84.3	97.4	Robus 21				Robus 30				Robus 60						
	Robus 12 with 4 Pole / 1440 RPM motors																									
	Speed		491.5	286.3	190.0	144.4	112.9	95.9	72.5	58.3	47.8	40.8	36.6	31.3	28.7	26.1	24.2	22.4	20.7	19.0	17.7	16.9	15.6	14.5	13.0	12.1
	0.12	63A	2.2	3.7	5.6	7.4	9.5	11.2	14.8	18.4	21.3	24.9	27.8	32.5	35.4	38.9	41.9	45.3	49.1	53.4	57.3	60.0	65.3	70.2	77.2	84.0
	0.18	63B	3.3	5.6	8.5	11.1	14.2	16.8	22.2	27.6	31.9	37.3	41.6	48.7	53.1	58.4	62.9	68.0	73.7	80.1	86.0	90.0	97.9	105		
	0.25	71A	4.5	7.8	11.8	15.5	19.8	23.3	30.8	38.3	44.3	51.8	57.8	67.7	73.8	81.1	87.4	94.5	102	Robus 21						
	0.37	71B	6.7	11.6	17.4	22.9	29.3	34.5	45.6	56.7	65.5	76.7	85.6	100	Robus 21							Robus 30				
	0.55	80A	10.0	17.2	25.9	34.0	43.5	51.3	67.8	84.3	97.4	Robus 21				Robus 30				Robus 60						
Shaft:	0.75	80B	13.6	23.4	35.3	46.4	59.4	69.9	92.4	Robus 21			Robus 30				Robus 60									
20, 25	Robus 12 with 6 Pole / 960 RPM motors																									
	Speed		327.6	190.9	126.6	96.3	75.3	63.9	48.3	38.9	31.9	27.2	24.4	20.8	19.1	17.4	16.2	14.9	13.8	12.7	11.8	11.3	10.4	9.6	8.8	8.1
	0.18	71A	4.9	8.4	12.7	16.7	21.4	25.2	31.5	41.4	47.8	56.0	62.4	73.1	79.7	87.6	94.4	102	Robus 21							Robus30
	0.25	71B	6.8	11.7	17.6	23.2	29.7	35.0	43.8	57.5	66.4	77.7	86.7	102	Robus 21							Robus 30				
	0.37	80A	10.1	17.3	26.1	34.3	43.9	51.7	64.8	85.1	98.3	Robus 21				Robus 30				Robus 60						
	0.55	80B	14.2	24.4	36.8	48.4	61.9	72.9	96.3	Robus 21			Robus 30				Robus 60									

Service factor fs=1.5 @ 1440 RPM

ROBUS 21

Peak Torque = 210 Nm

	Rated Ratio		**4**	**5**	**7**	**10**	**13**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**70**	**80**	**90**	**100**	**110**	**120**			
	Real Ratio		4	4.88	6.84	10.42	12.68	15.75	19.95	24.5	30.18	32.51	39.27	46.07	49.28	57.2	59.94	69.57	79.29	91.47	99.12	106.18	119.93			
	Stage		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3			
Input:	Robus 21 with 2 Pole / 2880 RPM motors																									
71, 80, 90	KW	Frame	Torque (Nm)																							
	Speed		720.0	590.0	421.1	276.4	227.1	182.9	144.4	117.6	95.4	88.6	73.3	62.5	58.4	50.3	48.0	41.4	36.3	31.5	29.1	27.1	24.0			
	0.55	71B	Robus 12															112	128	148	160	172	Robus30			
	0.75	80A	Robus 12												109	126	132	153	175	Robus 30						
	1.1	80B	Robus 12									105	127	149	159	185	Robus 30		Robus 60							
Output:	1.5	90S	18.6	22.7	31.8	48.5	59.0	73.3	92.9	114	133	143	173	Robus 30				Robus 60			Robus 85					
71B5,	2.2	90L	27.3	33.3	46.7	71.1	86.6	107	136	167	Robus 30			Robus 60						Robus 85			Robus150			
80/90B5	Robus 21 with 4 Pole / 1440 RPM motors																									
	Speed		360.0	295.1	210.5	138.2	113.6	91.4	72.2	58.8	47.7	44.3	36.7	31.3	29.2	25.2	24.0	20.7	18.2	15.7	14.5	13.6	12.0			
	0.37	71B	Robus 12												107	124	130	151	173	Robus 30						
	0.55	80A	Robus 12									105	127	149	159	185	Robus 30			Robus 60						
	0.75	80B	Robus 12							114	133	143	173	Robus 30				Robus 60								
	1.1	90S	27.3	33.3	46.7	71.1	86.6	108	136	167	Robus 30			Robus 60						Robus 85			Robus150			
	1.5	90L	37.2	45.4	63.7	97.0	118	147	Robus 30			Robus 60						Robus 85			Robus 150					
	Robus 21 with 6 Pole / 960 RPM motors																									
	Speed		240.0	196.7	140.4	92.1	75.7	61.0	48.1	39.2	31.8	29.5	24.4	20.8	19.5	16.8	16.0	13.8	12.1	10.5	9.7	9.0	8.0			
	0.18	71A	Robus 12															110	126	145	157	169	Robus30			
Shaft:	0.25	71B	Robus 12												109	126	132	153	175	Robus 30						
25, 30	0.37	80A	Robus 12									106	128	150	161	187	Robus 30			Robus 60						
	0.55	80B	Robus 12							125	146	158	Robus 30				Robus 60									
	0.75	90S	27.9	34.1	47.8	72.8	88.5	110	139	171	Robus 30			Robus 60					Robus 85				Robus150			
	1.1	90L	41.0	50.0	70.0	107	130	161	Robus 30			Robus 60				Robus 85			Robus 150							

PERFORMANCE TABLE 30-60

Service factor fs=1.5 @ 1440 RPM

ROBUS 30

Peak Torque = 300 Nm

Input: 71, 80, 90*, 100*, 112*																								
Rated Ratio		4	5	7	10	15	18	20	23	25	30	35	40	45	50	55	60	70	80	90	100	110	120
Real Ratio		4.05	5.66	6.79	9.96	14.27	18.37	20.36	23.02	25.38	30.44	35.46	39.26	47.66	49.45	55.56	60.16	72.29	84.26	91.24	102.47	106.3	120.2
Stage		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Robus 30 with 2 Pole / 2880 RPM motors																								
KW	Frame	Torque (Nm)																						
Speed		711.1	508.8	424.2	289.2	201.8	156.8	141.5	125.1	113.5	94.6	81.2	73.4	60.4	58.2	51.8	47.9	39.8	34.2	31.6	28.1	27.1	24.0
0.75	80A	Robus 12												Robus 21						201	226	234	265
1.1	80B	Robus 12										Robus 21					195	234	Robus 60				
1.5	90S	Robus 21												210	218	245	265	Robus 60		Robus 85			
2.2	90L	Robus 21									197	229	254	Robus 60						Robus 85			Robus150
3.7	100LB	46.5	65.0	78.0	114	164	211	234	264	Robus 60					Robus 85			Robus 150					
Robus 30 with 4 Pole / 1440 RPM motors																								
Speed		355.6	254.4	212.1	144.6	100.9	78.4	70.7	62.6	56.7	47.3	40.6	36.7	30.2	29.1	25.9	23.9	19.9	17.1	15.8	14.1	13.5	12.0
0.37	71B	Robus 12												Robus 21						199	223	231	262
0.55	80A	Robus 12										Robus 21					195	234	272	Robus 60			
0.75	80B	Robus 12							Robus 21					210	218	245	265	Robus 60					
1.1	90S	Robus 21									197	229	254	Robus 60						Robus 85			Robus150
1.5	90L	Robus 21					162	180	203	224	Robus 60							Robus 85		Robus 150			
2.2	100L	55.3	77.3	92.7	136	195	251	Robus 60				Robus 85					Robus 150					Robus 300	
3.7	112MB	93.0	130	156	229	Robus 60			Robus 85				Robus 150					Robus 300					
Robus 30 with 6 Pole / 960 RPM motors																								
Speed		237.0	169.6	141.4	96.4	67.3	52.3	47.2	41.7	37.8	31.5	27.1	24.5	20.1	19.4	17.3	16.0	13.3	11.4	10.5	9.4	9.0	8.0
0.25	71B	Robus 12													Robus 21					201	226	234	265
0.37	80A	Robus 12										Robus 21					196	236	Robus 60				
0.55	80B	Robus 12							Robus 21				190	231	240			Robus 60					
0.75	90S	Robus 21									201	235	260	Robus 60					Robus 85				Robus150
1.1	90L	Robus 21					188	209	235	246	Robus 60					Robus 85			Robus 150				
1.5	100L	56.6	79.0	94.8	139	199	257	Robus 60				Robus 85					Robus 150					Robus 300	
2.2	112M	83.0	116	139	204	Robus 60			Robus 85				Robus 150					Robus 300					

Output: 71B5, 80/90B5

Shaft: 30, 35

*For ROBUS 30 : Input 90 available upto 60 ratio • Input 100/112 available upto 40 ratio

Service factor fs=1.5 @ 1440 RPM

ROBUS 60

Peak Torque = 600 Nm

Input: 80, 90*, 100*, 112*																								
Rated Ratio		4	5	8	10	13	15	20	25	30	35	40	45	50	55	60	70	80	90	100	110	120		
Real Ratio		3.96	5.23	7.46	10.05	12.53	15.07	18.79	26.4	30.17	34.25	41.29	46.13	50.82	55.61	59.29	68.44	79.85	84.7	98.82	105.6	123.2		
Stage		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3		
Robus 60 with 2 Pole / 2880 RPM motors																								
KW	Frame	Torque (Nm)																						
Speed		727.3	550.7	386.1	286.6	229.8	191.1	153.3	109.1	95.5	84.1	69.8	62.4	56.7	51.8	48.6	42.1	36.1	34.0	29.1	27.3	23.4		
1.1	80B	Robus 12									Robus 21					Robus 30		258	274	320	342	398		
1.5	90S	Robus 21											Robus 30				302	352	374	Robus 85				
2.2	90L	Robus 21								Robus 30			298	329	360	383	443	516	Robus 85			Robus150		
3.7	100LB	Robus 30							287	328	373	449	502	Robus 85			Robus 150							
Robus 60 with 4 Pole / 1440 RPM motors																								
Speed		363.6	275.3	193.0	143.3	114.9	95.6	76.6	54.5	47.7	42.0	34.9	31.2	28.3	25.9	24.3	21.0	18.0	17.0	14.6	13.6	11.7		
0.55	80A	Robus 12									Robus 21					Robus 30			274	320	342	398		
0.75	80B	Robus 12							Robus 21					Robus 30			302	352	374	436	466			
1.1	90S	Robus 21								Robus 30			298	329	360	384	443	516	Robus 85			Robus150		
1.5	90L	Robus 21						Robus 30		266	302	364	407	448	491	523	Robus 85		Robus 150					
2.2	100L	Robus 30						257		390	443		Robus 85			Robus 150					Robus 300			
3.7	112MB	Robus 30				288	346	432	Robus 85			Robus 150				Robus 300								
Robus 60 with 6 Pole / 960 RPM motors																								
Speed		242.4	183.6	128.7	95.5	76.6	63.7	51.1	36.4	31.8	28.0	23.3	20.8	18.9	17.3	16.2	14.0	12.0	11.3	9.7	9.1	7.8		
0.37	80A	Robus 12									Robus 21					Robus 30		261	276	322	345	402		
0.55	80B	Robus 12							Robus 21				Robus 30				270	288	332	387	411	479	512	
0.75	90S	Robus 21								Robus 30			305	336	368	392	453	Robus 85				Robus150		
1.1	90L	Robus 21						Robus 30		293	332	401	448	493	Robus 85			Robus 150						
1.5	100L	Robus 30						262		399	453		Robus 85			Robus 150					Robus 300			
2.2	112M	Robus 30				257	309	385	Robus 85			Robus 150				Robus 300								

Output: 80/90B5, 100/112B5

Shaft: 35, 40

*For ROBUS 60 : Input 90 available upto 20 (2 stage) ratio & upto 90 (3 stage) ratio • Input 100/112 available upto 20 (2 stage) ratio & upto 60 (3 stage) ratio

PERFORMANCE TABLE 85-150

ROBUS 85

Peak Torque = 850 Nm

Service factor fs = 1.5 @ 1440 RPM

	Rated Ratio		**4**	**5**	**7**	**10**	**13**	**15**	**20**	**23**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**70**	**80**	**90**	**100**	**110**	**120**
	Real Ratio		4.03	4.78	6.65	9.96	13.54	14.83	21.27	23.31	24.05	31.94	33.98	40.81	44.46	50.25	52.92	63.05	70.75	79.23	92.4	101.24	105.99	116.13
	Stage		2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
Input: 90, 100*, 112*, 132*	Robus 85 with 2 Pole / 2880 RPM motors																							
	KW	Frame	Torque (Nm)																					
	Speed		714.6	602.5	433.1	289.2	212.7	194.2	135.4	123.6	119.8	90.2	84.8	70.6	64.8	57.3	54.4	45.7	40.7	36.3	31.2	28.4	27.2	24.8
	2.2	90L	Robus 21									Robus 30			Robus 60						598	655	686	Robus150
	3.7	100LB	Robus 30								Robus 60					547	576	686	Robus 150					
	5.5	132S	68.8	81.6	114	170	231					516	Robus 150								Robus 300			
	7.5	132M	93.8	111	155	232	315					704	Robus 150					Robus 300						
Output: 100/112B5, 132B5	Robus 85 with 4 Pole / 1440 RPM motors																							
	Speed		357.3	301.3	216.5	144.6	106.4	97.1	67.7	61.8	59.9	45.1	42.4	35.3	32.4	28.7	27.2	22.8	20.4	18.2	15.6	14.2	13.6	12.4
	1.1	90S	Robus 21									Robus 30			Robus 60						598	655	686	Robus150
	1.5	90L	Robus 21						Robus 30			Robus 60							624	699	Robus 150			
	2.2	100L	Robus 30						Robus 60					528	575	650	685	Robus 150					Robus 300	
	3.7	112MB	Robus 30				Robus 60			535	552	695	739	Robus 150					Robus 300					
	5.5	132S	138	163	227	340	462	Robus 150							Robus 300									
Shaft: 40, 50	7.5	132M	188	223	310	464	630	Robus 150					Robus 300											
	Robus 85 with 6 Pole / 960 RPM motors																							
	Speed		238.2	200.8	144.4	96.4	70.9	64.7	45.1	41.2	39.9	30.1	28.3	23.5	21.6	19.1	18.1	15.2	13.6	12.1	10.4	9.5	9.1	8.3
	0.75	90S	Robus 21									Robus 30			Robus 60					524	611	670	701	Robus150
	1.1	90L	Robus 21						Robus 30			Robus 60					513	612	686	Robus 150				
	1.5	100L	Robus 30						Robus 60					540	588	665	700	Robus 150					Robus 300	
	2.2	112M	Robus 30				Robus 60			452	467	620	659	Robus 150					Robus 300					
	3.7	132MA	139	165	229	343	466	Robus 150							Robus 300									
	5.5	132MB	206	245	341	510	693	Robus 150					Robus 300											

*For ROBUS 85 : Input 100/112 available upto 70 ratio ● Input 132 available upto 13 (2 stage) ratio & upto 30 (3 stage) ratio

ROBUS 150

Peak Torque = 1550 Nm

Service factor fs = 1.5 @ 1440 RPM

	Rated Ratio		**4**	**5**	**8**	**10**	**15**	**18**	**20**	**23**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**70**	**80**	**90**	**100**	**110**	**120**
	Real Ratio		4.06	5.02	8.03	10.37	15.29	18.15	19.83	22.83	27.5	29.9	34.47	38.78	45.12	50.35	57.74	61.99	72.13	80.06	92.13	100.7	107.2	117.17
	Stage		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Input: 90,100,112 132*, 160*	Robus 150 with 2 Pole / 2880 RPM motors																							
	KW	Frame	Torque (Nm)																					
	Speed		709.4	573.7	358.7	277.7	188.4	158.7	145.2	126.1	104.7	96.3	83.6	74.3	63.8	57.2	49.9	46.5	39.9	36.0	31.3	28.6	26.9	24.6
	3.7	100LB	Robus 30									Robus 60				Robus 85			785	871	1002	1095	1166	1275
	5.5	132SA	Robus 85										557	627	730	814	934	1002	1166	1295	Robus 300			
	7.5	132SB	Robus 85										760	855	995	1110	1273	Robus 300						
	11	160MB	139	171	274	354	522	Robus 300																
Output: 132B5 160/180B5	15	160MC	189	234	374	483	712	Robus 300																
	18.5	160L	233	288	461	595	878	Robus 300																
	Robus 150 with 4 Pole / 1440 RPM motors																							
	Speed		354.7	286.9	179.3	138.9	94.2	79.3	72.6	63.1	52.4	48.2	41.8	37.1	31.9	28.6	24.9	23.2	20.0	18.0	15.6	14.3	13.4	12.3
	1.5	90L	Robus 21					Robus 30				Robus 60							Robus 85		813	888	946	1033
	2.2	100L	Robus 30					Robus 60						Robus 85				802	933	1036	1192	1303	Robus 300	
	3.7	112MB	Robus 30				Robus 60			Robus 85				844	982	1095	1256	1349	Robus 300					
	5.5	132S	Robus 85				522	620	677		889	967	1115	1254	Robus 300									
	7.5	132M	Robus 85				712	845	923		1213	1319	Robus 300											
	11	160M	277	343	548	708	1044	Robus 300																
Shaft: 50, 60	15	160L	378	467	748	965	Robus 300																	
	Robus 150 with 6 Pole / 960 RPM motors																							
	Speed		236.5	191.2	119.6	92.6	62.8	52.9	48.4	42.0	34.9	32.1	27.9	24.8	21.3	19.1	16.6	15.5	13.3	12.0	10.4	9.5	9.0	8.2
	1.1	90L	Robus 21					Robus 30				Robus 60					Robus 85			777	894	977	1040	1137
	1.5	100L	Robus 30					Robus 60						Robus 85				820	954	1059	1219	1332	Robus 300	
	2.2	112M	Robus 30				Robus 60			Robus 85				752	876	977	1120	1203	Robus 300					
	3.7	132MA	Robus 85				527	625	663		897	976	1125	1266	Robus 300									
	5.5	132MB	Robus 85				738	929	1015		1334	Robus 300												
	7.5	160M	284	351	561	724	1068			Robus 300														
	11	160L	416	514	822	1062	Robus 300																	

*For ROBUS 150 : Input 132 available upto 20 (2 stage) ratio & upto 80 (3 stage) ratio ● Input 160 available upto 15 ratio

PERFORMANCE TABLE 300

Service factor fs = 1.5 @ 1440 RPM

ROBUS 300 — Peak Torque = 3000 Nm

	Rated Ratio		**4**	**5**	**7**	**10**	**13**	**15**	**17**	**20**	**23**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**70**	**80**	**90**	**100**	**110**	**120**
	Real Ratio		4	5.42	7.34	9.74	13.38	15.26	16.75	20.92	22.96	24.63	28.33	35.72	38.36	44.72	48.03	55.42	60.82	69.95	81.51	89.28	101.79	111.72	115.43
	Stage		2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Input: 100, 112, 132, 160*, 180*	Robus 300 with 2 Pole / 2880 RPM motors																								
	KW	Frame	Torque (Nm)																						
	Speed		720.0	531.4	392.4	295.7	215.2	188.7	171.9	137.7	125.4	116.9	101.7	80.6	75.1	64.4	60.0	52.0	47.4	41.2	35.3	32.3	28.3	25.8	25.0
	5.5	132SA	Robus 85											Robus 150								1444	1646	1807	1867
	7.5	132SB	Robus 85											Robus 150					1341	1542	1797	1969	2245	2463	2545
	11	160MB	Robus 150						572			797	916	1155	1241	1446	1553	1792							
	15	160MC	Robus 150						780			1086	1249	1575	1692	1972	2118	2444							
Output: 160/180B5, 225B5	18.5	160L	Robus 150						962			1340	1541	1943	2086	2432	2612								
	22	180M	273	370	501	665	914	1042				1593	1832	2310	2481										
	Robus 300 with 4 Pole / 1440 RPM motors																								
	Speed		360.0	265.7	196.2	147.8	107.6	94.4	86.0	68.8	62.7	58.5	50.8	40.3	37.5	32.2	30.0	26.0	23.7	20.6	17.7	16.1	14.1	12.9	12.5
	3	112MA	Robus 30						Robus 60					Robus 85		Robus 150					1438	1575	1796	1971	2036
	3.7	112MB	Robus 30				Robus 60				Robus 85				Robus 150					1522	1773	1942	2215	2431	2511
	5.5	132S	Robus 85				Robus 150							1446	1553	1792	1967		2262	2636					
	7.5	132M	Robus 85				Robus 150							1575	1692	1972	2118	2444	2682						
	11	160M	Robus 150						1144			1593	1832	2310	2481										
	15	160L	Robus 150				1246	1421	1559			2172	2499												
	18.5	180M	459	622	843	1118	1536	1752				2679													
	22	180L	546	740	1002	1330	1827	2084																	
Shaft: 60, 70	Robus 300 with 6 Pole / 960 RPM motors																								
	Speed		240.0	177.1	130.8	98.6	71.7	62.9	57.3	45.9	41.8	39.0	33.9	26.9	25.0	21.5	20.0	17.3	15.8	13.7	11.8	10.8	9.4	8.6	8.3
	1.5	100L	Robus 30							Robus 60				Robus 85					Robus 150					1478	1527
	2.2	112M	Robus 30				Robus 60				Robus 85				Robus 150					1357	1582	1732	1975	2168	2240
	3	132S	Robus 85										Robus 150					1466	1609	1851	2157	2362	2693		
	3.7	132MA	Robus 85				Robus 150							1459	1567	1809	1985	2283	2660						
	5.5	132MB	Robus 85				Robus 150						1374	1733	1861	2169	2330	2688							
	7.5	160M	Robus 150					1066	1170			1629	1874	2363	2538										
	11	160L	Robus 150				1370	1563	1715			2390													
	15	180L	559	757	1025	1360	1869	2131																	

*For ROBUS 300 : Input 160 available upto17 (2 stage) ratio & upto 55 (3 stage) ratio • Input 180 available upto 15 (2 stage) ratio & upto 40 (3 stage) ratio

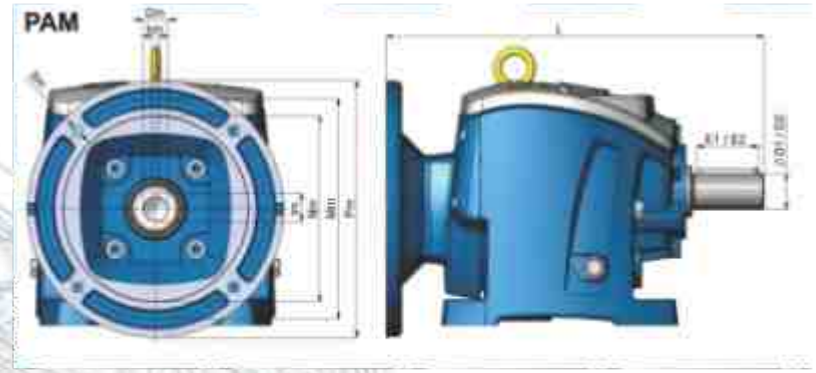
Note: Efficiency is computed considering the frictional losses of output seals, bearing frictional losses and lubrication losses. Torque increases by 3% in 2 stage gearboxes and 5% in 3 stage gearboxes if these losses are not considered.

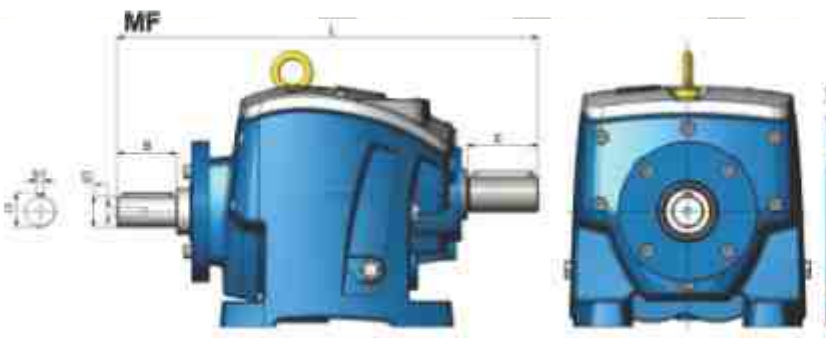
DIMENSIONS

ROBUS	MOTOR TYPE		Nm	Mm	Pm	Sm	Dm	tm	bm	L (PAM)	
										D1	D2
12	63	B14	60	75	90	Ø6	11	12.8	4	204.5	214.5
	71	B14	70	85	105	Ø7	14	16.3	5	211.5	221.5
	80	B14	80	100	120		19	21.8	6	231.5	241.5
21	71	B5	110	130	160	Ø9	14	16.3	5	273.0	283.0
	71	B14	70	85	105	Ø7					
	80	B5	130	165	200	Ø11	19	21.8	6	274.0	284.0
	80	B14	80	100	120	Ø7					
	90S	B5	130	165	200	Ø11	24	27.3	8	274.0	284.0
	90L	B14	95	115	140	Ø9					
30	71	B5	110	130	160	Ø9	14	16.3	5	317.6	327.6
	80	B5	130	165	200	Ø11	19	21.8	6	326.6	336.6
	90 *a	B5					24	27.3	8		
	100/112 *b	B5	180	215	250	Ø13	28	31.3	8	327.6	337.6
	100/112 *b	B14	110	130	160	Ø9					
60	80	B5	130	165	200	M10	19	21.8	6	366.0	376.0
	90 *c	B5					24	27.3	8		
	100/112 *d	B5	180	215	250	Ø13	28	31.3	8	367.0	377.0
85	90	B5	130	165	200	M10	24	27.3	8	396.5	416.5
	100 /112*e	B5	180	215	250	M12	28	31.3	8	398.5	418.5
	132 *f	B5	230	265	300		38	41.3	12	413.5	433.5
150	90	B5	130	165	200	M10	24	27.3	8	447.0	467.0
	100/112	B5	180	215	250	M12	28	31.3	8	450.0	470.0
	132 *g	B5	230	265	300		38	41.3	12	520.0	540.0
	160 *h	B5	250	300	350	M16	42	45.3	12		
300	110/112	B5	180	215	250	M12	28	31.3	8	567.5	587.5
	132	B5	230	265	300		38	41.3	12		
	160 *j	B5	250	300	350	M16	42	45.3	12	585.6	605.6
	180 *j	B5					48	51.8	14		

ROBUS MF SERIES

ROBUS	B	d1	f	b1	t1	L (MF)	
						D1	D2
12	40	16	M6x16	5	18	249.0	259.0
21	40	19	M6x16	6	21,5	318.5	328.5
30	40	19	M6x16	6	21,5	363.5	373.5
60	50	24	M8x25	8	27	409.5	419.5
85	40	19	M6x16	6	21,5	443.5	463.5
	50	24	M8x25	8	27	453.5	473.5
150	40	19	M6x16	6	21,5	494.0	514.0
	60	28	M10x25.5	8	31	514.0	534.0
300	50	24	M8x25	8	27	638.5	658.5
	60	28	M10x25.5	8	31	648.5	668.5



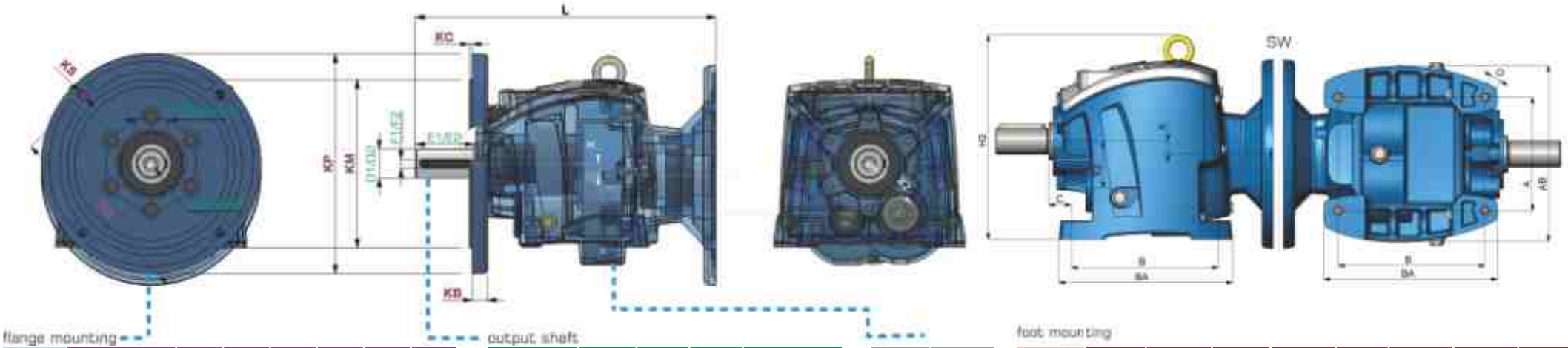


Output Flange with Slot

Output Flange with Hole

*a : Upto ratio 60 only
*b : Upto ratio 40 only
*c : In 2 stages upto ratio 20 only
In 3 stages upto ratio 90 only
*d : In 2 stages upto ratio 20 only
In 3 stages upto ratio 60 only
*e : Upto ratio 70 only
*f : In 2 stages upto ratio 13 only
In 3 stages upto ratio 30 only
*g : In 2 stages upto ratio 20 only
In 3 stages upto ratio 60 only
*h : Upto ratio 15 only
*I: In 2 stages upto ratio 15 only
In 3 stages upto ratio 55 only
*j : In 2 stages upto ratio 15 only
In 3 stages upto ratio 40 only

DIMENSIONS



flange mounting — output shaft — foot mounting

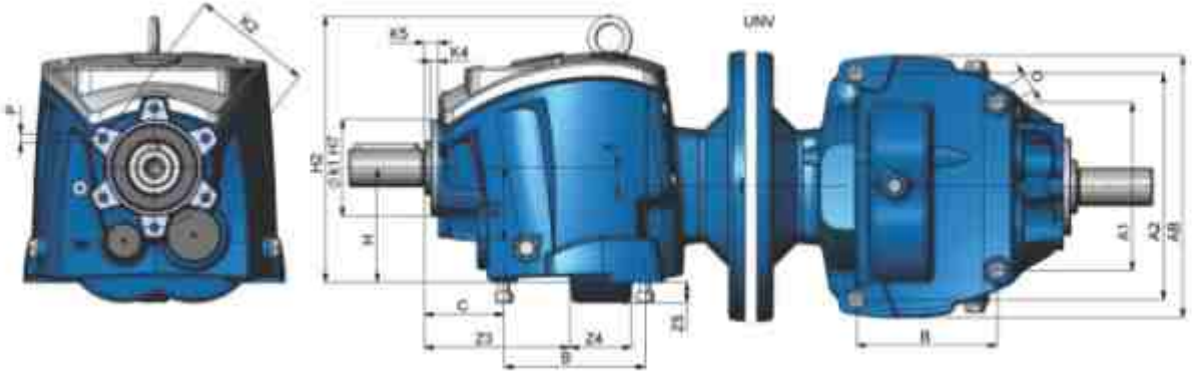
ROBUS	IEC	KP	KM	KN	KS	KC	KB
12	63B5#	140	95	115	10	3	9
21	80/90B5#	200	130	165	11	3,5	12
	71B5*	160	110	130	9	3,5	10
30	80/90B5#	200	130	165	11	3,5	12
	71B5*	160	110	130	9	3,5	10
60	100/112B5#	250	180	215	14	4	15
	80/90B5*	200	130	165	11	4	12
85	132B5#	300	230	265	14	4	21
	100/112B5*	250	180	215	14	4	19
150	160/180B5#	350	250	300	18	5	21
	132B5*	300	230	265	14	4	19
300	225B5#	450	350	400	18	5	25
	160/180B5*	350	250	300	18	5	21

D1/D2	E1/E2	F1/F2	DF1/DF2	DH1/DH2
20 (k6)/ 25 (k6)	40/ 50	6/ 8	23/ 28	M5x12,5/ M10x20
25 (k6)/ 30 (k6)	50/ 60	8/ 8	28/ 33	M10x20/ M10x20
30 (k6)/ 35 (k6)	60/ 70	8/ 10	33/ 38	M10x20/ M12x24
35 (k6)/ 40 (k6)	70/ 80	10/ 12	38/ 43	M12x24/ M16x32
40 (k6)/ 50 (k6)	80/ 100	12/ 14	43/ 53,5	M16x32/ M16x32
50 (k6)/ 60 (m6)	100/ 120	14/ 18	53,5/ 64	M16x32/ M20x40
60 (m6)/ 70 (m6)	120/ 140	18/ 20	64/ 74.5	M20x40/ M20x40

X	X2
25	51.9
11	52,5
13,5	66
17	72
16	80
18	103
20	120

type	B	BA	A	AB	O	H	H2	C
SW	110	118	110	160	9	105	162	18
SW	130	160	110	160	9	100	194	25
SW	165	201	135	205	14	115	239	30
SW	195	230	150	235	14	130	264	30
SW	205	248	170	241	18	140	287	35
SW	260	306	215	307	18	180	357	40
SW	310	374	250	364	22	225	428	40

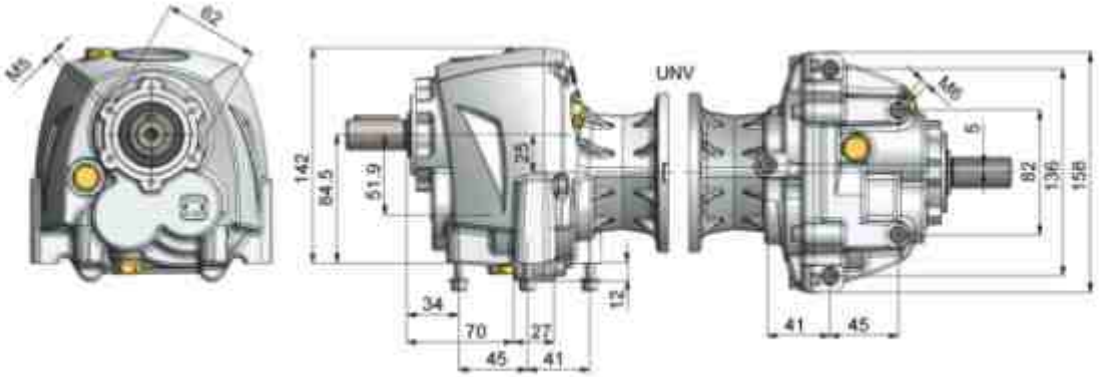
DIMENSIONS



ROBUS
21
30
60
85
150
300

X	X2
11	52.5
13.5	66
17	72
16	80
18	103
20	120

B	A1	A2	AB	O	H	H2	C	P	K1	K2	K4	K5	Z3	Z4	Z5	Z6
90.6	108	145.2	170	M8	73.5	180	54.5	M6	68	80	6.5	9.5	95	53	16.5	128
115.8	138	185.6	215	M12	94	215	64	M8	80	94	6.5	10	116	54	20	155
131	156	210	243	M12	106	235	74	M10	90	110	7	13	135	58	20	168
141	168	226	262	M16	114	262	81.5	M12	95	125	10.5	16	143	70	25	190
181.3	216	290.6	336	M16	148	313	91.5	M14	132	155	11.5	16	170	94	30	250
217.6	259.2	348.7	405	M16	176	381	103	M14	154	180	14	18	185	120	39	295

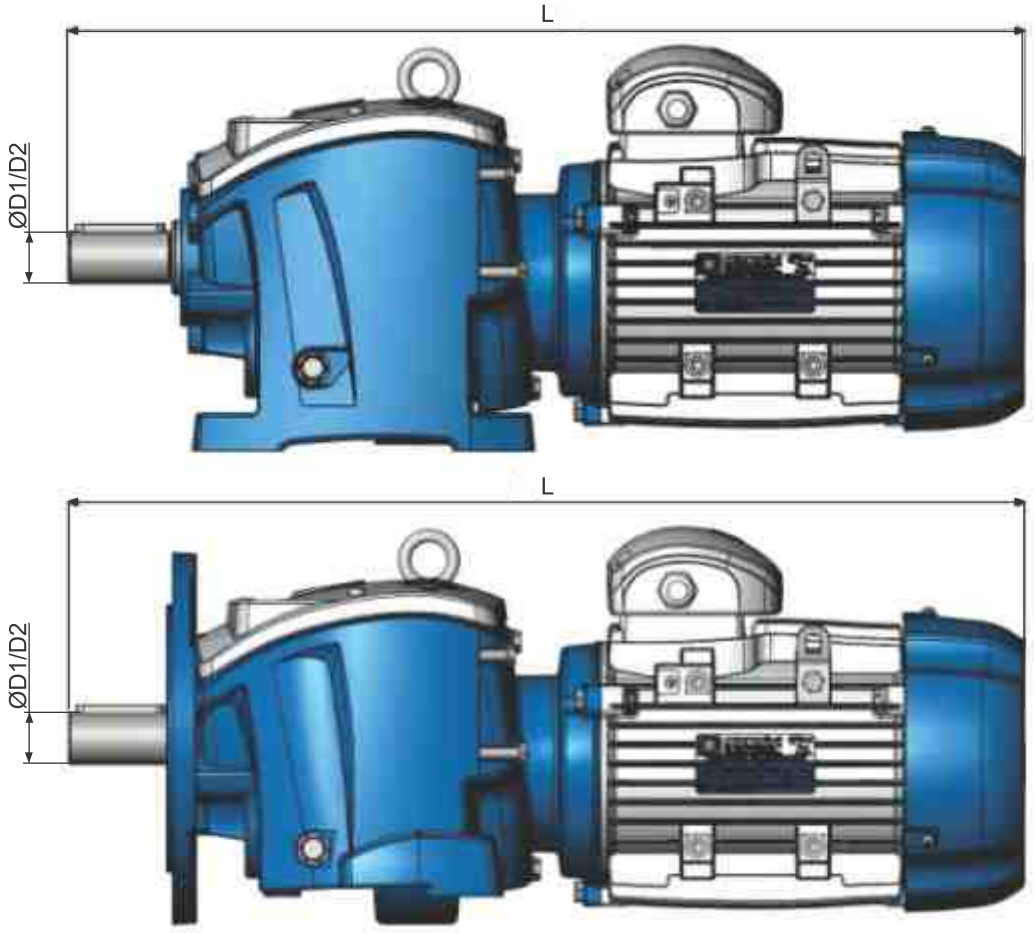


INTEGRAL GEARED MOTOR ROBUS - G SERIES

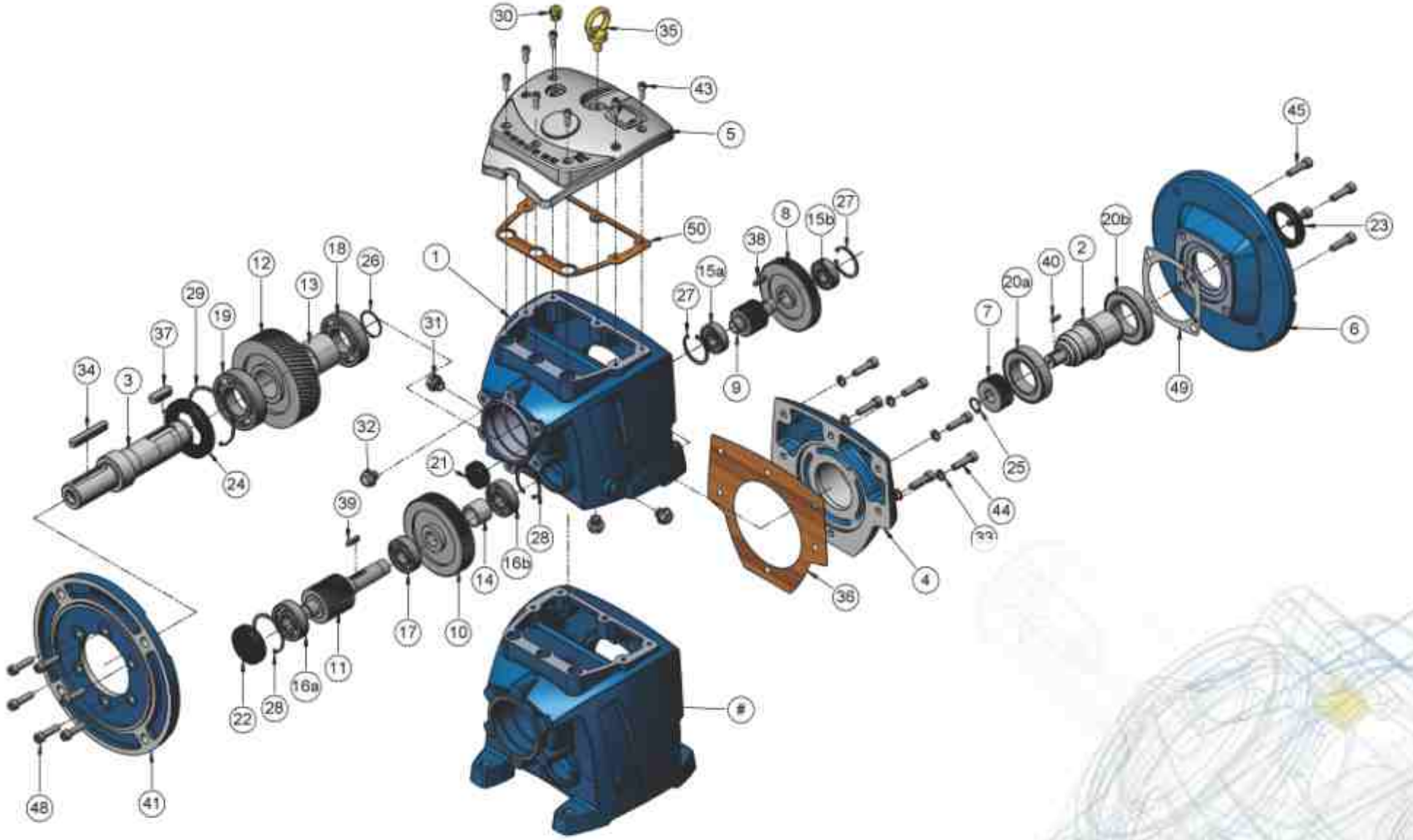
ROBUS	MOTOR TYPE	L	
		D1	D2
12	63	382	392
	71	385	395
	80	426	436
21	71	449	459
	80	494	504
	90S	500	510
	90L	525	535
30	71	501	511
	80	542	552
	90S *a	549	559
	90L *a	584	594
	100 *b	607	617
	112 *b	616	626
60	80	580	590
	90S *c	585	595
	90L *c	610	620
	100 *d	644	654
	112 *d	653	663
85	90S	607	627
	90L	632	652
	100 *e	672	692
	112 *e	684	704
	132S *f	732	752
	132M *f	770	790
150	90S	686	706
	90L	711	731
	100	750	770
	112	767	787
	132S *g	823	843
	132M *g	861	881
	160M *h	975	995
	160L *h	985	1005
300	110	821	841
	112	830	850
	132S	895	915
	132M	933	953
	160M *j	996	1016
	160L *j	1041	1061
	180M *j	1079	1099
	180L *j	1119	1139

Robus G series comprises of a Robus gear box fitted as a monoblock whole to a Delphi motor. In this sense, Robus G is a single entity. This entity has the following advantages over coupled motor and gear box set.

- Higher efficiency because of reduced coupling losses.
- Higher life because of no coupling inaccuracies.
- Lower noise and vibration.
- Lower overall length.
- Lower weight.



*a : Upto ratio 60 only
*b : Upto ratio 40 only
*c : In 2 stages upto ratio 20 only
In 3 stages upto ratio 90 only
*d : In 2 stages upto ratio 20 only
In 3 stages upto ratio 60 only
*e : Upto ratio 70 only
*f : In 2 stages upto ratio 13 only
In 3 stages upto ratio 30 only
*g : In 2 stages upto ratio 20 only
In 3 stages upto ratio 60 only
*h : Upto ratio 15 only
*I: In 2 stages upto ratio 15 only
In 3 stages upto ratio 55 only
*j : In 2 stages upto ratio 15 only
In 3 stages upto ratio 40 only

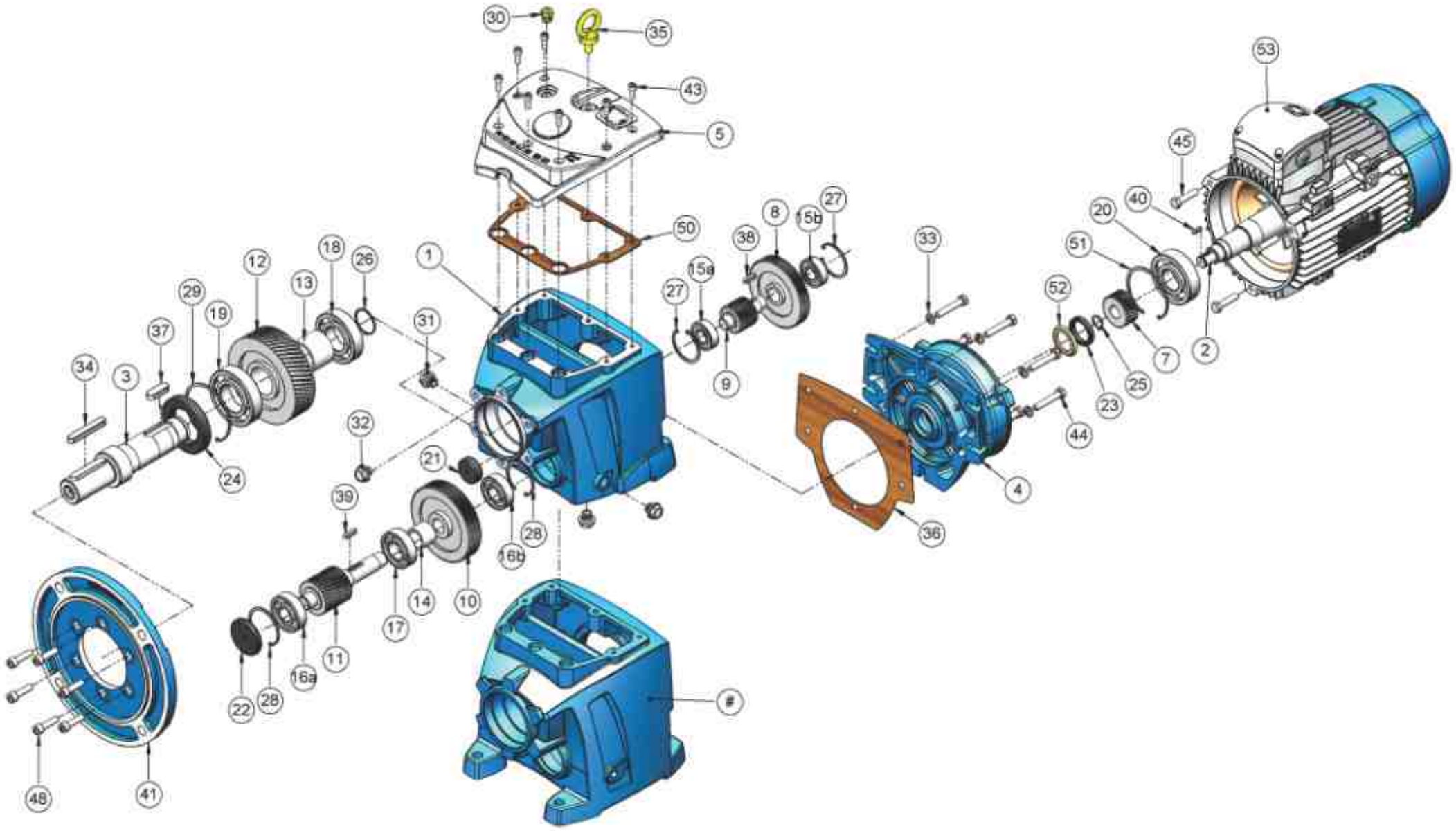

30
35
43
5
50
1
18
26
12
13
29
19
37
34
3
24
31
32
21
39
28
16b
14
17
10
16a
11
22
28
48
41
#
38
8
15b
27
15a
27
9
45
23
20b
40
2
20a
7
6
49
25
44
33
4
36

LIST OF COMPONENTS ROBUS (3 REDUCTION STAGES)

		ROBUS12-3		ROBUS21-3		ROBUS30-3		ROBUS60-3		ROBUS85-3		ROBUS150-3		ROBUS300-3	
item	code	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty	description	q.ty
1	HOU#	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1
2	ISH	input shaft with P1	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1
3	OSH	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1
4	ICV	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1
5	TCV	-	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1
6	IFL	input flange 63B14 71B14 80B14	1	input flange 71B5, 71B14 80B5, 80B14 90B5, 90B14	1	input flange 71B5 80B5 90B5 100/112B5 100/112B14	1	input flange 80B5 90B5 100/112B5	1	input flange 80B5 90B5 100/112B5 132B5	1	input flange 90B5 100/112B5 132B5 160B5	1	input flange 100/112B5 132B5 160B5 180B5	1
7	P1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1
8	G1	gear 1*	1	gear 1*	1	gear 1*	1	gear 1*	1	gear 1*	1	gear 1*	1	gear 1*	1
9	P2	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1
10	G2	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1
11	P3	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1
12	G3	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1
13	SP	snap ring	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
14	SP	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
15	BEA	bearing 6202*	2	bearing 6002*	2	bearing 6003*	2	bearing 6203*	2	bearing 6204*	2	bearing 6206*	2	bearing 6207*	2
16a	BEA	bearing 6202	1	bearing 6202*	1	bearing 6302*	1	bearing 6304*	1	bearing 6304*	1	bearing 6306*	1	bearing 6307*	1
16b	BEA	bearing 6202	1	bearing 6202ZZ*	1	bearing 6203ZZ*	1	bearing 6204ZZ*	1	bearing 6204ZZ*	1	bearing 6306ZZ*	1	bearing 6307ZZ*	1
16a	BEA			bearing 7202	1	bearing 7302	1	bearing 7304	1	bearing 7304	1	bearing 7306	1	bearing 7307	1
16b	BEA			bearing 7202	1	bearing 7203	1	bearing 7204	1	bearing 7204	1	bearing 7306	1	bearing 7307	1
17	BEA	-		bearing 6003	1	bearing 6004	1	bearing 6205	1	bearing 6205	1	bearing 6207	1	bearing 6208	1
18	BEA	bearing NKIA5903	1	bearing 6205	1	bearing 6206	1	bearing 6207	1	bearing 6208	1	bearing 6210	1	bearing 6212	1
19	BEA	bearing 6206ZZ	1	bearing 6206ZZ	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6209ZZ	1	bearing 6311ZZ	1	bearing 6313ZZ	1
20a }	BEA	bearing 6003ZZ	1							bearing 6210ZZ	1	bearing 6212ZZ } **	1	bearing 6215ZZ	1
20b }	BEA	bearing 6005ZZ	1							bearing 6211ZZ	1	bearing 6213ZZ } **	1	bearing 6216ZZ	1
20	BEA			bearing 6008ZZ	2	bearing 6009ZZ	2	bearing 6009ZZ	2			bearing 6009ZZ***	2		
21	COV	-		plug seal D25	1	plug seal D30	1	plug seal D35	1	plug seal D35	1	plug seal D42	1	plug seal D52	1
22	COV	-		plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D52	1	plug seal D72	1	plug seal D80	1
23	OS	oil seal 17x25x4	1	oil seal 40x55x8	1	oil seal 45x60x9	1	oil seal 45x60x9	1	oil seal 55x80x10	1	oil seal 65x90x12	1	oil seal 80x105x13	1
24	OS	oil seal 30x42x12	1	oil seal 35x62x11	1	oil seal 40x72x10	1	oil seal 50x80x12	1	oil seal 55x85x12	1	oil seal 65x120x15	1	oil seal 72x140x12	1
25	SNR	-		snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
26	SNR	snap ring		snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
27	SNR	snap ring extn. (G1)		snap ring*	2	snap ring*	2	snap ring*	2	snap ring*	2	snap ring*	2	snap ring*	1
28	SNR	-		snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2
29	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
30	BPL	filler plug (FPL)	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1
31	FPL	-		filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6
32	LPL	-		level plug	1	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1
33	WSH														
34	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
35	EB	-		eye-bolt, M8	1	eye-bolt, M8	1	eye-bolt, M8	1	eye-bolt, M10	1	eye-bolt, M10	1	eye-bolt, M12	1
36	GK36	'O' ring	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1
37	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
38	KEY	key*	1	key*	1	key*	1	key*	1	key*	1	key*	1	key*	1
39	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
40	KEY			Key	1	Key	1	Key	1	Key	1	Key	1	Key	1
41	OFL	output flange 140	1	output flange 200, 160	1	output flange 200, 160	1	output flange 250, 200	1	output flange 300, 250	1	output flange 350, 300	1	output flange 450 , 350	1
43	SCR	-		screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
44	SCR	screw	4	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
45	SCR	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4
48	SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
49	GK49			gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1
50	GK50			gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1

* In 3 stages only. ** for input flange 132-160 *** for input flange 90-112 # Only for Foot mounting

LIST OF COMPONENTS ROBUS INTEGRAL GEARED MOTOR (3 REDUCTION STAGES)



LIST OF COMPONENTS ROBUS INTEGRAL GEARED MOTOR (3 REDUCTION STAGES)

		ROBUS12-3		ROBUS21-3		ROBUS30-3		ROBUS60-3		ROBUS85-3		ROBUS150-3		ROBUS300-3	
item	code	description	qty	description	qty	description	qty	description	qty	description	qty	description	qty	description	qty
1	HOU#	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1	housing	1
2	Motor Shaft	input shaft with P1	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1	input shaft	1
3	OSH	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1	output shaft	1
4	ICV + IFL	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1	input cover	1
5	TCV	-		top cover	1	top cover	1	top cover	1	top cover	1	top cover	1	top cover	1
7	P1			pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1	pinion 1	1
8	G1	Gear 1*	1	Gear 1*	1	Gear 1*	1	Gear 1*	1	Gear 1*	1	Gear 1*	1	Gear 1*	1
9	P2	pinion 2 *	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1	pinion 2*	1
10	G2	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1	gear 2	1
11	P3	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1	pinion 3	1
12	G3	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1	gear 3	1
13	SP	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
14	SP	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1	spacer	1
15a	BEA	bearing 6202ZZ*	1	bearing 6002*	1	bearing 6002*	1	bearing 6203*	1	bearing 6204*	1	bearing 6206*	1	bearing 6207*	1
15b	BEA	bearing 6202ZZ*	1	bearing 6002ZZ*	1	bearing 6003ZZ*	1	bearing 6203ZZ*	1	bearing 6204ZZ*	1	bearing 6206ZZ*	1	bearing 6207ZZ*	1
16a	BEA	bearing 6202ZZ	1	bearing 6202*	1	bearing 6302*	1	bearing 6304*	1	bearing 6304*	1	bearing 6306*	1	bearing 6307*	1
16b	BEA	bearing 6202ZZ	1	bearing 6202ZZ*	1	bearing 6203ZZ*	1	bearing 6204ZZ*	1	bearing 6204ZZ*	1	bearing 6306ZZ*	1	bearing 6307ZZ*	1
16a	BEA			bearing 7202	1	bearing 7302	1	bearing 7304	1	bearing 7304	1	bearing 7306	1	bearing 7307	1
16b	BEA			bearing 7202	1	bearing 7203	1	bearing 7204	1	bearing 7204	1	bearing 7306	1	bearing 7307	1
17	BEA	-		bearing 6003	1	bearing 6004	1	bearing 6205	1	bearing 6205	1	bearing 6207	1	bearing 6208	1
18	BEA	bearing NA4903	1	bearing 6205	1	bearing 6206	1	bearing 6207	1	bearing 6208	1	bearing 6210	1	bearing 6212	1
19	BEA	bearing 6206ZZ	1	bearing 6206ZZ	1	bearing 6207ZZ	1	bearing 6208ZZ	1	bearing 6209ZZ	1	bearing 6311ZZ	1	bearing 6313ZZ	1
20	BEA	bearing on motor shaft	1	bearing on motor shaft	1	bearing on motor shaft	1	bearing on motor shaft	1	bearing on motor shaft	1	bearing on motor shaft	1	bearing on motor shaft	1
21	COV	-		plug seal D25	1	plug seal D30	1	plug seal D35	1	plug seal D35	1	plug seal D42	1	plug seal D52	1
22	COV	-		plug seal D35	1	plug seal D42	1	plug seal D52	1	plug seal D52	1	plug seal D72	1	plug seal D80	1
23	OS	oil seal	1	oil seal	1	oil seal	1	oil seal	1	oil seal	1	oil seal	1	oil seal	1
24	OS	oil seal 30x42x10	1	oil seal 35x62x11	1	oil seal 40x72x10	1	oil seal 50x80x12	1	oil seal 55x85x12	1	oil seal 65x120x15	1	oil seal 72x140x12	1
25	SNR	-		snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
26	SNR	snap ring		snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
27	SNR	snap ring Extn. (G1)		snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2
28	SNR	-		snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	2	snap ring	1
29	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
30	BPL	filler plug (FPL)	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1	breather plug	1
31	FPL	-		filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6	filler plug	6
32	LPL	-		level plug	1	level plug	1	level plug	1	level plug	1	level plug	1	level plug	1
33	WSH														
34	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
35	EB	-		eye-bolt, M8	1	eye-bolt, M8	1	eye-bolt, M8	1	eye-bolt, M10	1	eye-bolt, M10	1	eye-bolt, M12	1
36	GK3E	'O' ring	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1
37	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
38	KEY	key*	1	key*	1	key*	1	key*	1	key*	1	key*	1	key*	1
39	KEY	key	1	key	1	key	1	key	1	key	1	key	1	key	1
40	KEY			Key	1	Key	1	Key	1	Key	1	Key	1	Key	1
41	OFL	140	1	200, 160	1	200, 160	1	250, 200	1	300, 250	1	350, 300	1	450 , 350	1
43	(TCV) SCR	-		screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
44	(ICV) SCR	screw	4	screw	6	screw	6	screw	6	screw	6	screw	6	screw	8
45	(Motor) SC	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4	screw	4
48	(OFL) SCR	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6	screw	6
50	GK5C			gasket	1	gasket	1	gasket	1	gasket	1	gasket	1	gasket	1
51	SNR	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1	snap ring	1
52	ODF			Oil Deflector	1	Oil Deflector	1	Oil Deflector	1	Oil Deflector	1	Oil Deflector	1	Oil Deflector	1
53	ASLY	Motor	1	Motor	1	Motor	1	Motor	1	Motor	1	Motor	1	Motor	1

* In 3 stage only

Only for Flange mounting

WEIGHTS

Weights including oil in Kg

input			ROBUS12		ROBUS21		ROBUS30		ROBUS60		ROBUS85		ROBUS150		ROBUS300	
			2	3	2	3	2	3	2	3	2	3	2	3	2	3
63	B14	UNV	5,1	5,9	-	-	-	-	-	-	-	-	-	-	-	-
71	B14		5,2	6,0	-	-	-	-	-	-	-	-	-	-	-	-
80	B14		5,4	6,2	-	-	-	-	-	-	-	-	-	-	-	-
63/71	B5		-	-	12,8	13,4	22,2	23,4	32,0	33,5	-	-	-	-	-	-
80/90	B5		-	-	13,7	14,3	23,4	24,2	32,5	34,2	39,4	41,7	74,0	78,6	-	-
100/112	B5		-	-	-	-	24,7	25,7	34,2	35,7	40,9	43,1	75,1	82,9	135,8	141,2
132	B5		-	-	-	-	-	-	-	-	47,3	49,6	87,5	92,0	136,9	142,3
160	B5		-	-	-	-	-	-	-	-	-	-	89,9	-	139,3	144,3
180	B5		-	-	-	-	-	-	-	-	-	-	-	-	139,0	144,4
63	B14	FSW	5,5	6,3	-	-	-	-	-	-	-	-	-	-	-	-
71	B14		5,6	6,4	-	-	-	-	-	-	-	-	-	-	-	-
80	B14		5,8	6,6	-	-	-	-	-	-	-	-	-	-	-	-
63/71	B5		-	-	14,7	15,3	25,8	27,0	37,2	38,7	-	-	-	-	-	-
80/90	B5		-	-	15,6	16,2	27,0	27,8	37,7	39,4	45,9	48,2	88,0	92,6	-	-
100/112	B5		-	-			28,3	29,3	39,4	40,9	47,4	49,6	89,1	96,9	164,8	170,2
132	B5		-	-	-	-	-	-	-	-	53,8	56,1	101,5	106,0	165,9	171,3
160	B5		-	-	-	-	-	-	-	-	-	-	103,9	-	168,3	173,3
180	B5		-	-	-	-	-	-	-	-	-	-	-	-	168,0	173,4
140	6385	OFL	=UNV+0,25													
160	71B5				=UNV+0,9		=UNV+0,9									
200	80/90B5				=UNV+1,7		=UNV+1,7		=UNV+1,8							
250	100/112B5								=UNV+3,8		=UNV+4,1					
300	132B5										=UNV+7,2		=UNV+5,8			
350	160/180B5												=UNV+9,8		=UNV+8,9	
450	200B5														=UNV+19,9	