Rossi
Habasit Group

EP
Slewing Drives

2581-01.02

Contents

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Who we are

In brief:

1953 Founded as a family business and still privately owned today

Rossi in the 70's

70's First in Italy to adopt a completely modular system for helical and bevel helical gear reducers; first in Italy to adopt a case hardened, tempered, ground gear pairs on helical and bevel helical gear reducers

80's Worm gear reducers and gearmotors with universal mounting, single-piece housing and ZI involute profile; Extension of the direct sales organization abroad with the addition of German, English, French and Spanish subsidiaries.

90's Helical and bevel helical gear reducers and gearmotors with universal mounting and single-piece housing; first transmission manufacturer in Italy and second in Europe to obtain Quality System Certification ISO 9001.

1994 The only manufacturer to offer 3-year-warranty

1997 Acquisition of Seimec (Rossi Motor Division)

2002 Acquisition of SMEI (Rossi Planetary Division, WIND)

Rossi Planetary Gear Reducer Division

2003 ISO 9001 - 2000 (Vision 2000)

2004 New affiliated company in U.S.A.
Habasit acquires important share in Rossi, to reinforce global presence and develop growth strategy

2009 (July) Habasit Holding owns 100% Rossi

2010 Logo and Company name change: from "Rossi Motoriduttori" to "Rossi S.p.A."

Rossi Industrial Gear Reducer Division, today

2014-'16 Our US, UK, Brazil and China subsidiaries move to new facilities, striving to improve our customer service thanks to our modern structures and technologies

For more than 60 years we have been developing our business for the most demanding applications in order to become one of the world's leading gearbox and gearmotor manufacturers. Even in the toughest environment, we are recognized for providing state of the art technology, solid value and commitment to our customers.

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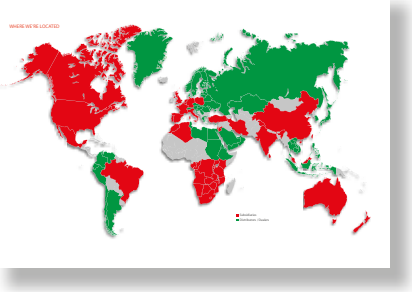
Where you can find us

Close to you, with facilities on six continents and each with a direct sales system to provide excellent service.
Visit our website to find your nearest facility.
We are where you need us to be.



What we believe in

Choosing the drive with the right technical specifications is vital for reliability and economy.
We believe in integrity, ethical behavior, experience, creativity, innovation, good teamwork and above all customer focus: this what we at Rossi believe in.
We strive to be a reliable company with the right flexibility and know-how to respond to all market requests, all over the world, in all application fields, without ignoring our commitment to the environment and value on all human safety

What we can do for you

Rossi employs highly skilled specialists in different fields, there to provide you with the support and experience needed to find the best solution for your application and commercial demands, and to accompany you step by step through the entire supply process.

What you can do for us, to help us improve

You are at the center of all we do, that is why we want your feedback and suggestions on how we can improve.
You know your business better than anyone and by knowing what works for you will allow us to improve our service offering to you.
We regard every relationship as a partnership and look for mutual benefits that will enhance our partnership at all times.

Who you can contact

A well-organized Global after-sale service with the sole purpose of getting our customers back up and running quickly and cost effectively.
Our online Rossi for You portal, allowing you to have 24/7/365 day access to all the documentations concerning our supplies, order tracking, and news in real time.

What we do

Our wide standard product range and design allows us to provide the customer with the right engineered solution for every application including a 3 year worldwide warranty.

Gearmotors

Type of gear		Catalog
Worm gearmotors		A
Standardfit worm gearmotors		AS
Coaxial gearmotors		E
Standardfit coaxial gearmotors		ES
Helical and bevel helical gear reducers		G
Planetary (in-line and bevel helical) gearmotors		EP

Gear reducers

Type of gear		Catalog
Worm gear reducers		A
Helical gear reducers		G
Bevel Helical gear reducers		G
Heavy duty helical gear reducers		H
Heavy duty bevel helical gear reducers		H
Planetary (in-line and bevel helical) gear reducers		EP
Right angle shaft gear reducers		L
Shaft mounted helical gear units		P

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Motors

Type		Catalog
Asynchronous three-phase high efficiency and premium efficiency motors		TX
Standard and high efficiency brake motors		TX

Motion control

Type		Catalog
Worm, coaxial, helical and bevel helical servo gear reducers		SR

Specific industrial segments

Type		Catalog
Extruders, Parallel shaft gear reducers and gearmotors		GX
Combined units		
Slewing drives		EP
Heavy duty gear reducers on swing bases		RE

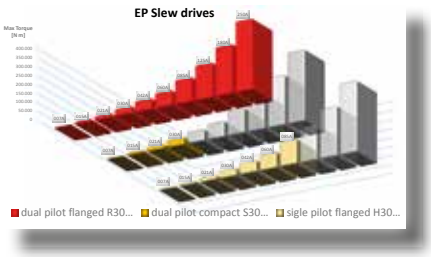
Features

Benefits

Product range

Slew drive gear reducers, ranging from 9 kNm to 400 kNm Maximum Output Torque over 10 primary sizes and 3 output reinforced support configurations:
- R: dual pilot flanged
- S: dual pilot compact
-H: single pilot front flanged

From nominal ratio 12,5 to 2800



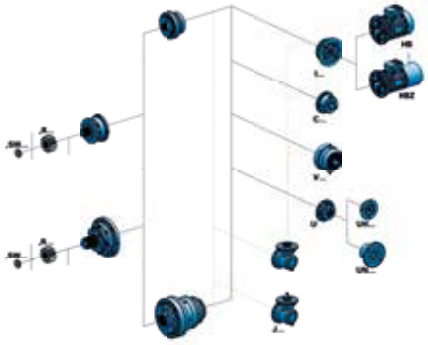
→ **Wide choice of the drives allows always highest performances along with cost effective solutions**

Modularity

IEC and NEMA electric motor adapter and primary hydraulic motor adapter

Further option not included in the catalog:
- In line EL and bevel EB configuration
- 5 stages in line and bevel
- Torque limiter MLA on electric motor configuration
- 4 additional standard sizes: 004A-006A-009A-012A-018A

2EL, 3EL, 4EL, 5EL **2EB, 3EB, 4EB, 5EB**



→ **Wide range of Motor adapter IEC Nema or Hydraulic for global players**

→ **Enable to benefit of the wider range of options of the EP industrial catalog**

Output support features

Double seal and labyrinth options

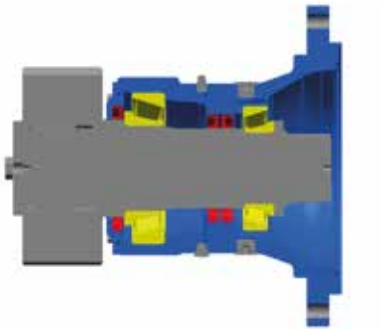
Eccentricity

Heavy duty bearing

Improved lubrication system

Multiple lubrication ports at 90° angle, two greasers at opposite site

Output pinion involute profile and helix modification manufactured to the actual operating load conditions



→ **Enhanced seal life**

→ **High precision and reduced shock loads**

→ **Maximum load capacity Easy maintenance**

→ **Oil and grease ports always easy to reach, possibility to install oil and temperature probes**

→ **Improvement in contact patterns and nominal rating, achieving an optimal ring gear-pinion engagement**

Gear reducer features

Four planets built-in final stage

Ground gears

Modular design concept

→ **Lower backlash**

→ **Enhanced Stiffness**

→ **Over 16 months maintenance intervals with PAO oils**

→ **Delivery flexibility and reliability**

→ **Prompt service worldwide**

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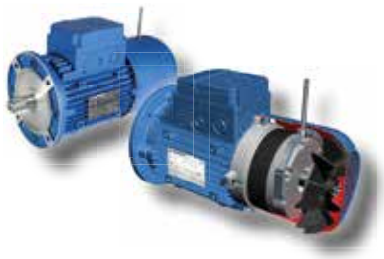
Features

Benefits

Brake motors and Brakes

Rossi IEC electrical brake motors wound and set for the specific application
Anti-sticking design of the parking brake
motor
Braking torque adjustment



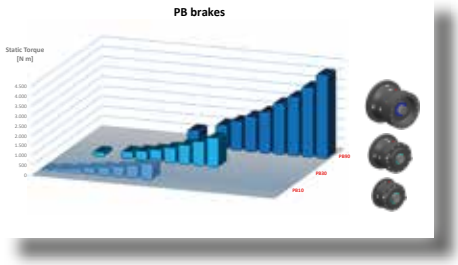
→ **Optimized slew drives for application and for multi-drive systems taking advantage from the European made wide range of electric motor**

Hydraulic parking brakes ranging from 75 Nm to 4250 Nm static torque over 3 main sizes

→ **Wide range of hydraulic brakes for a fine tuned application and cost effectiveness**

Hydraulic brakes PB

Multiple lubrication ports at 90° angle, two greaser at opposite site



→ **Oil and grease ports always easy to reach, possibility to install oil and temperature probes**

Enhanced lubrication system

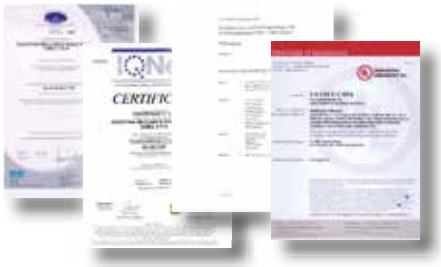
→ **To allow higher thermal capability.**

Possibility to install a pre-reduction stage

→ **Enhanced thermal capability for continuous duty at high speed**

Certifications

Standard C3 coating ISO 12944, up to C5M class paint on request



→ **Out-door environment ready marine paints**

Product/Parts certification

→ **On request, customized solution in compliance with regulations and standards of the marine, oil and gas, or other Regulations**

F.E.M. 1.001 L2-T5-M5 ratings with different input/output speed

→ **Easy selection according to class of mechanism**

ATEX directive 94/9/EC

zone 1, 2, 21, 22: II 2 GD ck

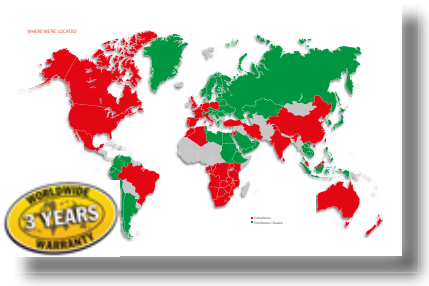
zone 2,22: II 3 GD ck;

zone 1, 2: II 2 G ck

→ **On request, suitable to be specified for offshore platforms, petrochemical plants, mines, and flour mills, and other potentially explosive atmosphere application.**

Worldwide sales and service

- Global service



→ **Direct worldwide sales and service network**

- 3 year warranty

→ **The reliability of a quality product engineered to last**

→ **3 year warranty since 1997**

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1 - Designation

Gear reducer size and ratio

R	3EL	021A	61,3Y

TYPE OF RATIO

Y catalog ratio
Z ratio composition other than catalog

TRANSMISSION RATIO

STAGE COMPOSITION

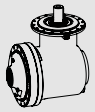
A catalog stage composition
X stage composition other than catalog

SIZE

007 ... 250

TRAIN OF GEARS – PLANETARY

1EL	**2EL**	**3EL**	**4EL**
1 stage in line	2 stages in line	3 stages in line	4 stages in line
			

2EB	**3EB**	**4EB**
1 planet. and 1 bevel stage	2 planet. stages and 1 bevel stage	3 planet. stages and 1 bevel stage
		

MACHINE

For technical data and main dimensions contact Rossi.

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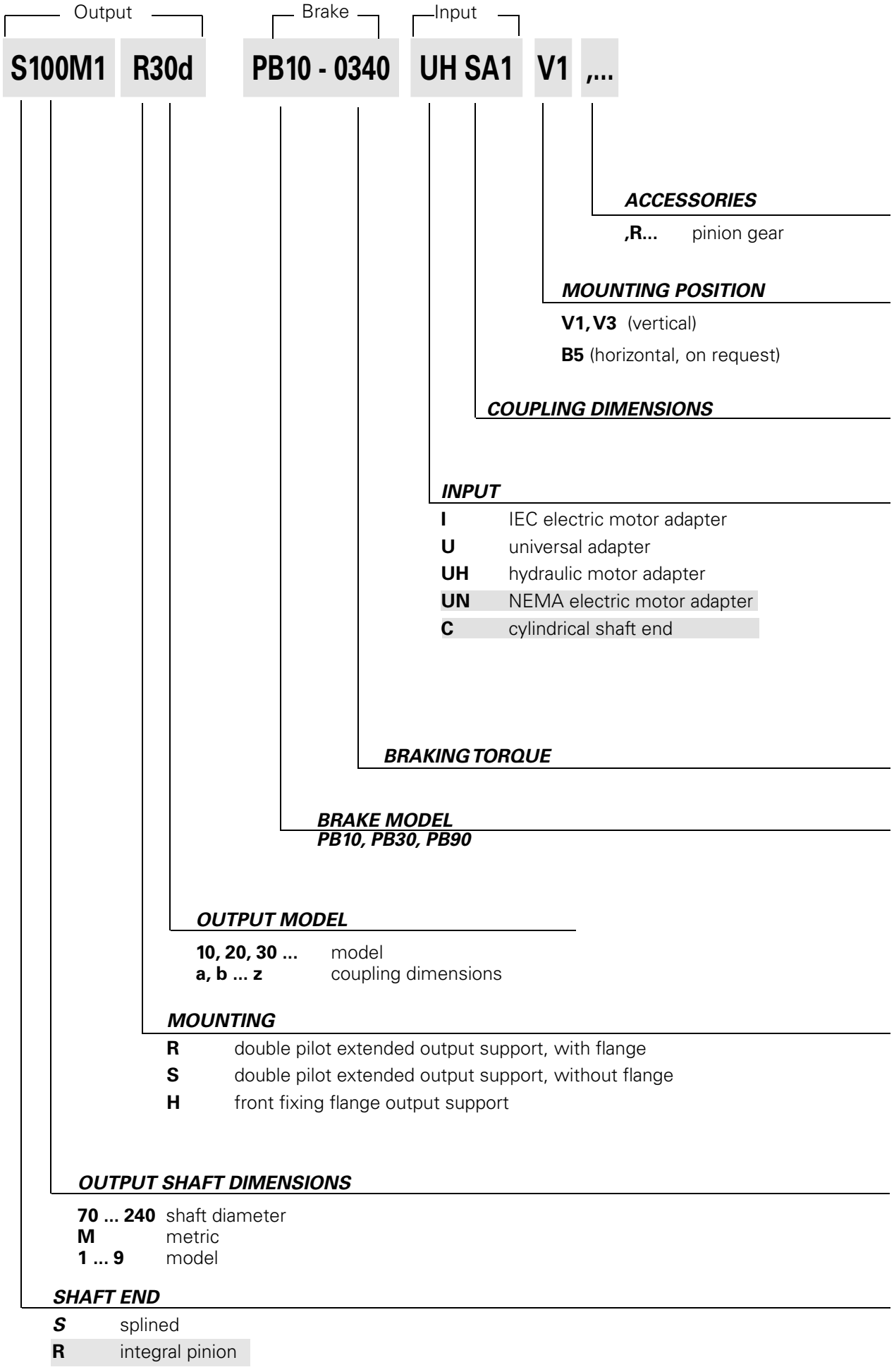
1 - Designation



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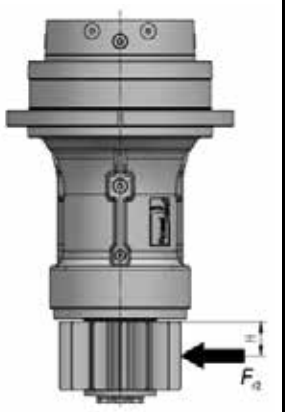
2 - Selection and verification

Quick selection:

Output torques and radial loads according to F.E.M. (1.001 3rd edition – Revised 1998.10.01)
Load classification L2-T5-M5 (n_2=15 min^{-1})

Table 1

Size	M_{N2} FEM N m	M_2 max N m	Output Sxxx Rxxx F_{r2} FEM N	Sxxx Rxxx F_{r2} stat N	Sxxx Sxxx F_{r2} FEM N	Sxxx Sxxx F_{r2} stat N	Sxxx Hxxx F_{r2} FEM N	Sxxx Hxxx F_{r2} stat N
007A	7 500	9 000	126 400	180 000	126 400	180 000	126 400	180 000
015A	17 000	20 000	189 400	265 000	189 400	265 000	172 700	236 000
021A	21 200	28 000	363 900	425 000	363 900	425 000	363 900	425 000
030A	35 500	47 500	412 900	500 000	412 900	500 000	412 900	500 000
042A	50 000	67 000	435 900	560 000	435 900	560 000	435 900	560 000
060A	71 000	95 000	633 900	800 000	633 900	800 000	633 900	800 000
085A	112 000	150 000	735 800	1 060 000	735 800	1 060 000	735 800	1 060 000
125A	160 000	212 000	973 500	1 400 000	973 500	1 400 000	973 500	1 400 000
180A	224 000	300 000	1 073 400	1 600 000	1 073 400	1 600 000	1 073 400	1 600 000
250A	315 000	425 000	1 293 600	2 000 000	1 293 600	2 000 000	1 293 600	2 000 000



M_{N2} FEM (Nm) is the nominal output torque related to a given load classification and output speed.
In the table it is shown the maximum value for each gearbox size, see the following pages for the actual values for every reduction ratio.

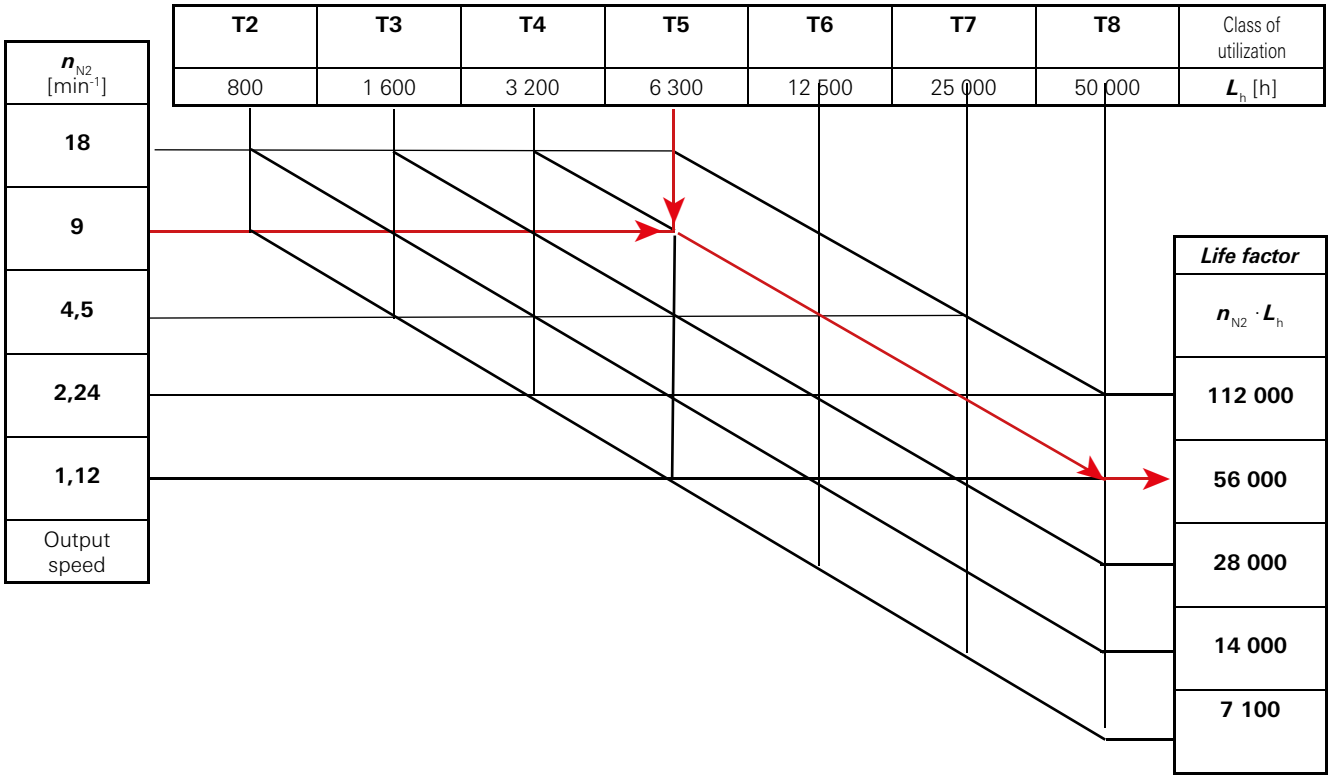
M_2 max (Nm) is the maximum torque admissible on gear reducer low speed shaft.
In the table it is shown the maximum value for each gearbox size, see the following pages for the actual values for every reduction ratio.

F_{r2}FEM (N) is the radial load admissible for a given load classification and point of application on the low speed shaft.

F_{r2} stat (N) is the maximum static radial load admissible for a given point of application on the low speed shaft.

Life factor

For nominal output speed values different from n_2 = 15 r.p.m. the gearbox selection can be based on the Life factor $n_2 \times L_h$ obtained from the following graph.



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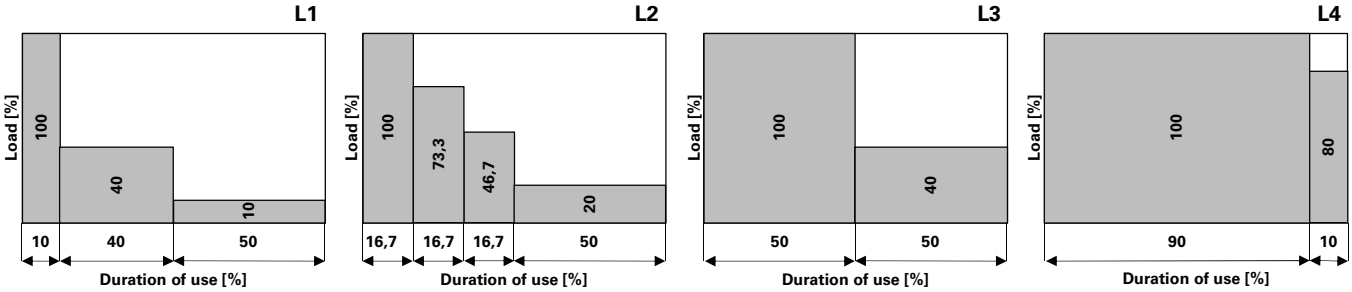
Application factors KA and mechanism groups

For load classification different from L2-T5-M5 the gearbox selection can be based on the application factor obtained from the following Table 2.
See formula a) at page 14.

Table 2

Class of load spectrum	Class of utilization						
	T2 400h<T2≤800h	**T3** 800h<T3≤1600h	**T4** 1600h<T4≤3200h	**T5** 3200h<T5≤6300h	**T6** 6300h<T6≤12500h	**T7** 12500h<T7≤25000h	**T8** 25000h<T8≤50000h
L1	M1	M2	M3	M4	M5	M6	M7
$0 < k_m \leq 0{,}125$	0,80	0,85	0,90	0,95	1,00	1,06	1,18
L2	M2	M3	M4	M5	M6	M7	M8
$0{,}125 < k_m \leq 0{,}250$	0,85	0,90	0,95	1,00	1,06	1,18	1,40
L3	M3	M4	M5	M6	M7	M8	M8
$0{,}25 < k_m \leq 0{,}5$	0,95	1,00	1,06	1,12	1,25	1,40	1,60
L4	M4	M5	M6	M7	M8	M8	M8
$0{,}5 < k_m \leq 1$	1,06	1,12	1,18	1,32	1,50	1,60	1,80

Load spectra (examples)



Group classification guidance

Type of appliance Designation	Particulars concerning nature of use	Type of mechanism				
		Slewing	Hoisting	Luffing	Travers	Travel
Erection cranes	-	M2-M3	M2-M3	M1-M2	M1-M2	M2-M3
Stocking and reclaiming transporter	Hook duty	M4	M5-M6	-	M4-M5	M5-M6
Stocking and reclaiming transporter	Grab or magnet	M6	M7-M8	-	M6-M7	M7-M8
Workshop cranes	-	M4	M6	-	M4	M5
Overhead travelling cranes, pigbreaking cranes, scrapyard cranes	Grab or magnet	M6	M8	-	M6-M7	M7-M8
Bridge cranes for unloading, bridge cranes for containers Other bridge cranes (with crab and/or slewing jib crane)	a) Hook or spreaded duty b) Hook duty	M5-M6 M4-M5	M6-M7 M4-M5	M3-M4 -	M6-M7 M4-M5	M4-M5 M4-M5
Bridge cranes for unloading, bridge cranes (with crab and/or slewing jib crane)	Grab or magnet	M5-M6	M8	M3-M4	M7-M8	M4-M5
Drydock cranes, shipyard jib cranes, jib cranes for dismantling	Hook duty	M4-M5	M5-M6	M4-M5	M4-M5	M5-M6
Dockside cranes (slewing, on gantry, etc.), floating cranes and pontoon derricks	Hook duty	M5-M6	M6-M7	M5-M6	-	M3-M4
Dockside cranes (slewing, on gantry, etc.), floating cranes and pontoon derricks	-	M6-M7	M7-M8	M6-M7	-	M4-M5
Floating cranes and pontoon derricks for very heavy loads (usually greater than 100t)	-	M3-M4	M3-M4	M3-M4	-	-
Deck cranes	Hook duty	M3-M4	M4	M3-M4	M2	M3
Deck cranes	Grab or magnet	M3-M4	M5-M6	M3-M4	M4-M5	M3-M4
Tower cranes for building	-	M5	M5	M4	M3	M3
Derricks	-	M1-M2	M2-M3	M1-M2	-	-
Railway cranes allowed to run in train	-	M2-M3	M3-M4	M2-M3	-	-
Mobile cranes	Hook	M2-M3	M3-M4	M2-M3	-	-

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Selection according to F.E.M. (1.001 3rd edition – Revised 1998.10.01)[1)]

Required application data

– Class of load spectrum L1 … L4
– Class of utilization T2 … T8
– Running conditions: accelerations-decelerations, frictional forces, wind effect.
– External drive data: pinion and ring gear module, number of teeth and pressure angle.
– Gear reducer input speed (depending on motor type) and output speed required.

Required torque

Starting from running conditions (accelerations-decelerations, frictional forces, wind effect) and load spectrum determine the maximum load:

$$S_M = \max (S_{M\,max\,I}; S_{M\,max\,II})$$

where:

$$S_{M\,max\,I} = (S_{MF} + S_{MA}) \cdot \gamma_m$$

is the maximum torque (combination of the most unfavourable actual values) during normal service without wind

$$S_{M\,max\,II} = (S_{MF} + S_{MA} + S_{MW8}) \cdot \gamma_m$$
$$S_{M\,max\,II} = (S_{MF} + S_{MW25}) \cdot \gamma_m$$

is the maximum of the two torque values (each one as a combination of the most unfavourable actual values) during normal service with wind, and:

S_{MF} is mean torque generated by friction;
S_{MA} is mean torque generated by acceleration or deceleration;
S_{MW8} is mean torque corresponding to a 80 N/m^2 wind;
S_{MW25} is mean torque corresponding to a 250 N/m^2 wind;
γ_m load amplification factor depending on mechanism group according to the following table:

Load amplification factor	Mechanism group							
	M1	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**
γ_m	1	1,04	1,08	1,12	1,16	1,2	1,25	1,3

Determine the gear reducer required output torque, as follows:

$$M_{2\,required} = S_M / (i_e \cdot \eta_e)$$

where:
i_e is the external drive gear ratio (given by z_2 / z_1, being z_1 and and z_2 the number of teeth of the pinion and of the ring gear respectively)
η_e is the the external drive efficiency (approx. 0,85)

1) For complete selection please refer to FEM section I 3rd edition.

Gear reducer size and transmission ratio selection

➦ Verify that the calculation of the M_2 required torque at gearbox shaft has been made taking in account the amplication factor.

Choose in the selection tables a gear reducer in terms of size, train of gears and transmission ratio *i* at the same time, such as:

$$M_{N2\,FEM} \;/\; K_A \geq M_{2\,required} \qquad a)$$
$$i \geq i_{required}$$

where:
$M_{N2\,FEM}$ [N m] is the gear reducer nominal torque referred to FEM load spectrum class L_2 and utilization class T5;
K_A is the application factor to convert the gear reducer nominal torque according to the actual class of utilization and load spectrum, see Table 2;

➦ Verify that $M_{N2\,FEM} \;/\; K_A \leq M_{N2\,FEM\,max}$, if not $M_{N2\,FEM\,max}$ should be used in the above formula a)
The value of $M_{N2\,FEM\,max}$ for each gearbox size and ratio is shown at ch. 4 Data and performance summary.

$i_{required}$ is the gear reducer required transmission ratio (n_1 / n_2);
n_1 [min^{-1}] is the maximum gear reducer input speed (depending on motor type; eg.: for a IEC 4 poles motor, n_1 = 1 400 min^{-1});
n_2 [min^{-1}] is the maximum speed required at the gear reducer low speed shaft.

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Radial load verifications

Verify that the radial load on the gear reducer output pinion shaft is less than the reference value $F_{r2\ FEM}$ for the chosen gear reducer

$$\frac{M_{2\ required} \cdot K_A \cdot 2000}{D_p \cdot \cos\alpha} \leq F_{r2\ FEM}$$

where:
D_p [mm] is the pinion pitch diameter;
α [rad] is the pinion tooth pressure angle;
$F_{r2\ FEM}$ [N] is the permissible radial load (for L2 T5, n_2 = 15 min^{-1}) acting in the middle of the pinion facewidth and without axial load.

Dynamic overloads

Overloads are normally generated when:
– starting or braking on full load (especially for high inertias and low transmission ratios);
– the low speed shaft becomes driving member due to driven machine inertia;
– the applied motor power is higher than required;
– other static or dynamic causes occur.

The maximum peak torque caused by overloads must be lower than M_{2max}.

Starting torque verifications:

$$M_{2\ start} = \left(\frac{M_{start}}{M_N} \cdot M_{2\ available} - M_{2\ required}\right) \cdot \frac{J}{J+J_0} + M_{2\ required} \leq M_{2max}$$

where:
$M_{2\ required}$ [N m] is the torque absorbed by the machine through work and frictions
$M_{2\ available}$ [N m] is the output torque due to the motor's nominal power;
M_{start} / M_N is the ratio of motor peak;
J_0 [kg m^2] is the moment of inertia (of mass) of the motor;
J [kg m^2] is the external moment of inertia (of mass) for gear reducer, coupling, driven machine referred to the motor shaft;

NOTE: when seeking to verify that starting torque is sufficiently high for starting, take into account starting friction, if any, in evaluating
$M_{2\ required}$.

Stopping machines with high kinetic energy (high moments of inertia combined with high speeds) with brake motor:

$$M_{2\ brake} = \left(\frac{M_f}{\eta} \cdot i + M_{2\ required}\right) \cdot \frac{J}{J+J_0} - M_{2\ required} \leq M_{2max}$$

where:
M_f [N m] is the braking torque at the gear reducer input shaft;
η is the gear reducer efficiency.

Efficiency	Train of gears		
	2EL	**3EL**	**4EL**
η	0,94	0,91	0,89

Static load verifications

Verify that static braking torque and static overhung load (referred to the gear reducer low speed shaft) are lower than the values admitted by the gear reducer:

$$M_f \cdot i / \eta \leq M_{2\ max} \qquad \frac{M_f \cdot i \cdot 2000}{\eta \cdot D_p \cdot \cos\alpha} \leq F_{r2\ stat}$$

Angular backlash

A rough guide for the angular backlash Δφ (high speed shaft being locked) is given in the table.
On request, gear reducers with **reduced backlash** are available.

	Pinion fitted on output shaft		**One piece pinion-shaft**	
Size	Δφ ['] Average	Δφ ['] Max	Δφ ['] Average	Δφ ['] Average
007A	23,7	33,9	17,6	23,9
015A	17,7	25,1	14,2	19,0
021A	15,9	22,3	12,6	16,9
030A	18,1	23,5	15,2	19,0
042A	16,6	21,4	13,9	17,3
060A	15,6	20,0	12,9	15,9
085A	13,6	16,9	11,2	13,4
125A	12,2	15,1	10,2	12,1
180A	13,3	16,1	11,2	13,1
250A	11,7	14,2	9,8	11,5

3 - Selection tables - In line gear reducers

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size Output speed n_2 min^{-1} Nominal output torque $M_{N2\,FEM}$ N m **Train of gears / ratio . . . / i** **007A**	**015A**	**021A**	**030A**	**042A**	**060A**	**085A**	**125A**	**180A**	**250A**	i_N	n_1 min^{-1}	n_{N2} min^{-1}
112 000	2800	6 000 **4EL/2947**	11 800 **4EL/2921**	–	–	–	–	–	–	–	–			
	2500	6 185 **4EL/2399**	12 530 **4EL/2636**	15 000 **4EL/2377**	–	–	–	–	–	–	–			
	2240	–	12 420 **4EL/2145**	18 000 **4EL/2145**	28 570 **4EL/2338**	–	–	–	–	–	–			
	2000	6 235 **4EL/2043**	–	–	28 320 **4EL/1902**	–	–	–	–	–	–			
	1800	6 204 **4EL/1730**	12 520 **4EL/1827**	18 000 **4EL/1827**	–	43 730 **4EL/1673**	54 870 **4EL/1796**	87 130 **4EL/1808**	115 810 **4EL/1852**	–	–			
	1600	7 500 **4EL/1611**	17 000 **4EL/1691**	18 000 **4EL/1525**	28 540 **4EL/1621**	43 800 **4EL/1509**	54 960 **4EL/1621**	87 200 **4EL/1621**	114 790 **4EL/1507**	172 790 **4EL/1670**	–			
	1400	7 500 **4EL/1344**	16 940 **4EL/1441**	18 000 **4EL/1318**	35 500 **4EL/1482**	43 840 **4EL/1361**	55 010 **4EL/1462**	87 350 **4EL/1471**	115 430 **4EL/1423**	–	–			
	1250	6 214 **4EL/1248**	12 490 **4EL/1267**	18 000 **4EL/1267**	34 800 **4EL/1263**	43 780 **4EL/1291**	54 730 **4EL/1245**	99 710 **4EL/1278**	115 510 **4EL/1284**	172 100 **4EL/1283**	246 500 **4EL/1283**			
	1120	7 500 **4EL/1122**	16 970 **4EL/1172**	21 200 **4EL/1172**	35 500 **4EL/1206**	44 120 **4EL/1160**	54 790 **4EL/1124**	86 940 **4EL/1124**	115 640 **4EL/1160**	172 160 **4EL/1150**	246 600 **4EL/1150**			
	1000	7 500 **4EL/970**	16 870 **4EL/999**	21 200 **4EL/999**	35 470 **4EL/1028**	43 840 **4EL/1051**	69 720 **4EL/1028**	99 840 **4EL/1040**	115 680 **4EL/1046**	191 880 **4EL/984**	288 950 **4EL/990**			
	900	7 500 **4EL/916**	16 790 **4EL/846**	21 200 **4EL/846**	35 320 **4EL/876**	43 640 **4EL/895**	69 430 **4EL/876**	99 410 **4EL/886**	140 830 **4EL/914**	192 180 **4EL/888**	289 090 **4EL/888**			
	800	7 500 **4EL/838**	16 900 **4EL/788**	21 200 **4EL/788**	35 500 **4EL/836**	50 000 **4EL/828**	70 040 **4EL/836**	100 300 **4EL/846**	141 090 **4EL/825**	192 760 **4EL/800**	289 750 **4EL/806**			
	710	7 500 **4EL/732**	16 940 **4EL/720**	21 200 **4EL/720**	35 460 **4EL/713**	50 000 **4EL/706**	69 710 **4EL/713**	99 820 **4EL/721**	140 720 **4EL/706**	192 970 **4EL/722**	289 820 **4EL/722**			
	630	7 500 **4EL/611**	16 970 **4EL/657**	21 200 **4EL/657**	35 500 **4EL/659**	50 000 **4EL/595**	69 360 **4EL/607**	100 640 **4EL/659**	140 740 **4EL/634**	200 770 **4EL/624**	281 020 **4EL/635**			
	560	7 500 **4EL/566**	16 910 **4EL/568**	21 200 **4EL/568**	35 410 **4EL/562**	50 000 **4EL/556**	69 610 **4EL/562**	100 360 **4EL/562**	140 830 **4EL/572**	205 700 **4EL/563**	289 350 **4EL/563**			
	500	7 500 **4EL/517**	16 940 **4EL/518**	21 200 **4EL/518**	35 210 **4EL/479**	50 000 **4EL/489**	69 230 **4EL/479**	100 020 **4EL/479**	140 580 **4EL/500**	205 020 **4EL/479**	288 590 **4EL/485**			
	450	7 500 **4EL/452**	16 890 **4EL/448**	21 200 **4EL/448**	35 360 **4EL/443**	50 000 **4EL/453**	69 510 **4EL/443**	100 270 **4EL/443**	140 710 **4EL/451**	205 520 **4EL/444**	289 090 **4EL/444**			
	400	7 500 **4EL/422**	16 910 **4EL/404**	21 200 **4EL/404**	35 210 **4EL/377**	50 000 **4EL/386**	69 220 **4EL/377**	99 110 **4EL/382**	140 390 **4EL/386**	205 010 **4EL/378**	288 570 **4EL/382**			
	355	7 500 **4EL/357**	16 910 **4EL/358**	21 200 **4EL/358**	28 370 **4EL/344**	50 000 **4EL/325**	54 630 **4EL/344**	86 690 **4EL/344**	140 720 **4EL/356**	200 900 **4EL/353**	281 190 **4EL/360**			
	315	7 500 **4EL/317**	16 940 **4EL/323**	21 200 **4EL/318**	35 450 **4EL/318**	50 000 **4EL/304**	63 490 **4EL/318**	100 420 **4EL/318**	140 960 **4EL/325**	205 840 **4EL/319**	289 750 **4EL/322**			
	280	7 500 **4EL/296**	17 000 **4EL/301**	21 200 **4EL/303**	35 500 **4EL/297**	50 000 **4EL/274**	70 010 **4EL/297**	100 710 **4EL/297**	141 230 **4EL/300**	206 420 **4EL/298**	290 370 **4EL/298**			
	250	7 500 **4EL/250**	16 910 **4EL/255**	21 200 **4EL/255**	35 380 **4EL/251**	50 000 **4EL/256**	69 550 **4EL/251**	100 310 **4EL/251**	140 800 **4EL/256**	205 600 **4EL/251**	289 200 **4EL/251**			
	250	6 184 **3EL/239**	12 470 **3EL/251**	18 000 **3EL/251**	28 410 **3EL/249**	43 010 **3EL/232**	54 710 **3EL/249**	86 370 **3EL/237**	114 810 **3EL/243**	–	–			
	224	6 390 **3EL/221**	12 410 **3EL/214**	18 000 **3EL/214**	28 290 **3EL/212**	43 870 **3EL/219**	54 480 **3EL/212**	86 450 **3EL/212**	–	171 310 **3EL/219**	–			
	200	7 500 **4EL/207**	16 990 **4EL/211**	21 200 **4EL/211**	35 500 **4EL/211**	50 000 **4EL/216**	70 010 **4EL/211**	100 710 **4EL/211**	141 360 **4EL/216**	206 170 **4EL/212**	–			

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size Output speed n_2 min^{-1} Nominal output torque $M_{N2\,FEM}$ N m Train of gears / ratio ... / i 007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	i_N	n_1 min^{-1}	n_{N2} min^{-1}
112 000	200	6 229 **3EL/203**	16 880 **3EL/198**	18 000 **3EL/204**	28 500 **3EL/203**	43 940 **3EL/198**	54 880 **3EL/203**	86 640 **3EL/193**	115 180 **3EL/198**	–	–			
	180	7 158 **4EL/175**	16 910 **4EL/178**	20 550 **4EL/178**	35 430 **4EL/178**	50 000 **4EL/182**	63 490 **4EL/178**	–	–	–	–			
		16,7	18,1	18,1	–	–	–	–	–	–		180	3 150	**18**
	180	7 500 **3EL/189**	12 460 **3EL/174**	18 000 **3EL/174**	28 380 **3EL/173**	44 010 **3EL/178**	57 560 **3EL/183**	80 550 **3EL/187**	115 880 **3EL/186**	171 860 **3EL/178**	–			
		17,8	16,6	16,6	16,9	16,6	17,2	–	–	–	–	160	2 800	
	160	7 500 **3EL/157**	17 000 **3EL/169**	21 000 **3EL/169**	34 970 **3EL/165**	43 990 **3EL/169**	54 990 **3EL/163**	100 180 **3EL/167**	116 050 **3EL/168**	172 890 **3EL/168**	247 640 **3EL/168**			
		18,4	18,2	18,2	18,6	18,2	18,6	–	–	–	–	140	2 500	
	140	7 500 **3EL/136**	16 850 **3EL/137**	21 200 **3EL/137**	35 260 **3EL/135**	43 570 **3EL/138**	69 310 **3EL/135**	99 240 **3EL/136**	118 680 **3EL/133**	171 210 **3EL/136**	237 040 **3EL/144**			
		18	19,1	19,1	17,2	17,7	17,6	17,3	18,7	–	–	125	2 240	
	125	7 500 **3EL/124**	16 770 **3EL/117**	21 200 **3EL/117**	28 230 **3EL/130**	44 010 **3EL/127**	57 410 **3EL/127**	87 190 **3EL/129**	140 250 **3EL/120**	192 870 **3EL/129**	289 850 **3EL/130**			
		18,4	18,5	18,5	17,4	17,1	17,4	17,2	18,5	17,2	17,2	112	2 000	
	112	7 500 **3EL/109**	16 830 **3EL/108**	21 200 **3EL/108**	35 480 **3EL/115**	43 850 **3EL/117**	69 750 **3EL/115**	99 880 **3EL/116**	140 340 **3EL/108**	193 080 **3EL/116**	289 920 **3EL/116**			
		17,2	18,3	18,3	17	16,6	17	17	17,6	17,9	17,6	100	1 800	
	100	7 178 **3EL/105**	12 440 **3EL/98,6**	18 000 **3EL/98,6**	35 500 **3EL/106**	50 000 **3EL/108**	62 080 **3EL/106**	100 650 **3EL/106**	140 790 **3EL/102**	200 790 **3EL/100**	281 050 **3EL/102**			
		17,4	17,3	17,3	17,7	17,3	17,7	17,7	17,3	17,7	17,5	90	1 600	
	90	7 500 **3EL/92**	16 940 **3EL/92,2**	21 200 **3EL/92,2**	35 430 **3EL/90,4**	50 000 **3EL/92,4**	69 650 **3EL/90,4**	100 390 **3EL/90,4**	140 920 **3EL/92,4**	205 780 **3EL/90,6**	289 660 **3EL/91,6**			
		18,4	18	18	18,4	18	18,4	18,2	16,4	18,1	16,8	80	1 400	
	80	7 500 **3EL/76,2**	16 870 **3EL/77,7**	21 200 **3EL/77,7**	35 300 **3EL/76,2**	50 000 **3EL/77,9**	63 490 **3EL/76,2**	99 350 **3EL/77,1**	141 360 **3EL/85,2**	192 060 **3EL/77,2**	247 490 **3EL/83,5**			
		17,2	17,2	17,2	17,5	17,2	17,5	17,5	17,2	17,5	17,5	71	1 250	
	71	7 500 **3EL/72,5**	16 950 **3EL/72,7**	21 200 **3EL/72,7**	35 460 **3EL/71,3**	50 000 **3EL/72,9**	69 710 **3EL/71,3**	100 450 **3EL/71,3**	141 000 **3EL/72,9**	205 890 **3EL/71,4**	289 610 **3EL/71,4**			
		18,3	18,3	18,3	18,6	18,2	18,6	18,6	18,2	18,6		63	1 120	
	63	7 151 **3EL/61,1**	16 850 **3EL/61,3**	21 200 **3EL/61,3**	35 240 **3EL/60,1**	50 000 **3EL/61,4**	63 490 **3EL/60,1**	100 070 **3EL/60,1**	140 470 **3EL/61,4**	205 120 **3EL/60,2**	–			
		17,8	17,4	17,4	17,8	17,4	17,8					50	900	
	50	7 165 **3EL/50,6**	16 930 **3EL/51,6**	20 560 **3EL/51,6**	35 410 **3EL/50,6**	50 000 **3EL/51,7**	63 490 **3EL/50,6**	–	–	–	–			
			17,9	17,9								45	800	
	45	–	11 800 **2EL/44,8**	15 000 **2EL/44,8**	–	–	–	–	–	–	–			
		17,6	17,6	17,6	17,7		17,7					40	710	
	40	5 979 **2EL/40,4**	12 490 **2EL/40,4**	16 640 **2EL/40,4**	28 470 **2EL/40,1**	–	42 670 **2EL/40,1**	–	–	–	–			
		19,1	19,1	19,1	19,3	16,9	19,3					35,5	630	
	35,5	6 172 **2EL/32,9**	12 380 **2EL/32,9**	18 000 **2EL/32,9**	28 220 **2EL/32,6**	32 470 **2EL/37,3**	54 340 **2EL/32,6**	–	–	–	–			
		17,6	17,6		17,9	18,4	18,2	18,1	17,6			31,5	560	
	31,5	4 831 **2EL/31,9**	13 440 **2EL/31,9**	–	27 500 **2EL/31,2**	43 240 **2EL/30,4**	54 680 **2EL/30,8**	86 820 **2EL/31**	115 390 **2EL/31,8**	–	–			
		17,8	17,8	17,8	18	17,4	18	18	19,3	17,5	17,4	28	500	
	28	6 218 **2EL/28**	12 470 **2EL/28**	18 000 **2EL/28**	28 420 **2EL/27,8**	44 070 **2EL/28,7**	54 730 **2EL/27,8**	86 850 **2EL/27,8**	114 340 **2EL/25,9**	172 100 **2EL/28,6**	246 540 **2EL/28,7**			
		17,3	17,3	17,3	17,7	17,4	18,8	18,4	18	18,4	18,3	25	450	
	25	6 416 **2EL/25,9**	16 940 **2EL/25,9**	18 060 **2EL/25,9**	35 430 **2EL/25,4**	44 090 **2EL/25,9**	57 050 **2EL/24**	79 830 **2EL/24,4**	119 260 **2EL/25**	154 450 **2EL/24,5**	235 780 **2EL/24,5**			
		18,1	18,1	18,1	18,5	18,1	18,5	18,3	18,1	18,2	18,1	22,4	400	
	22,4	7 500 **2EL/22,1**	16 860 **2EL/22,1**	21 200 **2EL/22,1**	35 280 **2EL/21,7**	43 600 **2EL/22,1**	69 350 **2EL/21,7**	99 300 **2EL/21,9**	115 110 **2EL/22,1**	191 970 **2EL/22**	289 050 **2EL/22,1**			
						17,4			17,4	17,8	17,4	20	355	
	20	–	–	–	–	44 080 **2EL/20,4**	–	–	140 880 **2EL/20,4**	171 820 **2EL/20**	246 590 **2EL/20,4**			
		16,9	16,9	16,9	17,1	18	17,1		18		18	18	315	
	18	6 252 **2EL/18,6**	12 540 **2EL/18,6**	18 000 **2EL/18,6**	28 580 **2EL/18,5**	50 000 **2EL/17,5**	55 030 **2EL/18,5**	–	140 560 **2EL/17,5**	–	289 070 **2EL/17,5**			
		16,1	16,1	16,1	16,4		16,4	16,4		16,4		16	280	
	16	7 500 **2EL/17,4**	17 000 **2EL/17,4**	21 200 **2EL/17,4**	35 500 **2EL/17,1**	–	70 180 **2EL/17,1**	100 860 **2EL/17,1**	–	206 730 **2EL/17,1**	–			
		17	17	17	17,4	17	17,4					14	250	
	14	7 183 **2EL/14,7**	16 970 **2EL/14,7**	20 590 **2EL/14,7**	35 500 **2EL/14,4**	50 000 **2EL/14,7**	63 490 **2EL/14,4**	–	–	–	–			
			18,1	18,1								12,5	224	
	12,5	–	12 500 **2EL/12,4**	16 000 **2EL/12,4**	–	–	–	–	–	–	–			

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According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size Output speed n_2 min^{-1} Nominal output torque $M_{N2\,FEM}$ N m Train of gears / ratio ... / i 007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	i_N	n_1 min^{-1}	n_{N2} min^{-1}
56 000	2800	6 447 **4EL/2947**	11 800 **4EL/2921**	–	–	–	–	–	–	–	–			
	2500	6 650 **4EL/2399**	13 200 **4EL/2636**	15 000 **4EL/2377**	–	–	–	–	–	–	–			
	2240	–	13 200 **4EL/2145**	18 000 **4EL/2145**	30 660 **4EL/2338**	–	–	–	–	–	–			
	2000	6 691 **4EL/2043**	–	–	30 350 **4EL/1902**	–	–	–	–	–	–			
	1800	6 657 **4EL/1730**	13 200 **4EL/1827**	18 000 **4EL/1827**	–	46 840 **4EL/1673**	58 750 **4EL/1796**	93 240 **4EL/1808**	123 920 **4EL/1852**	–	–			
	1600	7 500 **4EL/1611**	17 000 **4EL/1691**	18 000 **4EL/1525**	30 630 **4EL/1621**	46 980 **4EL/1509**	58 930 **4EL/1621**	93 470 **4EL/1621**	123 020 **4EL/1507**	184 980 **4EL/1670**	–			
	1400	7 500 **4EL/1344**	17 000 **4EL/1441**	18 000 **4EL/1318**	35 500 **4EL/1482**	47 030 **4EL/1361**	58 990 **4EL/1462**	93 620 **4EL/1471**	123 710 **4EL/1423**	–	–			
	1250	6 678 **4EL/1248**	13 200 **4EL/1267**	18 000 **4EL/1267**	35 500 **4EL/1263**	47 030 **4EL/1291**	58 690 **4EL/1245**	104 750 **4EL/1278**	123 800 **4EL/1284**	184 300 **4EL/1283**	263 930 **4EL/1283**			
	1120	7 500 **4EL/1122**	17 000 **4EL/1172**	21 200 **4EL/1172**	35 500 **4EL/1206**	47 330 **4EL/1160**	58 760 **4EL/1124**	93 190 **4EL/1124**	123 940 **4EL/1160**	184 370 **4EL/1150**	264 030 **4EL/1150**			
	1000	7 500 **4EL/970**	17 000 **4EL/999**	21 200 **4EL/999**	35 500 **4EL/1028**	47 090 **4EL/1051**	71 000 **4EL/1028**	104 830 **4EL/1040**	123 970 **4EL/1046**	205 760 **4EL/984**	301 500 **4EL/990**			
	900	7 500 **4EL/916**	17 000 **4EL/846**	21 200 **4EL/846**	35 500 **4EL/876**	46 880 **4EL/895**	71 000 **4EL/876**	104 570 **4EL/886**	146 890 **4EL/914**	206 080 **4EL/888**	301 650 **4EL/888**			
	800	7 500 **4EL/838**	17 000 **4EL/788**	21 200 **4EL/788**	35 500 **4EL/836**	50 000 **4EL/828**	71 000 **4EL/836**	105 030 **4EL/846**	147 040 **4EL/825**	206 410 **4EL/800**	302 070 **4EL/806**			
	710	7 500 **4EL/732**	17 000 **4EL/720**	21 200 **4EL/720**	35 500 **4EL/713**	50 000 **4EL/706**	71 000 **4EL/713**	104 770 **4EL/721**	146 710 **4EL/706**	206 760 **4EL/722**	302 260 **4EL/722**			
	630	7 500 **4EL/611**	17 000 **4EL/657**	21 200 **4EL/657**	35 500 **4EL/659**	50 000 **4EL/595**	71 000 **4EL/607**	104 960 **4EL/659**	146 800 **4EL/634**	214 430 **4EL/624**	301 650 **4EL/635**			
	560	7 500 **4EL/566**	17 000 **4EL/568**	21 200 **4EL/568**	35 500 **4EL/562**	50 000 **4EL/556**	71 000 **4EL/562**	104 660 **4EL/562**	146 900 **4EL/572**	214 570 **4EL/563**	301 920 **4EL/563**			
	500	7 500 **4EL/517**	17 000 **4EL/518**	21 200 **4EL/518**	35 500 **4EL/479**	50 000 **4EL/489**	71 000 **4EL/479**	104 310 **4EL/479**	146 630 **4EL/500**	213 860 **4EL/479**	301 120 **4EL/485**			
	450	7 500 **4EL/452**	17 000 **4EL/448**	21 200 **4EL/448**	35 500 **4EL/443**	50 000 **4EL/453**	71 000 **4EL/443**	104 560 **4EL/443**	146 770 **4EL/451**	214 380 **4EL/444**	301 650 **4EL/444**			
	400	7 500 **4EL/422**	17 000 **4EL/404**	21 200 **4EL/404**	35 500 **4EL/377**	50 000 **4EL/386**	71 000 **4EL/377**	104 380 **4EL/382**	146 440 **4EL/386**	213 850 **4EL/378**	301 110 **4EL/382**			
		8,8	8,8	8,8	9,2	9,7	9,2	–	–	–	–	355	3 150	**9**
	355	7 500 **4EL/357**	17 000 **4EL/358**	21 200 **4EL/358**	30 450 **4EL/344**	50 000 **4EL/325**	58 590 **4EL/344**	92 920 **4EL/344**	146 780 **4EL/356**	214 510 **4EL/353**	301 840 **4EL/360**			
		8,8	8,7	8,8	8,8	9,2	8,8	8,8	8,6	8,8	–	315	2 800	
	315	7 500 **4EL/317**	17 000 **4EL/323**	21 200 **4EL/318**	35 500 **4EL/318**	50 000 **4EL/304**	63 490 **4EL/318**	104 720 **4EL/318**	147 030 **4EL/325**	214 710 **4EL/319**	302 330 **4EL/322**			
		8,5	8,3	8,3	8,4	9,1	8,4	8,4	8,3	8,4	–	280	2 500	
	280	7 500 **4EL/296**	17 000 **4EL/301**	21 200 **4EL/303**	35 500 **4EL/297**	50 000 **4EL/274**	71 000 **4EL/297**	105 020 **4EL/297**	147 310 **4EL/300**	215 320 **4EL/298**	302 990 **4EL/298**			
		9	8,8	8,8	8,9	8,7	8,9	8,9	8,7	8,9	8,9	250	2 240	
	250	7 500 **4EL/250**	17 000 **4EL/255**	21 200 **4EL/255**	35 500 **4EL/251**	50 000 **4EL/256**	71 000 **4EL/251**	104 630 **4EL/251**	146 900 **4EL/256**	214 520 **4EL/251**	301 850 **4EL/251**			
		9,4	8,9	8,9	9	9,7	9	9,5	9,2			250	2 240	
	250	6 649 **3EL/239**	13 200 **3EL/251**	18 000 **3EL/251**	30 510 **3EL/249**	45 050 **3EL/232**	58 700 **3EL/249**	92 620 **3EL/237**	123 100 **3EL/243**	–	–			
		9	9,3	9,3	9,4	9,1	9,4	9,4		9,1		224	2 000	
	224	6 865 **3EL/221**	13 200 **3EL/214**	18 000 **3EL/214**	30 360 **3EL/212**	47 060 **3EL/219**	58 420 **3EL/212**	92 660 **3EL/212**	–	183 460 **3EL/219**	–			
		8,7	8,5	8,5	8,5	8,3	8,5	8,5	8,3	8,5		200	1 800	
	200	7 500 **4EL/207**	17 000 **4EL/211**	21 200 **4EL/211**	35 500 **4EL/211**	50 000 **4EL/216**	71 000 **4EL/211**	104 930 **4EL/211**	147 320 **4EL/216**	215 140 **4EL/212**	–			

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size / Output speed n_2 min^{-1} / Nominal output torque $M_{N2\,FEM}$ N m / Train of gears / ratio ... / i										i_N	n_1 min^{-1}	n_{N2} min^{-1}
		007A	015A	021A	030A	042A	060A	085A	125A	180A	250A			
56 000	200	8,9 6 685 **3EL/203**	9,1 17 000 **3EL/198**	8,8 18 000 **3EL/204**	8,9 30 550 **3EL/203**	9,1 47 070 **3EL/198**	8,9 58 770 **3EL/203**	9,3 92 740 **3EL/193**	9,1 123 270 **3EL/198**	–	–	200	1 800	
	180	9,2 7 456 **4EL/175**	9 17 000 **4EL/178**	9 21 200 **4EL/178**	9 35 500 **4EL/178**	8,8 50 000 **4EL/182**	9 63 490 **4EL/178**	–	–	–	–	180	1 600	
	180	8,5 7 500 **3EL/189**	9,2 13 200 **3EL/174**	9,2 18 000 **3EL/174**	9,3 30 420 **3EL/173**	9 47 140 **3EL/178**	8,7 59 520 **3EL/183**	8,6 86 320 **3EL/187**	8,6 123 990 **3EL/186**	9 183 770 **3EL/178**	–	180	1 600	
	160	8,9 7 500 **3EL/157**	8,3 17 000 **3EL/169**	8,3 21 200 **3EL/169**	8,5 35 500 **3EL/165**	8,3 47 250 **3EL/169**	8,6 58 970 **3EL/163**	8,4 105 050 **3EL/167**	8,3 124 380 **3EL/168**	8,3 185 060 **3EL/168**	8,3 265 000 **3EL/168**	160	1 400	
	140	9,2 7 500 **3EL/136**	9,1 17 000 **3EL/137**	9,1 21 200 **3EL/137**	9,3 35 500 **3EL/135**	9,1 46 800 **3EL/138**	9,3 71 000 **3EL/135**	9,2 104 460 **3EL/136**	9,4 127 370 **3EL/133**	9,2 183 350 **3EL/136**	8,7 254 080 **3EL/144**	140	1 250	
	125	9 7 500 **3EL/124**	9,6 17 000 **3EL/117**	9,6 21 200 **3EL/117**	8,6 30 380 **3EL/130**	8,8 47 220 **3EL/127**	8,8 59 520 **3EL/127**	8,7 93 450 **3EL/129**	9,4 146 290 **3EL/120**	8,7 206 820 **3EL/129**	8,6 302 440 **3EL/130**	125	1 120	
	112	9,2 7 500 **3EL/109**	9,2 17 000 **3EL/108**	9,2 21 200 **3EL/108**	8,7 35 500 **3EL/115**	8,5 47 110 **3EL/117**	8,7 71 000 **3EL/115**	8,6 104 860 **3EL/116**	9,3 146 390 **3EL/108**	8,6 207 040 **3EL/116**	8,6 302 510 **3EL/116**	112	1 000	
	100	8,6 7 484 **3EL/105**	9,1 13 200 **3EL/98,6**	9,1 18 000 **3EL/98,6**	8,5 35 500 **3EL/106**	8,3 50 000 **3EL/108**	8,5 66 710 **3EL/106**	8,5 104 960 **3EL/106**	8,8 146 850 **3EL/102**	9 214 450 **3EL/100**	8,8 301 690 **3EL/102**	100	900	
	90	8,7 7 500 **3EL/92**	8,7 17 000 **3EL/92,2**	8,7 21 200 **3EL/92,2**	8,8 35 500 **3EL/90,4**	8,7 50 000 **3EL/92,4**	8,8 71 000 **3EL/90,4**	8,8 104 690 **3EL/90,4**	8,7 146 980 **3EL/92,4**	8,8 214 650 **3EL/90,6**	8,7 302 240 **3EL/91,6**	90	800	
	80	9,3 7 500 **3EL/76,2**	9,1 17 000 **3EL/77,7**	9,1 21 200 **3EL/77,7**	9,3 35 500 **3EL/76,2**	9,1 50 000 **3EL/77,9**	9,3 63 490 **3EL/76,2**	9,2 104 440 **3EL/77,1**	8,3 147 320 **3EL/85,2**	9,2 205 660 **3EL/77,2**	8,5 264 610 **3EL/83,5**	80	710	
	71	8,7 7 500 **3EL/72,5**	8,7 17 000 **3EL/72,7**	8,7 21 200 **3EL/72,7**	8,8 35 500 **3EL/71,3**	8,6 50 000 **3EL/72,9**	8,8 71 000 **3EL/71,3**	8,8 104 700 **3EL/71,3**	8,6 147 000 **3EL/72,9**	8,8 214 660 **3EL/71,4**	8,8 302 050 **3EL/71,4**	71	630	
	63	9,2 7 455 **3EL/61,1**	9,1 17 000 **3EL/61,3**	9,1 21 200 **3EL/61,3**	9,3 35 500 **3EL/60,1**	9,1 50 000 **3EL/61,4**	9,3 63 490 **3EL/60,1**	9,3 104 360 **3EL/60,1**	9,1 146 520 **3EL/61,4**	9,3 213 970 **3EL/60,2**	–	63	560	
	50	8,9 7 469 **3EL/50,6**	8,7 17 000 **3EL/51,6**	8,7 21 200 **3EL/51,6**	8,9 35 500 **3EL/50,6**	8,7 50 000 **3EL/51,7**	8,9 63 490 **3EL/50,6**	–	–	–	–	50	450	
	45	–	8,9 11 800 **2EL/44,8**	8,9 15 000 **2EL/44,8**	–	–	–	–	–	–	–	45	400	
	40	8,8 6 424 **2EL/40,4**	8,8 13 200 **2EL/40,4**	8,8 17 870 **2EL/40,4**	8,9 30 560 **2EL/40,1**	–	8,9 45 790 **2EL/40,1**	–	–	–	–	40	355	
	35,5	9,6 6 633 **2EL/32,9**	9,6 13 200 **2EL/32,9**	9,6 18 000 **2EL/32,9**	9,7 30 290 **2EL/32,6**	8,4 34 850 **2EL/37,3**	9,7 58 280 **2EL/32,6**	–	–	–	–	35,5	315	
	31,5	8,8 5 190 **2EL/31,9**	8,8 14 430 **2EL/31,9**	–	9 29 510 **2EL/31,2**	9,2 45 050 **2EL/30,4**	9,1 58 630 **2EL/30,8**	9 93 050 **2EL/31**	8,8 123 670 **2EL/31,8**	–	–	31,5	280	
	28	8,9 6 682 **2EL/28**	8,9 13 200 **2EL/28**	8,9 18 000 **2EL/28**	9 30 510 **2EL/27,8**	8,7 47 280 **2EL/28,7**	9 58 690 **2EL/27,8**	9 93 090 **2EL/27,8**	9,7 122 540 **2EL/25,9**	8,7 184 300 **2EL/28,6**	8,7 263 970 **2EL/28,7**	28	250	
	25	8,6 6 896 **2EL/25,9**	8,6 17 000 **2EL/25,9**	8,6 19 230 **2EL/25,9**	8,8 35 500 **2EL/25,4**	8,7 47 310 **2EL/25,9**	9,3 59 520 **2EL/24**	9,2 85 730 **2EL/24,4**	8,9 128 050 **2EL/25**	9,1 165 820 **2EL/24,5**	9,1 252 850 **2EL/24,5**	25	224	
	22,4	9,1 7 500 **2EL/22,1**	9,1 17 000 **2EL/22,1**	9,1 21 200 **2EL/22,1**	9,2 35 500 **2EL/21,7**	9 46 830 **2EL/22,1**	9,2 71 000 **2EL/21,7**	9,1 104 500 **2EL/21,9**	9 123 370 **2EL/22,1**	9,1 205 860 **2EL/22**	9 301 610 **2EL/22,1**	22,4	200	
	20	–	–	–	–	8,8 47 220 **2EL/20,4**	–	–	8,8 146 820 **2EL/20,4**	9 183 750 **2EL/20**	8,8 263 660 **2EL/20,4**	20	180	
	18	8,6 6 708 **2EL/18,6**	8,6 13 200 **2EL/18,6**	8,6 18 000 **2EL/18,6**	8,7 30 620 **2EL/18,5**	9,2 50 000 **2EL/17,5**	8,7 58 910 **2EL/18,5**	–	9,2 146 470 **2EL/17,5**	–	9,2 301 340 **2EL/17,5**	18	160	
	16	8 7 500 **2EL/17,4**	8 17 000 **2EL/17,4**	8 21 200 **2EL/17,4**	8,2 35 500 **2EL/17,1**	–	8,2 71 000 **2EL/17,1**	8,2 105 180 **2EL/17,1**	–	8,2 215 650 **2EL/17,1**	–	16	140	
	14	8,5 7 488 **2EL/14,7**	8,5 17 000 **2EL/14,7**	8,5 21 200 **2EL/14,7**	8,7 35 500 **2EL/14,4**	8,5 50 000 **2EL/14,7**	8,7 63 490 **2EL/14,4**	–	–	–	–	14	125	
	12,5	–	9,1 12 500 **2EL/12,4**	9,1 16 000 **2EL/12,4**	–	–	–	–	–	–	–	12,5	112	

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size / Output speed n_2 min^{-1} / Nominal output torque $M_{N2\,FEM}$ N m / Train of gears / ratio ... / i										i_N	n_1 min^{-1}	n_{N2} min^{-1}
		007A	**015A**	**021A**	**030A**	**042A**	**060A**	**085A**	**125A**	**180A**	**250A**			
28 000	2800	6 926 **4EL/2947**	11 800 **4EL/2921**	–	–	–	–	–	–	–	–			
	2500	7 060 **4EL/2399**	13 200 **4EL/2636**	15 000 **4EL/2377**	–	–	–	–	–	–	–			
	2240	–	13 200 **4EL/2145**	18 000 **4EL/2145**	32 420 **4EL/2338**	–	–	–	–	–	–			
	2000	7 093 **4EL/2043**	–	–	32 170 **4EL/1902**	–	–	–	–	–	–			
	1800	7 066 **4EL/1730**	13 200 **4EL/1827**	18 000 **4EL/1827**	–	47 500 **4EL/1673**	62 130 **4EL/1796**	98 540 **4EL/1808**	130 700 **4EL/1852**	–	–			
	1600	7 500 **4EL/1611**	17 000 **4EL/1691**	18 000 **4EL/1525**	32 360 **4EL/1621**	47 500 **4EL/1509**	62 210 **4EL/1621**	98 610 **4EL/1621**	129 990 **4EL/1507**	194 430 **4EL/1670**	–			
	1400	7 500 **4EL/1344**	17 000 **4EL/1441**	18 000 **4EL/1318**	35 500 **4EL/1482**	47 500 **4EL/1361**	62 280 **4EL/1462**	98 780 **4EL/1471**	130 500 **4EL/1423**	–	–			
	1250	7 083 **4EL/1248**	13 200 **4EL/1267**	18 000 **4EL/1267**	35 500 **4EL/1263**	50 000 **4EL/1291**	62 080 **4EL/1245**	109 240 **4EL/1278**	130 620 **4EL/1284**	194 050 **4EL/1283**	277 700 **4EL/1283**			
	1120	7 500 **4EL/1122**	17 000 **4EL/1172**	21 200 **4EL/1172**	35 500 **4EL/1206**	47 500 **4EL/1160**	62 130 **4EL/1124**	98 500 **4EL/1124**	130 710 **4EL/1160**	194 110 **4EL/1150**	277 780 **4EL/1150**			
	1000	7 500 **4EL/970**	17 000 **4EL/999**	21 200 **4EL/999**	35 500 **4EL/1028**	50 000 **4EL/1051**	71 000 **4EL/1028**	109 330 **4EL/1040**	130 730 **4EL/1046**	220 650 **4EL/984**	314 600 **4EL/990**			
	900	7 500 **4EL/916**	17 000 **4EL/846**	21 200 **4EL/846**	35 500 **4EL/876**	50 000 **4EL/895**	71 000 **4EL/876**	109 050 **4EL/886**	153 210 **4EL/914**	220 980 **4EL/888**	314 760 **4EL/888**			
	800	7 500 **4EL/838**	17 000 **4EL/788**	21 200 **4EL/788**	35 500 **4EL/836**	50 000 **4EL/828**	71 000 **4EL/836**	109 530 **4EL/846**	153 370 **4EL/825**	221 340 **4EL/800**	315 000 **4EL/806**			
		4,3	4,37	4,37	4,42	4,46	4,42	–	–	–	–	710	3 150	**4,5**
	710	7 500 **4EL/732**	17 000 **4EL/720**	21 200 **4EL/720**	35 500 **4EL/713**	50 000 **4EL/706**	71 000 **4EL/713**	109 260 **4EL/721**	153 030 **4EL/706**	221 720 **4EL/722**	315 000 **4EL/722**			
		4,58	4,26	4,26	4,25	4,71	4,61	4,25	4,42	4,49	–	630	2 800	
	630	7 500 **4EL/611**	17 000 **4EL/657**	21 200 **4EL/657**	35 500 **4EL/659**	50 000 **4EL/595**	71 000 **4EL/607**	109 450 **4EL/659**	153 120 **4EL/634**	223 680 **4EL/624**	315 000 **4EL/635**			
		4,42	4,4	4,4	4,45	4,49	4,45	4,45	4,37	4,44	–	560	2 500	
	560	7 500 **4EL/566**	17 000 **4EL/568**	21 200 **4EL/568**	35 500 **4EL/562**	50 000 **4EL/556**	71 000 **4EL/562**	109 140 **4EL/562**	153 220 **4EL/572**	223 830 **4EL/563**	315 000 **4EL/563**			
		4,34	4,32	4,32	4,68	4,58	4,68	4,68	4,48	4,67	4,62	500	2 240	
	500	7 500 **4EL/517**	17 000 **4EL/518**	21 200 **4EL/518**	35 500 **4EL/479**	50 000 **4EL/489**	71 000 **4EL/479**	108 810 **4EL/479**	152 990 **4EL/500**	223 140 **4EL/479**	314 290 **4EL/485**			
		4,42	4,47	4,47	4,52	4,42	4,52	4,52	4,44	4,51	4,51	450	2 000	
	450	7 500 **4EL/452**	17 000 **4EL/448**	21 200 **4EL/448**	35 500 **4EL/443**	50 000 **4EL/453**	71 000 **4EL/443**	109 050 **4EL/443**	153 090 **4EL/451**	223 630 **4EL/444**	314 750 **4EL/444**			
		4,27	4,46	4,46	4,77	4,67	4,77	4,72	4,67	4,76	4,71	400	1 800	
	400	7 500 **4EL/422**	17 000 **4EL/404**	21 200 **4EL/404**	35 500 **4EL/377**	50 000 **4EL/386**	71 000 **4EL/377**	108 760 **4EL/382**	152 610 **4EL/386**	222 880 **4EL/378**	313 920 **4EL/382**			
		4,49	4,47	4,47	4,65	4,92	4,65	4,65	4,5	4,53	4,45	355	1 600	
	355	7 500 **4EL/357**	17 000 **4EL/358**	21 200 **4EL/358**	32 210 **4EL/344**	50 000 **4EL/325**	61 920 **4EL/344**	98 170 **4EL/344**	152 950 **4EL/356**	223 550 **4EL/353**	315 000 **4EL/360**			
		4,41	4,33	4,4	4,4	4,6	4,4	4,4	4,31	4,39	4,34	315	1 400	
	315	7 500 **4EL/317**	17 000 **4EL/323**	21 200 **4EL/318**	35 500 **4EL/318**	50 000 **4EL/304**	63 490 **4EL/318**	109 210 **4EL/318**	153 360 **4EL/325**	223 970 **4EL/319**	315 000 **4EL/322**			
		4,23	4,15	4,13	4,2	4,56	4,2	4,2	4,17	4,19	4,19	280	1 250	
	280	7 500 **4EL/296**	17 000 **4EL/301**	21 200 **4EL/303**	35 500 **4EL/297**	50 000 **4EL/274**	71 000 **4EL/297**	109 520 **4EL/297**	153 660 **4EL/300**	224 000 **4EL/298**	315 000 **4EL/298**			
		4,48	4,39	4,39	4,47	4,37	4,47	4,47	4,37	4,46	4,46	250	1 120	
	250	7 500 **4EL/250**	17 000 **4EL/255**	21 200 **4EL/255**	35 500 **4EL/251**	50 000 **4EL/256**	71 000 **4EL/251**	109 120 **4EL/251**	153 220 **4EL/256**	223 770 **4EL/251**	314 960 **4EL/251**			
		4,68	4,46	4,46	4,5	4,83	4,5	4,73	4,62			250	1 120	
	250	7 059 **3EL/239**	13 200 **3EL/251**	18 000 **3EL/251**	32 300 **3EL/249**	45 050 **3EL/232**	62 090 **3EL/249**	98 050 **3EL/237**	130 170 **3EL/243**	–	–			
		4,52	4,67	4,67	4,71	4,57	4,71	4,71		4,57		224	1 000	
	224	7 288 **3EL/221**	13 200 **3EL/214**	18 000 **3EL/214**	32 180 **3EL/212**	47 500 **3EL/219**	61 870 **3EL/212**	98 080 **3EL/212**	–	193 390 **3EL/219**	–			
		4,34	4,26	4,26	4,26	4,17	4,26	4,26	4,17	4,25		200	900	
	200	7 500 **4EL/207**	17 000 **4EL/211**	21 200 **4EL/211**	35 500 **4EL/211**	50 000 **4EL/216**	71 000 **4EL/211**	109 430 **4EL/211**	153 670 **4EL/216**	224 000 **4EL/212**	–			

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size / Output speed n_2 min^{-1} / Nominal output torque $M_{N2\,FEM}$ N m / Train of gears / ratio ... / i										i_N	n_1 min^{-1}	n_{N2} min^{-1}
		007A	015A	021A	030A	042A	060A	085A	125A	180A	250A			
28 000	200	4,44 7 088 **3EL/203**	4,54 17 000 **3EL/198**	4,4 18 000 **3EL/204**	4,44 32 330 **3EL/203**	4,55 47 500 **3EL/198**	4,44 62 150 **3EL/203**	4,67 98 140 **3EL/193**	4,55 130 280 **3EL/198**	–	–	200	900	
	180	4,58 7 500 **4EL/175**	4,49 17 000 **4EL/178**	4,49 21 200 **4EL/178**	4,49 35 500 **4EL/178**	4,4 50 000 **4EL/182**	4,49 63 490 **4EL/178**	–	–	–	–	180	800	
	180	4,24 7 500 **3EL/189**	4,59 13 200 **3EL/174**	4,59 18 000 **3EL/174**	4,63 32 220 **3EL/173**	4,49 47 500 **3EL/178**	4,37 59 520 **3EL/183**	4,29 92 660 **3EL/187**	4,29 130 750 **3EL/186**	4,5 193 630 **3EL/178**	–	180	800	
	160	4,51 7 500 **3EL/157**	4,21 17 000 **3EL/169**	4,21 21 200 **3EL/169**	4,29 35 500 **3EL/165**	4,2 50 000 **3EL/169**	4,35 62 240 **3EL/163**	4,24 109 460 **3EL/167**	4,22 130 880 **3EL/168**	4,23 194 510 **3EL/168**	4,23 278 350 **3EL/168**	160	710	
	140	4,63 7 500 **3EL/136**	4,59 17 000 **3EL/137**	4,59 21 200 **3EL/137**	4,68 35 500 **3EL/135**	4,58 50 000 **3EL/138**	4,68 71 000 **3EL/135**	4,63 108 890 **3EL/136**	4,75 136 580 **3EL/133**	4,64 193 200 **3EL/136**	4,38 272 130 **3EL/144**	140	630	
	125	4,51 7 500 **3EL/124**	4,79 17 000 **3EL/117**	4,79 21 200 **3EL/117**	4,29 32 690 **3EL/130**	4,42 47 500 **3EL/127**	4,41 59 520 **3EL/127**	4,33 98 700 **3EL/129**	4,68 152 590 **3EL/120**	4,35 221 780 **3EL/129**	4,32 315 000 **3EL/130**	125	560	
	112	4,6 7 500 **3EL/109**	4,62 17 000 **3EL/108**	4,62 21 200 **3EL/108**	4,36 35 500 **3EL/115**	4,27 50 000 **3EL/117**	4,36 71 000 **3EL/115**	4,31 109 350 **3EL/116**	4,63 152 690 **3EL/108**	4,3 222 020 **3EL/116**	4,3 315 000 **3EL/116**	112	500	
	100	4,3 7 500 **3EL/105**	4,56 13 200 **3EL/98,6**	4,56 18 000 **3EL/98,6**	4,24 35 500 **3EL/106**	4,15 50 000 **3EL/108**	4,24 71 000 **3EL/106**	4,24 109 460 **3EL/106**	4,39 153 170 **3EL/102**	4,48 223 700 **3EL/100**	4,4 315 000 **3EL/102**	100	450	
	90	4,35 7 500 **3EL/92**	4,34 17 000 **3EL/92,2**	4,34 21 200 **3EL/92,2**	4,42 35 500 **3EL/90,4**	4,33 50 000 **3EL/92,4**	4,42 71 000 **3EL/90,4**	4,42 109 180 **3EL/90,4**	4,33 153 310 **3EL/92,4**	4,42 223 900 **3EL/90,6**	4,37 315 000 **3EL/91,6**	90	400	
	80	4,66 7 500 **3EL/76,2**	4,57 17 000 **3EL/77,7**	4,57 21 200 **3EL/77,7**	4,66 35 500 **3EL/76,2**	4,56 50 000 **3EL/77,9**	4,66 63 490 **3EL/76,2**	4,61 108 920 **3EL/77,1**	4,17 153 670 **3EL/85,2**	4,6 220 540 **3EL/77,2**	4,25 278 230 **3EL/83,5**	80	355	
	71	4,35 7 500 **3EL/72,5**	4,33 17 000 **3EL/72,7**	4,33 21 200 **3EL/72,7**	4,42 35 500 **3EL/71,3**	4,32 50 000 **3EL/72,9**	4,42 71 000 **3EL/71,3**	4,42 109 190 **3EL/71,3**	4,32 153 320 **3EL/72,9**	4,41 223 920 **3EL/71,4**	4,41 315 000 **3EL/71,4**	71	315	
	63	4,58 7 500 **3EL/61,1**	4,57 17 000 **3EL/61,3**	4,57 21 200 **3EL/61,3**	4,66 35 500 **3EL/60,1**	4,56 50 000 **3EL/61,4**	4,66 63 490 **3EL/60,1**	4,66 108 840 **3EL/60,1**	4,56 152 830 **3EL/61,4**	4,65 223 190 **3EL/60,2**	–	63	280	
	50	4,42 7 500 **3EL/50,6**	4,34 17 000 **3EL/51,6**	4,34 21 200 **3EL/51,6**	4,43 35 500 **3EL/50,6**	4,33 50 000 **3EL/51,7**	4,43 63 490 **3EL/50,6**	–	–	–	–	50	224	
	45	–	4,46 11 800 **2EL/44,8**	4,46 15 000 **2EL/44,8**	–	–	–	–	–	–	–	45	200	
	40	4,45 6 892 **2EL/40,4**	4,45 13 200 **2EL/40,4**	4,45 18 000 **2EL/40,4**	4,49 32 300 **2EL/40,1**	–	4,49 49 060 **2EL/40,1**	–	–	–	–	40	180	
	35,5	4,86 7 038 **2EL/32,9**	4,86 13 200 **2EL/32,9**	4,86 18 000 **2EL/32,9**	4,9 32 080 **2EL/32,6**	4,29 37 340 **2EL/37,3**	4,9 61 680 **2EL/32,6**	–	–	–	–	35,5	160	
	31,5	4,39 5 577 **2EL/31,9**	4,39 15 500 **2EL/31,9**	–	4,48 31 670 **2EL/31,2**	4,61 45 050 **2EL/30,4**	4,55 62 030 **2EL/30,8**	4,51 98 390 **2EL/31**	4,41 130 540 **2EL/31,8**	–	–	31,5	140	
	28	4,46 7 086 **2EL/28**	4,46 13 200 **2EL/28**	4,46 18 000 **2EL/28**	4,5 32 300 **2EL/27,8**	4,36 47 500 **2EL/28,7**	4,5 62 080 **2EL/27,8**	4,5 98 420 **2EL/27,8**	4,83 129 750 **2EL/25,9**	4,37 194 050 **2EL/28,6**	4,36 277 730 **2EL/28,7**	28	125	
	25	4,32 7 288 **2EL/25,9**	4,32 17 000 **2EL/25,9**	4,32 19 230 **2EL/25,9**	4,41 35 500 **2EL/25,4**	4,33 47 500 **2EL/25,9**	4,67 59 520 **2EL/24**	4,58 92 030 **2EL/24,4**	4,47 137 430 **2EL/25**	4,57 177 950 **2EL/24,5**	4,57 271 030 **2EL/24,5**	25	112	
	22,4	4,53 7 500 **2EL/22,1**	4,53 17 000 **2EL/22,1**	4,53 21 200 **2EL/22,1**	4,62 35 500 **2EL/21,7**	4,52 50 000 **2EL/22,1**	4,62 71 000 **2EL/21,7**	4,56 108 980 **2EL/21,9**	4,52 130 340 **2EL/22,1**	4,55 220 750 **2EL/22**	4,52 314 710 **2EL/22,1**	22,4	100	
	20	–	–	–	–	4,41 47 500 **2EL/20,4**	–	–	4,41 153 140 **2EL/20,4**	4,5 193 620 **2EL/20**	4,41 277 490 **2EL/20,4**	20	90	
	18	4,3 7 100 **2EL/18,6**	4,3 13 200 **2EL/18,6**	4,3 18 000 **2EL/18,6**	4,33 32 390 **2EL/18,5**	4,58 50 000 **2EL/17,5**	4,33 62 260 **2EL/18,5**	–	4,58 152 780 **2EL/17,5**	–	4,58 314 430 **2EL/17,5**	18	80	
	16	4,08 7 500 **2EL/17,4**	4,08 17 000 **2EL/17,4**	4,08 21 200 **2EL/17,4**	4,16 35 500 **2EL/17,1**	–	4,16 71 000 **2EL/17,1**	4,16 109 590 **2EL/17,1**	–	4,15 224 000 **2EL/17,1**	–	16	71	
	14	4,29 7 500 **2EL/14,7**	4,29 17 000 **2EL/14,7**	4,29 21 200 **2EL/14,7**	4,38 35 500 **2EL/14,4**	4,28 50 000 **2EL/14,7**	4,38 63 490 **2EL/14,4**	–	–	–	–	14	63	
	12,5	–	4,53 12 500 **2EL/12,4**	4,53 16 000 **2EL/12,4**	–	–	–	–	–	–	–	12,5	56	

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size Output speed n_2 min^{-1} Nominal output torque $M_{N2\,FEM}$ N m Train of gears / ratio . . . / i 007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	i_N	n_1 min^{-1}	n_{N2} min^{-1}
14 000	2800	7 100 **4EL/2947**	11 800 **4EL/2921**	–	–	–	–	–	–	–	–			
	2500	7 100 **4EL/2399**	13 200 **4EL/2636**	15 000 **4EL/2377**	–	–	–	–	–	–	–			
	2240	–	13 200 **4EL/2145**	18 000 **4EL/2145**	33 500 **4EL/2338**	–	–	–	–	–	–			
	2000	7 100 **4EL/2043**	–	–	33 500 **4EL/1902**	–	–	–	–	–	–			
	1800	7 100 **4EL/1730**	13 200 **4EL/1827**	18 000 **4EL/1827**	–	47 500 **4EL/1673**	65 480 **4EL/1796**	103 770 **4EL/1808**	137 460 **4EL/1852**	–	–			
	1600	7 500 **4EL/1611**	17 000 **4EL/1691**	18 000 **4EL/1525**	33 500 **4EL/1621**	47 500 **4EL/1509**	65 570 **4EL/1621**	103 840 **4EL/1621**	136 410 **4EL/1507**	204 580 **4EL/1670**	–			
		2,34	2,19	2,39	2,12	2,31	2,16	–	–			1 400	3 150	**2,24**
	1400	7 500 **4EL/1344**	17 000 **4EL/1441**	18 000 **4EL/1318**	35 500 **4EL/1482**	47 500 **4EL/1361**	65 650 **4EL/1462**	104 020 **4EL/1471**	137 160 **4EL/1423**	–	–			
		2,24	2,21	2,21	2,22	2,17	2,25	2,19	2,18	2,18	–	1 250	2 800	
	1250	7 100 **4EL/1248**	13 200 **4EL/1267**	18 000 **4EL/1267**	35 500 **4EL/1263**	50 000 **4EL/1291**	65 430 **4EL/1245**	112 000 **4EL/1278**	137 350 **4EL/1284**	204 180 **4EL/1283**	292 000 **4EL/1283**			
		2,23	2,13	2,13	2,07	2,16	2,22	2,22	2,16	2,17	–	1 120	2 500	
	1120	7 500 **4EL/1122**	17 000 **4EL/1172**	21 200 **4EL/1172**	35 500 **4EL/1206**	47 500 **4EL/1160**	65 490 **4EL/1124**	103 720 **4EL/1124**	137 480 **4EL/1160**	204 240 **4EL/1150**	292 080 **4EL/1150**			
		2,31	2,24	2,24	2,18	2,13	2,18	2,15	2,14	2,28	2,26	1 000	2 240	
	1000	7 500 **4EL/970**	17 000 **4EL/999**	21 200 **4EL/999**	35 500 **4EL/1028**	50 000 **4EL/1051**	71 000 **4EL/1028**	112 000 **4EL/1040**	137 570 **4EL/1046**	224 000 **4EL/984**	315 000 **4EL/990**			
		2,18	2,37	2,37	2,28	2,23	2,28	2,26	2,19	2,25	2,25	900	2 000	
	900	7 500 **4EL/916**	17 000 **4EL/846**	21 200 **4EL/846**	35 500 **4EL/876**	50 000 **4EL/895**	71 000 **4EL/876**	112 000 **4EL/886**	160 000 **4EL/914**	224 000 **4EL/888**	315 000 **4EL/888**			
		2,15	2,29	2,29	2,15	2,17	2,15	2,13	2,18	2,25	2,23	800	1 800	
	800	7 500 **4EL/838**	17 000 **4EL/788**	21 200 **4EL/788**	35 500 **4EL/836**	50 000 **4EL/828**	71 000 **4EL/836**	112 000 **4EL/846**	160 000 **4EL/825**	224 000 **4EL/800**	315 000 **4EL/806**			
		2,19	2,22	2,22	2,25	2,27	2,25	2,22	2,27	2,22	2,22	710	1 600	
	710	7 500 **4EL/732**	17 000 **4EL/720**	21 200 **4EL/720**	35 500 **4EL/713**	50 000 **4EL/706**	71 000 **4EL/713**	112 000 **4EL/721**	160 000 **4EL/706**	224 000 **4EL/722**	315 000 **4EL/722**			
		2,29	2,13	2,13	2,12	2,35	2,31	2,12	2,21	2,24	2,2	630	1 400	
	630	7 500 **4EL/611**	17 000 **4EL/657**	21 200 **4EL/657**	35 500 **4EL/659**	50 000 **4EL/595**	71 000 **4EL/607**	112 000 **4EL/659**	160 000 **4EL/634**	224 000 **4EL/624**	315 000 **4EL/635**			
		2,21	2,2	2,2	2,23	2,25	2,23	2,23	2,19	2,22	2,22	560	1 250	
	560	7 500 **4EL/566**	17 000 **4EL/568**	21 200 **4EL/568**	35 500 **4EL/562**	50 000 **4EL/556**	71 000 **4EL/562**	112 000 **4EL/562**	160 000 **4EL/572**	224 000 **4EL/563**	315 000 **4EL/563**			
		2,17	2,16	2,16	2,34	2,29	2,34	2,34	2,24	2,34	2,31	500	1 120	
	500	7 500 **4EL/517**	17 000 **4EL/518**	21 200 **4EL/518**	35 500 **4EL/479**	50 000 **4EL/489**	71 000 **4EL/479**	112 000 **4EL/479**	160 000 **4EL/500**	224 000 **4EL/479**	315 000 **4EL/485**			
		2,21	2,23	2,23	2,26	2,21	2,26	2,26	2,22	2,25	2,25	450	1 000	
	450	7 500 **4EL/452**	17 000 **4EL/448**	21 200 **4EL/448**	35 500 **4EL/443**	50 000 **4EL/453**	71 000 **4EL/443**	112 000 **4EL/443**	160 000 **4EL/451**	224 000 **4EL/444**	315 000 **4EL/444**			
		2,13	2,23	2,23	2,39	2,33	2,39	2,36	2,33	2,38	2,35	400	900	
	400	7 500 **4EL/422**	17 000 **4EL/404**	21 200 **4EL/404**	35 500 **4EL/377**	50 000 **4EL/386**	71 000 **4EL/377**	112 000 **4EL/382**	159 690 **4EL/386**	224 000 **4EL/378**	315 000 **4EL/382**			
		2,24	2,24	2,24	2,33	2,46	2,33	2,33	2,25	2,27	2,22	355	800	
	355	7 500 **4EL/357**	17 000 **4EL/358**	21 200 **4EL/358**	33 500 **4EL/344**	50 000 **4EL/325**	65 270 **4EL/344**	103 380 **4EL/344**	160 000 **4EL/356**	224 000 **4EL/353**	315 000 **4EL/360**			
		2,24	2,2	2,23	2,23	2,33	2,23	2,23	2,18	2,23	2,2	315	710	
	315	7 500 **4EL/317**	17 000 **4EL/323**	21 200 **4EL/318**	35 500 **4EL/318**	50 000 **4EL/304**	63 490 **4EL/318**	112 000 **4EL/318**	160 000 **4EL/325**	224 000 **4EL/319**	315 000 **4EL/322**			
		2,13	2,09	2,08	2,12	2,3	2,12	2,12	2,1	2,11	2,11	280	630	
	280	7 500 **4EL/296**	17 000 **4EL/301**	21 200 **4EL/303**	35 500 **4EL/297**	50 000 **4EL/274**	71 000 **4EL/297**	112 000 **4EL/297**	160 000 **4EL/300**	224 000 **4EL/298**	315 000 **4EL/298**			
		2,24	2,2	2,2	2,23	2,19	2,23	2,23	2,19	2,23	2,23	250	560	
	250	7 500 **4EL/250**	17 000 **4EL/255**	21 200 **4EL/255**	35 500 **4EL/251**	50 000 **4EL/256**	71 000 **4EL/251**	112 000 **4EL/251**	160 000 **4EL/256**	224 000 **4EL/251**	315 000 **4EL/251**			
		2,34	2,23	2,23	2,25	2,41	2,25	2,36	2,31			250	560	
	250	7 100 **3EL/239**	13 200 **3EL/251**	18 000 **3EL/251**	33 500 **3EL/249**	45 050 **3EL/232**	65 440 **3EL/249**	103 250 **3EL/237**	136 650 **3EL/243**	–	–			
		2,26	2,34	2,34	2,36	2,28	2,36	2,36		2,29		224	500	
	224	7 288 **3EL/221**	13 200 **3EL/214**	18 000 **3EL/214**	33 500 **3EL/212**	47 500 **3EL/219**	65 200 **3EL/212**	103 280 **3EL/212**	–	203 480 **3EL/219**	–			
		2,17	2,13	2,13	2,13	2,08	2,13	2,13	2,08	2,13		200	450	
	200	7 500 **4EL/207**	17 000 **4EL/211**	21 200 **4EL/211**	35 500 **4EL/211**	50 000 **4EL/216**	71 000 **4EL/211**	112 000 **4EL/211**	160 000 **4EL/216**	224 000 **4EL/212**	–			

2581-01.02

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size Output speed n_2 min^{-1} Nominal output torque $M_{N2\,FEM}$ N m **Train of gears / ratio . . . / i** **007A**	**015A**	**021A**	**030A**	**042A**	**060A**	**085A**	**125A**	**180A**	**250A**	i_N	n_1 min^{-1}	n_{N2} min^{-1}
14 000	200	2,22 7 100 **3EL/203**	2,27 17 000 **3EL/198**	2,2 18 000 **3EL/204**	2,22 33 500 **3EL/203**	2,28 47 500 **3EL/198**	2,22 65 500 **3EL/203**	2,34 103 350 **3EL/193**	2,28 136 820 **3EL/198**	–	–	200	450	
	180	2,29 7 500 **4EL/175**	2,25 17 000 **4EL/178**	2,25 21 200 **4EL/178**	2,25 35 500 **4EL/178**	2,2 50 000 **4EL/182**	2,25 63 490 **4EL/178**	–	–	–	–	180	400	
	180	2,12 7 500 **3EL/189**	2,3 13 200 **3EL/174**	2,3 18 000 **3EL/174**	2,32 33 500 **3EL/173**	2,24 47 500 **3EL/178**	2,18 59 520 **3EL/183**	2,14 99 460 **3EL/187**	2,15 137 540 **3EL/186**	2,25 203 740 **3EL/178**	–	180	400	
	160	2,25 7 500 **3EL/157**	2,1 17 000 **3EL/169**	2,1 21 200 **3EL/169**	2,15 35 500 **3EL/165**	2,1 50 000 **3EL/169**	2,18 65 600 **3EL/163**	2,12 112 000 **3EL/167**	2,11 137 740 **3EL/168**	2,11 204 670 **3EL/168**	2,11 292 680 **3EL/168**	160	355	
	140	2,31 7 500 **3EL/136**	2,29 17 000 **3EL/137**	2,29 21 200 **3EL/137**	2,34 35 500 **3EL/135**	2,29 50 000 **3EL/138**	2,34 71 000 **3EL/135**	2,31 112 000 **3EL/136**	2,38 146 590 **3EL/133**	2,32 203 280 **3EL/136**	2,19 291 690 **3EL/144**	140	315	
	125	2,26 7 500 **3EL/124**	2,39 17 000 **3EL/117**	2,39 21 200 **3EL/117**	2,15 35 170 **3EL/130**	2,21 47 500 **3EL/127**	2,2 59 520 **3EL/127**	2,16 103 940 **3EL/129**	2,34 159 660 **3EL/120**	2,17 224 000 **3EL/129**	2,16 315 000 **3EL/130**	125	280	
	112	2,3 7 500 **3EL/109**	2,31 17 000 **3EL/108**	2,31 21 200 **3EL/108**	2,18 35 500 **3EL/115**	2,13 50 000 **3EL/117**	2,18 71 000 **3EL/115**	2,15 112 000 **3EL/116**	2,31 159 810 **3EL/108**	2,15 224 000 **3EL/116**	2,15 315 000 **3EL/116**	112	250	
	100	2,14 7 500 **3EL/105**	2,27 13 200 **3EL/98,6**	2,27 18 000 **3EL/98,6**	2,11 35 500 **3EL/106**	2,07 50 000 **3EL/108**	2,11 71 000 **3EL/106**	2,11 112 000 **3EL/106**	2,19 160 000 **3EL/102**	2,23 224 000 **3EL/100**	2,19 315 000 **3EL/102**	100	224	
	90	2,18 7 500 **3EL/92**	2,17 17 000 **3EL/92,2**	2,17 21 200 **3EL/92,2**	2,21 35 500 **3EL/90,4**	2,16 50 000 **3EL/92,4**	2,21 71 000 **3EL/90,4**	2,21 112 000 **3EL/90,4**	2,16 160 000 **3EL/92,4**	2,21 224 000 **3EL/90,6**	2,18 315 000 **3EL/91,6**	90	200	
	80	2,36 7 500 **3EL/76,2**	2,32 17 000 **3EL/77,7**	2,32 21 200 **3EL/77,7**	2,36 35 500 **3EL/76,2**	2,31 50 000 **3EL/77,9**	2,36 63 490 **3EL/76,2**	2,34 112 000 **3EL/77,1**	2,11 160 000 **3EL/85,2**	2,33 224 000 **3EL/77,2**	2,16 292 250 **3EL/83,5**	80	180	
	71	2,21 7 500 **3EL/72,5**	2,2 17 000 **3EL/72,7**	2,2 21 200 **3EL/72,7**	2,24 35 500 **3EL/71,3**	2,2 50 000 **3EL/72,9**	2,24 71 000 **3EL/71,3**	2,24 112 000 **3EL/71,3**	2,2 160 000 **3EL/72,9**	2,24 224 000 **3EL/71,4**	2,24 315 000 **3EL/71,4**	71	160	
	63	2,29 7 500 **3EL/61,1**	2,28 17 000 **3EL/61,3**	2,28 21 200 **3EL/61,3**	2,33 35 500 **3EL/60,1**	2,28 50 000 **3EL/61,4**	2,33 63 490 **3EL/60,1**	2,33 112 000 **3EL/60,1**	2,28 160 000 **3EL/61,4**	2,33 224 000 **3EL/60,2**	–	63	140	
	50	2,21 7 500 **3EL/50,6**	2,17 17 000 **3EL/51,6**	2,17 21 200 **3EL/51,6**	2,21 35 500 **3EL/50,6**	2,16 50 000 **3EL/51,7**	2,21 63 490 **3EL/50,6**	–	–	–	–	50	112	
	45	–	2,23 11 800 **2EL/44,8**	2,23 15 000 **2EL/44,8**	–	–	–	–	–	–	–	45	100	
	40	2,23 7 100 **2EL/40,4**	2,23 13 200 **2EL/40,4**	2,23 18 000 **2EL/40,4**	2,24 33 500 **2EL/40,1**	–	2,24 52 640 **2EL/40,1**	–	–	–	–	40	90	
	35,5	2,43 7 100 **2EL/32,9**	2,43 13 200 **2EL/32,9**	2,43 18 000 **2EL/32,9**	2,45 33 500 **2EL/32,6**	2,14 37 940 **2EL/37,3**	2,45 65 010 **2EL/32,6**	–	–	–	–	35,5	80	
	31,5	2,23 5 983 **2EL/31,9**	2,23 16 190 **2EL/31,9**	–	2,27 31 750 **2EL/31,2**	2,34 45 050 **2EL/30,4**	2,31 65 310 **2EL/30,8**	2,29 103 500 **2EL/31**	2,24 137 040 **2EL/31,8**	–	–	31,5	71	
	28	2,25 7 100 **2EL/28**	2,25 13 200 **2EL/28**	2,25 18 000 **2EL/28**	2,27 33 500 **2EL/27,8**	2,2 47 500 **2EL/28,7**	2,27 65 400 **2EL/27,8**	2,27 103 580 **2EL/27,8**	2,43 136 020 **2EL/25,9**	2,2 204 060 **2EL/28,6**	2,2 291 860 **2EL/28,7**	28	63	
	25	2,16 7 288 **2EL/25,9**	2,16 17 000 **2EL/25,9**	2,16 19 230 **2EL/25,9**	2,2 35 500 **2EL/25,4**	2,16 47 500 **2EL/25,9**	2,33 59 520 **2EL/24**	2,29 98 790 **2EL/24,4**	2,24 147 500 **2EL/25**	2,29 190 960 **2EL/24,5**	2,28 290 520 **2EL/24,5**	25	56	
	22,4	2,26 7 500 **2EL/22,1**	2,26 17 000 **2EL/22,1**	2,26 21 200 **2EL/22,1**	2,31 35 500 **2EL/21,7**	2,26 50 000 **2EL/22,1**	2,31 71 000 **2EL/21,7**	2,28 112 000 **2EL/21,9**	2,26 136 920 **2EL/22,1**	2,28 224 000 **2EL/22**	2,26 315 000 **2EL/22,1**	22,4	50	
	20	–	–	–	–	2,21 47 500 **2EL/20,4**	–	–	2,21 160 000 **2EL/20,4**	2,25 203 730 **2EL/20**	2,21 291 780 **2EL/20,4**	20	45	
	18	2,15 7 100 **2EL/18,6**	2,15 13 200 **2EL/18,6**	2,15 18 000 **2EL/18,6**	2,17 33 500 **2EL/18,5**	2,29 50 000 **2EL/17,5**	2,17 65 620 **2EL/18,5**	–	2,29 159 950 **2EL/17,5**	–	2,29 315 000 **2EL/17,5**	18	40	
	16	2,04 7 500 **2EL/17,4**	2,04 17 000 **2EL/17,4**	2,04 21 200 **2EL/17,4**	2,08 35 500 **2EL/17,1**	–	2,08 71 000 **2EL/17,1**	2,08 112 000 **2EL/17,1**	–	2,08 224 000 **2EL/17,1**	–	16	36	
	14	2,15 7 500 **2EL/14,7**	2,15 17 000 **2EL/14,7**	2,15 21 200 **2EL/14,7**	2,19 35 500 **2EL/14,4**	2,14 50 000 **2EL/14,7**	2,19 63 490 **2EL/14,4**	–	–	–	–	14	32	
	12,5	–	2,26 12 500 **2EL/12,4**	2,26 16 000 **2EL/12,4**	–	–	–	–	–	–	–	12,5	28	

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size / Output speed n_2 min^{-1} / Nominal output torque $M_{N2\,FEM}$ N m / Train of gears / ratio ... / i										i_N	n_1 min^{-1}	n_{N2} min^{-1}
		007A	015A	021A	030A	042A	060A	085A	125A	180A	250A			
7 100		1,07	1,08									2 800	3 150	**1,12**
	2800	7 100 **4EL/2947**	11 800 **4EL/2921**	–	–	–	–	–	–	–	–			
		1,17	1,06	1,18								2 500	2 800	
	2500	7 100 **4EL/2399**	13 200 **4EL/2636**	15 000 **4EL/2377**	–	–	–	–	–	–	–			
			1,17	1,17	1,07							2 240	2 500	
	2240	–	13 200 **4EL/2145**	18 000 **4EL/2145**	33 500 **4EL/2338**	–	–	–	–	–	–			
		1,1			1,18							2 000	2 240	
	2000	7 100 **4EL/2043**	–	–	33 500 **4EL/1902**	–	–	–	–	–	–			
		1,16	1,09	1,09		1,2	1,11	1,11	1,08			1 800	2 000	
	1800	7 100 **4EL/1730**	13 200 **4EL/1827**	18 000 **4EL/1827**	–	47 500 **4EL/1673**	67 000 **4EL/1796**	106 000 **4EL/1808**	144 940 **4EL/1852**	–	–			
		1,12	1,06	1,18	1,11	1,19	1,11	1,11	1,19	1,08		1 600	1 800	
	1600	7 500 **4EL/1611**	17 000 **4EL/1691**	18 000 **4EL/1525**	33 500 **4EL/1621**	47 500 **4EL/1509**	67 000 **4EL/1621**	106 000 **4EL/1621**	143 870 **4EL/1507**	212 000 **4EL/1670**	–			
		1,19	1,11	1,21	1,08	1,18	1,09	1,09	1,12			1 400	1 600	
	1400	7 500 **4EL/1344**	17 000 **4EL/1441**	18 000 **4EL/1318**	35 500 **4EL/1482**	47 500 **4EL/1361**	67 000 **4EL/1462**	106 000 **4EL/1471**	144 510 **4EL/1423**	–	–			
		1,12	1,11	1,11	1,11	1,08	1,12	1,1	1,09	1,09	1,09	1 250	1 400	
	1250	7 100 **4EL/1248**	13 200 **4EL/1267**	18 000 **4EL/1267**	35 500 **4EL/1263**	50 000 **4EL/1291**	67 000 **4EL/1245**	112 000 **4EL/1278**	144 840 **4EL/1284**	212 000 **4EL/1283**	300 000 **4EL/1283**			
		1,11	1,07	1,07	1,04	1,08	1,11	1,11	1,08	1,09	1,09	1 120	1 250	
	1120	7 500 **4EL/1122**	17 000 **4EL/1172**	21 200 **4EL/1172**	35 500 **4EL/1206**	47 500 **4EL/1160**	67 000 **4EL/1124**	106 000 **4EL/1124**	144 960 **4EL/1160**	212 000 **4EL/1150**	300 000 **4EL/1150**			
		1,16	1,12	1,12	1,09	1,07	1,09	1,08	1,07	1,14	1,13	1 000	1 120	
	1000	7 500 **4EL/970**	17 000 **4EL/999**	21 200 **4EL/999**	35 500 **4EL/1028**	50 000 **4EL/1051**	71 000 **4EL/1028**	112 000 **4EL/1040**	145 040 **4EL/1046**	224 000 **4EL/984**	315 000 **4EL/990**			
		1,09	1,18	1,18	1,14	1,12	1,14	1,13	1,09	1,13	1,13	900	1 000	
	900	7 500 **4EL/916**	17 000 **4EL/846**	21 200 **4EL/846**	35 500 **4EL/876**	50 000 **4EL/895**	71 000 **4EL/876**	112 000 **4EL/886**	160 000 **4EL/914**	224 000 **4EL/888**	315 000 **4EL/888**			
		1,07	1,14	1,14	1,08	1,09	1,08	1,06	1,09	1,12	1,12	800	900	
	800	7 500 **4EL/838**	17 000 **4EL/788**	21 200 **4EL/788**	35 500 **4EL/836**	50 000 **4EL/828**	71 000 **4EL/836**	112 000 **4EL/846**	160 000 **4EL/825**	224 000 **4EL/800**	315 000 **4EL/806**			
		1,09	1,11	1,11	1,12	1,13	1,12	1,11	1,13	1,11	1,11	710	800	
	710	7 500 **4EL/732**	17 000 **4EL/720**	21 200 **4EL/720**	35 500 **4EL/713**	50 000 **4EL/706**	71 000 **4EL/713**	112 000 **4EL/721**	160 000 **4EL/706**	224 000 **4EL/722**	315 000 **4EL/722**			
		1,16	1,08	1,08	1,08	1,19	1,17	1,08	1,12	1,14	1,12	630	710	
	630	7 500 **4EL/611**	17 000 **4EL/657**	21 200 **4EL/657**	35 500 **4EL/659**	50 000 **4EL/595**	71 000 **4EL/607**	112 000 **4EL/659**	160 000 **4EL/634**	224 000 **4EL/624**	315 000 **4EL/635**			
		1,11	1,11	1,11	1,12	1,13	1,12	1,12	1,1	1,12	1,12	560	630	
	560	7 500 **4EL/566**	17 000 **4EL/568**	21 200 **4EL/568**	35 500 **4EL/562**	50 000 **4EL/556**	71 000 **4EL/562**	112 000 **4EL/562**	160 000 **4EL/572**	224 000 **4EL/563**	315 000 **4EL/563**			
		1,08	1,08	1,08	1,17	1,14	1,17	1,17	1,12	1,17	1,15	500	560	
	500	7 500 **4EL/517**	17 000 **4EL/518**	21 200 **4EL/518**	35 500 **4EL/479**	50 000 **4EL/489**	71 000 **4EL/479**	112 000 **4EL/479**	160 000 **4EL/500**	224 000 **4EL/479**	315 000 **4EL/485**			
		1,11	1,12	1,12	1,13	1,1	1,13	1,13	1,11	1,13	1,13	450	500	
	450	7 500 **4EL/452**	17 000 **4EL/448**	21 200 **4EL/448**	35 500 **4EL/443**	50 000 **4EL/453**	71 000 **4EL/443**	112 000 **4EL/443**	160 000 **4EL/451**	224 000 **4EL/444**	315 000 **4EL/444**			
		1,07	1,11	1,11	1,19	1,17	1,19	1,18	1,17	1,19	1,18	400	450	
	400	7 500 **4EL/422**	17 000 **4EL/404**	21 200 **4EL/404**	35 500 **4EL/377**	50 000 **4EL/386**	71 000 **4EL/377**	112 000 **4EL/382**	160 000 **4EL/386**	224 000 **4EL/378**	315 000 **4EL/382**			
		1,12	1,12	1,12	1,16	1,23	1,16	1,16	1,13	1,13	1,11	355	400	
	355	7 500 **4EL/357**	17 000 **4EL/358**	21 200 **4EL/358**	33 500 **4EL/344**	50 000 **4EL/325**	67 000 **4EL/344**	106 000 **4EL/344**	160 000 **4EL/356**	224 000 **4EL/353**	315 000 **4EL/360**			
		1,12	1,1	1,12	1,12	1,17	1,12	1,12	1,09	1,11	1,1	315	355	
	315	7 500 **4EL/317**	17 000 **4EL/323**	21 200 **4EL/318**	35 500 **4EL/318**	50 000 **4EL/304**	63 490 **4EL/318**	112 000 **4EL/318**	160 000 **4EL/325**	224 000 **4EL/319**	315 000 **4EL/322**			
		1,07	1,04	1,04	1,06	1,15	1,06	1,06	1,05	1,06	1,06	280	315	
	280	7 500 **4EL/296**	17 000 **4EL/301**	21 200 **4EL/303**	35 500 **4EL/297**	50 000 **4EL/274**	71 000 **4EL/297**	112 000 **4EL/297**	160 000 **4EL/300**	224 000 **4EL/298**	315 000 **4EL/298**			
		1,12	1,1	1,1	1,12	1,09	1,12	1,12	1,09	1,11	1,11	250	280	
	250	7 500 **4EL/250**	17 000 **4EL/255**	21 200 **4EL/255**	35 500 **4EL/251**	50 000 **4EL/256**	71 000 **4EL/251**	112 000 **4EL/251**	160 000 **4EL/256**	224 000 **4EL/251**	315 000 **4EL/251**			
		1,17	1,11	1,11	1,12	1,21	1,12	1,18	1,15			250	280	
	250	7 100 **3EL/239**	13 200 **3EL/251**	18 000 **3EL/251**	33 500 **3EL/249**	45 050 **3EL/232**	67 000 **3EL/249**	106 000 **3EL/237**	144 230 **3EL/243**	–	–			
		1,13	1,17	1,17	1,18	1,14	1,18	1,18		1,14		224	250	
	224	7 288 **3EL/221**	13 200 **3EL/214**	18 000 **3EL/214**	33 500 **3EL/212**	47 500 **3EL/219**	67 000 **3EL/212**	106 000 **3EL/212**	–	212 000 **3EL/219**	–			
		1,08	1,06	1,06	1,06	1,04	1,06	1,06	1,04	1,06		200	224	
	200	7 500 **4EL/207**	17 000 **4EL/211**	21 200 **4EL/211**	35 500 **4EL/211**	50 000 **4EL/216**	71 000 **4EL/211**	112 000 **4EL/211**	160 000 **4EL/216**	224 000 **4EL/212**	–			

According to FEM 1.001 L2/T5/M5 conditions

$n_{N2} \cdot L_h$ min^{-1} · h	i_N	Gear reducer size / Output speed n_2 min^{-1} / Nominal output torque $M_{N2\,FEM}$ N m / Train of gears / ratio ... / i										i_N	n_1 min^{-1}	n_{N2} min^{-1}
		007A	015A	021A	030A	042A	060A	085A	125A	180A	250A			
7 100	200	1,11 7 100 **3EL/203**	1,13 17 000 **3EL/198**	1,1 18 000 **3EL/204**	1,1 33 500 **3EL/203**	1,13 47 500 **3EL/198**	1,1 67 000 **3EL/203**	1,16 106 000 **3EL/193**	1,13 144 430 **3EL/198**	–	–	200	224	
	180	1,14 7 500 **4EL/175**	1,12 17 000 **4EL/178**	1,12 21 200 **4EL/178**	1,12 35 500 **4EL/178**	1,1 50 000 **4EL/182**	1,12 63 490 **4EL/178**	–	–	–	–	180	200	
	180	1,06 7 500 **3EL/189**	1,15 13 200 **3EL/174**	1,15 18 000 **3EL/174**	1,16 33 500 **3EL/173**	1,12 47 500 **3EL/178**	1,09 59 520 **3EL/183**	1,07 105 660 **3EL/187**	1,07 145 010 **3EL/186**	1,12 212 000 **3EL/178**	–	180	200	
	160	1,14 7 500 **3EL/157**	1,07 17 000 **3EL/169**	1,07 21 200 **3EL/169**	1,09 35 500 **3EL/165**	1,06 50 000 **3EL/169**	1,1 67 000 **3EL/163**	1,08 112 000 **3EL/167**	1,07 145 040 **3EL/168**	1,07 212 000 **3EL/168**	1,07 300 000 **3EL/168**	160	180	
	140	1,18 7 500 **3EL/136**	1,17 17 000 **3EL/137**	1,17 21 200 **3EL/137**	1,19 35 500 **3EL/135**	1,16 50 000 **3EL/138**	1,19 71 000 **3EL/135**	1,17 112 000 **3EL/136**	1,21 155 980 **3EL/133**	1,18 212 000 **3EL/136**	1,11 309 220 **3EL/144**	140	160	
	125	1,13 7 500 **3EL/124**	1,2 17 000 **3EL/117**	1,2 21 200 **3EL/117**	1,07 35 500 **3EL/130**	1,1 47 500 **3EL/127**	1,1 59 520 **3EL/127**	1,08 106 000 **3EL/129**	1,17 160 000 **3EL/120**	1,09 224 000 **3EL/129**	1,08 315 000 **3EL/130**	125	140	
	112	1,15 7 500 **3EL/109**	1,15 17 000 **3EL/108**	1,15 21 200 **3EL/108**	1,09 35 500 **3EL/115**	1,07 50 000 **3EL/117**	1,09 71 000 **3EL/115**	1,08 112 000 **3EL/116**	1,16 160 000 **3EL/108**	1,08 224 000 **3EL/116**	1,08 315 000 **3EL/116**	112	125	
	100	1,07 7 500 **3EL/105**	1,14 13 200 **3EL/98,6**	1,14 18 000 **3EL/98,6**	1,06 35 500 **3EL/106**	1,03 50 000 **3EL/108**	1,06 71 000 **3EL/106**	1,06 112 000 **3EL/106**	1,09 160 000 **3EL/102**	1,12 224 000 **3EL/100**	1,1 315 000 **3EL/102**	100	112	
	90	1,09 7 500 **3EL/92**	1,08 17 000 **3EL/92,2**	1,08 21 200 **3EL/92,2**	1,11 35 500 **3EL/90,4**	1,08 50 000 **3EL/92,4**	1,11 71 000 **3EL/90,4**	1,11 112 000 **3EL/90,4**	1,08 160 000 **3EL/92,4**	1,1 224 000 **3EL/90,6**	1,09 315 000 **3EL/91,6**	90	100	
	80	1,18 7 500 **3EL/76,2**	1,16 17 000 **3EL/77,7**	1,16 21 200 **3EL/77,7**	1,18 35 500 **3EL/76,2**	1,16 50 000 **3EL/77,9**	1,18 63 490 **3EL/76,2**	1,17 112 000 **3EL/77,1**	1,06 160 000 **3EL/85,2**	1,17 224 000 **3EL/77,2**	1,08 300 000 **3EL/83,5**	80	90	
	71	1,1 7 500 **3EL/72,5**	1,1 17 000 **3EL/72,7**	1,1 21 200 **3EL/72,7**	1,12 35 500 **3EL/71,3**	1,1 50 000 **3EL/72,9**	1,12 71 000 **3EL/71,3**	1,12 112 000 **3EL/71,3**	1,1 160 000 **3EL/72,9**	1,12 224 000 **3EL/71,4**	1,12 315 000 **3EL/71,4**	71	80	
	63	1,16 7 500 **3EL/61,1**	1,16 17 000 **3EL/61,3**	1,16 21 200 **3EL/61,3**	1,18 35 500 **3EL/60,1**	1,16 50 000 **3EL/61,4**	1,18 63 490 **3EL/60,1**	1,18 112 000 **3EL/60,1**	1,16 160 000 **3EL/61,4**	1,18 224 000 **3EL/60,2**	–	63	71	
	50	1,11 7 500 **3EL/50,6**	1,08 17 000 **3EL/51,6**	1,08 21 200 **3EL/51,6**	1,11 35 500 **3EL/50,6**	1,08 50 000 **3EL/51,7**	1,11 63 490 **3EL/50,6**	–	–	–	–	50	56	
	45	–	1,12 11 800 **2EL/44,8**	1,12 15 000 **2EL/44,8**	–	–	–	–	–	–	–	45	50	
	40	1,11 7 100 **2EL/40,4**	1,11 13 200 **2EL/40,4**	1,11 18 000 **2EL/40,4**	1,12 33 500 **2EL/40,1**	–	1,12 56 340 **2EL/40,1**	–	–	–	–	40	45	
	35,5	1,22 7 100 **2EL/32,9**	1,22 13 200 **2EL/32,9**	1,22 18 000 **2EL/32,9**	1,23 33 500 **2EL/32,6**	1,07 37 940 **2EL/37,3**	1,23 67 000 **2EL/32,6**	–	–	–	–	35,5	40	
	31,5	1,11 6 073 **2EL/31,9**	1,11 16 190 **2EL/31,9**	–	1,14 31 750 **2EL/31,2**	1,17 45 050 **2EL/30,4**	1,15 67 000 **2EL/30,8**	1,14 106 000 **2EL/31**	1,12 144 580 **2EL/31,8**	–	–	31,5	36	
	28	1,12 7 100 **2EL/28**	1,12 13 200 **2EL/28**	1,12 18 000 **2EL/28**	1,13 33 500 **2EL/27,8**	1,1 47 500 **2EL/28,7**	1,13 67 000 **2EL/27,8**	1,13 106 000 **2EL/27,8**	1,22 143 670 **2EL/25,9**	1,1 212 000 **2EL/28,6**	1,1 300 000 **2EL/28,7**	28	32	
	25	1,08 7 288 **2EL/25,9**	1,08 17 000 **2EL/25,9**	1,08 19 230 **2EL/25,9**	1,1 35 500 **2EL/25,4**	1,08 47 500 **2EL/25,9**	1,17 59 520 **2EL/24**	1,15 105 120 **2EL/24,4**	1,12 156 900 **2EL/25**	1,14 203 050 **2EL/24,5**	1,14 308 650 **2EL/24,5**	25	28	
	22,4	1,13 7 500 **2EL/22,1**	1,13 17 000 **2EL/22,1**	1,13 21 200 **2EL/22,1**	1,15 35 500 **2EL/21,7**	1,13 50 000 **2EL/22,1**	1,15 71 000 **2EL/21,7**	1,14 112 000 **2EL/21,9**	1,13 144 460 **2EL/22,1**	1,14 224 000 **2EL/22**	1,13 315 000 **2EL/22,1**	22,4	25	
	20	–	–	–	–	1,1 47 500 **2EL/20,4**	–	–	1,1 160 000 **2EL/20,4**	1,12 212 000 **2EL/20**	1,1 300 000 **2EL/20,4**	20	22	
	18	1,07 7 100 **2EL/18,6**	1,07 13 200 **2EL/18,6**	1,07 18 000 **2EL/18,6**	1,08 33 500 **2EL/18,5**	1,15 50 000 **2EL/17,5**	1,08 67 000 **2EL/18,5**	–	1,15 160 000 **2EL/17,5**	–	1,15 315 000 **2EL/17,5**	18	20	
	16	1,03 7 500 **2EL/17,4**	1,03 17 000 **2EL/17,4**	1,03 21 200 **2EL/17,4**	1,05 35 500 **2EL/17,1**	–	1,05 71 000 **2EL/17,1**	1,05 112 000 **2EL/17,1**	–	1,05 224 000 **2EL/17,1**	–	16	18	
	14	1,09 7 500 **2EL/14,7**	1,09 17 000 **2EL/14,7**	1,09 21 200 **2EL/14,7**	1,11 35 500 **2EL/14,4**	1,09 50 000 **2EL/14,7**	1,11 63 490 **2EL/14,4**	–	–	–	–	14	16	
	12,5	–	1,13 12 500 **2EL/12,4**	1,13 16 000 **2EL/12,4**	–	–	–	–	–	–	–	12,5	14	

007A

According to FEM 1.001 L2/T5/M5 conditions

		007A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14	**14,7**	191	5 790	95,4	6 480	61,3	6 650	34,1	6 890	7 500	9 000	2 800	3 150
	16	**17,4**	161	5 980	80,4	7 160	51,7	7 490	28,7	7 500	7 500	9 000	3 150	4 000
	18	**18,6**	150	4 980	75,2	5 350	48,3	5 610	26,9	5 960	7 100	8 500	2 800	3 150
	20													
	22,4	**22,1**	127	6 180	63,4	6 650	40,7	6 970	22,6	7 420	7 500	9 000	3 150	4 000
	25	**25,9**	108	5 310	54,0	5 710	34,7	5 970	19,3	6 350	7 290	8 580	3 150	4 000
	28	**28**	99,9	5 200	50,0	5 590	32,1	5 850	17,8	6 220	7 100	8 500	3 150	4 000
	31,5	**31,9**	87,8	4 090	43,9	4 390	28,2	4 600	15,7	4 890	6 070	7 290	3 150	4 000
	35,5	**32,9**	85,1	5 290	42,6	5 680	27,4	5 950	15,2	6 320	7 100	8 500	3 150	4 000
	40	**40,4**	69,3	5 190	34,6	5 570	22,3	5 830	12,4	6 200	7 100	8 500	3 150	4 000
	45													
3EL	50	**50,6**	55,3	6 690	27,6	6 980	17,8	7 160	9,87	7 420	7 500	9 000	2 800	3 150
	63	**61,1**	45,8	6 770	22,9	7 060	14,7	7 250	8,18	7 500	7 500	9 000	3 150	4 000
	71	**72,5**	38,6	7 500	19,3	7 500	12,4	7 500	6,90	7 500	7 500	9 000	3 150	4 000
	80	**76,2**	36,7	7 050	18,4	7 500	11,8	7 500	6,56	7 500	7 500	9 000	2 800	3 150
	90	**92**	30,5	7 190	15,2	7 500	9,79	7 500	5,44	7 500	7 500	9 000	3 150	4 000
	100	**105**	26,8	6 990	13,4	7 290	8,60	7 480	4,78	7 500	7 500	9 000	3 150	4 000
	112	**109**	25,8	7 320	12,9	7 500	8,28	7 500	4,60	7 500	7 500	9 000	3 150	4 000
	125	**124**	22,6	7 500	11,3	7 500	7,25	7 500	4,03	7 500	7 500	9 000	3 150	4 000
	140	**136**	20,6	7 490	10,3	7 500	6,61	7 500	3,67	7 500	7 500	9 000	3 150	4 000
	160	**157**	17,8	7 500	8,89	7 500	5,72	7 500	3,18	7 500	7 500	9 000	3 150	4 000
	180	**189**	14,8	7 500	7,42	7 500	4,77	7 500	2,65	7 500	7 500	9 000	3 150	4 000
	200	**203**	13,8	6 380	6,91	6 840	4,44	7 090	2,47	7 100	7 100	8 500	3 150	4 000
	224	**221**	12,6	6 630	6,32	7 120	4,06	7 290	2,26	7 290	7 290	8 580	3 150	4 000
	250	**239**	11,7	6 500	5,85	6 930	3,76	7 100	2,09	7 100	7 100	8 500	3 150	4 000
4EL	180	**175**	16,0	7 210	8,01	7 500	5,15	7 500	2,86	7 500	7 500	9 000	2 800	3 150
	200	**207**	13,5	7 500	6,75	7 500	4,34	7 500	2,41	7 500	7 500	9 000	2 800	3 150
	250	**250**	11,2	7 500	5,60	7 500	3,60	7 500	2,00	7 500	7 500	9 000	3 150	4 000
	280	**296**	9,47	7 500	4,73	7 500	3,04	7 500	1,69	7 500	7 500	9 000	3 150	4 000
	315	**317**	8,83	7 500	4,41	7 500	2,84	7 500	1,58	7 500	7 500	9 000	3 150	4 000
	355	**357**	7,85	7 500	3,93	7 500	2,52	7 500	1,40	7 500	7 500	9 000	3 150	4 000
	400	**422**	6,64	7 500	3,32	7 500	2,13	7 500	1,19	7 500	7 500	9 000	3 150	4 000
	450	**452**	6,19	7 500	3,09	7 500	1,99	7 500	1,11	7 500	7 500	9 000	3 150	4 000
	500	**517**	5,42	7 500	2,71	7 500	1,74	7 500	0,968	7 500	7 500	9 000	3 150	4 000
	560	**566**	4,94	7 500	2,47	7 500	1,59	7 500	0,883	7 500	7 500	9 000	3 150	4 000
	630	**611**	4,58	7 500	2,29	7 500	1,47	7 500	0,819	7 500	7 500	9 000	3 150	4 000
	710	**732**	3,83	7 500	1,91	7 500	1,23	7 500	0,683	7 500	7 500	9 000	3 150	4 000
	800	**838**	3,34	7 500	1,67	7 500	1,07	7 500	0,597	7 500	7 500	9 000	3 150	4 000
	900	**916**	3,06	7 500	1,53	7 500	0,983	7 500	0,546	7 500	7 500	9 000	3 150	4 000
	1000	**970**	2,89	7 500	1,44	7 500	0,928	7 500	0,516	7 500	7 500	9 000	3 150	4 000
	1120	**1122**	2,50	7 500	1,25	7 500	0,802	7 500	0,446	7 500	7 500	9 000	3 150	4 000
	1250	**1248**	2,24	7 100	1,12	7 100	0,721	7 100	0,401	7 100	7 100	8 500	3 150	4 000
	1400	**1344**	2,08	7 500	1,04	7 500	0,669	7 500	0,372	7 500	7 500	9 000	3 150	4 000
	1600	**1611**	1,74	7 500	0,869	7 500	0,559	7 500	0,310	7 500	7 500	9 000	3 150	4 000
	1800	**1730**	1,62	7 100	0,809	7 100	0,520	7 100	0,289	7 100	7 100	8 500	3 150	4 000
	2000	**2043**	1,37	7 100	0,685	7 100	0,440	7 100	0,245	7 100	7 100	8 500	3 150	4 000
	2240													
	2500	**2399**	1,17	7 100	0,584	7 100	0,375	7 100	0,208	7 100	7 100	8 500	3 150	4 000
	2800	**2947**	0,950	7 100	0,475	7 100	0,305	7 100	0,170	7 100	7 100	8 500	3 150	4 000

2581-01.02

015A

According to FEM 1.001 L2/T5/M5 conditions

		015A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5	**12,4**	-	-	113	12 500	72,8	12 500	40,4	12 500	12 500	15 000	2 500	2 800
	14	**14,7**	-	-	95,4	14 200	61,3	14 900	34,1	15 800	17 000	20 000	2 500	2 800
	16	**17,4**	161	13 500	80,4	14 500	51,7	15 100	28,7	16 100	17 000	20 000	2 800	3 550
	18	**18,6**	-	-	75,2	10 800	48,3	11 300	26,9	12 000	13 200	16 000	2 500	2 800
	20													
	22,4	**22,1**	127	13 800	63,4	14 800	40,7	15 500	22,6	16 500	17 000	20 000	2 800	4 000
	25	**25,9**	108	14 000	54,0	15 100	34,7	15 800	19,3	16 800	17 000	20 000	2 800	4 000
	28	**28**	99,9	10 400	50,0	11 200	32,1	11 700	17,8	12 500	13 200	16 000	2 800	4 000
	31,5	**31,9**	87,8	11 400	43,9	12 200	28,2	12 800	15,7	13 600	16 200	19 200	2 800	4 000
	35,5	**32,9**	85,1	10 600	42,6	11 400	27,4	11 900	15,2	12 700	13 200	16 000	2 800	4 000
	40	**40,4**	69,3	10 800	34,6	11 600	22,3	12 200	12,4	13 000	13 200	16 000	2 800	4 000
	45	**44,8**	62,5	11 800	31,3	11 800	20,1	11 800	11,2	11 800	11 800	14 000	2 800	4 000
3EL	50	**51,6**	54,2	15 100	27,1	16 200	17,4	16 900	9,68	17 000	17 000	20 000	2 800	3 150
	63	**61,3**	45,7	15 300	22,8	16 500	14,7	17 000	8,16	17 000	17 000	20 000	3 150	4 000
	71	**72,7**	38,5	15 600	19,3	16 800	12,4	17 000	6,88	17 000	17 000	20 000	3 150	4 000
	80	**77,7**	36,0	15 700	18,0	16 900	11,6	17 000	6,43	17 000	17 000	20 000	3 150	4 000
	90	**92,2**	30,4	16 000	15,2	17 000	9,76	17 000	5,42	17 000	17 000	20 000	3 150	4 000
	100	**98,6**	28,4	11 900	14,2	12 800	9,13	13 200	5,07	13 200	13 200	16 000	3 150	4 000
	112	**108**	25,9	16 300	12,9	17 000	8,31	17 000	4,62	17 000	17 000	20 000	3 150	4 000
	125	**117**	23,9	16 400	12,0	17 000	7,69	17 000	4,27	17 000	17 000	20 000	3 150	4 000
	140	**137**	20,4	16 700	10,2	17 000	6,55	17 000	3,64	17 000	17 000	20 000	3 150	4 000
	160	**169**	16,6	17 000	8,30	17 000	5,33	17 000	2,96	17 000	17 000	20 000	3 150	4 000
	180	**174**	16,1	12 600	8,04	13 200	5,17	13 200	2,87	13 200	13 200	16 000	3 150	4 000
	200	**198**	14,1	17 000	7,07	17 000	4,54	17 000	2,52	17 000	17 000	20 000	3 150	4 000
	224	**214**	13,1	12 900	6,54	13 200	4,21	13 200	2,34	13 200	13 200	16 000	3 150	4 000
	250	**251**	11,1	13 100	5,57	13 200	3,58	13 200	1,99	13 200	13 200	16 000	3 150	4 000
4EL	180	**178**	15,7	17 000	7,86	17 000	5,05	17 000	2,81	17 000	17 000	20 000	2 800	3 150
	200	**211**	13,2	17 000	6,62	17 000	4,26	17 000	2,37	17 000	17 000	20 000	2 800	3 150
	250	**255**	11,0	17 000	5,49	17 000	3,53	17 000	1,96	17 000	17 000	20 000	3 150	4 000
	280	**301**	9,29	17 000	4,64	17 000	2,99	17 000	1,66	17 000	17 000	20 000	3 150	4 000
	315	**323**	8,66	17 000	4,33	17 000	2,78	17 000	1,55	17 000	17 000	20 000	3 150	4 000
	355	**358**	7,83	17 000	3,91	17 000	2,52	17 000	1,40	17 000	17 000	20 000	3 150	4 000
	400	**404**	6,94	17 000	3,47	17 000	2,23	17 000	1,24	17 000	17 000	20 000	2 800	3 150
	450	**448**	6,25	17 000	3,13	17 000	2,01	17 000	1,12	17 000	17 000	20 000	3 150	4 000
	500	**518**	5,40	17 000	2,70	17 000	1,74	17 000	0,965	17 000	17 000	20 000	3 150	4 000
	560	**568**	4,93	17 000	2,46	17 000	1,58	17 000	0,880	17 000	17 000	20 000	3 150	4 000
	630	**657**	4,26	17 000	2,13	17 000	1,37	17 000	0,761	17 000	17 000	20 000	3 150	4 000
	710	**720**	3,89	17 000	1,94	17 000	1,25	17 000	0,694	17 000	17 000	20 000	3 150	4 000
	800	**788**	3,56	17 000	1,78	17 000	1,14	17 000	0,635	17 000	17 000	20 000	3 150	4 000
	900	**846**	3,31	17 000	1,66	17 000	1,06	17 000	0,591	17 000	17 000	20 000	3 150	4 000
	1000	**999**	2,80	17 000	1,40	17 000	0,901	17 000	0,501	17 000	17 000	20 000	3 150	4 000
	1120	**1172**	2,39	17 000	1,19	17 000	0,768	17 000	0,426	17 000	17 000	20 000	3 150	4 000
	1250	**1267**	2,21	13 200	1,11	13 200	0,710	13 200	0,395	13 200	13 200	16 000	3 150	4 000
	1400	**1441**	1,94	17 000	0,972	17 000	0,625	17 000	0,347	17 000	17 000	20 000	3 150	4 000
	1600	**1691**	1,66	17 000	0,828	17 000	0,532	17 000	0,296	17 000	17 000	20 000	3 150	4 000
	1800	**1827**	1,53	13 200	0,766	13 200	0,492	13 200	0,274	13 200	13 200	16 000	3 150	4 000
	2000													
	2240	**2145**	1,31	13 200	0,653	13 200	0,420	13 200	0,233	13 200	13 200	16 000	3 150	4 000
	2500	**2636**	1,06	13 200	0,531	13 200	0,341	13 200	0,190	13 200	13 200	16 000	3 150	4 000
	2800	**2921**	0,959	11 800	0,479	11 800	0,308	11 800	0,171	11 800	11 800	14 000	3 150	4 000

2581-01.02

021A

According to FEM 1.001 L2/T5/M5 conditions

		021A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5	**12,4**	-	-	113	15 700	72,8	16 000	40,4	16 000	16 000	20 000	2 500	2 800
	14	**14,7**	-	-	95,4	18 600	61,3	19 100	34,1	19 800	21 200	25 500	2 500	2 800
	16	**17,4**	161	18 900	80,4	20 200	51,7	21 200	28,7	21 200	21 200	28 000	2 800	3 550
	18	**18,6**	-	-	75,2	17 900	48,3	18 000	26,9	18 000	18 000	28 000	2 500	2 800
	20													
	22,4	**22,1**	127	17 700	63,4	19 000	40,7	19 900	22,6	21 200	21 200	28 000	2 800	4 000
	25	**25,9**	108	14 900	54,0	16 100	34,7	16 800	19,3	17 900	19 200	22 700	2 800	4 000
	28	**28**	99,9	17 400	50,0	18 000	32,1	18 000	17,8	18 000	18 000	28 000	2 800	4 000
	31,5													
	35,5	**32,9**	85,1	17 700	42,6	18 000	27,4	18 000	15,2	18 000	18 000	28 000	2 800	4 000
	40	**40,4**	69,3	14 500	34,6	15 500	22,3	16 200	12,4	17 200	18 000	24 400	2 800	4 000
	45	**44,8**	62,5	14 700	31,3	15 000	20,1	15 000	11,2	15 000	15 000	21 200	2 800	4 000
3EL	50	**51,6**	54,2	19 200	27,1	20 000	17,4	20 600	9,68	21 200	21 200	25 500	2 800	3 150
	63	**61,3**	45,7	21 200	22,8	21 200	14,7	21 200	8,16	21 200	21 200	28 000	2 800	3 150
	71	**72,7**	38,5	21 200	19,3	21 200	12,4	21 200	6,88	21 200	21 200	28 000	3 150	4 000
	80	**77,7**	36,0	20 200	18,0	21 200	11,6	21 200	6,43	21 200	21 200	28 000	2 800	3 150
	90	**92,2**	30,4	20 500	15,2	21 200	9,76	21 200	5,42	21 200	21 200	28 000	3 150	4 000
	100	**98,6**	28,4	18 000	14,2	18 000	9,13	18 000	5,07	18 000	18 000	28 000	3 150	4 000
	112	**108**	25,9	21 200	12,9	21 200	8,31	21 200	4,62	21 200	21 200	28 000	3 150	4 000
	125	**117**	23,9	21 000	12,0	21 200	7,69	21 200	4,27	21 200	21 200	28 000	3 150	4 000
	140	**137**	20,4	21 200	10,2	21 200	6,55	21 200	3,64	21 200	21 200	28 000	3 150	4 000
	160	**169**	16,6	21 000	8,30	21 200	5,33	21 200	2,96	21 200	21 200	28 000	3 150	4 000
	180	**174**	16,1	18 000	8,04	18 000	5,17	18 000	2,87	18 000	18 000	28 000	3 150	4 000
	200	**204**	13,7	18 000	6,85	18 000	4,40	18 000	2,45	18 000	18 000	28 000	3 150	4 000
	224	**214**	13,1	18 000	6,54	18 000	4,21	18 000	2,34	18 000	18 000	28 000	3 150	4 000
	250	**251**	11,1	18 000	5,57	18 000	3,58	18 000	1,99	18 000	18 000	28 000	3 150	4 000
4EL	180	**178**	15,7	20 700	7,86	21 200	5,05	21 200	2,81	21 200	21 200	25 500	2 800	3 150
	200	**211**	13,2	21 200	6,62	21 200	4,26	21 200	2,37	21 200	21 200	28 000	2 800	3 150
	250	**255**	11,0	21 200	5,49	21 200	3,53	21 200	1,96	21 200	21 200	28 000	3 150	4 000
	280	**303**	9,25	21 200	4,63	21 200	2,97	21 200	1,65	21 200	21 200	28 000	3 150	4 000
	315	**318**	8,80	21 200	4,40	21 200	2,83	21 200	1,57	21 200	21 200	28 000	2 800	3 150
	355	**358**	7,83	21 200	3,91	21 200	2,52	21 200	1,40	21 200	21 200	28 000	3 150	4 000
	400	**404**	6,94	21 200	3,47	21 200	2,23	21 200	1,24	21 200	21 200	28 000	2 800	3 150
	450	**448**	6,25	21 200	3,13	21 200	2,01	21 200	1,12	21 200	21 200	28 000	3 150	4 000
	500	**518**	5,40	21 200	2,70	21 200	1,74	21 200	0,965	21 200	21 200	28 000	3 150	4 000
	560	**568**	4,93	21 200	2,46	21 200	1,58	21 200	0,880	21 200	21 200	28 000	3 150	4 000
	630	**657**	4,26	21 200	2,13	21 200	1,37	21 200	0,761	21 200	21 200	28 000	3 150	4 000
	710	**720**	3,89	21 200	1,94	21 200	1,25	21 200	0,694	21 200	21 200	28 000	3 150	4 000
	800	**788**	3,56	21 200	1,78	21 200	1,14	21 200	0,635	21 200	21 200	28 000	3 150	4 000
	900	**846**	3,31	21 200	1,66	21 200	1,06	21 200	0,591	21 200	21 200	28 000	3 150	4 000
	1000	**999**	2,80	21 200	1,40	21 200	0,901	21 200	0,501	21 200	21 200	28 000	3 150	4 000
	1120	**1172**	2,39	21 200	1,19	21 200	0,768	21 200	0,426	21 200	21 200	28 000	3 150	4 000
	1250	**1267**	2,21	18 000	1,11	18 000	0,710	18 000	0,395	18 000	18 000	28 000	3 150	4 000
	1400	**1318**	2,12	18 000	1,06	18 000	0,683	18 000	0,379	18 000	18 000	28 000	3 150	4 000
	1600	**1525**	1,84	18 000	0,918	18 000	0,590	18 000	0,328	18 000	18 000	28 000	3 150	4 000
	1800	**1827**	1,53	18 000	0,766	18 000	0,492	18 000	0,274	18 000	18 000	28 000	3 150	4 000
	2000													
	2240	**2145**	1,31	18 000	0,653	18 000	0,420	18 000	0,233	18 000	18 000	28 000	3 150	4 000
	2500	**2377**	1,18	15 000	0,589	15 000	0,379	15 000	0,210	15 000	15 000	21 200	3 150	4 000
	2800													

030A

According to FEM 1.001 L2/T5/M5 conditions

		030A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14	**14,4**	-	-	97,3	29 800	62,5	31 200	34,7	33 100	35 500	47 500	2 240	2 800
	16	**17,1**	-	-	82,0	30 300	52,7	31 700	29,3	33 700	35 500	47 500	2 240	3 150
	18	**18,5**	-	-	75,8	24 500	48,7	25 700	27,1	27 300	33 500	45 000	2 240	2 800
	20													
	22,4	**21,7**	-	-	64,6	31 000	41,6	32 500	23,1	34 500	35 500	47 500	2 240	3 550
	25	**25,4**	-	-	55,1	31 600	35,4	33 000	19,7	35 100	35 500	44 400	2 240	3 550
	28	**27,8**	-	-	50,4	25 600	32,4	26 800	18,0	28 400	33 500	45 000	2 240	3 550
	31,5	**31,2**	-	-	44,8	25 100	28,8	26 200	16,0	27 800	31 700	37 700	2 240	3 550
	35,5	**32,6**	-	-	42,9	26 000	27,6	27 200	15,3	28 900	33 500	45 000	2 240	3 550
	40	**40,1**	-	-	34,9	26 600	22,4	27 800	12,5	29 500	33 500	45 000	2 240	3 550
	45													
3EL	50	**50,6**	-	-	27,7	33 900	17,8	35 400	9,88	35 500	35 500	47 500	2 500	2 800
	63	**60,1**	-	-	23,3	34 500	15,0	35 500	8,33	35 500	35 500	47 500	2 500	2 800
	71	**71,3**	39,3	32 700	19,6	35 100	12,6	35 500	7,02	35 500	35 500	47 500	2 800	3 550
	80	**76,2**	36,8	32 900	18,4	35 300	11,8	35 500	6,56	35 500	35 500	47 500	2 800	4 000
	90	**90,4**	31,0	33 500	15,5	35 500	9,96	35 500	5,53	35 500	35 500	47 500	2 800	4 000
	100	**106**	26,4	34 000	13,2	35 500	8,48	35 500	4,71	35 500	35 500	47 500	2 800	4 000
	112	**115**	24,4	34 300	12,2	35 500	7,85	35 500	4,36	35 500	35 500	47 500	2 800	4 000
	125	**130**	21,5	27 600	10,7	29 700	6,90	31 100	3,83	33 100	35 500	47 500	2 800	4 000
	140	**135**	20,8	34 900	10,4	35 500	6,69	35 500	3,72	35 500	35 500	47 500	2 800	4 000
	160	**165**	16,9	35 000	8,47	35 500	5,44	35 500	3,02	35 500	35 500	47 500	2 800	4 000
	180	**173**	16,2	28 700	8,11	30 800	5,21	31 900	2,89	33 400	33 500	45 000	2 800	4 000
	200	**203**	13,8	29 200	6,91	31 200	4,44	32 300	2,47	33 500	33 500	45 000	2 800	4 000
	224	**212**	13,2	29 300	6,60	31 400	4,24	32 400	2,36	33 500	33 500	45 000	2 800	4 000
	250	**249**	11,2	29 800	5,62	31 700	3,61	32 800	2,01	33 500	33 500	45 000	2 800	4 000
4EL	180	**178**	15,7	35 500	7,87	35 500	5,06	35 500	2,81	35 500	35 500	47 500	2 800	3 150
	200	**211**	13,3	35 500	6,63	35 500	4,26	35 500	2,37	35 500	35 500	47 500	2 800	3 150
	250	**251**	11,2	35 500	5,58	35 500	3,59	35 500	1,99	35 500	35 500	47 500	3 150	4 000
	280	**297**	9,41	35 500	4,71	35 500	3,03	35 500	1,68	35 500	35 500	47 500	3 150	4 000
	315	**318**	8,81	35 500	4,40	35 500	2,83	35 500	1,57	35 500	35 500	47 500	3 150	4 000
	355	**344**	8,14	30 800	4,07	32 500	2,62	33 500	1,45	33 500	33 500	45 000	3 150	4 000
	400	**377**	7,42	35 500	3,71	35 500	2,39	35 500	1,33	35 500	35 500	47 500	3 150	4 000
	450	**443**	6,32	35 500	3,16	35 500	2,03	35 500	1,13	35 500	35 500	47 500	3 150	4 000
	500	**479**	5,85	35 500	2,93	35 500	1,88	35 500	1,04	35 500	35 500	47 500	3 150	4 000
	560	**562**	4,98	35 500	2,49	35 500	1,60	35 500	0,890	35 500	35 500	47 500	3 150	4 000
	630	**659**	4,25	35 500	2,12	35 500	1,36	35 500	0,758	35 500	35 500	47 500	3 150	4 000
	710	**713**	3,93	35 500	1,96	35 500	1,26	35 500	0,702	35 500	35 500	47 500	3 150	4 000
	800	**836**	3,35	35 500	1,67	35 500	1,08	35 500	0,598	35 500	35 500	47 500	3 150	4 000
	900	**876**	3,20	35 500	1,60	35 500	1,03	35 500	0,571	35 500	35 500	47 500	3 150	4 000
	1000	**1028**	2,72	35 500	1,36	35 500	0,876	35 500	0,486	35 500	35 500	47 500	3 150	4 000
	1120	**1206**	2,32	35 500	1,16	35 500	0,746	35 500	0,414	35 500	35 500	44 400	3 150	4 000
	1250	**1263**	2,22	35 500	1,11	35 500	0,713	35 500	0,396	35 500	35 500	47 500	3 150	4 000
	1400	**1482**	1,89	35 500	0,944	35 500	0,607	35 500	0,337	35 500	35 500	44 400	3 150	4 000
	1600	**1621**	1,73	33 500	0,864	33 500	0,555	33 500	0,308	33 500	33 500	45 000	3 150	4 000
	1800													
	2000	**1902**	1,47	33 500	0,736	33 500	0,473	33 500	0,263	33 500	33 500	45 000	3 150	4 000
	2240	**2338**	1,20	33 500	0,599	33 500	0,385	33 500	0,214	33 500	33 500	45 000	3 150	4 000
	2500													
	2800													

042A

According to FEM 1.001 L2/T5/M5 conditions

		042A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14	**14,7**	-	-	95,2	45 000	61,2	47 000	34,0	49 900	50 000	60 800	2 240	2 800
	16													
	18	**17,5**	-	-	80,2	45 800	51,6	47 900	28,6	50 000	50 000	67 000	2 240	3 150
	20	**20,4**	-	-	68,6	38 400	44,1	40 100	24,5	42 600	47 500	67 000	2 240	3 150
	22,4	**22,1**	-	-	63,2	38 300	40,7	40 100	22,6	42 600	50 000	64 900	2 240	3 550
	25	**25,9**	-	-	54,1	39 300	34,8	41 100	19,3	43 600	47 500	67 000	2 240	3 550
	28	**28,7**	-	-	48,8	39 700	31,4	41 500	17,4	44 100	47 500	66 400	2 240	3 550
	31,5	**30,4**	-	-	46,1	39 400	29,6	41 200	16,5	43 700	45 100	53 100	2 240	3 550
	35,5	**37,3**	-	-	37,5	29 900	24,1	31 300	13,4	33 200	37 900	45 100	2 240	3 550
	40													
	45													
3EL	50	**51,7**	-	-	27,1	50 000	17,4	50 000	9,66	50 000	50 000	60 800	2 500	2 800
	63	**61,4**	45,6	48 500	22,8	50 000	14,7	50 000	8,14	50 000	50 000	60 800	2 800	3 550
	71	**72,9**	38,4	49 300	19,2	50 000	12,4	50 000	6,86	50 000	50 000	67 000	2 800	3 550
	80	**77,9**	36,0	49 600	18,0	50 000	11,6	50 000	6,42	50 000	50 000	60 800	2 800	4 000
	90	**92,4**	30,3	50 000	15,2	50 000	9,74	50 000	5,41	50 000	50 000	67 000	2 800	4 000
	100	**108**	25,8	50 000	12,9	50 000	8,30	50 000	4,61	50 000	50 000	67 000	2 800	4 000
	112	**117**	23,9	42 400	11,9	45 500	7,68	47 600	4,27	50 000	50 000	64 900	2 800	4 000
	125	**127**	22,1	43 000	11,0	46 200	7,10	47 500	3,94	47 500	47 500	67 000	2 800	4 000
	140	**138**	20,4	43 100	10,2	46 300	6,54	48 400	3,63	50 000	50 000	64 900	2 800	4 000
	160	**169**	16,6	44 000	8,28	47 300	5,32	49 500	2,96	50 000	50 000	64 900	2 800	4 000
	180	**178**	15,7	44 500	7,85	47 500	5,05	47 500	2,81	47 500	47 500	66 400	2 800	4 000
	200	**198**	14,2	45 000	7,08	47 500	4,55	47 500	2,53	47 500	47 500	67 000	2 800	4 000
	224	**219**	12,8	45 500	6,39	47 500	4,11	47 500	2,28	47 500	47 500	66 400	2 800	4 000
	250	**232**	12,1	45 100	6,03	45 100	3,88	45 100	2,16	45 100	45 100	53 100	2 800	4 000
4EL	180	**182**	15,4	50 000	7,69	50 000	4,95	50 000	2,75	50 000	50 000	60 800	2 800	3 150
	200	**216**	13,0	50 000	6,48	50 000	4,17	50 000	2,32	50 000	50 000	60 800	3 150	4 000
	250	**256**	10,9	50 000	5,46	50 000	3,51	50 000	1,95	50 000	50 000	67 000	3 150	4 000
	280	**274**	10,2	50 000	5,11	50 000	3,29	50 000	1,83	50 000	50 000	60 800	3 150	4 000
	315	**304**	9,21	50 000	4,60	50 000	2,96	50 000	1,64	50 000	50 000	67 000	3 150	4 000
	355	**325**	8,61	50 000	4,31	50 000	2,77	50 000	1,54	50 000	50 000	67 000	3 150	4 000
	400	**386**	7,26	50 000	3,63	50 000	2,33	50 000	1,30	50 000	50 000	67 000	3 150	4 000
	450	**453**	6,18	50 000	3,09	50 000	1,99	50 000	1,10	50 000	50 000	67 000	3 150	4 000
	500	**489**	5,72	50 000	2,86	50 000	1,84	50 000	1,02	50 000	50 000	67 000	3 150	4 000
	560	**556**	5,03	50 000	2,52	50 000	1,62	50 000	0,899	50 000	50 000	67 000	3 150	4 000
	630	**595**	4,71	50 000	2,35	50 000	1,51	50 000	0,841	50 000	50 000	60 800	3 150	4 000
	710	**706**	3,97	50 000	1,98	50 000	1,28	50 000	0,709	50 000	50 000	67 000	3 150	4 000
	800	**828**	3,38	50 000	1,69	50 000	1,09	50 000	0,604	50 000	50 000	67 000	3 150	4 000
	900	**895**	3,13	50 000	1,56	50 000	1,01	50 000	0,559	50 000	50 000	64 900	3 150	4 000
	1000	**1051**	2,67	50 000	1,33	50 000	0,857	50 000	0,476	50 000	50 000	64 900	3 150	4 000
	1120	**1160**	2,41	47 500	1,21	47 500	0,776	47 500	0,431	47 500	47 500	66 400	3 150	4 000
	1250	**1291**	2,17	50 000	1,08	50 000	0,697	50 000	0,387	50 000	50 000	64 900	3 150	4 000
	1400	**1361**	2,06	47 500	1,03	47 500	0,661	47 500	0,367	47 500	47 500	66 400	3 150	4 000
	1600	**1509**	1,86	47 500	0,928	47 500	0,596	47 500	0,331	47 500	47 500	67 000	3 150	4 000
	1800	**1673**	1,67	47 500	0,837	47 500	0,538	47 500	0,299	47 500	47 500	66 400	3 150	4 000
	2000													
	2240													
	2500													
	2800													

060A

According to FEM 1.001 L2/T5/M5 conditions

		060A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14	**14,4**	-	-	97,3	58 700	62,5	61 400	34,7	63 500	63 500	79 400	2 000	2 800
	16	**17,1**	-	-	82,0	59 700	52,7	62 400	29,3	66 200	71 000	95 000	2 000	2 800
	18	**18,5**	-	-	75,8	47 300	48,7	49 500	27,1	52 500	67 000	90 000	2 000	2 800
	20													
	22,4	**21,7**	-	-	64,6	61 200	41,6	63 900	23,1	67 800	71 000	95 000	2 000	2 800
	25	**24**	-	-	58,3	50 800	37,5	53 100	20,8	56 400	59 500	84 100	2 000	2 800
	28	**27,8**	-	-	50,4	49 300	32,4	51 600	18,0	54 700	67 000	90 000	2 000	2 800
	31,5	**30,8**	-	-	45,5	49 900	29,2	52 100	16,2	55 300	67 000	90 000	2 000	2 800
	35,5	**32,6**	-	-	42,9	50 100	27,6	52 400	15,3	55 600	67 000	86 600	2 000	2 800
	40	**40,1**	-	-	34,9	39 800	22,4	41 700	12,5	44 200	60 100	71 300	2 000	2 800
	45													
3EL	50	**50,6**	-	-	27,7	62 100	17,8	63 500	9,88	63 500	63 500	79 400	2 500	2 800
	63	**60,1**	46,6	63 200	23,3	63 500	15,0	63 500	8,33	63 500	63 500	79 400	2 800	3 550
	71	**71,3**	39,3	64 300	19,6	68 900	12,6	71 000	7,02	71 000	71 000	95 000	2 800	3 550
	80	**76,2**	36,8	59 200	18,4	63 500	11,8	63 500	6,56	63 500	63 500	79 400	2 800	4 000
	90	**90,4**	31,0	65 900	15,5	70 600	9,96	71 000	5,53	71 000	71 000	95 000	2 800	4 000
	100	**106**	26,4	59 300	13,2	63 700	8,48	66 700	4,71	70 900	71 000	90 000	2 800	4 000
	112	**115**	24,4	67 400	12,2	71 000	7,85	71 000	4,36	71 000	71 000	95 000	2 800	4 000
	125	**127**	22,0	56 100	11,0	59 500	7,08	59 500	3,94	59 500	59 500	84 100	2 800	4 000
	140	**135**	20,8	68 500	10,4	71 000	6,69	71 000	3,72	71 000	71 000	95 000	2 800	4 000
	160	**163**	17,2	55 000	8,59	59 000	5,52	61 100	3,07	63 900	67 000	90 000	2 800	4 000
	180	**183**	15,3	58 300	7,64	59 500	4,91	59 500	2,73	59 500	59 500	84 100	2 800	4 000
	200	**203**	13,8	56 200	6,91	60 100	4,44	62 100	2,47	65 000	67 000	86 600	2 800	4 000
	224	**212**	13,2	56 500	6,60	60 300	4,24	62 400	2,36	65 200	67 000	90 000	2 800	4 000
	250	**249**	11,2	57 400	5,62	61 000	3,61	63 100	2,01	66 000	67 000	86 600	2 800	4 000
4EL	180	**178**	15,7	63 500	7,87	63 500	5,06	63 500	2,81	63 500	63 500	79 400	2 800	3 150
	200	**211**	13,3	71 000	6,63	71 000	4,26	71 000	2,37	71 000	71 000	95 000	2 800	3 150
	250	**251**	11,2	71 000	5,58	71 000	3,59	71 000	1,99	71 000	71 000	95 000	2 800	3 150
	280	**297**	9,41	71 000	4,71	71 000	3,03	71 000	1,68	71 000	71 000	95 000	3 150	4 000
	315	**318**	8,81	63 500	4,40	63 500	2,83	63 500	1,57	63 500	63 500	79 400	3 150	4 000
	355	**344**	8,14	59 300	4,07	62 600	2,62	64 700	1,45	67 000	67 000	90 000	3 150	4 000
	400	**377**	7,42	71 000	3,71	71 000	2,39	71 000	1,33	71 000	71 000	95 000	3 150	4 000
	450	**443**	6,32	71 000	3,16	71 000	2,03	71 000	1,13	71 000	71 000	95 000	3 150	4 000
	500	**479**	5,85	71 000	2,93	71 000	1,88	71 000	1,04	71 000	71 000	95 000	3 150	4 000
	560	**562**	4,98	71 000	2,49	71 000	1,60	71 000	0,890	71 000	71 000	95 000	3 150	4 000
	630	**607**	4,61	71 000	2,31	71 000	1,48	71 000	0,824	71 000	71 000	95 000	3 150	4 000
	710	**713**	3,93	71 000	1,96	71 000	1,26	71 000	0,702	71 000	71 000	95 000	3 150	4 000
	800	**836**	3,35	71 000	1,67	71 000	1,08	71 000	0,598	71 000	71 000	95 000	3 150	4 000
	900	**876**	3,20	71 000	1,60	71 000	1,03	71 000	0,571	71 000	71 000	95 000	3 150	4 000
	1000	**1028**	2,72	71 000	1,36	71 000	0,876	71 000	0,486	71 000	71 000	95 000	3 150	4 000
	1120	**1124**	2,49	64 900	1,25	67 000	0,801	67 000	0,445	67 000	67 000	90 000	3 150	4 000
	1250	**1245**	2,25	65 400	1,12	67 000	0,723	67 000	0,402	67 000	67 000	90 000	3 150	4 000
	1400	**1462**	1,92	66 200	0,958	67 000	0,616	67 000	0,342	67 000	67 000	90 000	3 150	4 000
	1600	**1621**	1,73	66 800	0,864	67 000	0,555	67 000	0,308	67 000	67 000	90 000	3 150	4 000
	1800	**1796**	1,56	67 000	0,779	67 000	0,501	67 000	0,278	67 000	67 000	90 000	3 150	4 000
	2000													
	2240													
	2500													
	2800													

085A

According to FEM 1.001 L2/T5/M5 conditions

		085A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14													
	16	**17,1**	-	-	82,0	88 100	52,7	92 100	29,3	97 400	112 000	150 000	2 000	2 800
	18													
	20													
	22,4	**21,9**	-	-	63,9	87 400	41,1	91 400	22,8	97 100	112 000	150 000	2 000	2 800
	25	**24,4**	-	-	57,3	71 100	36,8	74 400	20,5	79 000	112 000	150 000	2 000	2 800
	28	**27,8**	-	-	50,4	78 300	32,4	81 900	18,0	86 800	106 000	140 000	2 000	2 800
	31,5	**31,0**	-	-	45,1	79 200	29,0	82 800	16,1	87 800	106 000	140 000	2 000	2 800
	35,5													
	40													
	45													
3EL	50													
	63	**60,1**	-	-	23,3	98 700	15,0	101 000	8,33	105 000	112 000	150 000	2 240	2 800
	71	**71,3**	-	-	19,6	99 800	12,6	102 000	7,02	106 000	112 000	150 000	2 240	3 150
	80	**77,1**	-	-	18,2	99 300	11,7	103 000	6,49	107 000	112 000	150 000	2 240	2 800
	90	**90,4**	-	-	15,5	101 000	9,96	104 000	5,53	108 000	112 000	150 000	2 240	3 550
	100	**106**	-	-	13,2	102 000	8,48	105 000	4,71	109 000	112 000	150 000	2 240	3 550
	112	**116**	-	-	12,1	103 000	7,76	106 000	4,31	109 000	112 000	150 000	2 240	3 550
	125	**129**	-	-	10,8	91 400	6,95	95 300	3,86	99 500	106 000	140 000	2 240	3 150
	140	**136**	-	-	10,3	104 000	6,61	107 000	3,67	110 000	112 000	150 000	2 240	3 550
	160	**167**	-	-	8,37	105 000	5,38	108 000	2,99	112 000	112 000	150 000	2 240	3 550
	180	**187**	-	-	7,50	87 500	4,82	91 600	2,68	97 200	112 000	150 000	2 240	3 550
	200	**193**	-	-	7,27	95 000	4,67	98 100	2,59	103 000	106 000	140 000	2 240	3 550
	224	**212**	-	-	6,60	95 600	4,24	98 900	2,36	103 000	106 000	140 000	2 240	3 550
	250	**237**	-	-	5,91	96 400	3,80	99 700	2,11	104 000	106 000	140 000	2 240	3 550
4EL	180													
	200	**211**	-	-	6,63	107 000	4,26	109 000	2,37	112 000	112 000	150 000	2 500	2 800
	250	**251**	11,2	103 000	5,58	108 000	3,59	111 000	1,99	112 000	112 000	150 000	2 800	3 550
	280	**297**	9,41	104 000	4,71	109 000	3,03	112 000	1,68	112 000	112 000	150 000	2 800	3 550
	315	**318**	8,81	105 000	4,40	109 000	2,83	112 000	1,57	112 000	112 000	150 000	2 800	4 000
	355	**344**	-	-	4,07	99 200	2,62	102 000	1,45	106 000	106 000	140 000	2 500	2 800
	400	**382**	7,33	106 000	3,67	110 000	2,36	112 000	1,31	112 000	112 000	150 000	2 800	3 550
	450	**443**	6,32	107 000	3,16	111 000	2,03	112 000	1,13	112 000	112 000	150 000	2 800	4 000
	500	**479**	5,85	107 000	2,93	112 000	1,88	112 000	1,04	112 000	112 000	150 000	2 800	4 000
	560	**562**	4,98	108 000	2,49	112 000	1,60	112 000	0,890	112 000	112 000	150 000	2 800	4 000
	630	**659**	4,25	109 000	2,12	112 000	1,36	112 000	0,758	112 000	112 000	150 000	2 800	4 000
	710	**721**	3,88	110 000	1,94	112 000	1,25	112 000	0,694	112 000	112 000	150 000	2 800	4 000
	800	**846**	3,31	111 000	1,65	112 000	1,06	112 000	0,591	112 000	112 000	150 000	2 800	4 000
	900	**886**	3,16	111 000	1,58	112 000	1,02	112 000	0,564	112 000	112 000	150 000	2 800	4 000
	1000	**1040**	2,69	112 000	1,35	112 000	0,865	112 000	0,481	112 000	112 000	150 000	2 800	4 000
	1120	**1124**	2,49	103 000	1,25	106 000	0,801	106 000	0,445	106 000	106 000	140 000	2 800	4 000
	1250	**1278**	2,19	112 000	1,10	112 000	0,704	112 000	0,391	112 000	112 000	150 000	2 800	4 000
	1400	**1471**	1,90	105 000	0,951	106 000	0,612	106 000	0,340	106 000	106 000	140 000	2 800	4 000
	1600	**1621**	1,73	106 000	0,864	106 000	0,555	106 000	0,308	106 000	106 000	140 000	2 800	4 000
	1800	**1808**	1,55	106 000	0,774	106 000	0,498	106 000	0,277	106 000	106 000	140 000	2 800	4 000
	2000													
	2240													
	2500													
	2800													

125A

According to FEM 1.001 L2/T5/M5 conditions

		125A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14													
	16													
	18	**17,5**	-	-	80,2	126 000	51,6	132 000	28,6	137 000	160 000	212 000	2 000	2 800
	20	**20,4**	-	-	68,6	128 000	44,1	133 000	24,5	138 000	160 000	212 000	2 000	2 800
	22,4	**22,1**	-	-	63,2	102 000	40,7	106 000	22,6	113 000	150 000	200 000	2 000	2 800
	25	**25,0**	-	-	55,9	106 000	35,9	111 000	20,0	118 000	160 000	212 000	2 000	2 800
	28	**25,9**	-	-	54,1	103 000	34,8	108 000	19,3	114 000	150 000	200 000	2 000	2 800
	31,5	**31,8**	-	-	44,1	105 000	28,3	110 000	15,7	117 000	150 000	200 000	2 000	2 800
	35,5													
	40													
	45													
3EL	50													
	63	**61,4**	-	-	22,8	139 000	14,7	142 000	8,14	148 000	160 000	212 000	2 240	2 800
	71	**72,9**	-	-	19,2	140 000	12,4	144 000	6,86	149 000	160 000	212 000	2 240	3 150
	80	**85,2**	-	-	16,4	141 000	10,6	145 000	5,87	150 000	160 000	212 000	2 240	3 150
	90	**92,4**	-	-	15,2	142 000	9,74	146 000	5,41	151 000	160 000	212 000	2 240	3 550
	100	**102**	-	-	13,7	143 000	8,79	147 000	4,88	152 000	160 000	212 000	2 240	3 550
	112	**108**	-	-	13,0	143 000	8,33	147 000	4,63	153 000	160 000	212 000	2 240	3 550
	125	**120**	-	-	11,7	144 000	7,52	148 000	4,18	154 000	160 000	212 000	2 240	3 550
	140	**133**	-	-	10,6	126 000	6,79	132 000	3,77	140 000	160 000	212 000	2 240	3 550
	160	**168**	-	-	8,33	124 000	5,35	129 000	2,97	134 000	150 000	200 000	2 240	3 550
	180	**186**	-	-	7,51	126 000	4,83	130 000	2,68	135 000	150 000	200 000	2 240	3 550
	200	**198**	-	-	7,08	126 000	4,55	130 000	2,53	136 000	150 000	200 000	2 240	3 550
	224													
	250	**243**	-	-	5,77	128 000	3,71	132 000	2,06	138 000	150 000	200 000	2 240	3 550
4EL	180													
	200	**216**	-	-	6,48	150 000	4,17	154 000	2,32	160 000	160 000	212 000	2 500	2 800
	250	**256**	10,9	145 000	5,46	151 000	3,51	155 000	1,95	160 000	160 000	212 000	2 800	3 550
	280	**300**	9,35	146 000	4,67	153 000	3,00	157 000	1,67	160 000	160 000	212 000	2 800	3 550
	315	**325**	8,61	147 000	4,31	153 000	2,77	158 000	1,54	160 000	160 000	212 000	2 800	4 000
	355	**356**	7,88	148 000	3,94	154 000	2,53	159 000	1,41	160 000	160 000	212 000	2 800	3 550
	400	**386**	7,26	149 000	3,63	155 000	2,33	160 000	1,30	160 000	160 000	212 000	2 800	4 000
	450	**451**	6,21	150 000	3,10	156 000	2,00	160 000	1,11	160 000	160 000	212 000	2 800	4 000
	500	**500**	5,60	151 000	2,80	157 000	1,80	160 000	1,00	160 000	160 000	212 000	2 800	3 550
	560	**572**	4,90	152 000	2,45	159 000	1,57	160 000	0,874	160 000	160 000	212 000	2 800	4 000
	630	**634**	4,42	153 000	2,21	160 000	1,42	160 000	0,789	160 000	160 000	212 000	2 800	4 000
	710	**706**	3,97	154 000	1,98	160 000	1,28	160 000	0,709	160 000	160 000	212 000	2 800	4 000
	800	**825**	3,39	156 000	1,70	160 000	1,09	160 000	0,606	160 000	160 000	212 000	2 800	4 000
	900	**914**	3,06	157 000	1,53	160 000	0,984	160 000	0,547	160 000	160 000	212 000	2 800	4 000
	1000	**1046**	2,68	135 000	1,34	143 000	0,860	147 000	0,478	150 000	150 000	200 000	2 800	4 000
	1120	**1160**	2,41	136 000	1,21	144 000	0,776	149 000	0,431	150 000	150 000	200 000	2 800	4 000
	1250	**1284**	2,18	137 000	1,09	145 000	0,701	150 000	0,389	150 000	150 000	200 000	2 800	4 000
	1400	**1423**	1,97	139 000	0,984	146 000	0,632	150 000	0,351	150 000	150 000	200 000	2 800	4 000
	1600	**1507**	1,86	139 000	0,929	147 000	0,597	150 000	0,332	150 000	150 000	200 000	2 800	4 000
	1800	**1852**	1,51	141 000	0,756	149 000	0,486	150 000	0,270	150 000	150 000	200 000	2 800	4 000
	2000													
	2240													
	2500													
	2800													

180A

According to FEM 1.001 L2/T5/M5 conditions

		180A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14													
	16	**17,1**	-	-	81,8	159 000	52,6	182 000	29,2	198 000	224 000	300 000	1 800	2 500
	18													
	20	**20,0**	-	-	70,0	150 000	45,0	157 000	25,0	166 000	212 000	280 000	1 800	2 500
	22,4	**22,0**	-	-	63,8	169 000	41,0	177 000	22,8	188 000	224 000	300 000	1 800	2 500
	25	**24,5**	-	-	57,2	138 000	36,7	144 000	20,4	153 000	224 000	300 000	1 800	2 500
	28	**28,6**	-	-	48,9	155 000	31,4	162 000	17,5	172 000	212 000	280 000	1 800	2 500
	31,5													
	35,5													
	40													
	45													
3EL	50													
	63	**60,2**	-	-	23,3	202 000	15,0	208 000	8,31	215 000	224 000	300 000	2 000	2 800
	71	**71,4**	-	-	19,6	204 000	12,6	210 000	7,00	218 000	224 000	300 000	2 000	2 800
	80	**77,2**	-	-	18,1	192 000	11,7	201 000	6,48	213 000	224 000	300 000	2 000	2 800
	90	**90,6**	-	-	15,5	207 000	9,94	213 000	5,52	221 000	224 000	300 000	2 000	2 800
	100	**100**	-	-	13,9	206 000	8,97	214 000	4,98	222 000	224 000	300 000	2 000	2 800
	112	**116**	-	-	12,0	200 000	7,74	209 000	4,30	222 000	224 000	300 000	2 000	2 800
	125	**129**	-	-	10,9	202 000	6,99	211 000	3,88	224 000	224 000	300 000	2 000	2 800
	140	**136**	-	-	10,3	181 000	6,62	188 000	3,68	197 000	212 000	280 000	2 000	2 800
	160	**168**	-	-	8,33	185 000	5,36	191 000	2,98	200 000	212 000	280 000	2 000	2 800
	180	**178**	-	-	7,87	186 000	5,06	192 000	2,81	200 000	212 000	280 000	2 000	2 800
	200													
	224	**219**	-	-	6,40	189 000	4,12	195 000	2,29	203 000	212 000	280 000	2 000	2 800
	250													
4EL	180													
	200	**212**	-	-	6,62	218 000	4,25	224 000	2,36	224 000	224 000	300 000	2 500	2 800
	250	**251**	11,1	212 000	5,57	221 000	3,58	224 000	1,99	224 000	224 000	300 000	2 800	3 550
	280	**298**	9,39	214 000	4,70	223 000	3,02	224 000	1,68	224 000	224 000	300 000	2 800	3 550
	315	**319**	8,79	215 000	4,39	224 000	2,83	224 000	1,57	224 000	224 000	300 000	2 800	4 000
	355	**353**	-	-	3,97	224 000	2,55	224 000	1,42	224 000	224 000	300 000	2 500	2 800
	400	**378**	7,41	217 000	3,70	224 000	2,38	224 000	1,32	224 000	224 000	300 000	2 800	4 000
	450	**444**	6,31	219 000	3,16	224 000	2,03	224 000	1,13	224 000	224 000	300 000	2 800	4 000
	500	**479**	5,84	220 000	2,92	224 000	1,88	224 000	1,04	224 000	224 000	300 000	2 800	4 000
	560	**563**	4,97	222 000	2,49	224 000	1,60	224 000	0,888	224 000	224 000	300 000	2 800	4 000
	630	**624**	4,49	224 000	2,24	224 000	1,44	224 000	0,802	224 000	224 000	300 000	2 800	4 000
	710	**722**	3,88	224 000	1,94	224 000	1,25	224 000	0,692	224 000	224 000	300 000	2 800	4 000
	800	**800**	3,50	224 000	1,75	224 000	1,12	224 000	0,625	224 000	224 000	300 000	2 800	4 000
	900	**888**	3,15	224 000	1,58	224 000	1,01	224 000	0,563	224 000	224 000	300 000	2 800	4 000
	1000	**984**	2,85	224 000	1,42	224 000	0,915	224 000	0,508	224 000	224 000	300 000	2 800	4 000
	1120	**1150**	2,44	203 000	1,22	212 000	0,783	212 000	0,435	212 000	212 000	280 000	2 800	4 000
	1250	**1283**	2,18	204 000	1,09	212 000	0,702	212 000	0,390	212 000	212 000	280 000	2 800	4 000
	1400													
	1600	**1670**	1,68	208 000	0,838	212 000	0,539	212 000	0,299	212 000	212 000	280 000	2 800	4 000
	1800													
	2000													
	2240													
	2500													
	2800													

250A

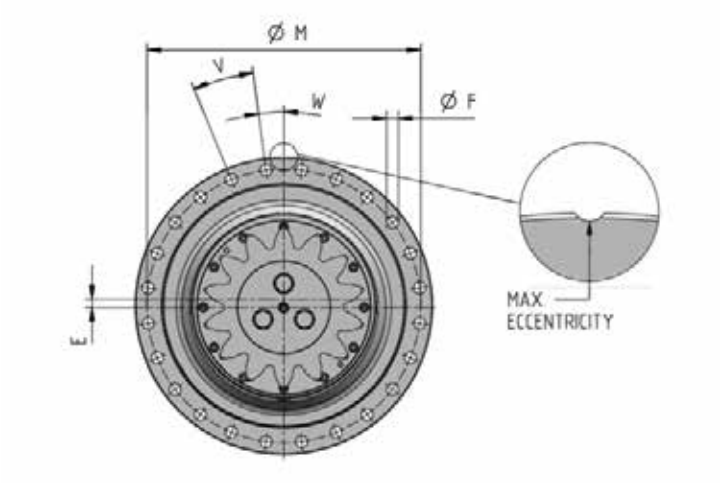
According to FEM 1.001 L2/T5/M5 conditions

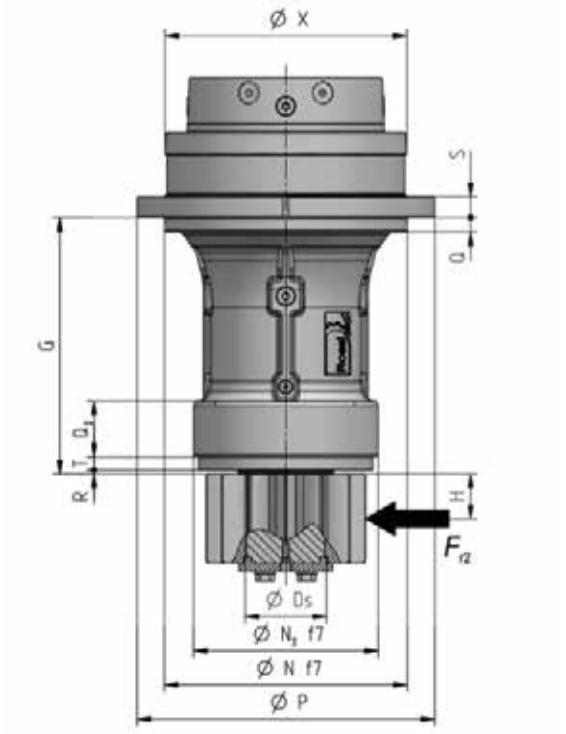
		250A												
			n_1 min^{-1}											
			2 800		1 400		900		500					
	i_N	i_{eff}	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	n_2 min^{-1}	$M_{N2\ FEM}$ N m	$M_{N2\ FEM\ max}$ N m	M_{2max} N m	n_{1max} min^{-1}	n_{1peak} min^{-1}
2EL	12,5													
	14													
	16													
	18	**17,5**	-	-	80,2	221 000	51,6	253 000	28,6	281 000	315 000	425 000	1 400	2 500
	20	**20,4**	-	-	68,6	215 000	44,1	225 000	24,5	238 000	300 000	400 000	1 400	2 500
	22,4	**22,1**	-	-	63,2	238 000	40,7	272 000	22,6	285 000	315 000	425 000	1 400	2 500
	25	**24,5**	-	-	57,1	210 000	36,7	220 000	20,4	233 000	315 000	425 000	1 400	2 500
	28	**28,7**	-	-	48,8	223 000	31,4	233 000	17,4	247 000	300 000	400 000	1 400	2 500
	31,5													
	35,5													
	40													
	45													
3EL	50													
	63													
	71	**71,4**	-	-	19,6	288 000	12,6	296 000	7,00	306 000	315 000	425 000	2 000	2 800
	80	**83,5**	-	-	16,8	247 000	10,8	258 000	5,99	271 000	300 000	400 000	2 000	2 800
	90	**91,6**	-	-	15,3	292 000	9,82	300 000	5,46	311 000	315 000	425 000	2 000	2 800
	100	**102**	-	-	13,7	288 000	8,80	302 000	4,89	313 000	315 000	425 000	2 000	2 800
	112	**116**	-	-	12,0	296 000	7,74	304 000	4,30	315 000	315 000	425 000	2 000	2 800
	125	**130**	-	-	10,8	298 000	6,94	307 000	3,86	315 000	315 000	425 000	2 000	2 800
	140	**144**	-	-	9,74	251 000	6,26	263 000	3,48	279 000	315 000	425 000	2 000	2 800
	160	**168**	-	-	8,33	265 000	5,36	274 000	2,98	286 000	300 000	400 000	2 000	2 800
	180													
	200													
	224													
	250													
4EL	180													
	200													
	250	**251**	-	-	5,57	311 000	3,58	315 000	1,99	315 000	315 000	425 000	2 240	2 800
	280	**298**	-	-	4,70	314 000	3,02	315 000	1,68	315 000	315 000	425 000	2 240	3 150
	315	**322**	-	-	4,34	315 000	2,79	315 000	1,55	315 000	315 000	425 000	2 240	2 800
	355	**360**	-	-	3,89	315 000	2,50	315 000	1,39	315 000	315 000	425 000	2 240	2 800
	400	**382**	-	-	3,66	315 000	2,35	315 000	1,31	315 000	315 000	425 000	2 240	3 150
	450	**444**	-	-	3,16	315 000	2,03	315 000	1,13	315 000	315 000	425 000	2 240	3 550
	500	**485**	-	-	2,89	315 000	1,86	315 000	1,03	315 000	315 000	425 000	2 240	3 550
	560	**563**	-	-	2,49	315 000	1,60	315 000	0,888	315 000	315 000	425 000	2 240	3 550
	630	**635**	-	-	2,20	315 000	1,42	315 000	0,787	315 000	315 000	425 000	2 240	3 550
	710	**722**	-	-	1,94	315 000	1,25	315 000	0,692	315 000	315 000	425 000	2 240	3 550
	800	**806**	-	-	1,74	315 000	1,12	315 000	0,620	315 000	315 000	425 000	2 240	3 550
	900	**888**	-	-	1,58	315 000	1,01	315 000	0,563	315 000	315 000	425 000	2 240	3 550
	1000	**990**	-	-	1,41	315 000	0,909	315 000	0,505	315 000	315 000	425 000	2 240	3 550
	1120	**1150**	-	-	1,22	300 000	0,783	300 000	0,435	300 000	300 000	400 000	2 240	3 550
	1250	**1283**	-	-	1,09	300 000	0,702	300 000	0,390	300 000	300 000	400 000	2 240	3 550
	1400													
	1600													
	1800													
	2000													
	2240													
	2500													
	2800													

2581-01.02

5 - Main dimensions

Double pilot extended output support, with flange





Standard configuration: pinion fitted on output shaft with spline DIN 5482 or DIN 5480.
One piece pinion-shaft on demand.
Pinion characteristics (m, z, b, x and profile modifications) to be defined according to customer's requirements.

Size	Ordering code	X	P	N	N_2	G	H	Q	Q_2	S	R	T	M	F	V	W	E	D_s	
007A	**S070M1 R30b**	234	290	195	180	175	45	15	45	25	4	11	265	13	12x30°	0°	1,5	B70x64	DIN5482
015A	**S090M1 R30c**	282	360	250	200	230	45	13	65	25	5	12	325	17,5	10x36°	0°	2,5	B90x84	
021A	**S100M1 R30d**	330	420	280	250	300	55	18	70	30	5	13	380	17,5	24x15°	7,5°	2,5	B100x94	
030A	**S120M1 R30e**	353	435	355	270	375	65	18	75	30	6	19	400	17,5	24x15°	7,5°	2,5	120x3x30x38	DIN5480
030A	* **S120M1 R32e**	353	500	410	270	375	55	25	75	25	6	25	460	22	24x15°	7,5°	2	120x3x30x38	
042A	**S130M1 R30f**	410	500	425	300	350	65	20	90	30	5	17	460	22	24x15°	7,5°	2,5	130x3x30x42	
042A	* **S130M1 R31f**	410	500	425	300	350	65	20	93	30	5	17	460	22	24x15°	0°	0	130x3x30x42	
060A	**S150M1 R30g**	445	555	400	340	425	75	17,5	110	35	5	15	510	22	24x15°	7,5°	2,5	150x5x30x28	
085A	**S170M1 R30h**	506	640	470	370	470	85	20	125	35	5	15	600	22	24x15°	7,5°	2,5	170x5x30x32	
085A	* **S170M1 R31h**	506	640	470	410	470	110	20	100	35	5	20	600	22	24x15°	0°	2,5	170x5x30x32	
125A	**S200M1 R30i**	570	690	580	400	515	100	21	140	35	5	15	640	26	24x15°	7,5°	2,5	200x5x30x38	
180A	**S220M1 R30j**	630	755	630	460	610	120	23	150	40	6	29	700	26	28x12,857°	6,429°	4	220x5x30x42	
250A	**S240M1 R30k**	715	865	740	490	700	130	17	166	45	8	32	800	33	28x12,857°	6,429°	5	240x5x30x46	
250A	* **S240M1 R31k**	715	865	740	490	845	110	20	170	45	30	40	800	33	28x12,857°	6,429°	5	240x5x30x46	

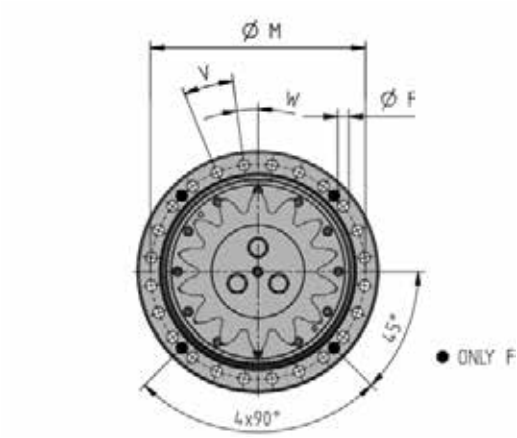
* **Consult Rossi for actual performances.**

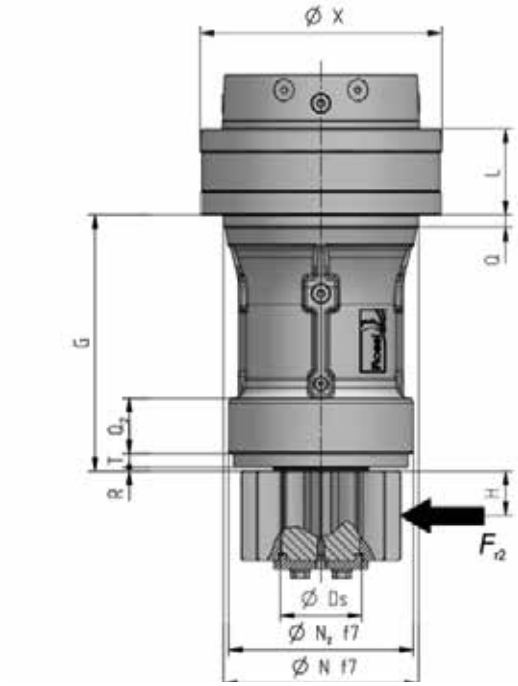
Different designs available on request.

2581-01.02

5 - Main dimensions

Double pilot extended output support, without flange





Standard configuration: pinion fitted on output shaft with spline DIN 5482 or DIN 5480.
One piece pinion-shaft on demand.
Pinion characteristics (m, z, b, x and profile modifications) to be defined according to customer's requirements.

Size	Ordering code	X	N	N_2	G	H	L	Q	Q_2	R	T	M	F	V	W	E	D_s	
007A	**S070M1 S30b**	234	195	180	175	45	78	15	45	4	11	213	10,5	16x22,5°	11,25°	0	B70x64	DIN5482
015A	**S090M1 S30c**	282	235	200	235	45	100	18	65	5	12	255	12,5	16x22,5°	11,25°	0	B90x84	
021A	* **S100M1 S10d**	330	275	218	300	55	-	20	67	7	23	300	17,5	24x15°	7,5°	0,75	B100x94	
021A	* **S100M1 S11d**	330	275	250	235	52,5	-	15	59	5	26	300	17,5	24x15°	7,5°	0,75	B100x94	
021A	**S100M1 S30d**	330	270	250	300	55	112	18	70	5	13	300	14,5	16x22,5°	11,25°	0	B100x94	
030A	**S120M1 S30e**	353	285	270	375	65	125	16,5	75	6	19	314	16,5	24x15°	7,5°	0	120x3x30x38	DIN5480
042A	**S130M1 S30f**	410	340	300	350	65	145	20	90	5	17	370	16,5	28x12,857°	6,429°	0	130x3x30x42	
060A	**S150M1 S30g**	445	365	340	425	75	172	18	110	5	15	400	21	24x15°	7,5°	0	150x5x30x28	
085A	**S170M1 S30h**	506	425	370	470	85	185	20	125	5	15	460	22	28x12,857°	6,429°	0	170x5x30x32	
125A	**S200M1 S30i**	570	470	400	515	100	175	25	140	5	15	515	25	28x12,857°	6,429°	0	200x5x30x38	
180A	**S220M1 S30j**	630	530	460	610	120	195	23	150	6	29	575	25	32x11,25°	5,625°	0	220x5x30x42	
250A	**S240M1 S30k**	715	595	490	700	130	223	25	168	8	32	650	32	28x12,857°	6,429°	0	240x5x30x46	

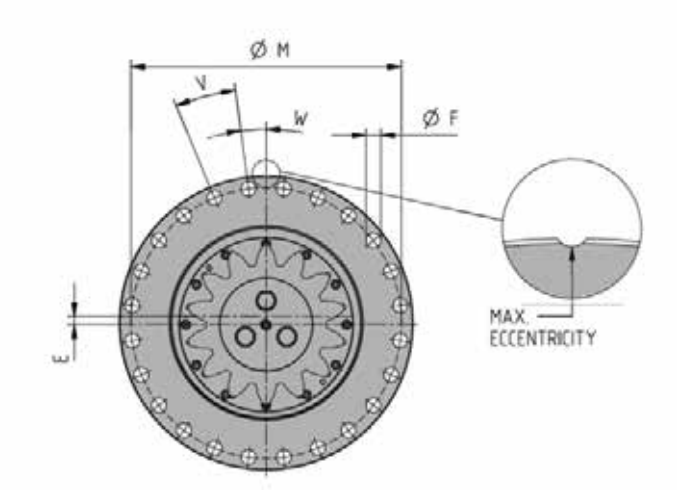
* **Consult Rossi for actual performances.**

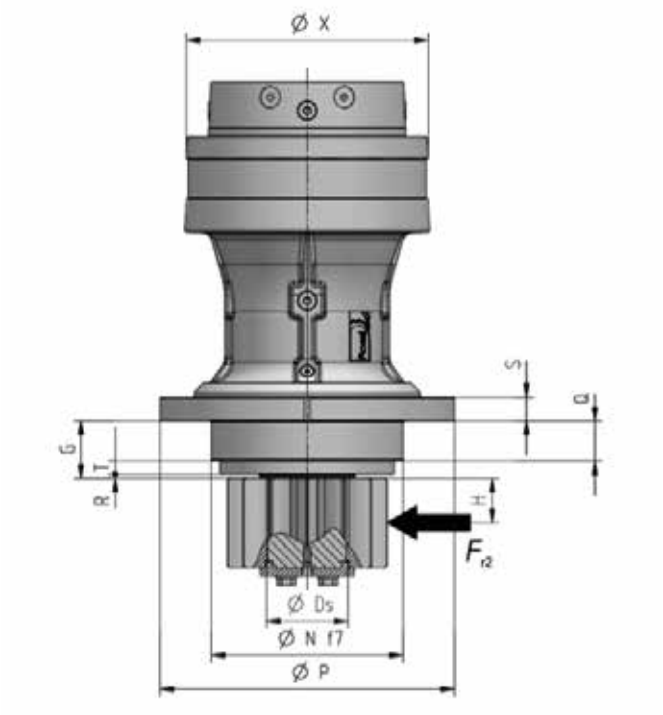
Different designs available on request.

2581-01.02

5 - Main dimensions

Front fixing flange output support





Standard configuration: pinion fitted on output shaft with spline DIN 5482 or DIN 5480.
One piece pinion-shaft on demand.
Pinion characteristics (m, z, b, x and profile modifications) to be defined according to customer's requirements.

Size	Ordering code	X	P	N	G	H	Q	S	R	T	M	F	V	W	E	D_s	
007A	**S070M1 H30b**	234	272	175	41	45	15	25	4	22	245	18	10x36°	0°	1,5	B70x64	DIN5482
015A	**S090M1 H30c**	282	280	200	40	45	14,5	20	2,5	23	250	17	12x30°	0°	1	B90x84	
015A	* **S090M1 R10c**	280	200	200	45	47,5	19	20	16	25	250	17	12x30°	0°	1	B90x84	
021A	**S100M1 H30d**	330	400	310	56	55	18	30	5	57	360	22	12x30°	15°	2,5	B100x94	
030A	**S120M1 H30e**	353	430	280	84	65	59	35	6	19	395	22	24x15°	7,5°	2,5	120x3x30x38	DIN5480
042A	**S130M1 H30f**	410	435	300	83	65	61	30	5	17	395	22	24x15°	7,5°	2,5	130x3x30x42	
042A	* **S130M1 H31f**	410	430	300	83	75	40	30	5	43	395	22	24x15°	7,5°	2,5	130x3x30x42	
060A	**S150M1 H30g**	445	490	365	83	75	23	37	5	55	445	22	24x15°	7,5°	2,5	150x5x30x28	
085A	**S170M1 H30h**	506	540	435	100	85	25	41	5	65	485	33	24x15°	7,5°	2,5	170x5x30x32	
125A	**S200M1 H30i**	570	565	470	140	100	21	35	5	15	515	26	28x12,857°	6,429°	2,5	200x5x30x38	
180A	**S220M1 H30j**	630	630	520	165	120	24	40	6	135	575	26	32x11,25°	5,625°	4	220x5x30x42	
250A	**S240M1 H30k**	715	715	585	180	130	25	45	4	147	650	33	28x12,857°	6,429°	5	240x5x30x46	

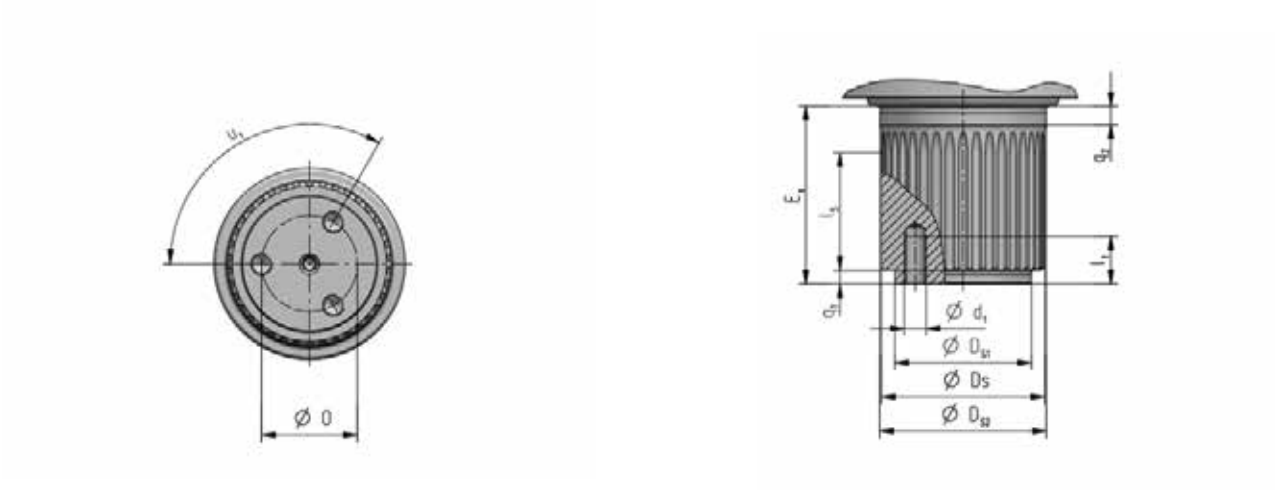
* **Consult Rossi for actual performances.**

Different designs available on request.

2581-01.02

5 - Main dimensions

Output side details



Size	Ordering code	D_s		Es	D_{S1}	D_{S2}	d_1	l_1	O	u_1	l_s	q_1	q_2
007A	**S070M1 ...**	B70x64-e9	DIN5482	90	62 f7	72 f7	M10	21	45	3x120°	50	10	10
015A	**S090M1 ...**	B90x84-e9		90	80 f7	95 f7	M14	29	55	3x120°	50	10	10
021A	**S100M1 ...**	B100x94-e9		110	85 f7	105 f7	M14	30	65	3x120°	66	12	10,5
030A	**S120M1 ...**	120x3x30x38-8f	DIN5480	130	100 f7	122 f7	M16	35	70	3x120°	86	10	13,5
042A	**S130M1 ...**	130x3x30x42-8f		130	110 f7	132 f7	M16	33	80	3x120°	88	10	13,5
060A	**S150M1 ...**	150x5x30x28-8f		150	125 f7	151 f7	M16	33	95	3x120°	107	12	14
085A	**S170M1 ...**	170x5x30x32-8f		170	150 f7	172 f7	M16	35	115	4x90°	115	17	22
125A	**S200M1 ...**	200x5x30x38-8f		200	100 f7	200 f6	M20	42	150	10x36°	135	33	25
180A	**S220M1 ...**	220x5x30x42-8f		240	110 f7	220 f6	M20	40	170	10x36°	145	40	45
250A	**S240M1 ...**	240x5x30x46-8f		260	125 f7	240 f6	M24	48	185	10x36°	165	42	43

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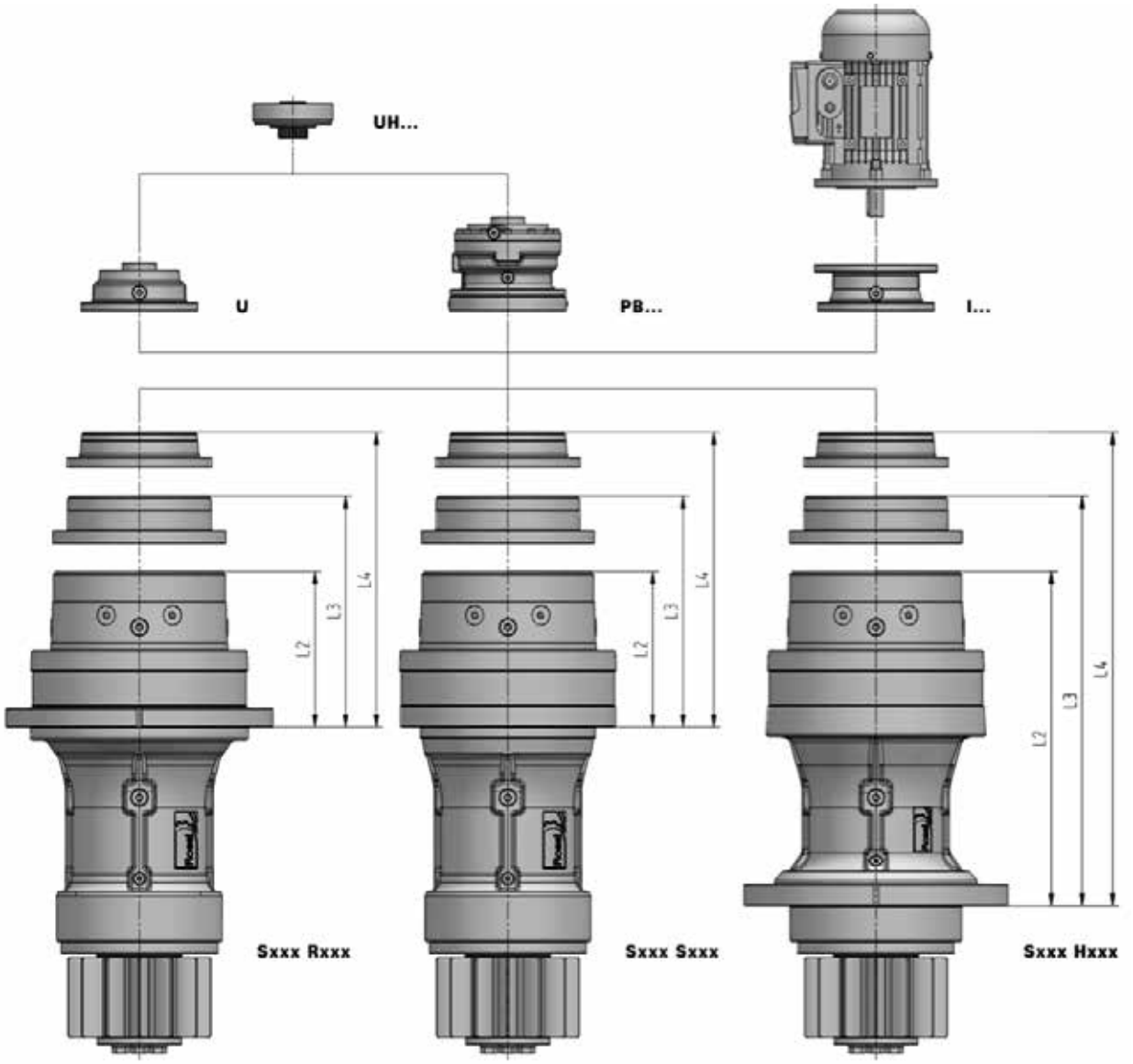
5 - Main dimensions

Overall dimensions



Size	Ordering code	L2	L3	L4	Ordering code	L2	L3	L4	Ordering code	L2	L3	L4
007A	**S070M1 R30b**	124	154	184	**S070M1 S30b**	124	154	184	**S070M1 H30b**	258	288	318
015A	**S090M1 R30c**	171	230	260	**S090M1 S30c**	166	225	255	**S090M1 H30c**	336	395	425
021A	**S100M1 R30d**	175	234	264	**S100M1 S30d**	175	234	264	**S100M1 H30d**	395	454	484
030A	**S120M1 R30e**	253	326	380	**S120M1 S30e**	253	326	380	**S120M1 H30e**	544	617	671
042A	**S130M1 R30f**	273	356	415	**S130M1 S30f**	273	356	415	**S130M1 H30f**	540	623	682
060A	**S150M1 R30g**	312,5	395,5	454,5	**S150M1 S30g**	312,5	395,5	454,5	**S150M1 H30g**	654,5	737,5	796,5
085A	**S170M1 R30h**	450	503	576	**S170M1 S30h**	450	503	576	**S170M1 H30h**	820	873	946
125A	**S200M1 R30i**	470,5	523,5	606,5	**S200M1 S30i**	470,5	523,5	606,5	**S200M1 H30i**	845,5	898,5	981,5
180A	**S220M1 R30j**	556	609	692	**S220M1 S30j**	556	609	692	**S220M1 H30j**	1001	1054	1137
250A	**S240M1 R30k**	622	793	846	**S240M1 S30k**	622	689	846	**S240M1 H30k**	1142	1313	1366

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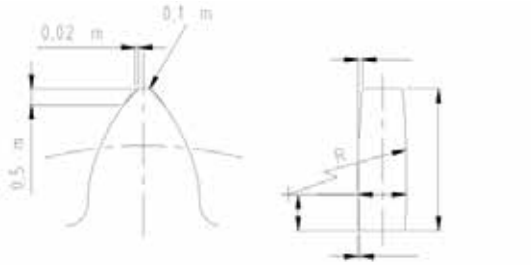
6 - Pinion gears

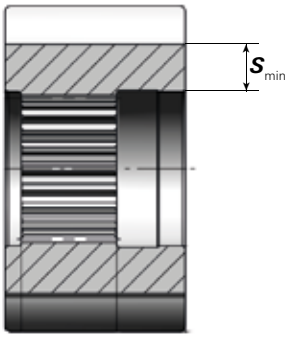
Design features

Standard configuration: pinion fitted on output shaft with spline DIN 5482 or DIN 5480
– Addendum modification coefficient x = 0,5
– Gear quality DIN 9
– Ground finish (on demand)
– Tip relief (on demand)
– Full helix modification (on demand)
– Material: tempered high alloy steel (case hardened on demand)

Only for integral pinion (on demand)
– Addendum modification coefficient x = 0,5
– Gear quality DIN 6
– Ground finish
– Tip relief
– Full helix modification
– Material: case hardened high alloy steel

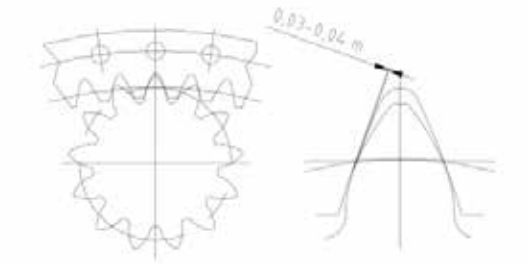


If not supplied by Rossi, the recommended minimum ***S*** value is S_{min} (mm) ⩾ 2,2 m
where m is the pinion module



Meshing with the Slew Gear

When the pinion is supplied by Rossi, all the relevant information related to the gear geometry are given in order to allow the verification of correct pinion/gear meshing.
In particular we recommend to check the value of backlash with the corresponding slewing bearing or rack to achieve a clearance of 0,03 - 0,04 m between gear teeth as shown in the following picture, taking advantage when available of the eccentric design of the gearbox output support.



7 - Multi-disc parking brakes

Features

The parking brakes of PB series are Spring Applied and Hydraulic Released multi-disc brakes, to be used in combination with planetary gear reducers of EP series.
They are not service brakes and they cannot be used in dynamic conditions.
They are used to hold the load from application or to stop the machine in case of emergency.
The values of static braking torque M_{Bstat} given in the following table should be considered as nominal values and are valid for a brand new brake with correct lubrication. Values of M_{Bstat} are given with a tolerance of ± 10%.
After some braking cycles, values of static braking torque could reduce by 5% and 10%, due to the adjustment of discs.
ATTENTION: always verify that the static breaking torque M_{Bstat} referred to the gear reducer low speed shaft is lower than the value of M_{2MAX} allowed by the gear reducer itself.

Speed limits

The presence of a SAHR brake does not limit the values of n_{1max} and n_{1peak} of the gear reducer stated in the selection tables.

ATTENTION: a continuous or frequent duty at high speed may generate an overheating of the group.

Operating conditions

Brakes are designed for industrial applications, at ambient temperature -20 °C ÷ + 50 °C, maximum altitude 1000 m.

Lubrication

PB series brakes **require lubrication** and are supplied **without oil**, as specified by the relevant adhesive label.
Before putting the brakes into service fill them with mineral oil ISO VG 32, unless otherwise prescribed by specific documentation.
Hydraulic mineral based oils HLP according to DIN 51524 are suitable, recommended viscosity class ISO VG 32.
Consult Rossi when intending to use Fire Resistant fluids (HFA-HFB-HFC-HFD) and Environmentally Acceptable hydraulic fluids (HFE) as per ISO 6743.
Connect a fitting of the system hydraulic circuit to the brake release hole.
Before first use it is necessary to bleed. Slightly loosen the fitting on the release hole, keeping the pressure until all air has been bled, then tighten again the fitting.

The brake lubrication is separate from the gearbox lubrication to prevent premature lubricant contamination in the gear reducer, increasing gears and bearings life.

Technical data

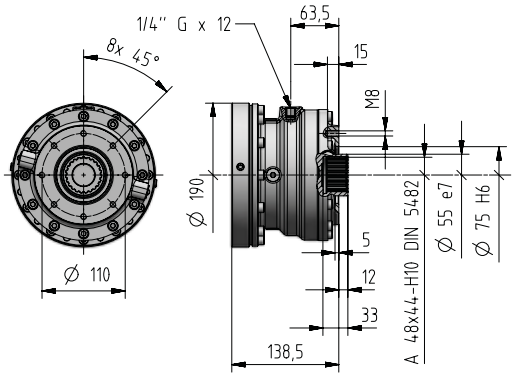
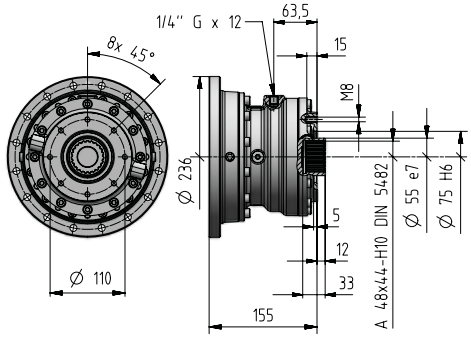
PB10-...			0075	0150	0225	0340	0420	0525	0650	0815	
Static braking torque	M_{Bstat}	[N m]	72	156	224	345	421	531	660	818	
Min release pressure	p_{min}	[bar]	4,4	9,5	10,2	15,7	15,4	19,4	20,1	24,9	
Release pressure	p	[bar]	6,9	14,9	16,1	24,7	24,2	30,4	31,6	39,1	
Max release pressure	p_{max}	[bar]	300								
Maximum speed	n_{1max}	[min^{-1}]	According to gear reducer n_{1max} and n_{1peak}								
Oil volume for brake release	V	[l]	0,10								

PB30-...			0250	0400	0500	0630	0800	1000	1250	1500	1700
Static braking torque	M_{Bstat}	[N m]	265	407	509	637	809	1010	1281	1529	1741
Min release pressure	p_{min}	[bar]	7,6	11,8	11,8	14,7	15,6	19,4	24,7	25,2	28,7
Release pressure	p	[bar]	12,0	18,5	18,5	23,1	24,5	30,5	38,7	39,6	45,1
Max release pressure	p_{max}	[bar]	300								
Maximum speed	n_{1max}	[min^{-1}]	According to gear reducer n_{1max} and n_{1peak}								
Oil volume for brake release	V	[l]	0,12								

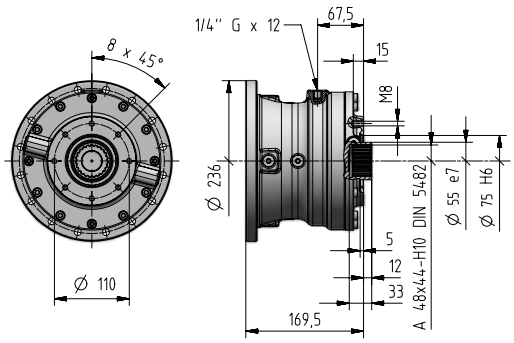
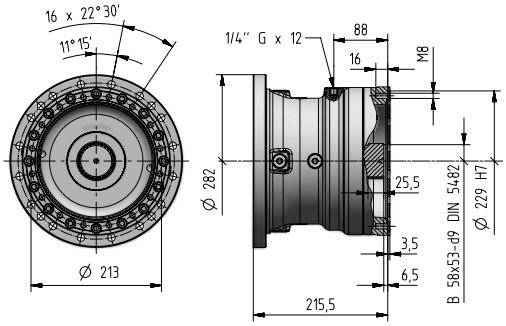
PB90-...			0850	1250	1500	1800	2100	2600	3000	3550	4250
Static braking torque	M_{Bstat}	[N m]	869	1304	1552	1811	2173	2680	3063	3560	4305
Min release pressure	p_{min}	[bar]	10,2	15,3	18,2	18,2	21,9	27,0	27,0	31,4	37,9
Release pressure	p	[bar]	15,3	23,0	27,4	27,4	32,8	40,5	40,5	47,1	56,9
Max release pressure	p_{max}	[bar]	300								
Maximum speed	n_{1max}	[min^{-1}]	According to gear reducer n_{1max} and n_{1peak}								
Oil volume for brake release	V	[l]	0,25								

Different braking torques on request.
Max back pressure allowed 0,5 bar.

Dimensions

PB10a	PB10b
	

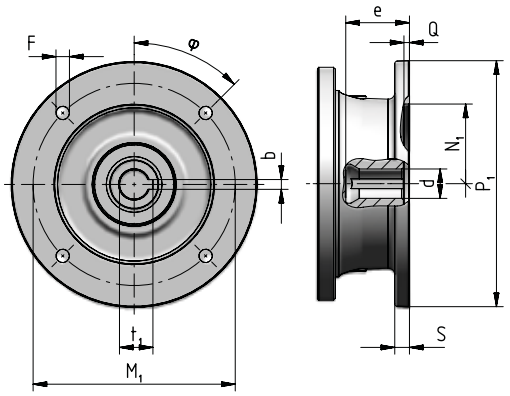
	1EL	2EL	3EL	4EL	2EB	3EB	4EB	Mass [kg]
PB10a		007A	007A…021A	007A…060A	007A	007A…021A	007A…060A	18
PB10b	007A	015A, 021A	030A…060A	085A…180A	015A	030A, 042A	085A, 125A	25

PB30 (003/004/006/C200)	PB90 (009/012/015/C250)
	

	1EL	2EL	3EL	4EL	2EB	3EB	4EB	Mass [kg]
PB30	007A	015A, 021A	030A…060A	085A…180A	015A	030A, 042A	085A, 125A	25
PB90	015A	030A, 042A	085A, 125A	250A	021A, 030A	060A, 085A	180A, 250A	53

8 - Motor adapters

IEC Electric motor adapters



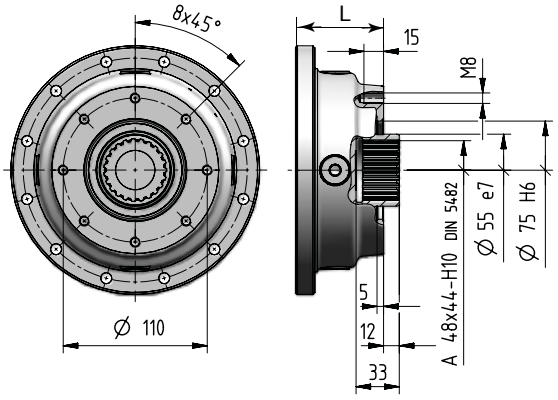
Motor size **IEC**	dxP	**P** Ø	**S**	**d** Ø	**e** max	**b** F9	**t_1**	**M_1**	**F** Ø	**φ**	**N1** Ø G7	**Q**	**Code**
71	**14x160**	160	-	14 F6	32	5	16,3	130	M8x16 (n.4)	45°	110	4,5	I14x160
80	**19x200**	200	12	19 F6	41,5	6	21,8	165	11 (n.4)	45°	130	4,5	I19x200
90	**24x200**	200	12	24 F6	52	8	27,3	165	11 (n.4)	45°	130	4,5	I24x200
100	**28x250**	250	14	28 F6	62	8	31,3	215	14 (n.4)	45°	180	5	I28x250
112	**28x250**	250	14	28 F6	62	8	31,3	215	14 (n.4)	45°	180	5	I28x250
132	**38x300**	300	14	38 F6	82	10	41,3	265	14 (n.4)	45°	230	5	I38x300
160	**42x350**	350	15	42 F6	113	12	45,3	300	18 (n.4)	45°	250	6	I42x350
180	**48x350**	350	15	48 F6	113	14	51,8	300	18 (n.4)	45°	250	6	I48x350
200	**55x400**	400	15	55 E6	113	16	59,3	350	18 (n.4)	45°	300	6	I55x400
225	**60x450**	450	18	60 E6	143	18	64,4	400	18 (n.8)	22,5°	350	6	I60x450
250	**65x550**	550	18	65 E6	142	18	69,4	500	18 (n.8)	22,5°	450	6	I65x550
280	**75x550**	550	18	75 E6	142	20	79,9	500	18 (n.8)	22,5°	450	6	I75x550

Motor size **IEC**	**h**														
	007A			**015A**			**021A**			**030A**			**042A**		
	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL
71	52	52	52	-	52	52	-	52	52	-	-	52	-	-	52
80	72	72	72	-	72	72	-	72	72	-	-	72	-	-	72
90	72	72	72	-	72	72	-	72	72	-	-	72	-	-	72
100	82	82	82	103	82	82	103	82	82	-	103	82	-	103	82
112	82	82	82	103	82	82	103	82	82	-	103	82	-	103	82
132	102	102	102	120	102	102	120	102	102	133,5	120	102	133,5	120	102
160	135	135	135	153	135	135	153	135	135	159	153	135	159	153	135
180	135	135	135	153	135	135	153	135	135	159	153	135	159	153	135
200	-	-	-	153	-	-	153	-	-	159	153	-	159	153	-
225	-	-	-	-	-	-	-	-	-	189	-	-	189	-	-
250	-	-	-	-	-	-	-	-	-	189	-	-	189	-	-
280	-	-	-	-	-	-	-	-	-	189	-	-	189	-	-

Motor size **IEC**	**h**														
	060A			**085A**			**125A**			**180A**			**250A**		
	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL
71	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-
80	-	-	72	-	-	-	-	-	-	-	-	-	-	-	-
90	-	-	72	-	-	-	-	-	-	-	-	-	-	-	-
100	-	103	82	-	-	103	-	-	103	-	-	103	-	-	-
112	-	103	82	-	-	103	-	-	103	-	-	103	-	-	-
132	-	120	102	-	133,5	120	-	133,5	120	-	-	120	-	-	133,5
160	159	153	135	111	159	153	111	159	153	-	159	153	-	111	159
180	159	153	135	111	159	153	111	159	153	-	159	153	-	111	159
200	159	153	-	111	159	153	111	159	153	-	159	153	-	111	159
225	189	-	-	141	189	-	141	189	-	-	189	-	-	141	189
250	189	-	-	141	189	-	141	189	-	-	189	-	-	141	189
280	189	-	-	141	189	-	141	189	-	-	189	-	-	141	189

2581-01.02

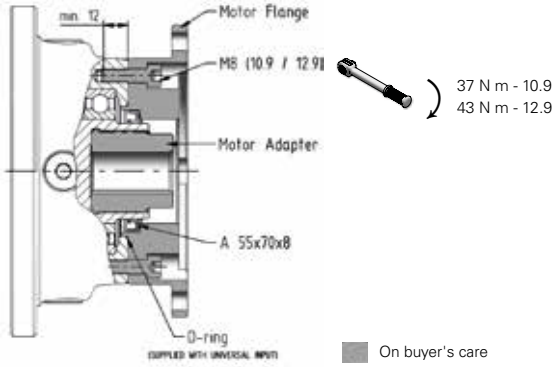
Universal flange adapters



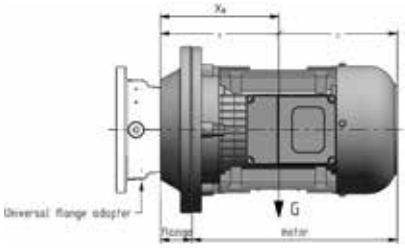
	L														
	007A			015A			021A			030A			042A		
	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL
U	64	64	64	62	64	64	62	64	64	-	62	64	-	62	64

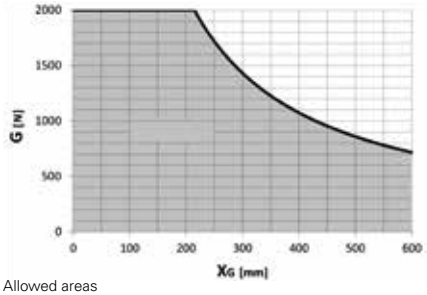
	L														
	060A			085A			125A			180A			250A		
	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL	2EL	3EL	4EL
U	-	62	64	-	-	62	-	-	62	-	-	62	-	-	-

The universal input flange allows the customers to make their flanges and couplings suitable for the main motorization types. It's very important to observe the information shown in the drawing below to obtain a correct gear reducer oil sealing.



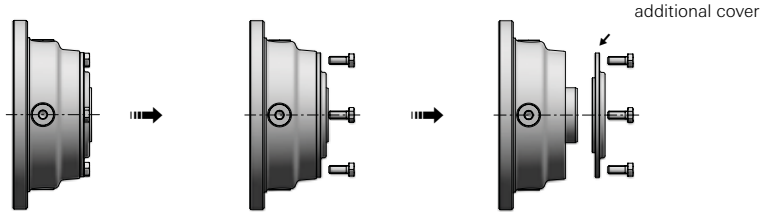
The universal input flange can be used for motors up to 1 000 Nm maximum torque.
It must be checked if the total weight of the flange+motor and the distance of their center of gravity are compliant with the following diagram. In case of high vibrations or dynamic stress, please contact Rossi.
Severe or fatal injury and damage to property may occur.



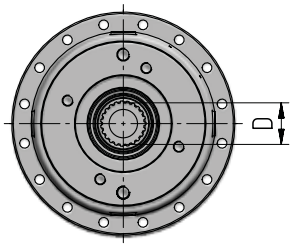


Allowed areas

Gearboxes with "U" input (not "UN" and "UH") are supplied with an additional cover as shown below.
When a flange made by customer have to be used, please remove it.
Pay attention for gearboxes supplied with oil. Removing the cover oil may leak.



Hydraulic motor input flanges



For several motor types Rossi can deliver the adapter kit to be used in conjunction with the universal flange adapter or PB brakes.

Here below are listed the ones for some popular motor brands. Many others are available.

Brand	PARKER dimension L_H																				
Model	F11		F12										TE-TJ-TF					TF-TG			
Size	10 - 19	14 - 19	30	30	30	40 - 60	40 - 60	60	90	90	90	125	-	-	-	-	-	-	-	-	-
D	16/32-13T	25,4	25,4	16/32-13T	30x2x14	31,75	12/24-14T	35x2x16	40	12/24-17T	40x2x18	45x2x21	25	25,4	25,4	1" 6B	1" 6B	31,75	31,75	32	12/24-14T
Code	UH SB3	UH SB13	UH SB13	UH SB3	UH IB1	UH SC6	UH SC4	UH IC2	UH ID4	UH SC5	UH ID2	UH IE1	UH SA1	UH SA11	UH SA13	UH SA10	UH SA2	UH SA12	UH SA6	UH SA5	UH SA4
001A ... 006A 1EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
2EB ... 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
009A ... 015A 2EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
2EB ... 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
018A ... 021A 2EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
3EB ... 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
022A 2EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
2EB ... 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
030A ... 043A 3EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
3EB ... 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
060A 3EL ... 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
085A ... 180A 4EL	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47
085A ... 125A 4EB	56	48	48	56	42	39,5	39,5	53	128	39,5	98	111	35	47	47	35	35	47	47	47	47

Brand	BOSCH REXROTH dimension L_H												
Model	A2FM												
Size	56,63	80,90	80,90	80,90	107,125	160,180	10,12,16	10,12,16	10,12,16	10,12,16	23,28,32	23,28,32	45,56
D	35x2x16	40	35x2x16	40x2x18	45x2x21	50x2x24	20	25	20x1,25x14	25x1,25x18	25	30x2x14	30x2x14
Code	UH IC2	UH ID4	UH ID1	UH ID2	UH IE1	UH IF1	UH IA1	UH IA2	UH IA3	UH IA4	UH IB6	UH IB1	UH IC1
001A ... 006A 1EL ... 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
2EB ... 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
009A ... 015A 2EL ... 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
2EB ... 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
018A ... 021A 2EL ... 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
3EB ... 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
022A 2EL ... 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
2EB ... 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
030A ... 043A 3EL, 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
3EB, 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
060A 3EL, 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53
085A ... 180A 4EL	53	128	53	98	111	116	40	40	40	40	54,5	42	53
085A ... 125A 4EB	53	128	53	98	111	116	40	40	40	40	54,5	42	53

Brand	EATON dimension L_H						
Model	2000					4000	
Size	80 - 490	80 - 490	80 - 490	80 - 490	80 - 490	110 - 625	110 - 625
D	25,4	31,75	31,75	32	12/24-14T	31,75	12/24-17T
Code	UH SA11	UH SA12	UH SB12	UH SA5	UH SA4	UH SB14	UH SC5
001A ... 006A 1EL ... 4EL	47	47	48	47	47	56	47
2EB ... 4EB	47	47	48	47	47	56	47
009A ... 015A 2EL ... 4EL	47	47	48	47	47	56	47
2EB ... 4EB	47	47	48	47	47	56	47
018A ... 021A 2EL ... 4EL	47	47	48	47	47	56	47
3EB ... 4EB	47	47	48	47	47	56	47
022A 2EL ... 4EL	47	47	48	47	47	56	47
2EB ... 4EB	47	47	48	47	47	56	47
030A ... 043A 3EL, 4EL	47	47	48	47	47	56	47
3EB, 4EB	47	47	48	47	47	56	47
060A 3EL, 4EL	47	47	48	47	47	56	47
4EB	47	47	48	47	47	56	47
085A ... 180A 4EL	47	47	48	47	47	56	47
085A ... 125A 4EB	47	47	48	47	47	56	47

Brand	DANFOSS (WHITE HYDRAULICS) dimension L_H							
Model	RS	HB						
Size	200 - 201	300	300	300	300	300	300	300
D	25,4	25	25,4	25,4	31,75	31,75	1" 6B	16/32-13T
Code	UH SB13	UH SA1	UH SA13	UH SB13	UH SA6	UH SB12	UH SA2	UH SB11
001A ... 006A 1EL ... 4EL	48	35	47	48	47	48	35	56
2EB ... 4EB	48	35	47	48	47	48	35	56
009A ... 015A 2EL ... 4EL	48	35	47	48	47	48	35	56
2EB ... 4EB	48	35	47	48	47	48	35	56
018A ... 021A 2EL ... 4EL	48	35	47	48	47	48	35	56
3EB ... 4EB	48	35	47	48	47	48	35	56
022A 2EL ... 4EL	48	35	47	48	47	48	35	56
2EB ... 4EB	48	35	47	48	47	48	35	56
030A ... 043A 3EL, 4EL	48	35	47	48	47	48	35	56
3EB, 4EB	48	35	47	48	47	48	35	56
060A 3EL, 4EL	48	35	47	48	47	48	35	56
4EB	48	35	47	48	47	48	35	56
085A ... 180A 4EL	48	35	47	48	47	48	35	56
085A ... 125A 4EB	48	35	47	48	47	48	35	56

Brand	DANFOSS dimension L_H						
Model	OMP - OMR				OMH - OMS		OMT
Size	25 - 400	25 - 400	25 - 400	25 - 400	80 - 500	81 - 500	160 - 500
D	25	25,4	32	1" 6B	32	12/24-14T	40
Code	UH SA1	UH SA11	UH SA5	UH SA10	UH SA5	UH SA4	UH IC3
001A ... 006A 1EL ... 4EL	35	47	47	35	47	47	135
2EB ... 4EB	35	47	47	35	47	47	135
009A ... 015A 2EL ... 4EL	35	47	47	35	47	47	135
2EB ... 4EB	35	47	47	35	47	47	135
018A ... 021A 2EL ... 4EL	35	47	47	35	47	47	135
3EB ... 4EB	35	47	47	35	47	47	135
022A 2EL ... 4EL	35	47	47	35	47	47	135
2EB ... 4EB	35	47	47	35	47	47	135
030A ... 043A 3EL, 4EL	35	47	47	35	47	47	135
3EB, 4EB	35	47	47	35	47	47	135
060A 3EL, 4EL	35	47	47	35	47	47	135
4EB	35	47	47	35	47	47	135
085A ... 180A 4EL	35	47	47	35	47	47	135
085A ... 125A 4EB	35	47	47	35	47	47	135

Brand	SAI dimension L_H	
Model	GM	
Size	1	05
D	28 UNI 221	28 UNI 221
Code	UH M11	UH M01
001A ... 006A 1EL ... 4EL	22	40
2EB ... 4EB	22	40
009A ... 015A 2EL ... 4EL	22	40
2EB ... 4EB	22	40
018A ... 021A 2EL ... 4EL	22	40
3EB ... 4EB	22	40
022A 2EL ... 4EL	22	40
2EB ... 4EB	22	40
030A ... 043A 3EL, 4EL	22	40
3EB, 4EB	22	40
060A 3EL, 4EL	22	40
4EB	22	40
085A ... 180A 4EL	22	40
085A ... 125A 4EB	22	40

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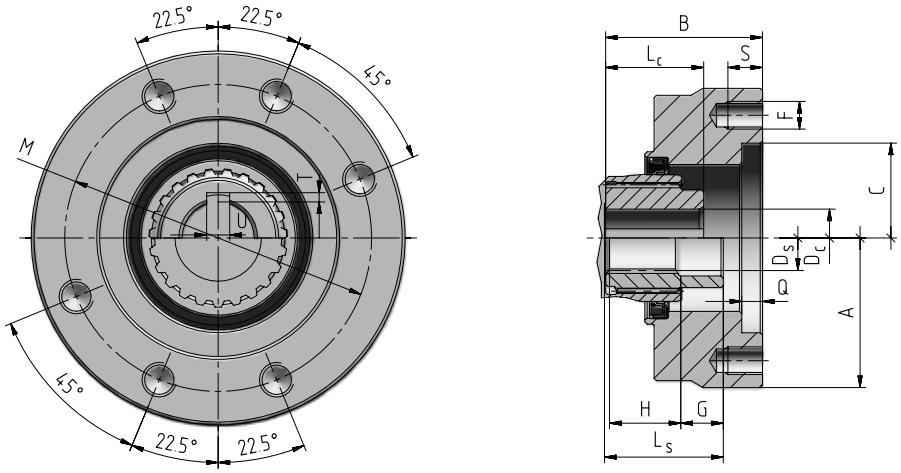
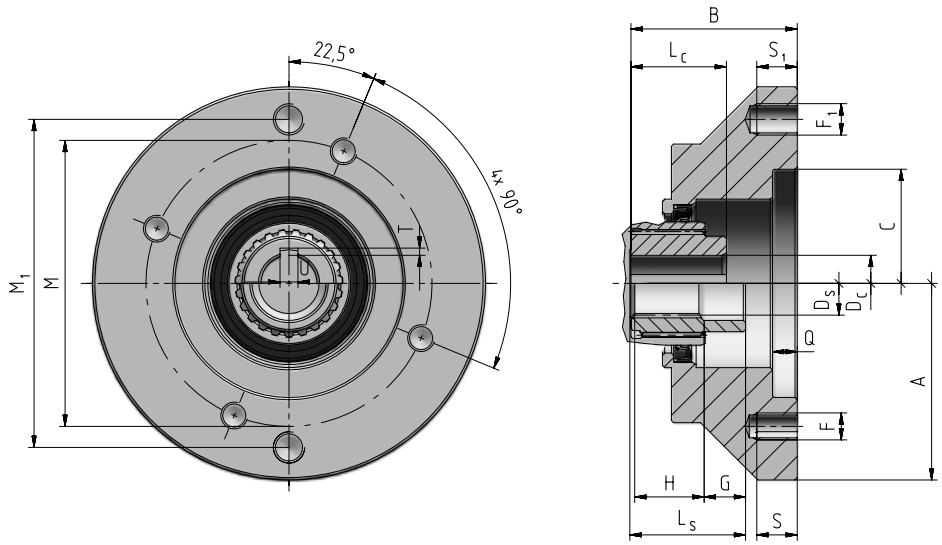
Similar to SAE J744c (SAE - A) standards



A Ø	B	C G7 Ø	D_C Ø	D_S Ø	F	G	H	L_C	L_S	S	Q	M	U	T	Code
130	56	82,55	25 E8	–	M12	–	–	42,5	–	15	9	106,4	8	3,2	**UH SA1**
130	56	82,55	–	1" 6B	M12	0	29	–	29	15	9	106,4	–	–	**UH SA2**
130	68	82,55	–	12/24-14T	M12	19	32	–	51	15	9	106,4	–	–	**UH SA4**
130	68	82,55	32 G7	–	M12	–	–	55,5	–	15	9	106,4	10	3,4	**UH SA5**
130	68	82,55	31,75 G6	–	M12	–	–	51	–	15	9	106,4	8	3,4	**UH SA6**
130	56	82,55	–	1"6B	M12	0	25	–	25	15	9	106,4	–	–	**UH SA10**
130	68	82,55	25,4 E6	–	M12	–	–	53	–	15	9	106,4	6,38	3	**UH SA11**
130	68	82,55	31,75 G6	–	M12	–	–	56	–	15	9	106,4	8	3,8	**UH SA12**
130	68	82,55	25,4 E6	–	M12	–	–	58	–	15	9	106,4	6,38	3	**UH SA13**

Similar to SAE J744c (SAE - B) standards



A Ø	B	C H6 Ø	D_C Ø	D_S Ø	F	F_1	G	H	L_C	L_S	S	S_1	Q	M	M_1	U	T	Code
175	77	101,6	–	16/32-13T	M12	M14	–	31	–	67	18	18	11	127,3	146	–	–	**UH SB3**
175	77	101,6	–	16/32-13T	M12	M14	–	31	–	47	18	18	11	127,3	146	–	–	**UH SB11**
175	69	101,6	31,75 G6	–	M12	M14	–	–	56	–	18	18	11	127,3	146	8	3,8	**UH SB12**
175	69	101,6	25,4 E6	–	M12	M14	–	–	58	–	18	18	11	127,3	146	6,38	3	**UH SB13**
175	77	101,6	31,75 G6	–	M12	M14	–	–	56	–	18	18	11	127,3	146	8	3,8	**UH SB14**

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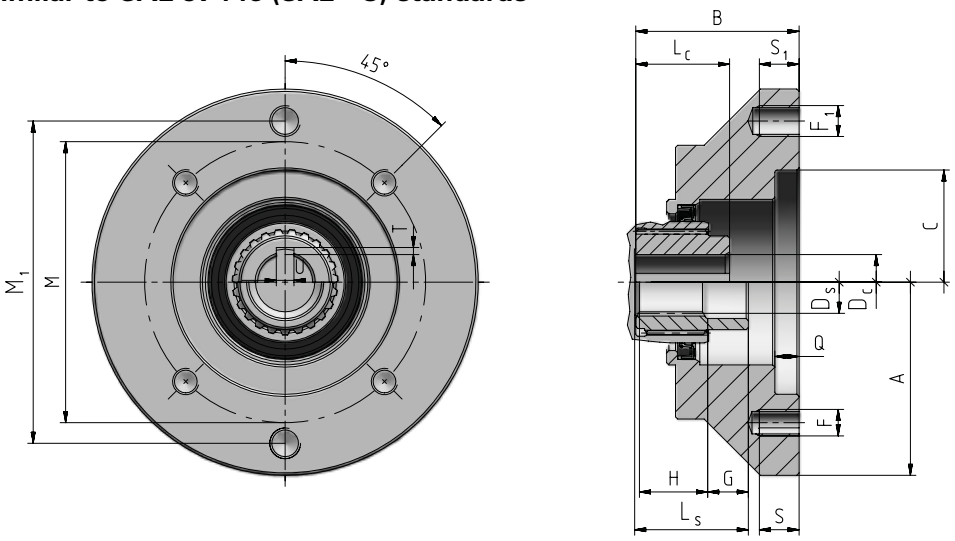
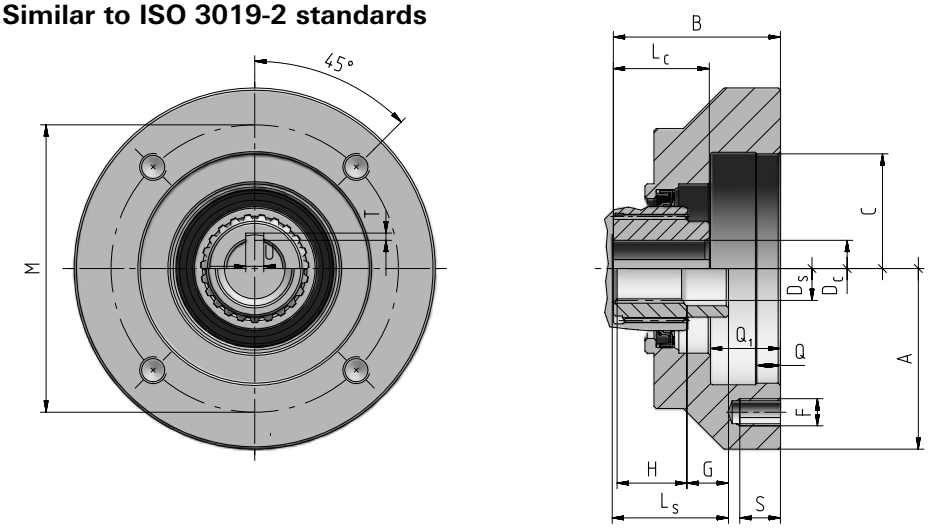
Similar to SAE J744c (SAE - C) standards



A Ø	B	C G7 Ø	D_C Ø	D_S Ø	F	F_1	G	H	L_C	L_S	S	S_1	Q	M	M_1	U	T	Code
207	60,5	127	–	12/24-14T	M14	M16	19	32	–	51	15	15	17,5	162	181	–	–	**UH SC4**
207	68	127	–	12/24-17T	M14	M16	–	30	–	30	15	15	17,5	162	181	–	–	**UH SC5**
207	60,5	127	31,75 G6	–	M14	M16	–	–	51	–	15	15	17,5	162	181	8	3,8	**UH SC6**

Similar to ISO 3019-2 standards



A Ø	B	C Ø	D_C Ø	D_S DIN 5480 Ø	F	G	H	L_C	L_S	S	Q	Q_1	M	U	T	Code
130	61	80 H7	20 E6	–	M8	–	–	40	–	20	7	20	100	6	2,8	**UH IA1**
130	61	80 H7	25 E6	–	M8	–	–	40	–	20	7	20	100	8	3,3	**UH IA2**
130	61	80 H7	–	20×1,25×14	M8	11	24	–	40	20	7	20	100	–	–	**UH IA3**
130	61	80 H7	–	25×1,25×18	M8	5	24	–	40	20	7	20	100	–	–	**UH IA4**
149	63	100 H6	–	30×2×14	M10	–	35	–	35	15	9	25	125	–	–	**UH IB1**
149	63	100 H6	25 E6	–	M10	–	–	50	–	15	9	25	125	8	3,3	**UH IB3**
149	75,5	100 H6	25 E6	–	M10	–	–	50	–	15	9	25	125	8	3,3	**UH IB6**
179	74	125 H6	–	30×2×14	M12	–	35	–	35	25	8	31,5	160	–	–	**UH IC1**
179	74	125 H6	–	35×2×16	M12	–	40	–	40	25	8	31,5	160	–	–	**UH IC2**
184	115	125 H6	40 H6	–	M12	–	–	78	–	18	10	51	160	12	3,3	**UH IC3**
206	74	140 H7	–	35×2×16	M12	–	40	–	40	15	11	29	180	–	–	**UH ID1**
206	78,5	140 H7	–	40×2×18	M12	–	37,5	–	37,5	15	11	29	180	–	–	**UH ID2**
206	108	140 H7	40 H6	–	M12	–	–	78	–	15	11	29	180	12	3,3	**UH ID4**
238	91	160 G7	–	45×2×21	M16	–	42	–	42	24	12	40	200	–	–	**UH IE1**
257	96	180 H7	–	50×2×24	M16	–	44	–	44	26	11	40	224	–	–	**UH IF1**

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9 - Further options

EP Slewing drives combined with other gearboxes from Rossi product portfolio to allow for optimized performances on a broad spectrum of application needs.

EP Slewing Drives combined with worm gear reducers and gearmotors (catalog A04)

	007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	Ratio range
2EL	UNIV.+KIT			IEC+B5					-	-	125÷2 250
3EL	UNIV.+KIT						IEC+B5				500÷12 500
4EL	UNIV.+KIT									IEC+B5	1 800÷31 500

EP Slewing Drives combined with coaxial gear reducers and gearmotors (catalog E04)

	007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	Ratio range
2EL	IEC+B5										90÷1 250
3EL	IEC+B5										355÷7 100
4EL	IEC+B5										1 250÷20 000

EP Slewing Drives combined with helical and bevel helical gear reducers and gearmotors (catalog G)

	007A	015A	021A	030A	042A	060A	085A	125A	180A	250A	Ratio range
2EL	IEC+B5							EP KIT			71÷8 000
3EL	IEC+B5										250÷20 000
4EL	IEC+B5										1 000÷35 000

UNIV.+KIT EP with Universal flange adaptor and additional Kit to combine with A04 R/MR, only for sizes from 32 to 100
IEC+B5 EP with IEC electric motor adapter, A04/E04 with B5 flange.
EP KIT EP with specific input to combine with G R/MR

Example: Double input drive (Main + Auxiliary) with combined Planetary and Bevel gears

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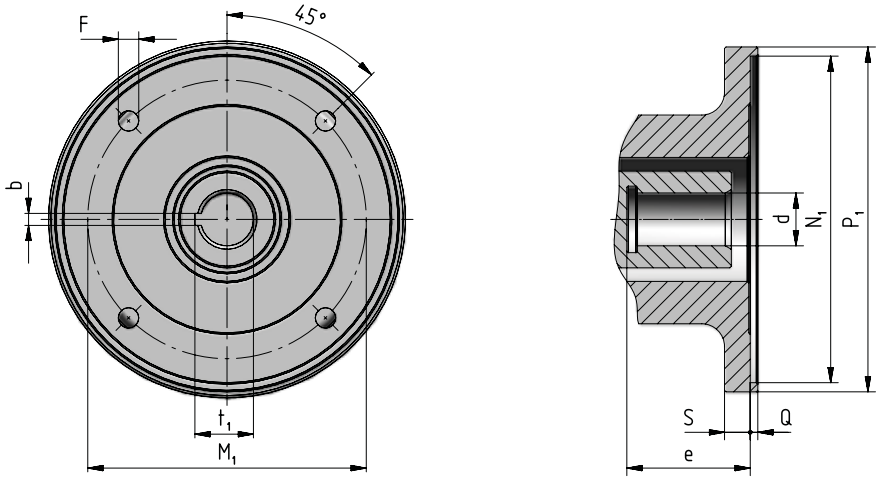
Other input designs available

NEMA C-Face electric motor adapter



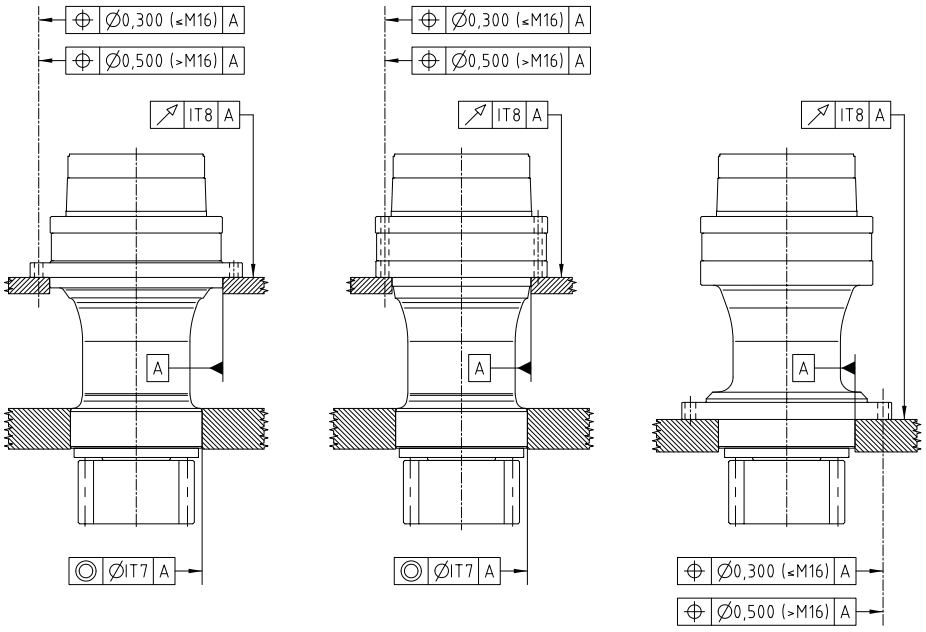
NEMA c-face	P_1 Ø	S	d Ø E6	e	b 0 / +0,050	t_1 0 / +0,100	M_1	F	N_1 Ø H7	Q	Code
143/145TC	168	9	22,23 *(7/8")*	50	4,78 *(3/16")*	24,4	149,22 *(5-7/8")*	10,5	114,3 *(4-1/2")*	5	**UN N14**
182/184TC	228	16	28,58 *(1-1/8")*	71	6,35 *(1/4")*	31,5	184,15 *(7-1/4")*	13,5	215,9 *(8-1/2")*	5	**UN N18**
213/215TC	228	17	34,93 *(1-3/8")*	81,5	7,94 *(5/16")*	38,7	184,15 *(7-1/4")*	13,5	215,9 *(8-1/2")*	5	**UN N21**
254/256TC	228	17	41,28 *(1-5/8")*	97,5	9,53 *(3/8")*	45,6	184,15 *(7-1/4")*	13,5	215,9 *(8-1/2")*	5	**UN N25**
284/286TC	277	17	47,63 *(1-7/8")*	113	12,7 *(1/2")*	53,2	228,6 *(9")*	13,5	266,7 *(10-1/2")*	5	**UN N28**

Flanged housing, with or without bell housing and coupling

Wheel flange at input for clarifier / thickener lower drive

10 - Installation

To ensure proper functioning and optimum transfer of power between the gear reducer and the driven gear, the gear reducer requires a rigid connection construction that is resistant to torsion. The form and position tolerances listed below must be met.



11 - Lubrication

Gear pairs are oil-bath lubricated, bearings are either oil bathed or splashed or lubricated for life with grease.
For some mounting positions with continuous duty at high speed, an expansion tank could be required: consult us.
Sizes 007A ... 021A: gear reducers are supplied **filled with PAO synthetic oil** having ISO viscosity grade 320 cSt (at 40° C).
Important! Verify the mounting position, keeping in mind that if gear reducer is installed in a mounting position differing from the one stated on name plate, it could need the addition of the difference between the two lubricant quantities.
In any case, always check the correct oil quantities through the level plug.
Sizes 030A ... 250A: gear reducers are supplied **without oil**; before putting into service, fill to the specified level with synthetic or mineral oil (see table below).

The main lubricant manufacturers as well as the ISO viscosity grade to be used are stated in the following tables.
Use only lubricants with **EP** (extreme pressure) **additives**. In case of mineral lubricant choice, follow the instructions about the service factor (EP catalog).

Manufacturer	**PAO synthetic oil** ISO VG 320	Mineral oil ISO VG 150...460
ADDINOL	Eco Gear S	Eco Gear M
AGIP	Blasia SX	Blasia
ARAL	Degol PAS	Degol BG
BP	Enersyn EPX	Energol GR XP
CASTROL	Alphasyn T	Alpha SP
KLÜBER	Klübersynth GEM4	Klüberoil GEM1
MOBIL	Mobil SHC Gear	Mobilgear 600 XP
SHELL	Omala S4 GX	Omala S2 G
TOTAL	Carter SH	Carter EP

ISO viscosity grade

Mean kinematic viscosity [cSt] at 40 °C

Speed n_2 min^{-1}	Ambient temperature [°C] mineral oil	
	-10 ÷ 20	10 ÷ 40
>140	150	220
140 ÷ 2,0	220	320
< 2,0	320	460

Consider the lubrication interval stated in the table for all re-lubrication operations, emptying the gear reducers from the exhausted oil, executing a wash with clean oil of the same type to be used also for the re-filling of the gear reducer up to level.
Use only lubricants of the same type stated on lubrication nameplate.

Oil temperature [°C]	Oil-change interval [h]	
	synthetic oil	mineral oil
≤ 65	**12 500**	5 600
65 ÷ 80	**10 000**	2 800
80 ÷ 95	**6 300**	1 400

Oil-change intervals assume pollution-free surroundings. When heavy overloads are present, halve the values.
Independently from running times, change the oil:
every 2 ÷ 4 years, for synthetic oil;
every 1 ÷ 2 years, for mineral oil;

Never mix different makes of synthetic oil; if oil-change involves switching to a type different from that used hitherto, then give the gear reducer a through clean-out. Polyglycol basis synthetic lubricants must not be used.

Output seals and bearing are lubricated with grease. Re-grease every 5 600 h or once a year by using the greaser provided.

Bearings with independent lubrication
Usually the bearings are automatically and continuously lubricated (oil-bathed or splashed) with the same lubricant of gear reducer. However for certain gear reducer in vertical mounting positions the upper bearings have independent lubrication, with special grease for long life lubrication in absence of external pollution.

Multi-disc parking brakes lubrication
See chapter 7 Multi-disc parking brakes.

12 - Application data template

Customer :

Application description:

***Mechanism* (FEM 1.001 1998.10.01):**

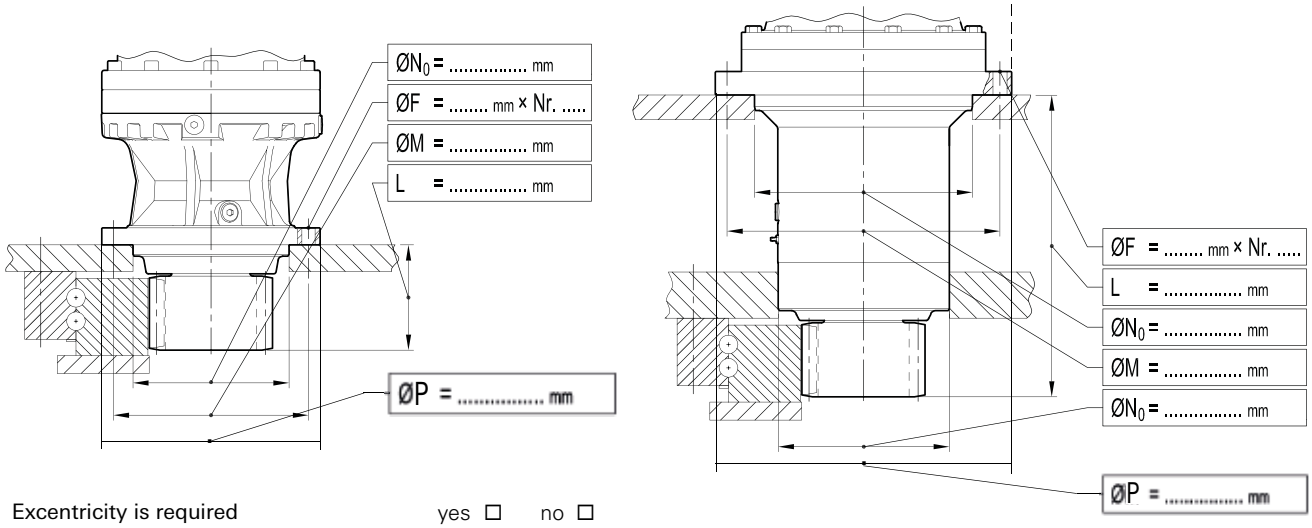
FEM Class:	**M**	_____
Load Spectrum Class:	**L**	_____
Running time Class:	**T**	_____

Gear reducer output torque and speed:

Output torque	$M_{2required}$	_____	[N m]
Has γ_m factor been included in	$M_{2required}$	yes ☐ no ☐	
Maximum output torque	M_{2max}	_____	[N m]
Output speed	n_2	_____	[min^{-1}]

Relevant Geometry (please fill-out relevant dotted lines):

Type **H** ☐ Type **R** ☐ Type **S** ☐



Excentricity is required yes ☐ no ☐

If yes, state the value **E** _____ mm

Mounting positions

B5 ☐ **V1** ☐ **V3** ☐

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12 - Application data template

Pinion / Slew Ring data:

Centre distance (Pinion - Slew Ring) a: _____ [mm]

Pinion
One piece solid ☐
Fitted on splined shaft ☐

Slew Ring (Ring Bearing)
Internal toothing ☐
External toothing ☐

m modulus _____ [mm]
Z_1 N°. of teeth _____ [-]
x·m profile correction _____ [mm]
Profile modification yes ☐ no ☐
b_1 facewidth [mm]
Material high alloy steel tempered ☐
high alloy steel case hardened ☐
other _____
Hardness _____

For information only
m modulus _____ [mm]
Z_2 N°. of teeth _____ [-]
x·m profile correction _____ [mm]
b_2 facewidth _____ [mm]
Material _____
Heat treatment _____
Hardness _____

Electric Motor:

Power: _____ [kW]; Voltage: _____ [V]; Frequency: [Hz]; N° poles: _____ [-];

Frequency Control device: yes ☐ no ☐
Motor brake: yes ☐ no ☐

If equipped with brake: Static braking torque: _____ [N m]

Parking Brake: yes ☐ no ☐

If parking brake required Static braking torque: _____ [N m]

Hydraulic Motor:

Brand and type: _____
Displacement: _____ [cc]; Max pressure: _____ [MPa]; Working pressure: _____ [MPa];

Motor interface dimensions: _____

Notes and Remarks: _____

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This is our tangible commitment in terms of environment sustainability.

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