

住友中国网络

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住友全球其他网络

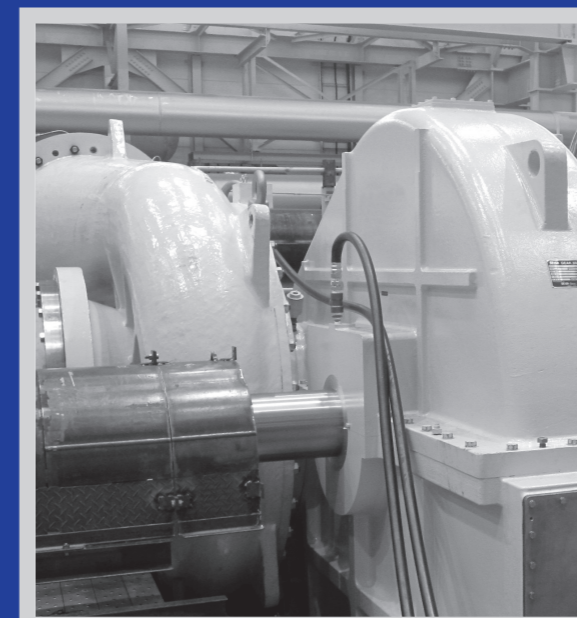
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Sumitomo Drive Technologies



HIGH SPEED GEAR



N-Series High Speed Gear Units

The N-series high-speed gear units are products developed by Sumitomo through our extensive experience and state-of-the-art-technology

Sumitomo: A leading transmission system manufacturer

Sumitomo Heavy Industries Gearbox Co., Ltd. was first established as a manufacturer of anchors and anchor chains in 1916, and further expanded their capabilities to the design and manufacture of a variety of gears. As an established gear manufacturer in Japan with a proven history of over 90 years, we have accumulated international-standard technologies and achieved remarkable success.

The rapid pace of technological innovation in recent years has raised the demand for highly efficient gear transmission systems in applications that require high-speed rotation and large torque transmission capabilities. We have designed their products to meet and exceed these complex requirements, in addition to optimizing size and weight properties.

As a result of their ingenuity and state-of-the-art engineering, our high quality products are trusted and used in various fields and applications around the world.

Technical advantages

- Casing optimally designed using FEA for maximum rigidity and low noise
- Optimally designed for every application
- Cast-iron casing integrated with a bearing housing for excellent vibration damping characteristics and high rigidity
- Enhanced load capacity achieved through adoption of three kind of casings with the same center distance but different bearing spans
- Compatible with installation of any monitoring systems
- The turning device is a fully automatic ON/OFF system incorporating a rugged right-angle bevel drive and an SSS clutch

High load capacity

- Tooth profile optimization and tooth trace correction
- Highly accurate bearing calculation using an FEM-based plain bearing calculation program based on extensive knowledge and expertise acquired over many years
- Adoption of newly developed multi-lobe bearings with excellent stability and load capacity
- Designed with optimum bearing spans to minimize shaft deformation
- Experience in manufacturing more than 7,200 high-speed gear units

Design technology

The strength of our gear units can be evaluated according to ISO, DIN, API, AGMA, BS, and other domestic and international standards. The casing and many other parts are standardized to reduce manufacturing lead-time.

The N-series high-speed gear units are available in three different types of casings for applicability to a wide range of specifications, from low to high gear speed ratios.

We have developed new bearings with excellent vibration damping features and established a reliable method of analyzing stability to completely solve shaft and bearing vibration problems.

The single side cover design results in easier maintenance of the seals, pump-driven gears and SSS clutch.

Single Stage Parallel Shaft Type High Speed Gearbox

Compact, high efficiency, low vibration and noise achieved by our accumulated experience and state-of-the-art technology

TURNING DEVICE

- Compact sized with high efficiency
- Turning device is driven by a rugged right angle reducer with automatically controlled SSS clutch

PINION

- Made of forged special alloy steel.
- The pinion with integrated shaft is dynamically balanced with tooth profile modification and trace correction for optimum performance at high speed

PLAIN BEARINGS

- Shafts are supported on plain journal bearings with pressurized oil supply
- Bearing design utilizes four lobe bearing for stable and high efficiency operation
- Taper-land thrust bearing with integrated journal bearing

CASING

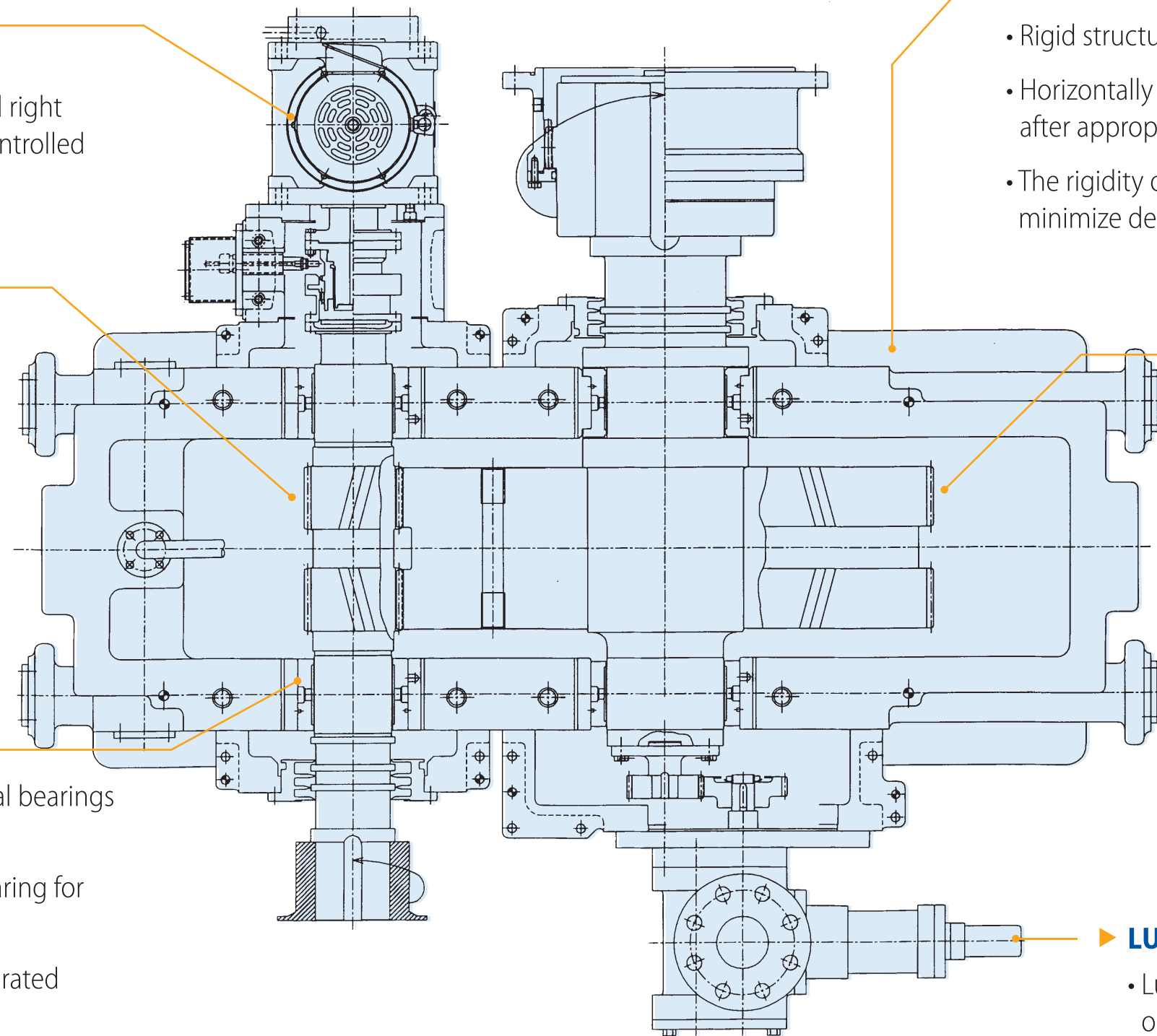
- Rigid structural cast iron casing for reduced noise level
- Horizontally split casing machined with high accuracy after appropriate stress relief
- The rigidity of the casing is studied with FEA to minimize deformation under stress

LOW SPEED GEAR

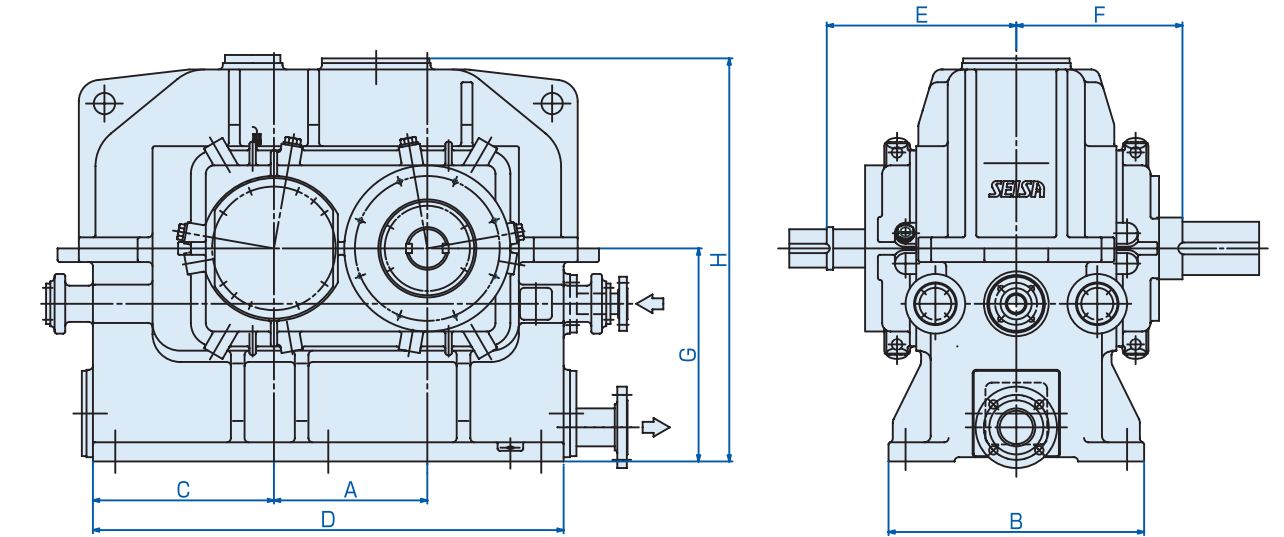
- Made of forged special alloy steel and fixed to the low speed shaft by interference fitting (keyless) to minimize unbalance
- Tooth surfaces is carburized and finished by highly accurate grinding
- Dynamic balancing is also performed after assembling the gear to the shaft

LUBRICATION OIL PUMP

- Lubrication oil pump driven by the gear fitted on the low speed shaft



DIMENSION (mm)

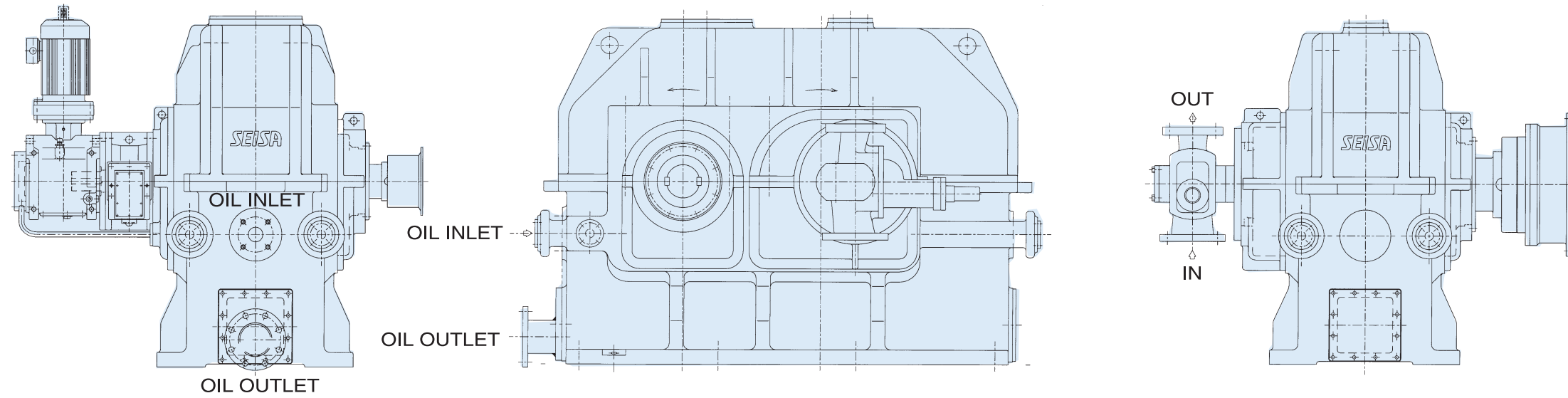
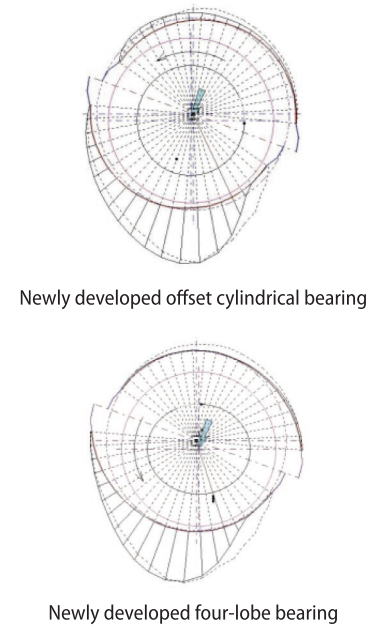
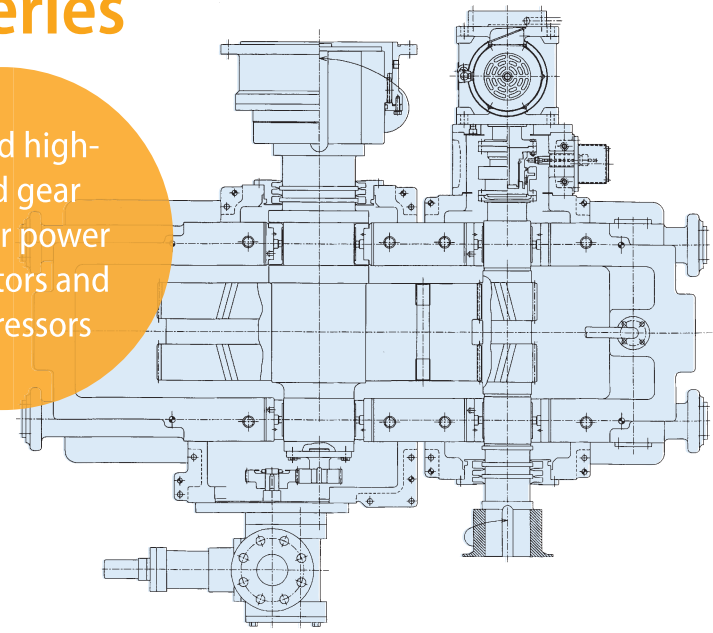


Series	Type	A		B	C	D	E	F	G	H	Weight kg
		Standard	Extended								
N	T1822			370			240	240			500
N	S1822	200		425	265	715	290	310	315	600	570
N	M1822			500			330	350			650
N	T2226			420			280	300		715	700
N	S2226	250		470	300	815	325	340	375	710	830
N	M2226			550			365	380		690	965
N	L2226	200		620	265		420	430	335	615	1180
C	L2226						340				830
N	T2630			420			295	315		775	880
N	S2630	280		475	335	895	340	370	400		1370
N	M2630			600			390	420		760	1490
N	L2630	250		670	300		450	460	375	690	1260
C	L2630						370				1140
N	T3033			480			320	340		855	1150
N	S3033	320		530	375	995	370	390	450		1425
N	M3033			630			430	445		825	1785
N	L3033	280		710	350		485	500	450	790	1980
C	L3033						405			785	1530
N	T3338			550			340	360		950	1560
N	S3338	360		600	425	1105	385	415	500		1810
N	M3338			710			450	475		925	2225
N	L3338	320		800	365		510	525	475	855	2570
C	L3338						430			850	2070
N	T3842			580			360	380		1040	1940
N	S3842	400	420	630	500	1230	410	440	560		2235
N	M3842			730			490	505		1020	2665
N	L3842	360		850	430		540	555	530	950	3040
C	L3842						460				2730
N	T4248			600			375	395	630	1160	2360
N	S4248	450	480	670	550	1350	430	455	600		2820
N	M4248			750	540		510	535	600	1100	3530
N	L4248	400		900	460		585	605	580	1055	4090
C	L4248						505				3530
N	T4853			670			400	420		1250	3100
N	S4853	500	530	710	630	1475	450	480	670		3470
N	M4853			850	600		560	585		1235	4610
N	L4853	450		950	500		645	665	630	1160	5270
C	L4853						565				4710
N	T5360			670			445	460		1420	4230
N	S5360	560	600	750	720	1680	490	505	750		4570
N	M5360			900	670		585	605		1380	5865
N	L5360	630	670	1060	560		690	710	710	1310	6820
N	T6067			710			455	475		1600	5200
N	S6067	710	750	800	785	1835	510	530	850	1600	6240
N	M6067			950	730		620	650		1560	7690
N	L6067	630		1120	615		720	745	800	1470	8930
N	T6775			800			500	525		1780	7350
N	S6775	710	750	900	890	2050	550	575	950		8020
N	M6775			1060	810		675	700		1700	10100
N	L6775	800	850	1250	710		775	805	900	1610	11700
N	T7585			850			520	550		1965	9250
N	S7585	800	850	950	950	2300	585	615	1060		11800
N	M7585			1120	900		710	735		1915	12990
N	L7585	900	950	1320	790		865	890	1000	1820	15800
N	T8595			950			570	595		2205	14600
N	S8595	900	950	1060	1020	2600	640	675	1180		16200
N	M8595			1250	980		770	810		2160	18700
N	L8595	1000	1060	1500	900		925	950	1060	1960	21300
N	T95A6			1060			610	640		2450	19200
N	S95A6			1150	1140	2850	670	710	1320		21800
N	M95A6			1400	1100		820	870	1300	2380	25800
N	L95A6			1700	950		980	1015	1250	2230	29300

N-series features low noise, low vibration and high efficiency!

N-Series

Rugged high-speed gear units for power generators and compressors

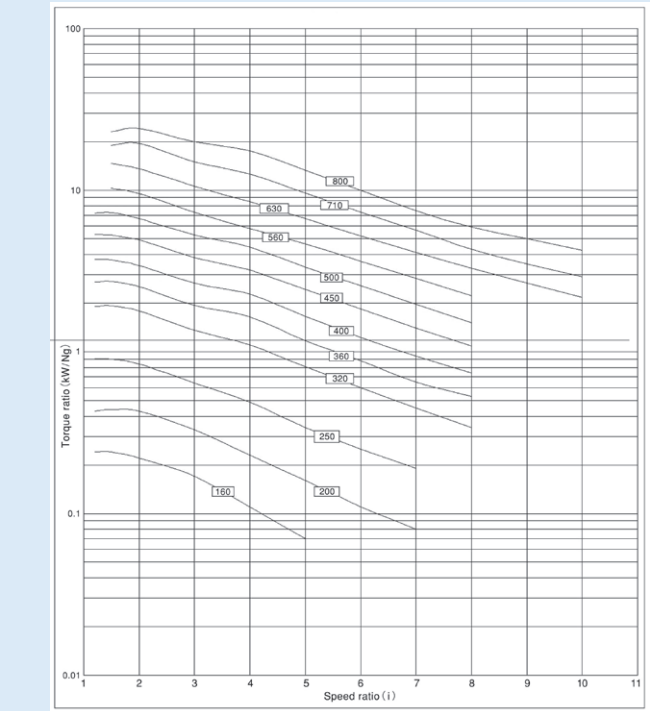


N D M 4248 T

NOMENCLATURE

- T: Turning device driven by a motor
- R: Extended Center Distance O: Other
- 4248: Flame size
- T, S, M, L: Casing type
- D: Double Helical S: Single Helical Series (N or C)

MODEL SELECTION DIAGRAM WITH SERVICE FACTOR OF 1.4 FOR AP1613 APPLIED

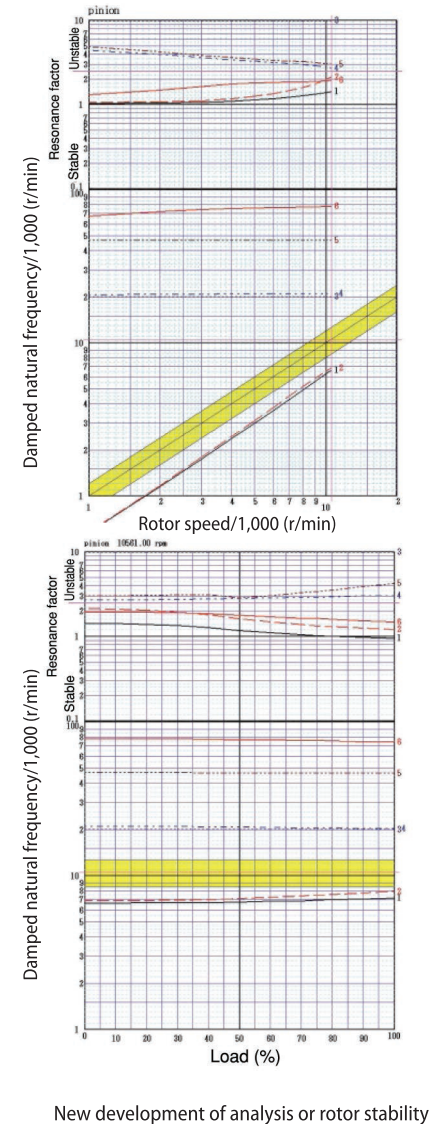


STRUCTURAL ADVANTAGES

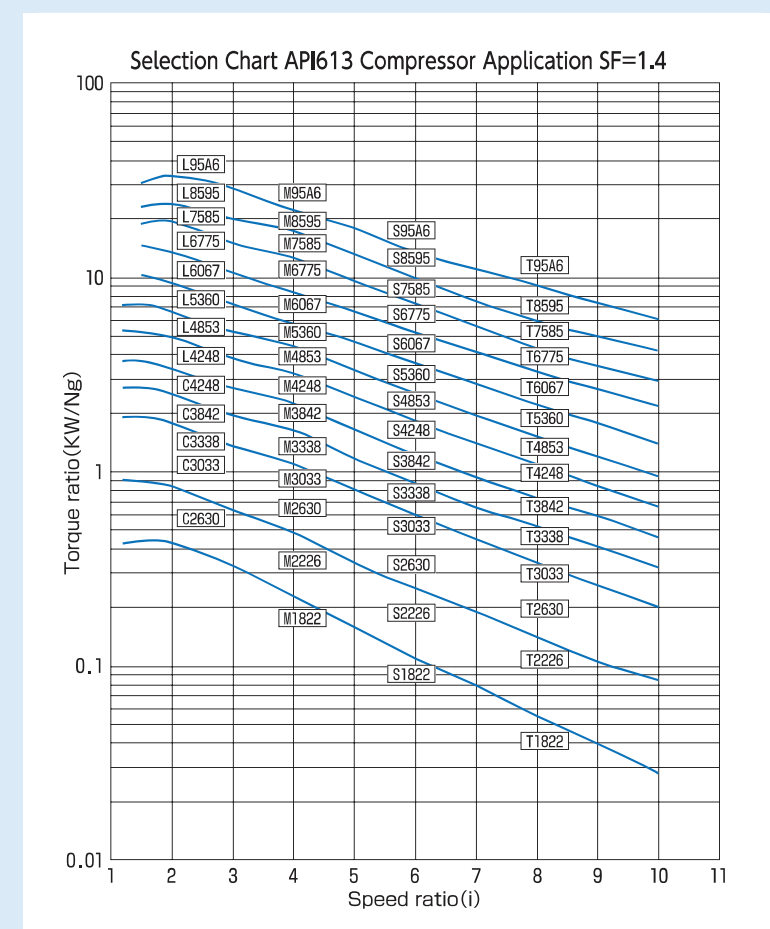
- Bearing cap-integrated casing with high rigidity and high-stability bearings with low noise
Noise ▶ **Approx. 83 to 88 dB (A), reduced by approx. 5 db (A) compared to conventional models**
- Optimum bearing spans for higher transmitting horsepower
- Structural simplification for better maintainability of all measurement instruments

ENHANCED LOAD CAPACITY

- Development of optimum strength calculation method (for gears and bearings)
- Form grinding for tooth profile optimization and tooth trace correction
- Newly developed bearing calculation method for optimum bearing designs
- Use of optimum bearings matching the specifications
- Optimum bearing spans for minimum shaft deflection
- Completely free of vibration problems thanks to the newly developed rotor stability method of analysis
- Selective use of different types of gears (helical or double helical gears) for higher efficiency
- As the result, **efficiency is increased by approx. 0.5% up to 98.5% to 99.0%**



MODEL SELECTION DIAGRAM WITH SERVICE FACTOR OF 1.4



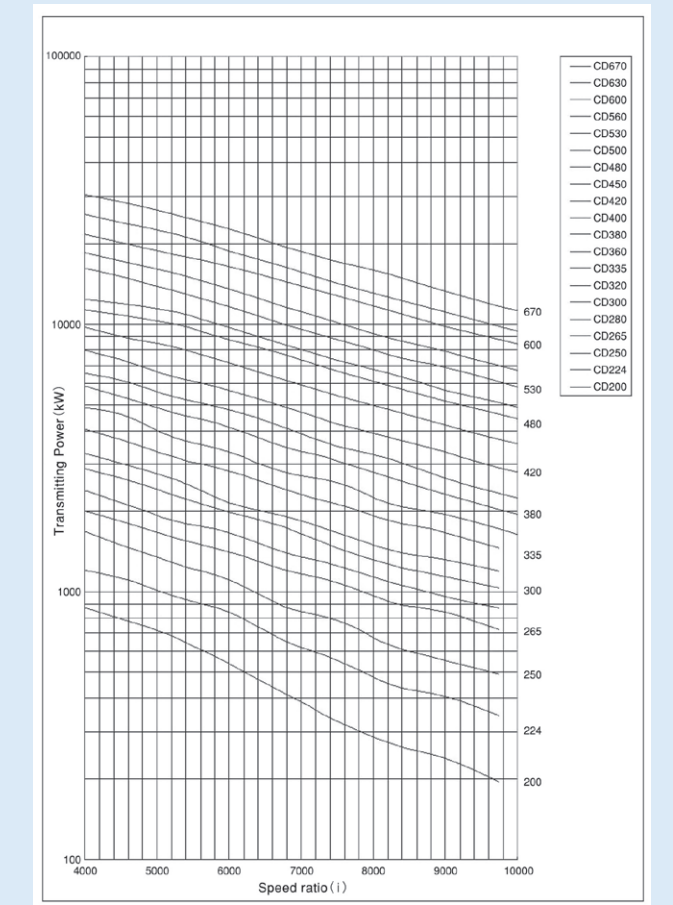
SF = Service factor
 Torque ratio = kW/Ng
 KW = Transmitting power kW
 Ng = Low speed shaft r/min
 Np = High speed shaft r/min
 Speed ratio i = Np/Ng

EXAMPLE

KW = 18863 kW
 SF = 1.4
 Np = 10681 r/min
 Ng = 4760 r/min
 Torque ratio = 18863/4760 = 3.96
 Speed ratio = 10681/4760 = 2.24
 Selected model = L4248

In case service factor of over 1.4 is required, select the model after calculating the torque ratio by KW/Ng x Service factor / 1.4

TRANSMITTING POWER TABLE FOR GENERATOR AT 1500 r/min SF=1.1



TRANSMITTING POWER TABLE FOR GENERATOR AT 1800 r/min SF=1.1

