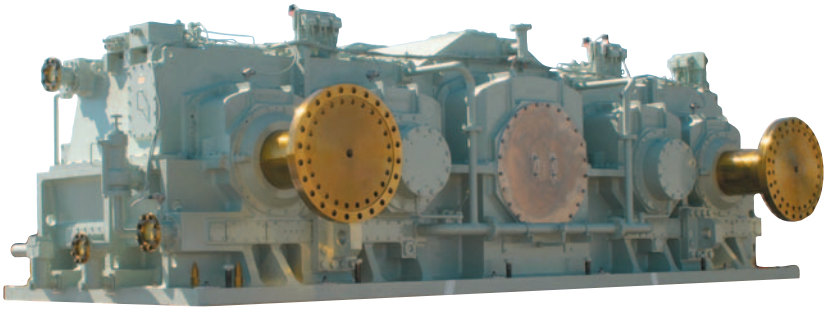
HITACHI
Inspire the Next

超大型舶用平行軸歯車減速機
遊星歯車減速機

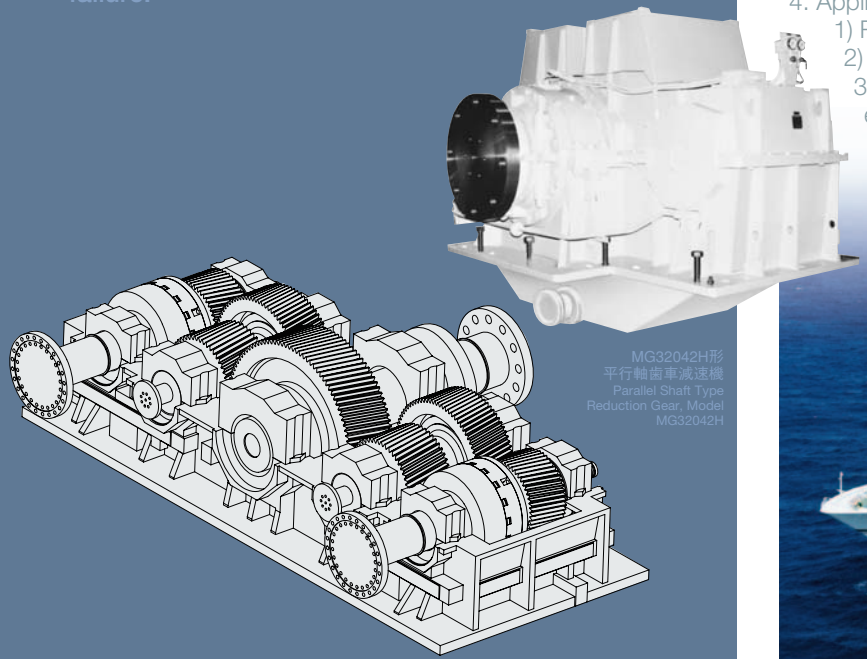
Parallel Shaft Type Reduction Gear and Epicycle Reduction Gear
for Large Size Vessels



株式会社 日立ニコトランスミッション
Hitachi Nico Transmission Co., Ltd.

超大型舶用平行軸歯車減速機・遊星歯車減速機は中小型舶用減速機で培われた経験と技術を生かし設計製作された減速機です。最新鋭の工場、グリーソンファウターP2400G等の新型歯車研削盤で加工された高精度歯車を使用しており、高い信頼性と静粛な運転をお約束します。
平行軸歯車減速機で約14700kW(20000PS)、遊星歯車減速機で22000kW(30000PS)まで製作可能です。平行軸歯車減速機では横異芯形・縦異芯形等ご希望の軸配置に対応可能です。
また、ご希望により燃費の良い主機関から発電機を駆動する発電機駆動装置（PTO)、主機関停止時に補助動力により自力航行することの出来る非常航行駆動装置（PTI）を装備した減速機の製作も可能です。

Parallel shaft type reduction gear and epicycle reduction gear for large size vessels have been designed and built based on our technological expertise on manufacturing reduction gears for small and medium size vessels. High reliability and silent operation are the result of high precision gears manufactured with the latest gear grinding machine, Model P2400G from Gleason-Pfauter, at the most advanced gear manufacturing plant.
Reduction gears for the parallel shaft type and for the epicycle type can be built up to a capacity of 14700 kW (20000 PS) and up to 22000 kW (30000 PS) respectively. Shaft offset can be designed in the horizontal or in the vertical position for the parallel shaft type reduction gears.
In response to customer needs, it is possible to apply a generator drive mechanism (PTO) to drive the generator from the low-fuel-consumption main engine, or an emergency navigation drive system (PTI) possible of navigating under main engine failure.



MG32042H形
平行軸歯車減速機
Parallel Shaft Type Reduction Gear, Model MG32042H

超大型舶用平行軸歯車減速機・遊星歯車減速機の用途

客船、フェリー、RO/RO船等

超大型舶用平行歯車減速機の特長

1. **静粛な高精度歯車使用**
   新規導入されたグリーソンファウター歯車研削盤で高精度に歯車を加工します。
2. **浸炭歯車使用により軽量コンパクト**
   全ての歯車は浸炭焼き入れを施した歯面硬化歯車を採用しており、調質ギア・高周波焼き入れギアに比べ軽量コンパクトになります。
3. **シンプルでメンテナンスの容易な構造**
   部品点数の少ないシンプルな構造ですのでメンテナンスコストを削減することが出来ます。
4. **特殊仕様にも対応可能**
   1）油圧クラッチ内蔵型減速機
   2）2機1軸形減速機
   3）動力取り出し装置(PTO)、非常航行駆動装置(PTI)の組み込み
   4）潤滑装置の取り付け

•Application of Parallel Shaft Type Reduction Gear and Epicycle Reduction Gear for Large Size Vessels

Passenger ships, ferry, RC/RO and etc.

•Features of Parallel Shaft type Reduction Gears for Large Size Vessels

1. Application of high precision gears operated quietly
   Gears machined with the latest Gleason-Pfauter gear grinding machine are made to JIS Class 0 accuracy.
2. Light and compact by using carburized and case hardened gears Carburized and case hardened gears are applied to all gears. This method makes the gears more compact and lighter than hardened or induction hardened gears.
3. Simple and Low Maintenance Cost Structure
   Maintenance cost can be reduced due to the simple gear mechanism.
4. Application of Custom-made Specifications
   1) Reduction gears with integrated hydraulic clutch.
   2) Compound type reduction gears.
   3) Integration of power take-off mechanism (PTO) or emergency navigation system (PTI).
   4) Mounting of lubrication system.

超大型舶用遊星歯車減速機の特長

1. 静粛な高精度研削インターナルギア使用

グリーソンファウター歯車研削盤で高精度に歯車を加工します。

2. 独特の等配機構

プラネットギア支持軸を片持ち梁とした独特のフレキシブルピン方式を採用していますので、抜群の等配効果が得られます。

3. 軽量コンパクト

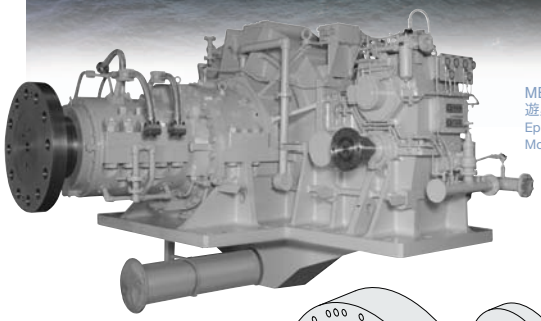
遊星歯車機構で、かつ独特の等配機構を採用していますので、平行歯車減速機に比べては勿論、他の遊星歯車減速機と比べても軽量コンパクトです。平行歯車減速機に比べ容積・投影面積とも約70%となります。

4. 入出力軸が同心

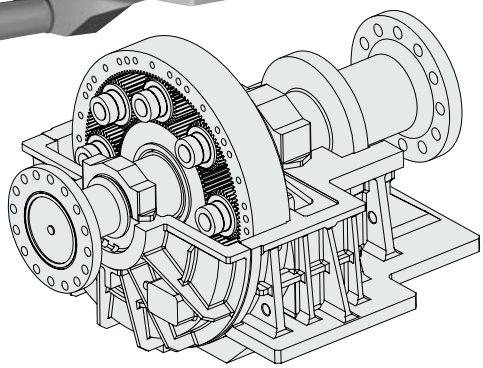
入出力軸が同心上にありかつ3項の特長と合わせ据付専有面積が驚くほど小さくなります。

5. 特殊仕様にも対応可能

1）油圧クラッチ内蔵型減速機
2）動力取り出し装置(PTO)、非常航行駆動装置(PTI)の組み込み
3）潤滑装置の取り付け



MEPY160C形
遊星歯車減速機
Epicycle reduction gear,
Model MEPY160C



•Features of Epicycle Reduction Gear for Large Size Vessels

1. Application of high precision ground internal gear operated quietly
Gears including internal gears are of accuracy exceeding JIS Class 0, machined with Gleason-Pfauter gear grinding machine.

2. Original load distribution mechanism
Excellent load distribution effect can be attained due to our flexible pin method where the planet gears are supported as cantilever beam shafts.

3. Lightweight and compact
Our epicycle reduction gears are lightweight and compact, compared with not only our parallel shaft type reduction gears but also other epicycle reduction gears, thanks to our epicycle gear mechanism with its unique load distribution mechanism.

4. Co-axial shaft
Remarkable reduction of installation space can be attained due to the co-axial shaft in addition to the feature explained in above item 3.

5. Application of Custom-made Specifications
1) Reduction gears with integrated hydraulic clutch.
2) Integration of power drive mechanism (PTO) or emergency navigation system (PTI).
3) Mounting of lubrication system

超大型舶用減速機納入実績

Delivery List of Reduction Gear for Large Size Vessels

Delivery List of Parallel Shaft Type Reduction Gear

No.	YEAR	MODEL	Q'ty	CUSTOMER	ENGINE MAKER	POWER kW	REV. min^{-1}	MASS kg	APPLICATION	REMARKS
1	1996	MGPY28042HC	1	KURIBAYASHI STEAM SHIP CO.,LTD.	JFE	7944	375	20500	RO/RO FERRY	With OMEGA Clutch
2	1999	MMGRP36043	2	P&O SHIP MANAGEMENT LIMITED	WARTSILA	15840	600	53000	PASSENGER FERRY	7920kW × 2ENGINE
3	2000	MMGRP45043	2	P&O SHIP MANAGEMENT LIMITED	WARTSILA	19800	600	63000	PASSENGER FERRY	7920+11880kW × 2ENGINE
4	2002	MG25043HC	4	MEIMON TAIYO FERRY CO.,LTD.	JFE	9930	520	26000	CAR FERRY	
5	2003	MG25043H	2	NIPPON YUSEN KAISHA,LTD.	JFE	9900	520	26000	CAR FERRY	
6	2003	MMGR71043	2	SHIN NIHONKAI FERRY CO.,LTD.	WARTSILA	25200	500	102000	CAR FERRY	12600kW × 2ENGINE
7	2007	MMGRP32043	1	A-LINE FERRY CO.,LTD.	JFE	12140	520	64000	RO/RO FERRY	6070kW × 2ENGINE
8	2007	MMGR42044C	2	THE DIAMOND FERRY CO.,LTD.	JFE	18000	600	80000	RO/RO FERRY	9000kW × 2ENGINE
9	2010	MGP28044H	2	TAIHEIYO FERRY CO.,LTD.	JFE	12000	600	43500	CAR FERRY	
10	2011	MGP18043H	2	KAWASAKI KINKAI KISEN KAISHA,LTD.	JFE	7200	570	23000	RO/RO FERRY	
11	2011	MMGR40045	2	SHIN NIHONKAI FERRY CO.,LTD.	WARTSILA	17400	600	80000	RO/RO FERRY	8700kW × 2ENGINE
12	2012	MMGRP32043	1	A-LINE FERRY CO.,LTD.	JFE	12140	520	64000	RO/RO FERRY	6070kW × 2ENGINE
13	2014	MMGR36045	2	MEIMON TAIYO FERRY CO.,LTD.	JFE	14000	570	76000	CAR FERRY	7000kW × 2ENGINE
14	2015	MGN16042VMY	2	GENEQ CORPORATION	HANSHIN	2647	240	47000	CEMENT CARRIER	For Contra-rotating propeller
15	2015	MGP22043H	2	OGASAWARA KAIUN CO.,LTD.	JFE	9900	600	33000	PASSENGER FERRY	
		TOTAL	29							

Delivery List of Epicycle Reduction Gear (from 10000PS UP)

No.	YEAR	MODEL	Q'ty	CUSTOMER	ENGINE MAKER	POWER kW	REV. min^{-1}	MASS kg	APPLICATION	REMARKS
1	1999	MEPY160C	1	IZUMI KISEN CO.,LTD.	JFE	15882	430	40000	RO/RO FERRY	With OMEGA Clutch
2	2002	ME160	1	RYUKYU KAIUN KAISHA	JFE	14580	400	30000	RO/RO FERRY	
3	2004	MEP160	1	ORANGE FERRY	DU	18550	428	42000	CAR FERRY	
4	2012	ME125	1	KYOUDOUKUMI KAIUN LTD.	JFE	6620	570	12000	RO/RO FERRY	
5	2013	MET220	3	DAIICHI CHUO KISEN KAISHA	WARTSILA	9680	90	32000	BULK CARRIER	For Contra-rotating propeller
		TOTAL	7							

ClassNK
ISO 9001
ISO 14001
JAB
MS
CM005

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