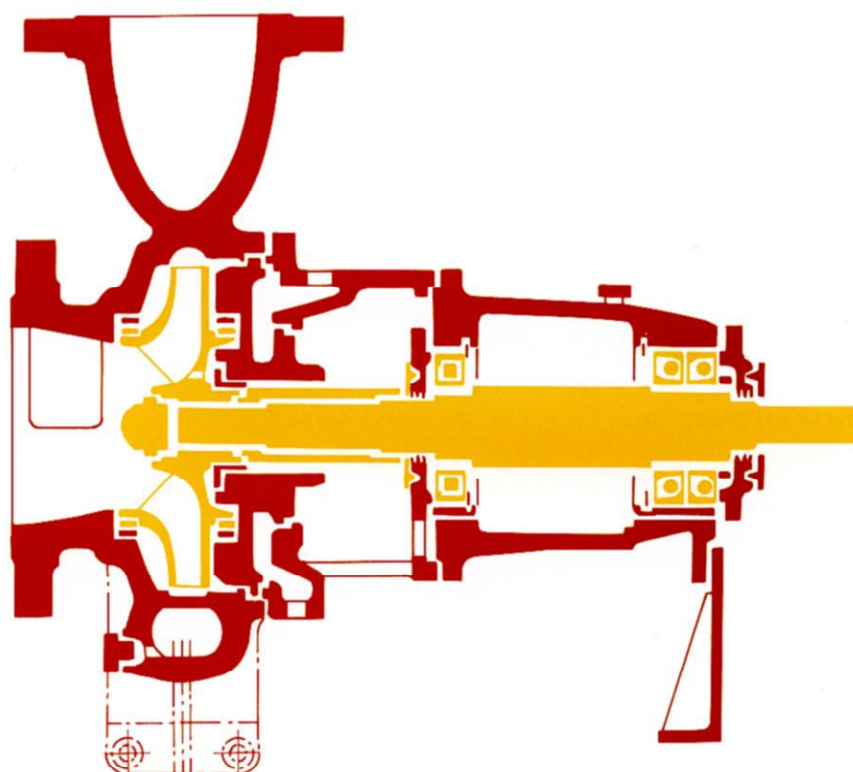


CPR acc. to API610

Heavy Duty Process Pumps
Standard type, I type



TORISHIMA PUMP

General

The CPR series are process pumps acc. to API610. Their main fields of application are oil refineries and the petrochemical and chemical industries.

Operating range

		50 Hz	60 Hz
Capacity	Q	up to 970 l/s	1200 l/s
Total head	H	up to 240m	270m
Product temperature	t	-70 up to 400°C	
Pump discharge pressure	Pd	up to 40bar	
Pump sizes	DN	25 to 400	

Product Pumped

Hydrocarbons and aggressive media.

Design

The CPR series represents a further development of existing single-entry single-stage back pull-out pumps. The use of a spacer coupling allows the removal of the rotor and bearing bracket without disturbing the pump casing or motor.

High versatility and reliability are the result of the simple, robust design which meets the requirements and recommendations of API. The modular construction system used means optimum part interchangeability inspite of the range of different sizes available.

Each of the 46 pump sizes – using only 8 bearing brackets in all – covers a carefully selected performance range, allowing selection of a highly efficient pump with minimum NPSH requirement.

Casing

One-piece volute casing; from DN 80 upwards (except for size 80-160) double volute; open towards the discharge side. The casing wear ring is renewable, the casing is centre-line supported.

Impeller

Closed, radial flow impeller fitted with renewable protective wear ring; hydraulically balanced by discharge side gap and balance bores.

The wear ring clearance conforms to API.

A version equipped with an inducer can be supplied where the available NPSH is very low.

Bearings

The drive end fixed bearing comprises 2 angular contact ball bearings in O-arrangement, the non-located bearing is a radial roller bearing on the non-drive end.

The bearing bracket must be cooled if the product temperature exceeds 200°C.

Shaft Seals

The stuffing box is designed to accept single acting mechanical seals or soft-packed stuffing boxes without machining the casing cover, which means after startup using a soft-packed stuffing box, the pump can be converted to a mechanical seal.

Nozzle Orientation

End suction, vertical centerline discharge nozzle.

Flanges

to ANSI Class 150/300

Materials

CPR pumps are supplied as standard in carbon steel to API material class S-1.

The parts under pressure can be supplied in 5% chrome steel (class D-6), stainless steel (class A-8) or 12% chrome steel (class C-6) according to the type and temperature of the product.

Part designation	Material classes to API610		
	S-1 Material type	A-8 Material type	C-6 Material type
Volute casing and casing cover	heat-resistant cast steel	stainless steel	12% chrome steel
Impeller	cast iron	stainless steel	stainless steel
Impeller wear ring	12% chrome steel	stainless steel	12% chrome steel
Casing wear ring	cast iron	stainless steel	12% chrome steel
Shaft	carbon steel	carbon steel	carbon steel
Shaft protecting sleeve	12% chrome steel	stainless steel	12% chrome steel

Drive

Electric motors are used as standard.

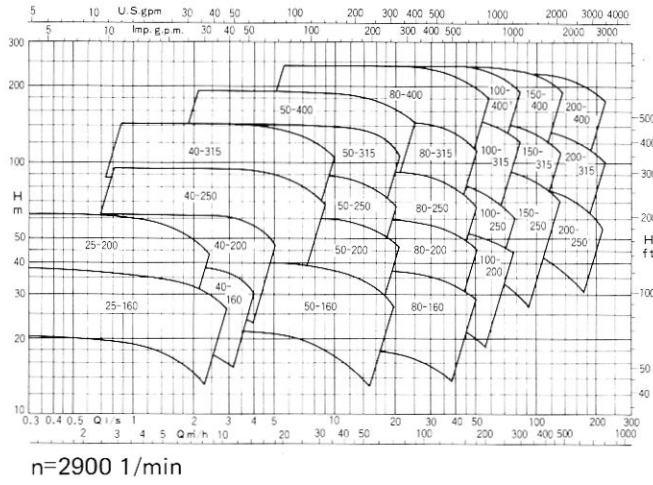
Steam turbines or engines also available on request.

Direction of rotation

Clockwise viewed from the drive end.

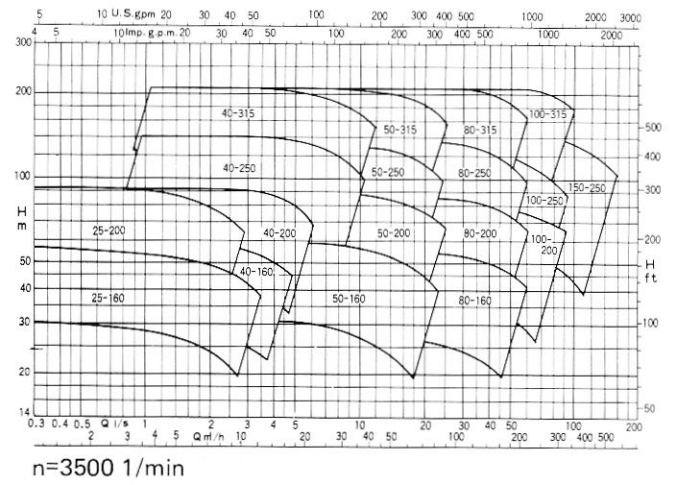
Selection Charts

50Hz

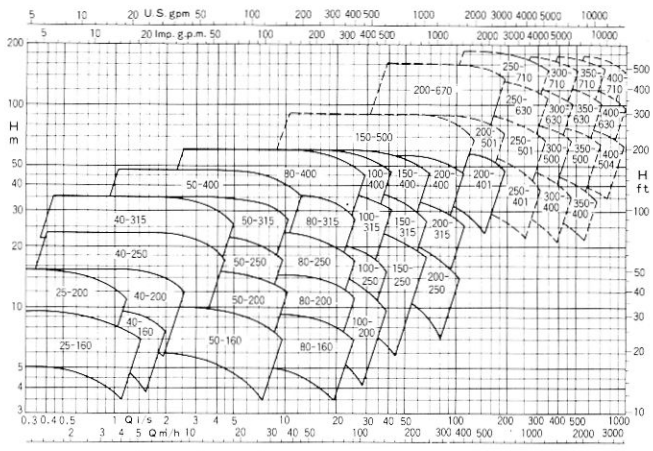


n=2900 1/min

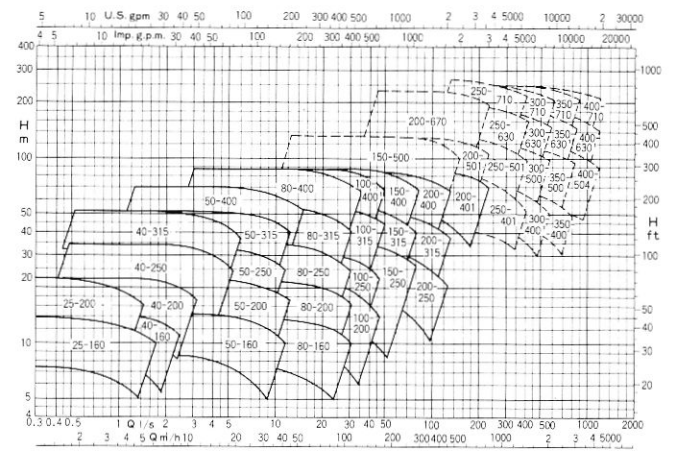
60Hz



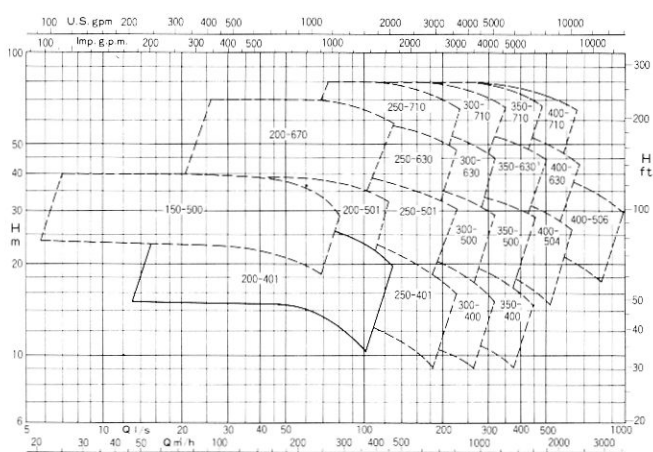
n=3500 1/min



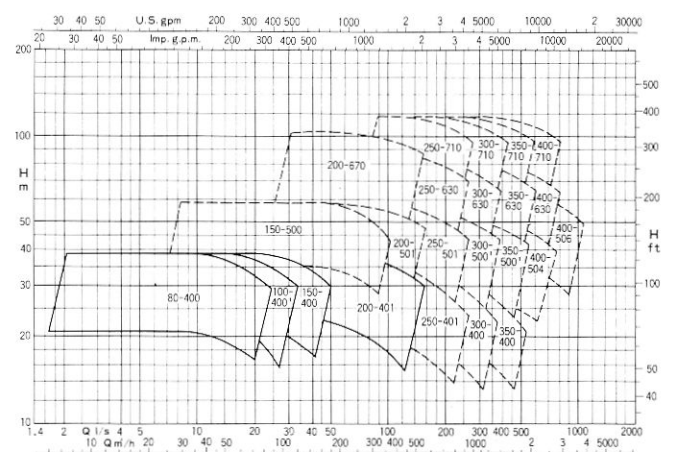
----- supplementary sizes
n=1450 1/min



----- supplementary sizes
n=1750 1/min

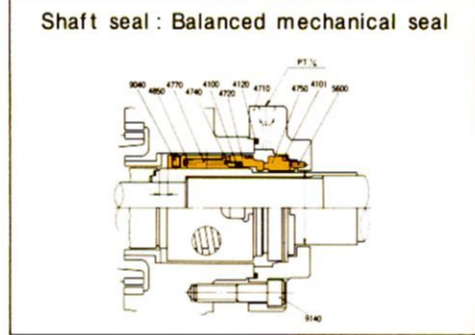
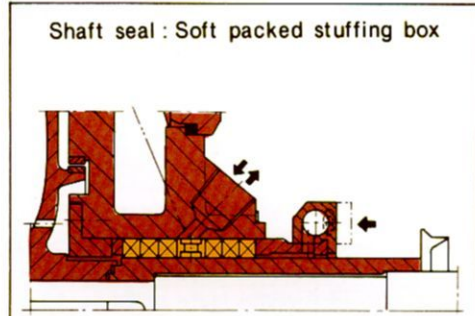
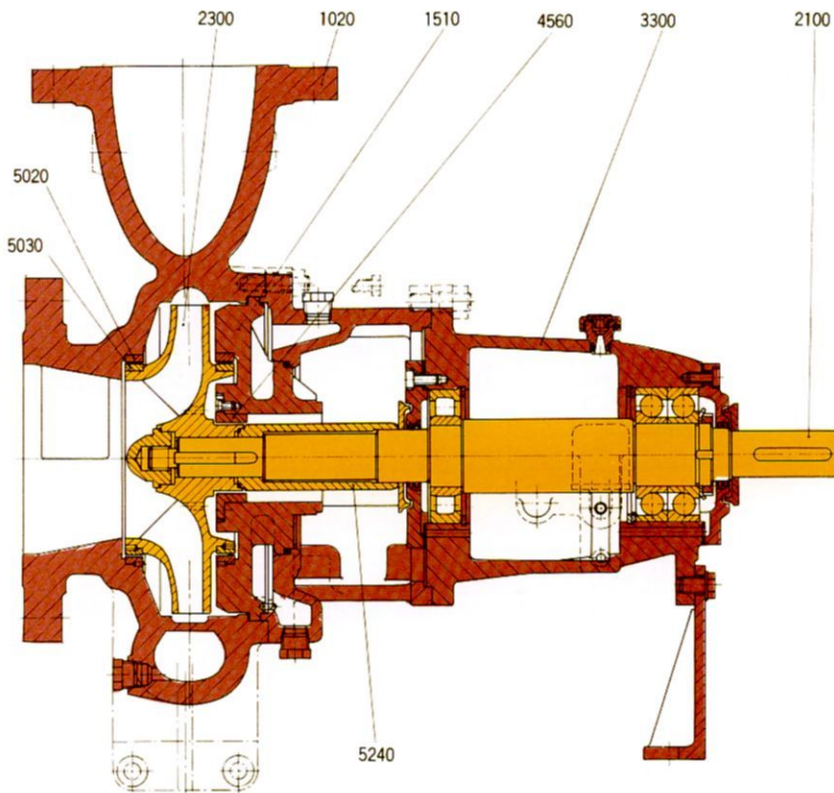


----- supplementary sizes
n=960 1/min



----- supplementary sizes
n=1160 1/min

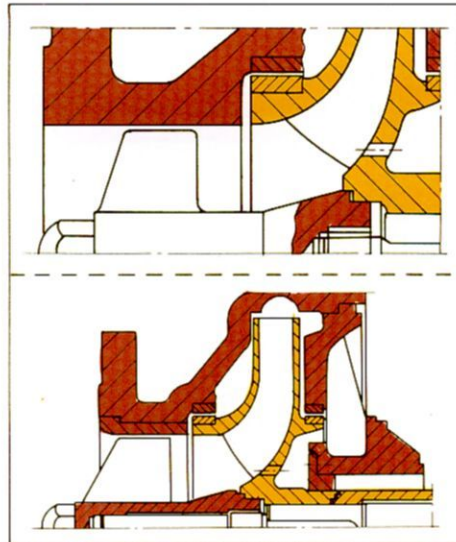
Sectional Drawings and List of Components



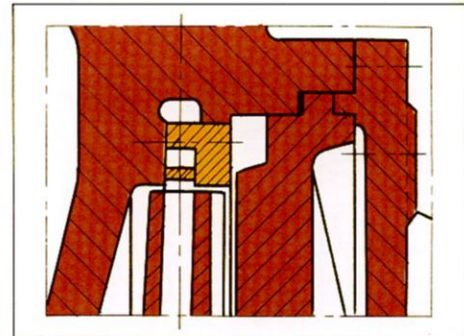
Part No. Part designation

1020	Volute casing
1610	Casing cover
2100	Shaft
2300	Impeller
3300	Bearing housing
4100	Packing
4101	Cushion ring
4120	O-ring
4560	Gland bushing
4710	Seal cover
4720	Washer
4740	Stopper
4750	Seat
4770	Spring
4850	Stopper
5020	Casing wear ring
5030	Impeller wear ring
5240	Shaft protecting sleeve
5600	Stopper
9040	Set bolt

With inducer



With guide vane (for only 50-400)





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