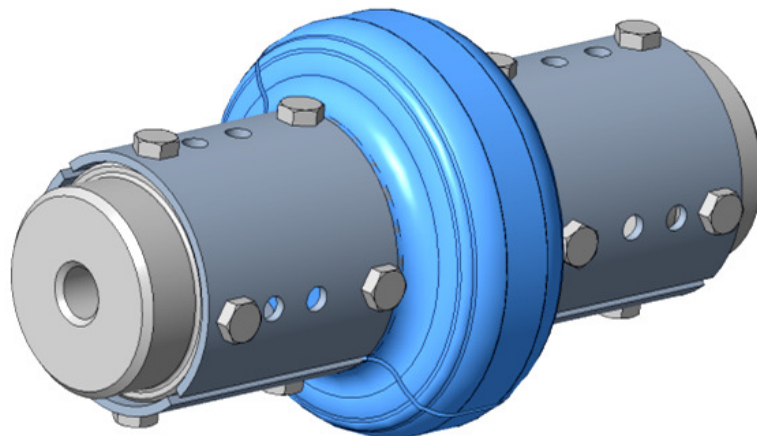


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Installation & Operating Manual (IOM)  
Tyre Coupling  
RTP / RTPS



**RTP**



**RTPS**

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# Installation & Operating Manual RTP/RTPS Coupling


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## 1. Introduction & General Guidelines

- RTP/RTPS tyre coupling are designed to transmit torque between drive and driven shaft using tyre element, Permits higher misalignments than any other coupling and protects against heavy shocks due to sudden change in load.
- This manual will help you to install and maintain coupling before installing/disassembling of coupling. It is advisable to read the manual carefully before starting the work.
- Symbol description :

 Caution person may get injured

 Damage the product

 Pay attention

 Potentially explosive warning

## 2. Before installation information

- Tyre couplings are delivered by RTPL as assembled condition which consists components as shown in fig.1 & 2.

RTP

Part No.	Component	Qty.
1	Driving hub	1
2	Hex head bolt	Refer GA drg
3	Spring washer	Refer GA drg
4	Tyre half	2
5	Driven hub	1

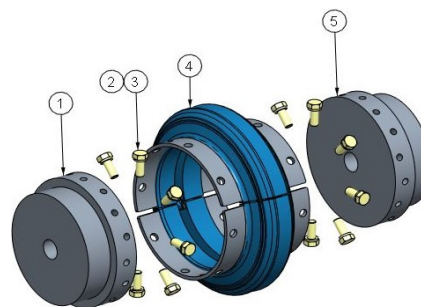


Fig.1

RTPS

Part No.	Component	Qty.
1	Driving hub	1
2	Hex head bolt	Refer GA drg
3	Spring washer	Refer GA drg
4	Tyre half	2
5	Driven hub	1
6	Clamping ring	Refer GA drg

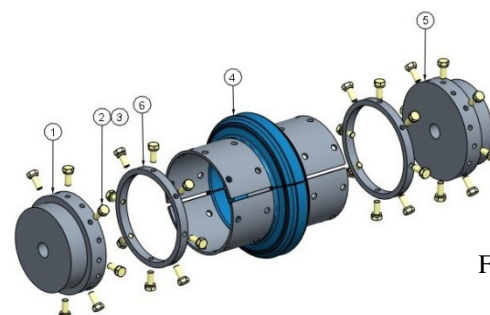


Fig.2

- Inspect coupling assembly for visible damage, if you found contact RATHI.
- Dismantle the coupling; remove protective coating/lubricants from coupling components.

## 3. Installation Information

- + Ensure the system is disconnected from electrical connection and other possible energy transmission before starting the work.

### 3.1 Finish Bore Instruction (Fig. 3)



- Hub finish bores machined by customer with reference to flange outside diameter.
- Finish bore strictly done within specified limit (H7, Js9).
- Keyway must be done between two adjacent holes.
- Provide set screw at distance L  
(  $L = LTB / 2$  )

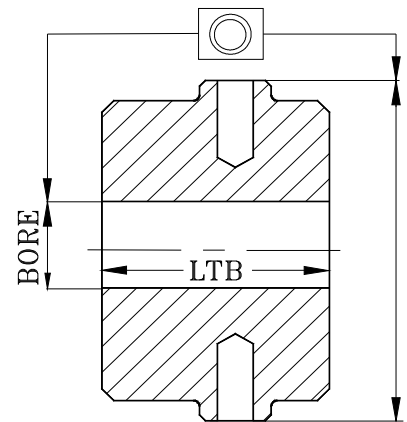


Fig.3

### 3.2 Hub Mounting.

- Mount hubs on their respective shafts with keys such that the shaft ends are flush with inner face of the adapter & tighten the set screw over the keys.
- Bring both the hubs closer to maintain gap 'G'(Table 2) as shown in Fig. 4
- In case of spacer type of couplings, mount the hubs by maintaining DBSE.
- For normal applications the shaft ends should be flush with inner face of hub/adapter, they can protrude beyond the inner face of hub/adapter or remain inside if required but sufficient gap should be allowed to take care of end float of both shafts (i.e. axial misalignment)

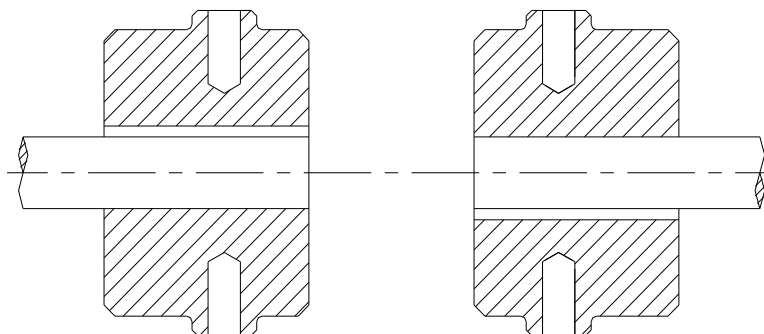


Fig.4

# Installation & Operating Manual RTP/RTPS Coupling

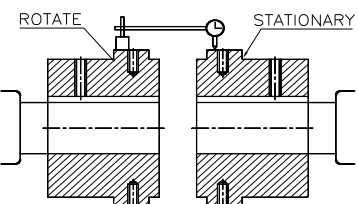
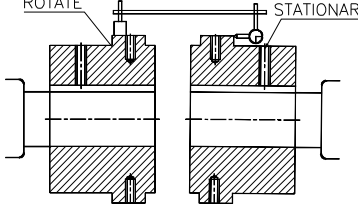
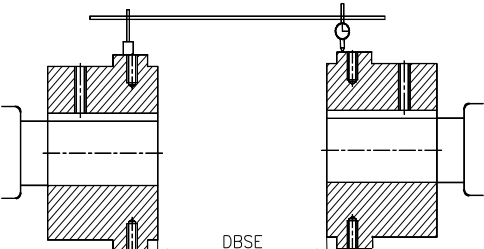
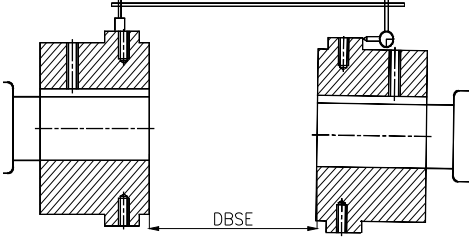
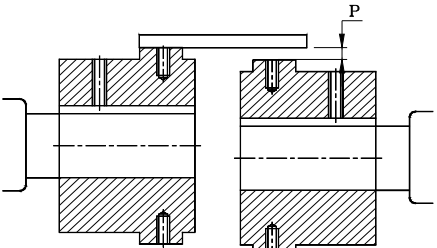
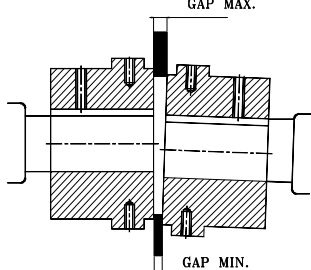
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## 3.3 Shaft Alignment.



- In order to achieve optimum service life of the coupling, shafts must be aligned.
- Initial misalignment should not be more than 25 % of maximum misalignment (Refer Table 2).

Table 1: Method of Alignment

Method	Parallel/Radial	Angular
1	<p>Using dial gauge</p> 	<p>Using dial gauge</p> 
		
	<ul style="list-style-type: none"> <li>• Clamp dial gauge on the hub of one of the half &amp; set plunger on the OD of another half.</li> <li>• Note the reading at each quarter rotation of hub by rotating one end.</li> <li>• In Parallel/Radial method “P” and in Angular method “X” is half the Total Indicated Reading (TIR) shown on dial gauge, which should not be more than value of initial misalignment.</li> </ul>	
2	<p>Using straight edge</p> 	<p>Using filler gauge</p> 
	<ul style="list-style-type: none"> <li>• If the field constraints do not permit to use dial gauge then alternatively use straight edge &amp; filler gauge to measure parallel and angular alignment respectively.</li> <li>• Note the reading of Gap ‘G’ at each quarter without rotating shafts. The difference in maximum &amp; minimum gap will be the Total Indicated Reading (TIR)</li> </ul>	

# Installation & Operating Manual RTP/RTPS Coupling

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Table 2 : PERMISSIBLE MAXIMUM MISALIGNMENTS & TIGHTENING TORQUE

Sr. No.	Coupling Size	Permissible Maximum Misalignment			Gap 'G' (Std) (mm)		Bolt Size Gr 10.9	Tightening Torque Nm
		Parallel/ Radial 'P' (mm)	Angular		RTP	RTPS		
			Degree	Total Indicated Reading (TIR)				
1	90	2	4°	3	46	100	M6	13
2	103	2	4°	4	46	100/140	M6	13
3	117	2	4°	5	46	100/140	M6	13
4	138	2	4°	6	59	100/140	M6	13
5	163	2	4°	6	59	100/140	M6	13
6	185	2	3°	6	65	140/180	M10	61
7	211	2	3°	7	69	140/180	M10	61
8	245	2	3°	8	75	140/180	M10	61
9	283	2	3°	10	91	140/180	M10	61
10	319	3	2°	8	97	180/250	M12	106
11	357	3	2°	8	109	180/250	M12	106

Gap 'G' in the above table is given when angular & axial misalignments are zero.

## 3.4 Final Assembly

- Ensure equipment is aligned properly. Align the coupling hub within permissible misalignment condition. The radial & angular misalignments should be kept as minimum as possible to increase the service life of coupling. Refer Table-2 for Maximum Misalignments values.
- **Assembly Procedure:**
  - I. Mount the first half element on the hub using bolts provided.
  - II. Slightly tight middle bolt of half tyre & then side bolt.
  - III. Rotate the shaft 180° & assemble second half element as per above procedure refer Fig.5.
  - IV. Tighten all bolts to required torque by applying torque in two stage, 50% & 100% of tightening torque.

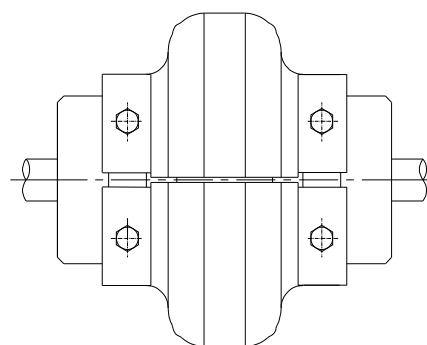


Fig.5






Do not lubricate bolt threads.

Customer must provide required safety guards; RTPL does not supply safety guards or shields.

## 4. Safety General Hazard & Environment



### 4.1 Safety General Hazard

- Proper care and safety must be taken care before work started.
-  • The relevant safety and environmental regulations must be complied during installation, commissioning, operation, assembly, disassembly and maintenance.
-  • Coupling must be maintained and/or repaired in the presence of skilled or qualified persons for particular work.
- During installation or maintenance ensure the drive unit is cut off from the power supply and caution notice should be display on switch.
-  • Immediate stop the drive unit if anything abnormalities observed on coupling (e.g. cracks, chips, wear, or deformation)
- Check all the bolts are tightened as per torque specified in the manual or as specified in the GA drawing.
- The supplied coupling may have to rotate at high speed, it is most important to guard the area in compliance to ATEX and various other local applicable standards.
- This coupling is certified as per ATEX requirement. Please check the suitability of hazardous environment at the time of selection of the coupling or during installation of the coupling.
- All spare parts are to be purchased from manufacturer only.

### 4.2 Environment

- Our products are complying with EMS standard ISO 14001:2015, any instruction which are impermissible according to standard are not followed.

## 5. Inspection & Periodic Maintenance

- The Tyre-flex coupling can be monitored under running condition as well as under idle condition.
-  • Inspect the coupling once in 6 months in idle condition or whenever it is taken for periodic maintenance.
- During running condition, it is recommended to check the vibration and noise on either side of the equipments to be under specified limits.
- Visual inspection is recommended to check below defects,
  - Axial, Angular & Parallel misalignments.
  - Bolt loosening.
  - Flexible elements for wear, cracks, swelling or deep impression.
  -  - Replace tyres immediately if they observed any of the above defects.

## 6. Spare Management & Complaint Handling

### 6.1 Spare management

- We recommend to store spare items as given below, in order to have continuous operation and to reduce down time due to failures.
- Spare component list. (Fig.1)

Sr. No.	Part descriptions	Components/ part No.	Quantity
1	Hex Head Bolt	Refer fig.1,2	1 set
2	Tyre	Refer fig.1,2	1 set
3	Hub	Refer fig.1,2	1 set

### 6.2 Complaint Handling



- In case of any failure, for proper root cause, fill up Product Performance Datasheet (PPDS) and provide us along with images/videos.



# Installation & Operating Manual RTP/RTPS Coupling

Product Performance datasheet (PPDS)

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		<b>ANNEXURE Product Performance Data Sheet (PPDS)</b>	Ref.:	
			Date:	
Contact Details	Distributor			
	ZR			
	Customer Details:Name			
	Contact Person			
	Cell No			
	Email ID			
Supply details	Product			
	PO No and Date			
	Invoice No & Date			
	Ref Drawing No			
	Coupling Serial No.			
	Logo: RATHI/Lovejoy/RTFL/OTHER			
	Qty purchased			
	Qty Failed			
Service Details	Application Details: Driver/Driven			
	Equipment Name			
	Installation Date			
	Failure Date			
	Approx service life			
Installation details	Finish bore/Keyway machining by : RTPL / Customer			
	Hub Fitment: Slide fit / Interference / Press fit			
	Method of Hub fitment: Mallet / Jacking / Heating / Hydraulic			
	Fastener Tightening Method: Torque Wrench / Spanners			
	Tightening Torque values			
	Power Rating: KW/RPM/Torque			
	Start/stop frequency			
	Temperature: °C			
	Duty: Hrs / Day			
	Alignment Initial: Axial/Angular/Parallel			
	Alignment after failure: Axial/Angular/Parallel			
	Rathi Installation Instruction: Followed/Not followed			
	Installation skills: Average/Good/Excellent			

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# Installation & Operating Manual RTP/RTPS Coupling

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Failure details	Lubrication condition, if applicable	
	Breaking of components: Yes/No	
	Possible Sequence of Component Failure	
	Damage of components: Yes/No	
	Loosening of fasteners: Yes/No	
	Overload/Sudden Peak: Yes/No	
	Loosening of foundation bolts:	
	Loosening of attached piping / ducting: Yes/No	
	Replacement Status : If replaced whether Coupling or Spares	
	Customer analysis of the Failure causes (Attach separate sheet, if required)	
Evidence / Requirement	Failed product photos : Attached / Not attached	
	Failed product being returned to RTPL : Yes / No	
	RTPL visit required: Yes/No	
	Replacement required: Yes/No	
	ZR / Distributor Remarks if any	
Other info	Details of any other Coupling previously in use	
	Failure history	
	Bearing condition of Driver & Driven units (Smooth/Noisy/Vibrations)	
R/002		PAGE 2 OF 2

## 7. Breakdown & Trouble Shooting

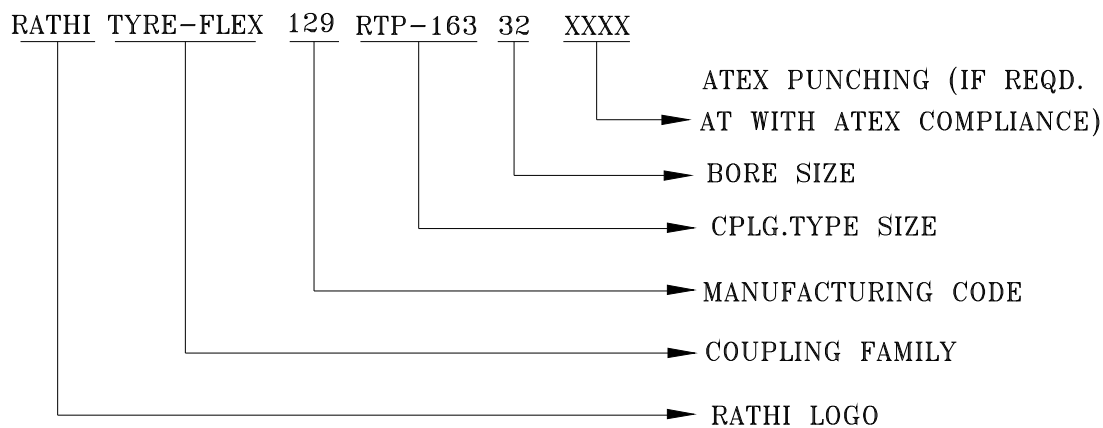
SR. NO.	FAILURE MODE	PROBABLE CAUSES	CORRECTIVE ACTIONS
1	Worn out Tyre Shaft bearing failure	Excessive misalignments.	Replace the Tyre & Realign the coupling.
2	Fatigue of Tyre Overheated Tyre	Torsional vibration Excessive starts and stops High peak load	Perform torsional analysis Use larger coupling
3	Loose hubs on shaft with sheared keys.	Torsional shock overload	Find & eliminate causes of overload.
4	Severe hub corrosion	Chemical attack	Coat hub with anticorrosive coating (*)

(\*) - Consult M/s RATHI if required



## 8. Marking Details

- The ATEX marking for Tyre coupling will be given on outer surface or front side.

- Example :**




- ATEX Punching sample**

RATHI TYRE-FLEX 129 RTP-163 32   II 2GD -30°C +100°C

- Where,**

1. Manufacturing code e.g. 129 for December 2019
2. Product code e.g. RTP-163
3. Finish bore size code e.g. 32

## 9. Declaration of Conformity

 <div style="float: right; font-size: 2em; font-weight: bold; margin-top: 10px;">ATEX</div> <p style="text-align: center; font-weight: bold; margin-top: 20px;"><i>Declaration of Conformity</i></p> <p style="text-align: center; font-weight: bold; margin-top: 10px;"><i>2014/34/EU</i></p>				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Customer Name <input style="width: 90%;" type="text"/></td> <td style="width: 50%; border: none;">Certificate No <input style="width: 90%;" type="text"/></td> </tr> <tr> <td style="border: none;">PO No. <input style="width: 90%;" type="text"/></td> <td style="border: none;">Date <input style="width: 90%;" type="text"/></td> </tr> </table>	Customer Name <input style="width: 90%;" type="text"/>	Certificate No <input style="width: 90%;" type="text"/>	PO No. <input style="width: 90%;" type="text"/>	Date <input style="width: 90%;" type="text"/>
Customer Name <input style="width: 90%;" type="text"/>	Certificate No <input style="width: 90%;" type="text"/>			
PO No. <input style="width: 90%;" type="text"/>	Date <input style="width: 90%;" type="text"/>			
<p>1) Declaration relating to :</p> <p style="margin-left: 40px;">Type : <input style="width: 80%;" type="text" value="Torsionally Soft Coupling"/></p> <p style="margin-left: 40px;">Size : <input style="width: 80%;" type="text"/></p>				
<p>2) Manufactured and assessed by</p> <p style="margin-left: 40px;"><b>Rathi Transpower Pvt.Ltd., Gaia Apex, S. No. 33/2D, Viman Nagar, Pune 411 014 (INDIA).</b></p>				
<p>3) Notified by : BV LCIE Certification, France (No. 0081)</p>				
<p>4) This product fulfills all the requirements for Group 2 Category 2 GD equipment in accordance with directive 2014/34/EU (ATEX)</p> <p style="margin-left: 40px;">The design complies with ISO 80079-36 AND ISO 80079-37 and is fully documented in Technical File No. RD 003/20</p>				
<p>5) The product is incapable of producing arcs, sparks or hot surface which may cause ignition and is designed to be used in accordance with ISO 80079-36 AND ISO 80079-37.</p>				
<p>6) The required marking of the product is specified in Technical File No. RD 003/20 and includes the distinctive community marks.</p>				
<p>7) <b>Coupling without the  marking must not be used in potential Explosive Atmosphere.</b></p>				
<p>8) Manufacturing is controlled by an ISO 9001 registered system.</p>				
<p>9) Approved signatories for and on behalf of Rathi Transpower Pvt.Ltd.</p>				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Quality Inspector ( <input style="width: 90%;" type="text"/> )</td> <td style="width: 50%; border: none;">Quality Manager ( <input style="width: 90%;" type="text"/> )</td> </tr> <tr> <td style="border: none;">Date : <input style="width: 90%;" type="text"/></td> <td style="border: none;">Date : <input style="width: 90%;" type="text"/></td> </tr> </table>	Quality Inspector ( <input style="width: 90%;" type="text"/> )	Quality Manager ( <input style="width: 90%;" type="text"/> )	Date : <input style="width: 90%;" type="text"/>	Date : <input style="width: 90%;" type="text"/>
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