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How important is Tow Hitch Selection?



Rockinger RO400 40mm Small Rubber Hitch

Frequently when replacement hitches are sought, a sample or part number is used as reference and the exact same hitch is requested. My first question is always: why did the hitch fail? On closer inspection in many cases the hitch failed due to the incorrect selection procedure.

Selecting the correct hitch for your application is very simple. If you have a centre drawbar axle trailer your choice of hitch is immediately limited to small type rubber hitches, similar to the RO400 shown here. Using a large rubber type hitch in this application will cause the shaft to bend and the hitch will have to be scrapped and replaced.

Let's start with the D-Value; we need to calculate the D-Value to see if we need a 40mm, 50mm or 57mm range of hitch. The GVM's of the Rigid and the trailer are required for this calculation which are available on www.jost.co.za, click on the calculator tab and select "Tow Hitch D-Value rigid with drawbar trailer" for tow hitches as shown here.

Compare your answer to the following values:

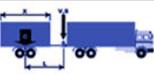
40mm D-Value Range	30 to 130kN
50mm D-Value Range	190 to 260kN
57mm D-Value Range	260 to 300kN

As per the example using the GVM for the Truck as 26.5 and the GVM for the Trailer as 27 Tons, the calculator has given us a D-Value of 131,20kN. This will put our combination right in the 50mm range as it exceeds the 130kN limit on 40mm hitches.

Tow Hitch D-Value, rigid with drawbar trailer

<ul style="list-style-type: none"> Single semi-trailer D-value Interlink/Superlink D-value calculation 5th wheel location on truck tractor Tow hitches D-Value, rigid with drawbar trailer Tow hitches D-Value, semi with drawbar trailer Tow hitches V Value Cooling Down Time - 12V Powerpack - IP2 Cooling Down Time - 24V Powerpack - IP2 	 <p>GVM drawbar trailer <input type="text" value="26.50"/> (Tons)</p> <p>GVM towing vehicle <input type="text" value="27.00"/> (Tons)</p> <p>D-Value 131.20 (kN)</p>
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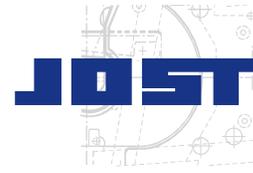
Tow Hitches V-Value

<ul style="list-style-type: none"> Single semi-trailer D-value Interlink/Superlink D-value calculation 5th wheel location on truck tractor Tow hitches D-Value, rigid with drawbar trailer Tow hitches D-Value, semi with drawbar trailer Tow hitches V Value Cooling Down Time - 12V Powerpack - IP2 Cooling Down Time - 24V Powerpack - IP2 	 <p>Dimension X <input type="text" value="10.00"/> (meters)</p> <p>Dimension L <input type="text" value="8.00"/> (Meters)</p> <p>Axle loading C <input type="text" value="18.00"/> (Tons)</p> <p>Type of suspension on trailer (Tons) <input type="text" value="Other suspension"/> 2.40</p> <p>V-Value 67.50 (kN)</p>
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On centre drawbar axle trailers not only will the D-Value decrease in this instance the V-Value also has to be calculated. In this case using the body length of 10 metre's, the centre of body to eye as 8 metres and the GVM of the trailer as 18 Tons, the V-Value calculates to 67,5kN.



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It is very important to take into account that the D-Value of the hitch will be reduced when using the hitch in Centre drawbar axle application as per values shown here:

- 40mm Range For a 130kN hitch the D-Value is reduced to 90kN DC-Value as shown on the **Rockinger** specification sheet and a V-Value of 35kN now applies.
- 50mm Range For a 200kN hitch the D-Value is reduced to 135kN DC-Value as shown on the **Rockinger** specification sheet and a V-Value of 90kN now applies.
- 57mm Range For a 300kN hitch the D-Value is reduced to 145kN DC-Value as shown on the **Rockinger** specification sheet and a V-Value of 95kN now applies.

Use the 50mm **Rockinger Selection Chart** to make the final decision as to which hitch to use, taking into account the operation it is to be used in.

Guidelines to 50mm Automatic Trailer Coupling selection

Picture	Type & features	Specifications	Applications
	Rockinger Type RO*500G65 Head can be dismantled Replaceable wear parts DIN 74053, CE/94/20 ISO 1102	D-value = 200 kN V-value = 90 kN Weight = 45 kg Drilling pattern <ul style="list-style-type: none"> H = 160mm V = 100mm d = 21mm D = 94mm 	General on-road/off-road All road conditions Specifically suited to centre axle drawbar trailers
	Rockinger Type RO*50 flex Large swing: ± 30° vert. ± 90° hor. Large rubber cushions Head can be dismantled Replaceable wear parts Softer ride	D-value = 260 kN Weight = 57 kg Drilling pattern <ul style="list-style-type: none"> H = 160mm V = 100mm d = 21mm D = 94mm 	General on-road/off-road All road conditions Not suited to centre drawbar axle applications
	H = Horizontal centre distance between mounting holes V = Vertical centre distance between mounting holes D = Hole diameter to accommodate mounting shaft d = Hole diameter to accommodate mounting bolts Please note: - Other couplings available upon request Please contact us for availability Website: - www.jost-world.com		

Since the **Rockinger RO50Flex** has no V-Value it cannot be used in a centre drawbar axle application, it would be best suited for normal on and off-road applications in a rigid-drawbar trailer application as per the calculation of 131,20kN shown above.

Let's not forget that the **Rockinger RO500G65** would still be the better choice compared to the **Rockinger RO500Flex** in this application should the road conditions be very bad and if the vehicle is expected to traverse heavy undulating terrain.

The **Rockinger RO500G65** can be used with a centre drawbar axle trailer. The 90kN V-Value of the **Rockinger RO500G65** will easily cope with the 67.5kN V-Value as per this calculation. The D-Value calculation in this case is 105.95kN which fits perfectly into the reduced 135kN for centre drawbar axle trailer applications.

Please feel free to contact me should you require more detailed information: Christo de Clerk - 082 774 9818 or: christo@jost.co.za

Tow Hitch D-Value, rigid with drawbar trailer

- Single semi-trailer
- D-value
- Interlink/Superlink
- D-value calculation
- 5th wheel location on truck tractor
- Tow hitches D-Value, rigid with drawbar trailer
- Tow hitches D-Value, semi with drawbar trailer
- Tow hitches V Value
- Cooling Down Time - 12V Powerpack - IP2
- Cooling Down Time - 24V Powerpack - IP2

GVM drawbar trailer: (Tons)

GVM towing vehicle: (Tons)

D-Value 105.95 (kN)