

Data Sheet

Hydraulic Steering Units

OSP Reaction RM Technology

What are Danfoss RM steering units?

In general, reaction type steering units are applied to vehicles on which a self-alignment steering effect is desired. Reaction type steering resembles a car where the direction of travel will continue straight ahead when ever the steering wheel is not touched. The self-alignment effect in fully hydraulic steering systems is achieved by using both an appropriate steering unit and front axle components.

The trend for vehicles, such as a tractor, is higher transportation speed. This raises a need for improved steering performance to ensure optimal vehicle handling on-road. Hence the introduction of Danfoss RM technology.

RM technology represents a significant leap forward in performance with reaction type steering units. With RM steering units Danfoss is raising the bar and setting new standards compared to reaction performance achievable with previous industry standard designs. Traditional limitations and trade-offs of previous reaction designs have been largely eliminated.

RM technology has patents pending for Danfoss.



Features

For the vehicle designer several advantages are offered:

- Optimized reaction performance (+100% faster self-alignment)
 - Improved automotive feel
 - Superior roading performance through strong and genuine road feedback
 - Utilize reactive steering – also on higher displacement steering unit
 - Can also be used for high horse power tractors
 - Up to 500 cc/rev
 - Open center and load sensing models available
- Open center ORM
 - Load sensing LSRM
 - OSPE offers the possibility to select between reaction and non-reaction using RM technology
 - Reaction for on road use
 - Non reaction for off road / electrohydraulic mode

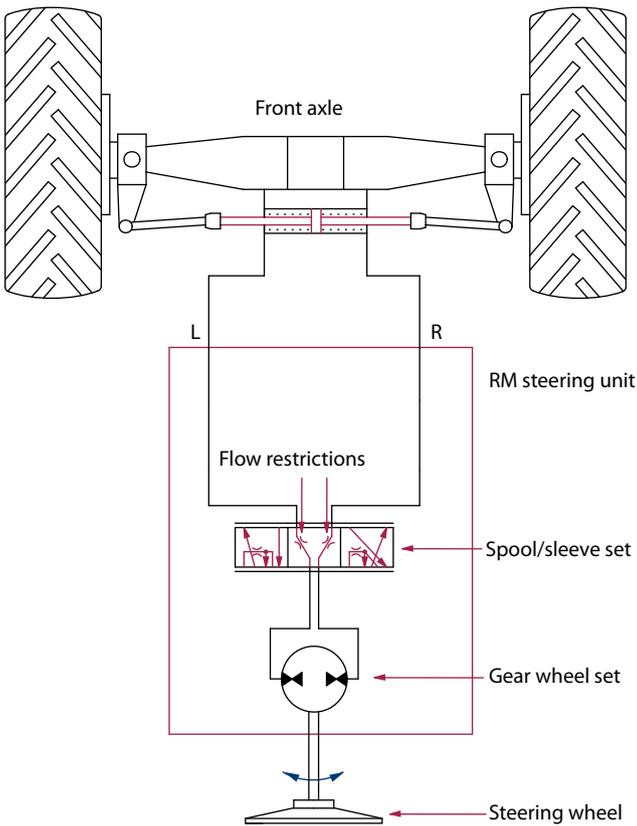
[Comprehensive technical literature online at powersolutions.danfoss.com](http://powersolutions.danfoss.com)

What really matters is inside – So what is inside an RM steering unit?

Fundamentally an RM steering unit contains all the same design elements as traditional reaction type steering units. It also shares the same typical operating characteristics.

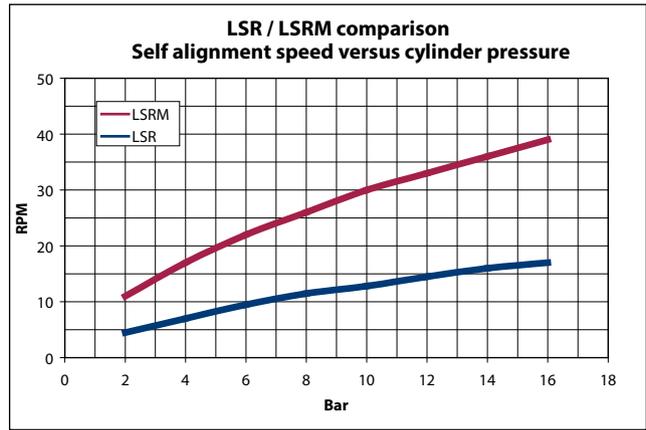
While in neutral the spool/sleeve set will allow oil to flow from the cylinder, through the spool/sleeve set, to the gear wheel set, back through the spool/sleeve set and back to the cylinder.

A pressure difference in the cylinder drives the oil flow through the gear wheel set to turn the steering wheel. The pressure difference in the cylinder is generated by the front axle geometry and the weight resting on the front axle. Around straight ahead this pressure difference will approach zero and oil flow will stop. A pressure difference in the cylinder drives the oil flow through the gear wheel set to turn the steering wheel. The pressure difference in the cylinder is generated by the front axle geometry and the weight resting on the front axle. Around straight ahead this pressure difference will approach zero and oil flow will stop.



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Reaction type steering units inherently include unwanted flow restrictions in the flow path, especially through the spool/sleeve set. These restrictions limit the self-alignment speed and thus reduce reaction performance.



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The RM technology significantly improves oil flow through the steering unit during self-alignment operation.

Special grooves machined into the spool/sleeve set interconnect individual variable orifices to effectively reduce the pressure drop to less than half of previous reaction designs.

For any questions relating to RM Technology please contact your nearest Danfoss representative.

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