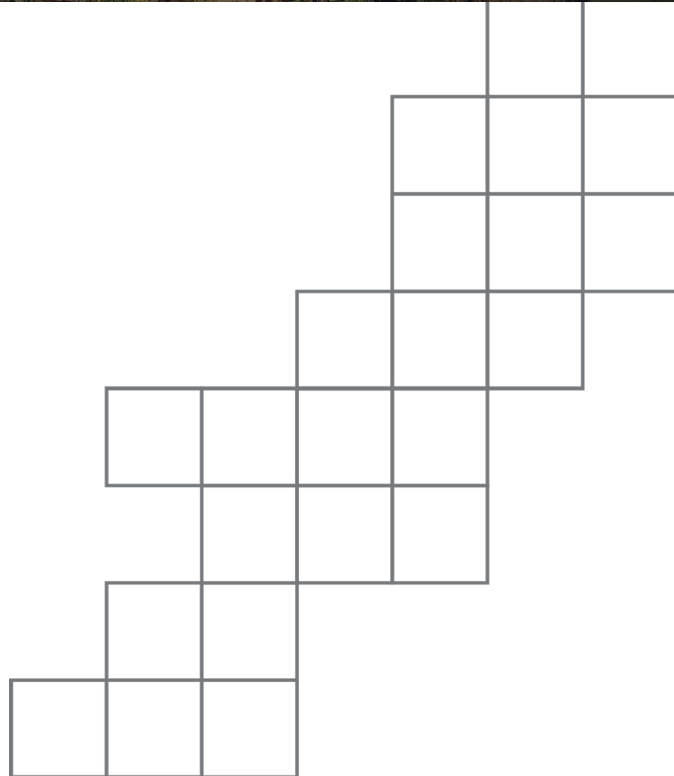


**Series 552
Accelerator Pedal
For Heavy Duty and
Harsh Environment
Vehicles**





Series 552

Accelerator Pedal

The series 552 is a proven pedal solution from CTS, used by major vehicle OEMs across the globe. Eight robust, pre-packaged designs, a stellar track record and a competitive price point are the key benefits of this versatile accelerator technology.

For human-controlled, heavy-duty vehicles and machinery, operational integrity and reliability are key. The immense forces and loads with which material handling forklifts, construction excavators and agriculture vehicles have to contend, leave no room for inaccurate performances of sub-systems and constituent components. Faulty performances would not only be costly from a resource standpoint, but could also compromise the safety of the human operators.

The need for highly dependable components in the field of heavy duty and harsh environment vehicle control is evident. To meet the reliability demands of these applications, CTS has made the well-proven series 552 contacting accelerator pedal available for manufacturers worldwide.

The series 552 pedal offers great durability combined with a reliable, highly linear signal. It is a cost-effective, off-the-shelf solution that still provides the flexibility of implementation, emblematic of CTS' many automotive products. With upwards of 150 million units delivered across our full pedal portfolio, customers can rest assured of the functionality and applicability of CTS' transportation solutions.

In the following, the design and operational principles of the series 552 will be examined and the key value propositions, the technology brings to manufacturers of industrial, off-road/construction and agriculture vehicles, will be outlined.



How does the series 552 accelerator pedal work?

The series 552 pedal is designed to accelerate the vehicle based on the displacement of the pedal pad. The pedal transfers linear movement of the foot on the pedal pad to an acceleration command for the vehicle through a linear voltage change, akin to how a potentiometer works.

The rotor and pedal arm are joined together and rotate up (driver foot) and down (springs) around the pivot. The corresponding rotor movement along the element drives an equivalent voltage change to the engine control unit, with the absolute linearity being accurate within 3%.

The pedal sensor provides two output signals to ensure that the driver's intent is communicated correctly to the vehicle in case of malfunctions.

Similarly, the series 552's robust design offers further resilience to the mechanical wear and tear that is likely to occur during operation in harsh environments. It can also mitigate some of the detrimental effects of fluid intrusion and other contaminating agents. The contacting technology renders it immune to electromagnetic interference, enhancing its applicability in industrial and manufacturing settings, where electromagnetic stray fields may occur.

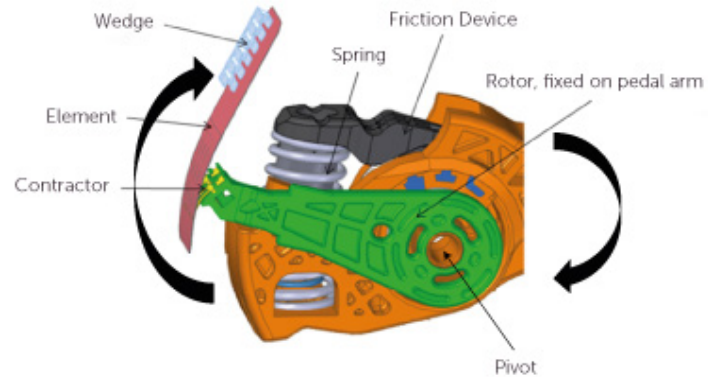
The series 552 is a fully validated and PPAP qualified product, and CTS stands behind the testing for implementation. Yet, customers are encouraged to perform their own evaluation of the pedal prior to implementing it in their vehicle architectures.

Ideal applications for the series 552

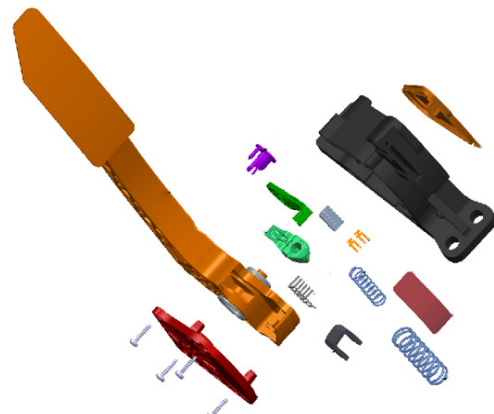
Thanks to its robust design and reliable performance, the possible applications of the series 552 accelerator pedal extend well beyond traditional passenger vehicles, although it is still very much a viable solution in that regard.

The pedal has great potential for heavy duty vehicles that operate in unwelcoming and harsh environments. Under such circumstances, reliability is of the essence, as the vehicles must operate dependably over time and use in order to ensure the completion of tasks and the safety of their operators.

The series 552 are well-suited for duty in vehicles from the following industries:



Series 552 design overview



Series 552 constituent parts

Construction

Bulldozers, excavators, dump trucks and other vehicles used for construction are guaranteed to make good use of the benefits the series 552 has to offer. With exposure to contaminating agents such as dirt, dust, material residue and liquids being an inevitable occurrence at building sites and roadworks, the integrity of the smaller construction vehicle components will surely be put to the test over time and use. Here, the series 552 will shine as a durable and reliable accelerator solution, being largely unfazed by the otherwise detrimental influence of these elements. The highly linear signal of the pedal will also make life easier for the vehicle operators, as they can reliably trust their physical inputs to produce a matching response from the vehicle engine when moving around heavy loads.



Industrial

Also in the field of industrial transportation will the merits of the series 552 be apparent. Again, the pedal's linear signal will prove invaluable for operators of e.g., forklifts and other material handling vehicles, as they transport goods and crates around warehouses and assembly halls. Being able to continuously rely on a dependable response will improve the operational safety of the vehicles. In addition, the dependability of the series 552 in an industrial setting will further be enhanced by its immunity to electromagnetic interference, seeing as exposure to stray fields may occur due to the presence of numerous electronic devices.



Agriculture

Sharing many environmental characteristics of construction sites, crop fields and other agricultural areas also pose certain challenges to the performance of the constituent components in agriculture vehicles. Tractors, planters, seeders, harvesters etc. will be put to the test during field operation, thus requiring dependable control sub-systems. The robustness and elemental resistance of the series 552 accelerator pedal, along with the reliability of its operational principles, make it a good solution for vehicles operating in agricultural environments, offering extended durability of the machinery it will be employed in.



Customization options for the series 552

The series 552 from CTS is a pre-packaged, off-the-self solution for vehicle manufactures who are looking for a proven and reliable, yet cost-effective accelerator pedal that can quickly and effortlessly be implemented into their vehicle architectures.

To accommodate the requirements of unique system designs, CTS offers the series 552 in eight distinct variants, differentiated by pedal radius, full pedal travel (FPT) and force. Yet, options for customization extend beyond the pre-packaged solutions, as is characteristic of CTS' extensive automotive product portfolio. Upon request, CTS can for instance provide configuration of springs to enable higher or lower forces. Depending on order volume, further customization can be arranged.

Reach out to your local CTS representative for more information on the series 552 accelerator pedal. You can also visit our [dedicated webpage](#) for technical resources and further product specifications.

Parameter	Unit	Value												
Operating Temperature	°C	-40 to +85												
Weight	g	≤350												
Working Angle	°	12.6 / 14												
Working Voltage	V	5 (±0.3)												
Working Current	mA	≤20												
Output Pull-Down Resistor	Ω	≥330000												
Output Options (% of Supply Voltage)	-	<table border="1"> <tr> <td>Angle</td> <td colspan="2">12.6° / 14°</td> </tr> <tr> <td>Position</td> <td>Idle</td> <td>Full Travel</td> </tr> <tr> <td>SIG1</td> <td>15% (±2%)</td> <td>82% (±4%)</td> </tr> <tr> <td>SIG2</td> <td>7.5% (±1%)</td> <td>41% (±2%)</td> </tr> </table>	Angle	12.6° / 14°		Position	Idle	Full Travel	SIG1	15% (±2%)	82% (±4%)	SIG2	7.5% (±1%)	41% (±2%)
		Angle	12.6° / 14°											
		Position	Idle	Full Travel										
		SIG1	15% (±2%)	82% (±4%)										
SIG2	7.5% (±1%)	41% (±2%)												
Linearity	%	±3												
Correlation (SIG1 - (2*SIG2))	%	≤2.8												
Idle Force (Pressing)	N	20 (±5)												
Full Travel Force (Pressing)	N	33 (±5)												
Minimum Force (Releasing)	N	≥5												

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