

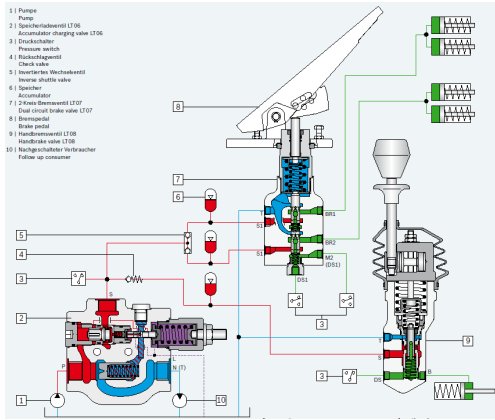
Brake Valves

Steps to Brake by Wire

Bosch Rexroth AG

Power Brake Valves

Brake valves for several applications

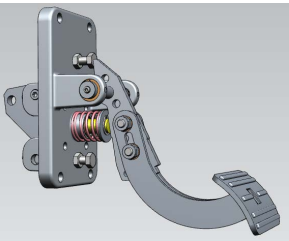


Standard Brake Valves

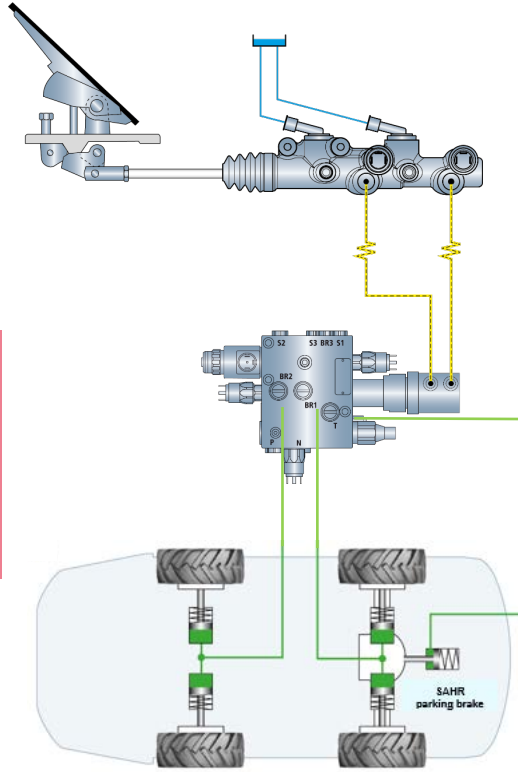
Modular Design						
LT 05	LT 06	LT 07	LT 08	LT 09	LT 10	LT 31
Single Circuit brake valve	Accumulator Charging valve	Dual circuit brake valve	Handlever parking brake valve	Relay valve	Steering brake valve	Brake-inch valve
RE 66226	RE 66191	RE 66146	RE 66148	RE 66153	RE 66154	RE 66227
25-160 bar	100-200 bar	40-140 bar	25-125 bar	200 bar	40-100 bar	40-100 bar
45 l/min	70 l/min	60 l/min	70 l/min	70 l/min	70 l/min	12 l/min
200 bar	210 bar	250 bar	210 bar	250 bar	200 bar	210 bar
Compact Design						
LT 13			LT 12		LT 17	
Dual-circuit brake valve			(LT12 single-circuit)		Dual-circuit brake valve with pedal	
RE 66221			(LT12 RE 6618)		RE 66228	
70 l/min					70 l/min	
40-125 bar					40-140 bar	
210 bar					250 bar	
Pedal separately, alternative hydraulic controlled Accumulator charging function, Circuit separation valve, Dual-circuit brake, integrated electrical or mechanical parking brake,				Pedal is directly fitted on the valve Accumulator charging function, Circuit separation valve, Dual-circuit brake, integrated electrical parking brake		



Power Brake Valve LT13H remote control via master cylinder



LT20 pedal with linking bracket to master cylinder or other LT brake valves



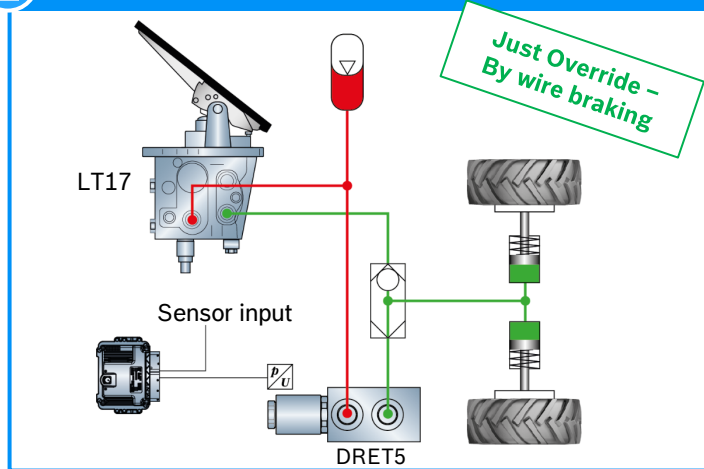
LT13H away from pedal and cabin, lower installation of pipes and hoses close to cabin



Power Brake Valves

Steps to Brake by Wire

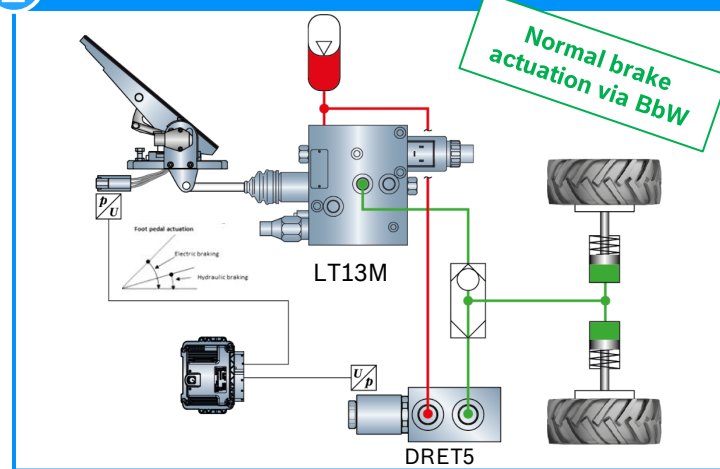
1 Hydr. Power Brake /w electr. override



BbW override - Automatic brake

Obstacle detection
Hill hold function
Speed control

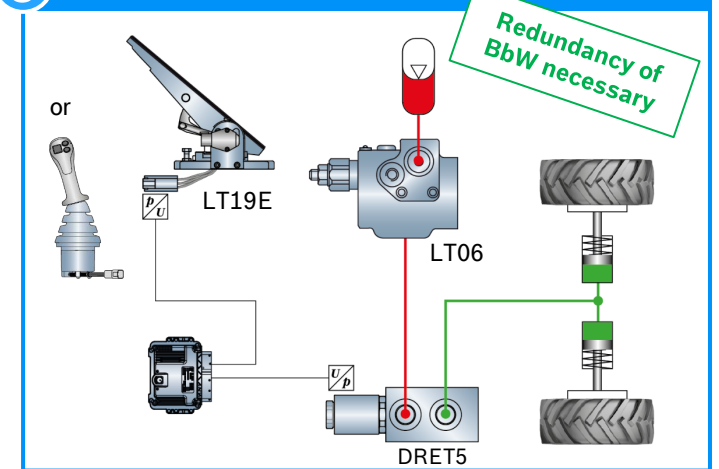
2 By wire /w hydr.-mech. emergency braking



BbW via sensor on pedal

Load depending brake
Different brake pressure on
axles
End of pedal stroke mechanical
link to main brake valve

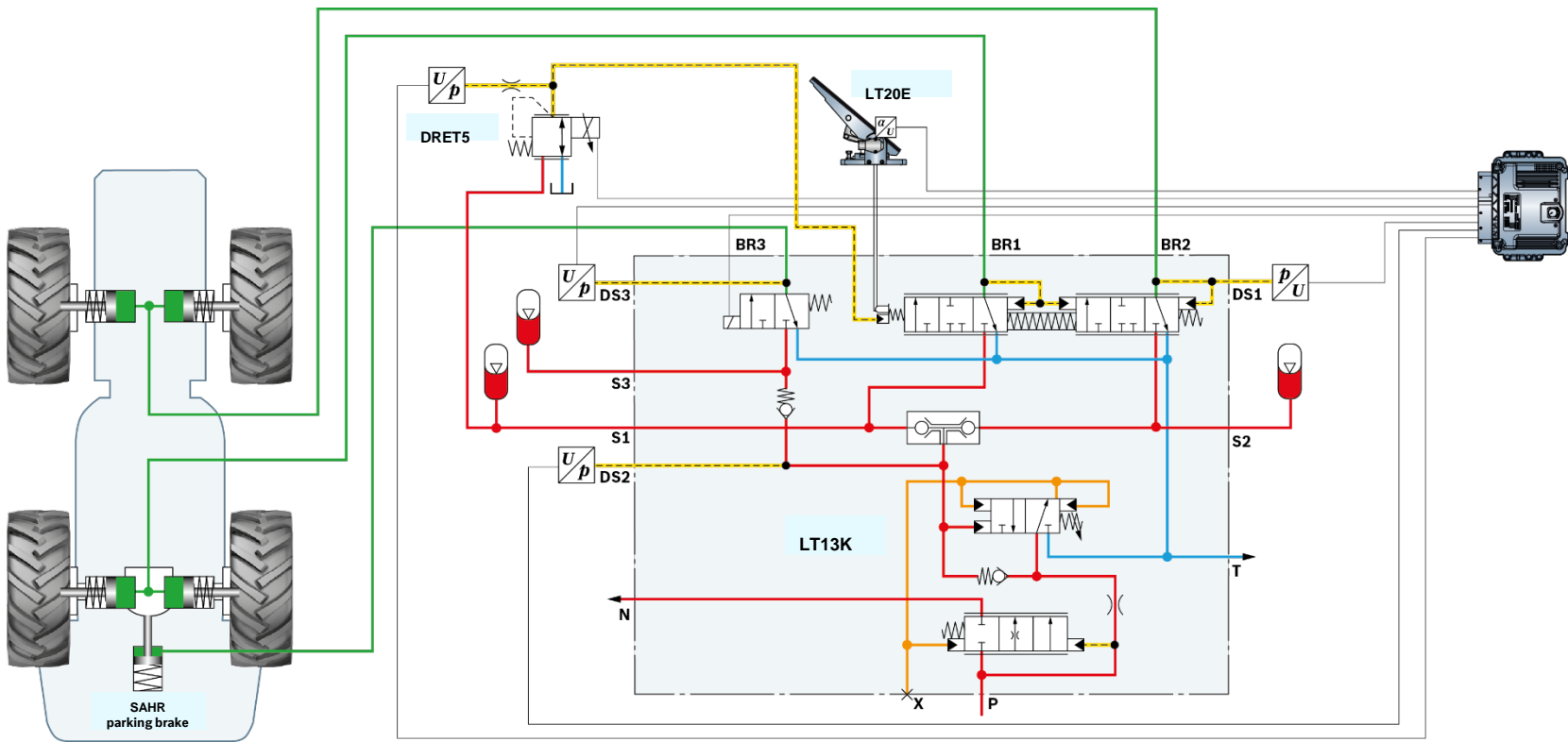
3 Full Brake by Wire (BBW)



BbW complete via electrical
pedal or electrical joystick

Power Brake Valves

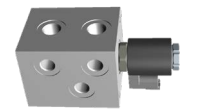
Brake by Wire, LT13K pilot override with DRET5



LT20E Pedal



RC10



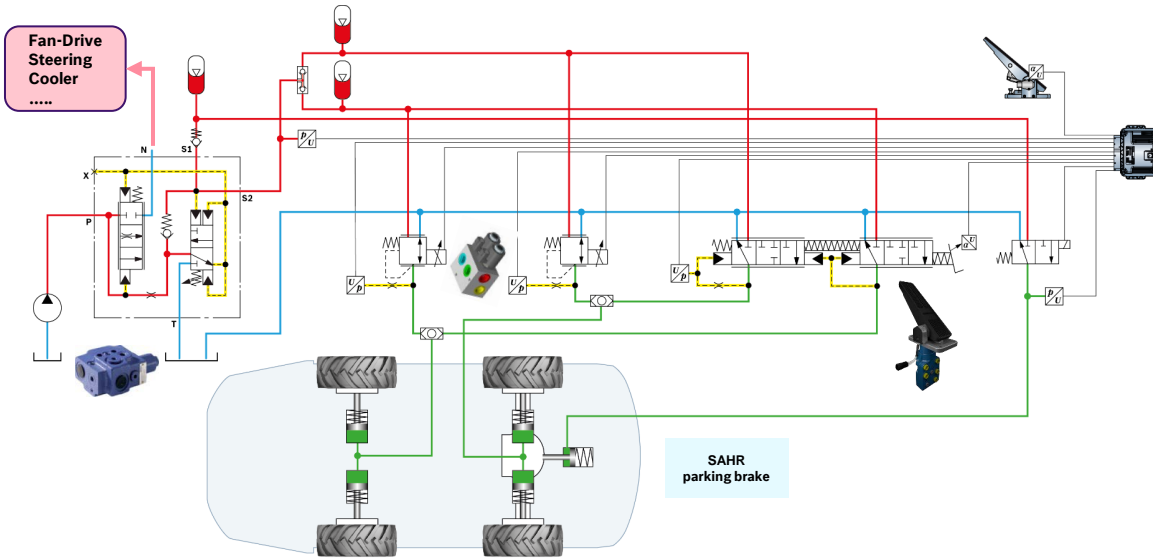
DRET5



LT13K

Power Brake Valves

Brake by Wire Hybrid



- Flexibility of brake control elements and optional oil free cabin reduces noise and machine assembly costs
- Automatic brake balance adaption (empty / loaded)
- Flexibility of brake control elements for different operator positions (e.g. face frontward or backward)
- Brake control without delay in large vehicles
- Distributed manifolds and electronic enables short distances from brake modulation to brake actors (cylinders, calipers)
- increased machine safety and operation comfort, auto brake, speed control
- Override brake in combination with mechanical standard hydraulic brake
- Interface for driver assistance systems and autonomous driving

Brake by wire valve DRET5 Data sheet RE64667

- Brake pressure 160 bar
- Supply pressure 250 bar
- Tank pressure 160 bar
- Flow 15 l/min

Dual BBW
valve DRET5



Brake by wire pedal LT Data sheet RE66238

- Stand alone pedal
- Combination sensor pedal with brake valve
LT05 / LT07 / LT13 / LT17

LT07S or LT05S
75% Pedalstroke
only electr. signal
25% Pedalstroke
Mechan. / hydraulic



Electrical pedal
with 2 sensors



Accumulator
charging valve LT06

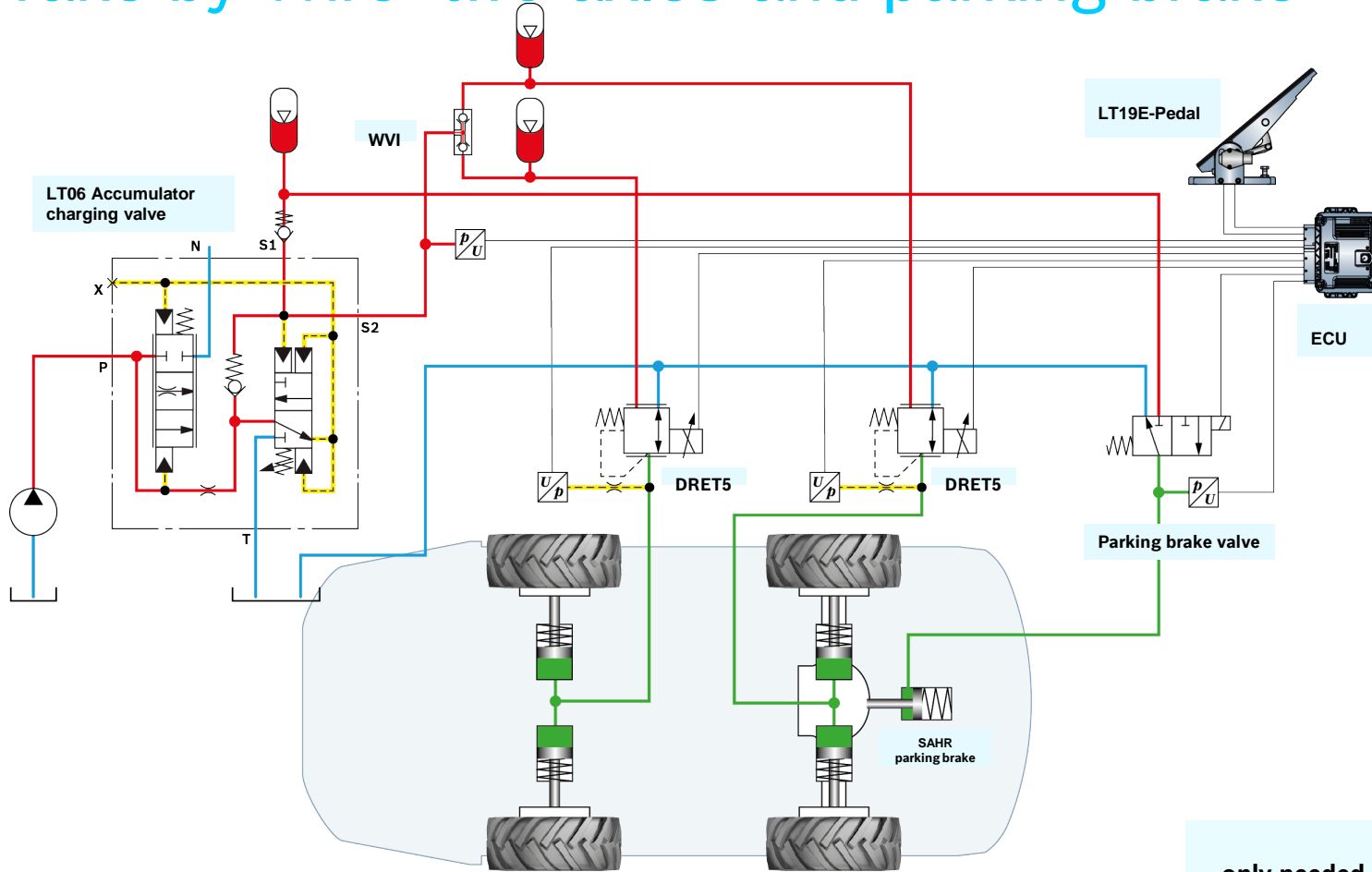


RC10



Power Brake Valves

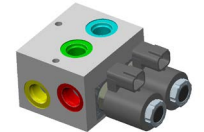
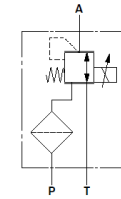
Brake by Wire two axles and parking brake – Full BbW



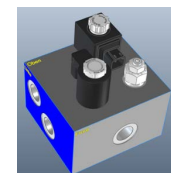
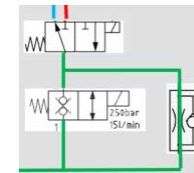
LT19E Pedal,
1 or 2 sensor



RC10



Singl or Dual BBW
valve DRET5



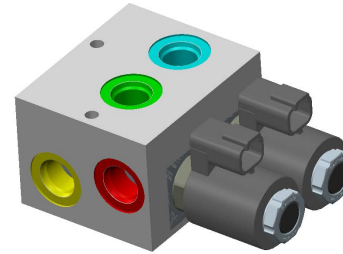
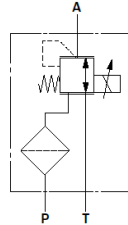
**Safety parking brake valve
only needed if parking brake is used as emergency brake**

Power Brake Valves

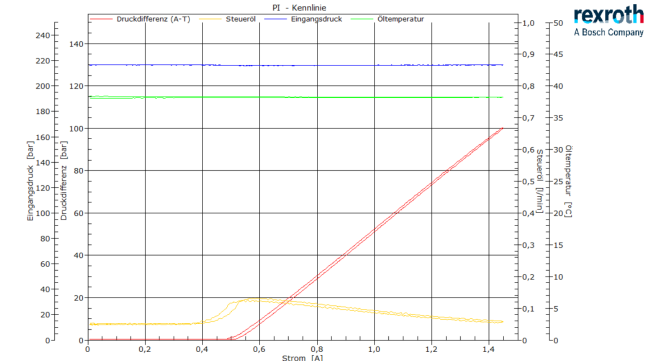
Brake by Wire DRET5 Valve



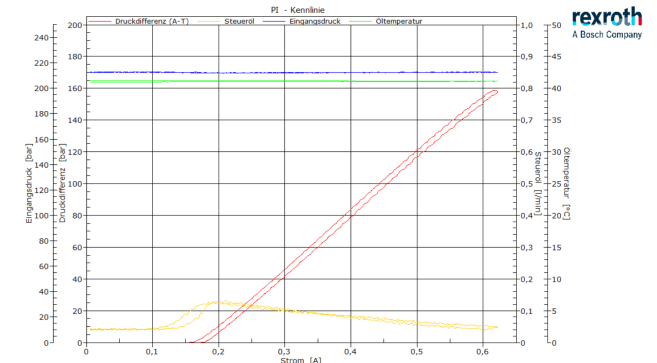
data sheet
RE 64667



Available as single
or dual valve



PI-Characteristic 12V / 100 bar



PI-Characteristic 24V / 160 bar

Technical data

- Max. control pressure 100, 160 bar
- Max. working pressure 250 bar
- Max. backup pressure 160 bar
- Q (P->A): 10 l/min (@ $\Delta p = 10$ bar)
- Q (A->T): 25 l/min (@ $\Delta p = 10$ bar)

Technical features

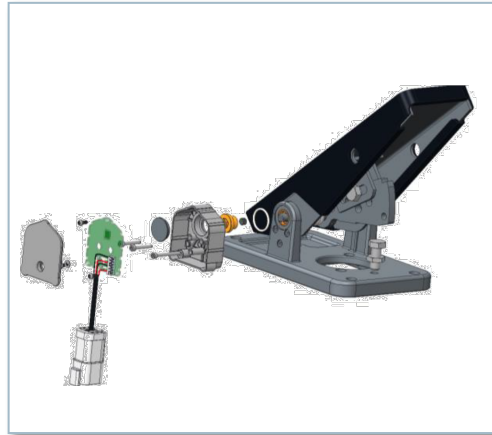
- Direct operated ($P_{min}=0$ bar)
- Optimized for braking application
- New robust filter concept
- Backward flow @160 bar from T \rightarrow A possible (fail safe)

Power Brake Valves

Brake by Wire LT19 Pedal

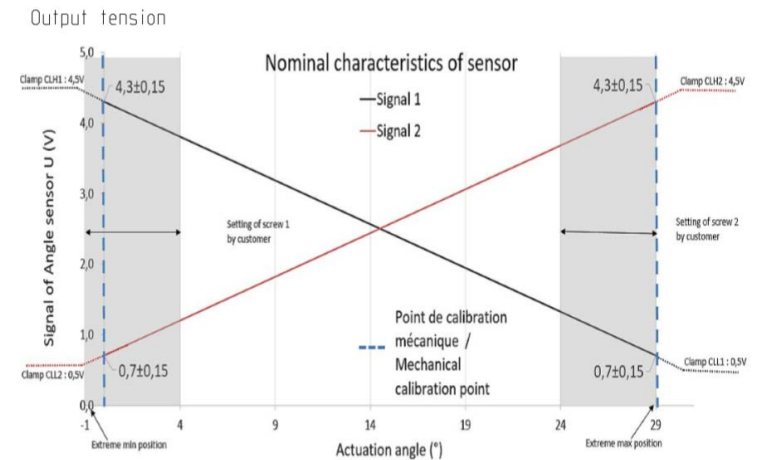
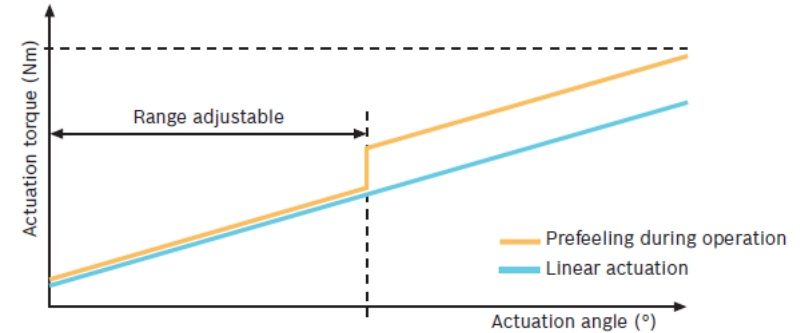


data sheet
RE 66238



Technical data features

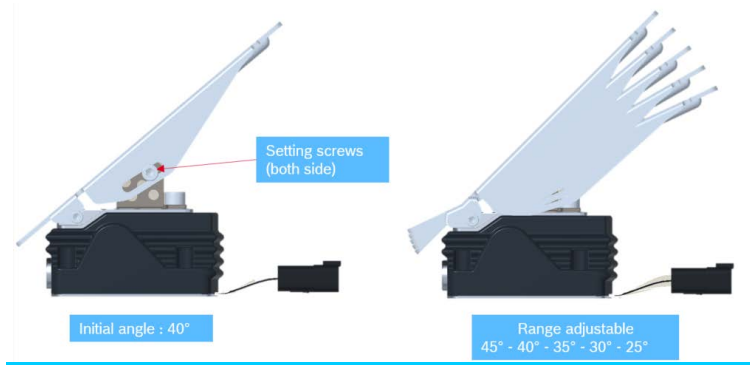
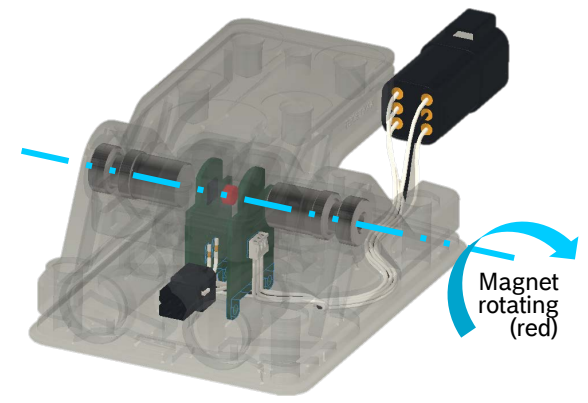
- Hall effect sensor
- One or two sensors left and right, IP69K
- Pre feeling with different springs
- Criss-cross 0,7-4,3V standard
+ specific datas possible, adjustable



Power Brake Valves

Brake by Wire LTP Pedal

New BBW pedal in development
Improved feeling and behavior depending on pedal angle



In future available as suspended pedal too