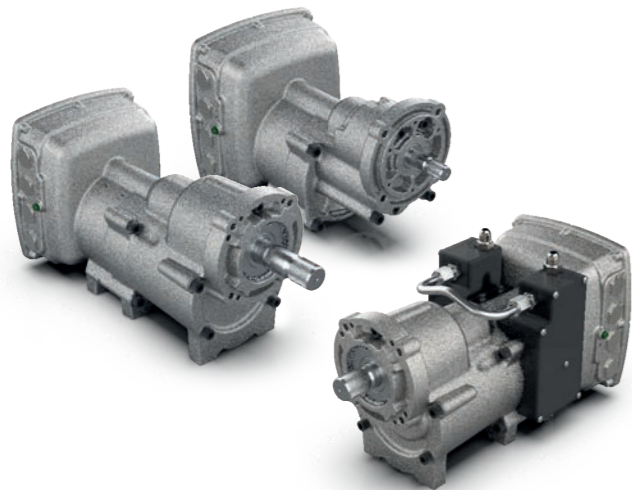


VALVES + ACTUATORS

AN EXTENSIVE RANGE OF SOLUTIONS
FOR BETTER ENGINE PERFORMANCE

VALVES + ACTUATORS

KEY PRODUCT VARIANTS



ACTUATORS

L-SERIES, F-SERIES
PROACT GEN 3, R-SERIES



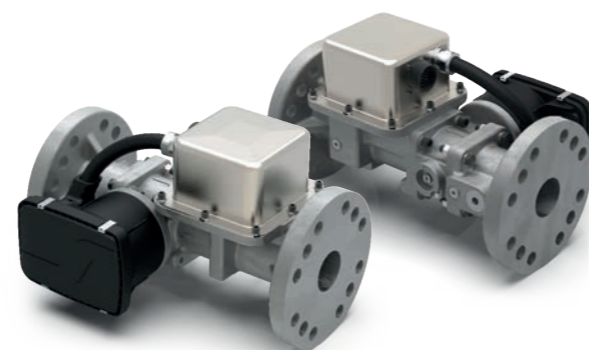
COLD SIDE VALVES AND THROTTLES

L-SERIES ITB (16-50 MM)
F-SERIES ITB (33-75 MM)
PROACT ITB (85-180 MM)



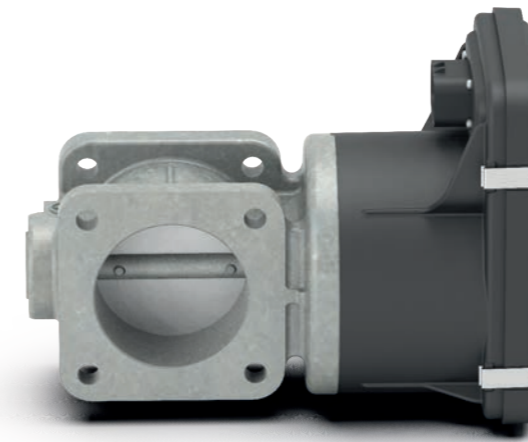
HIGH TEMPERATURE VALVES

V-BAND AND WAFER STYLE AVAILABLE
40 MM, 60 MM, 80 MM, 125 MM, 150 MM
MID-TEMP OPTIONS AVAILABLE FOR AIR CONTROL



FUEL METERING VALVE

TECJET 37, 52, 85, 110, 180



PROACT

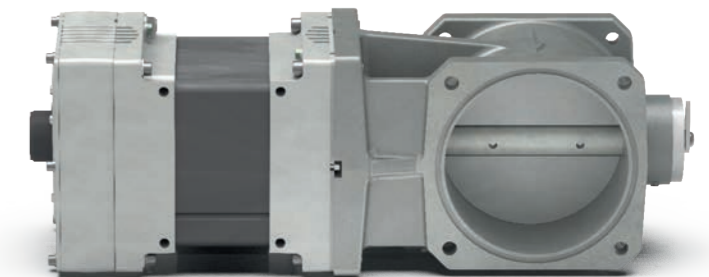
Woodward's ProAct Actuator can either be used as stand-alone actuator or a combination actuator + throttle body (Integrated Throttle Body [ITB]) with integral electronics. The ProAct actuators uses LAT (Limited Angle Torque) motor technology and offers 75-degree-of-travel. They feature an integral electronics digital driver that is capable of controlling the actuator, communicating with the outside control system, and containing on-board software and intelligence to realize monitoring and customizing functions.

- ProAct Integrated Throttle Bodies (ProAct ITBs) are electrically actuated butterfly valves to control flow output
- The valve sizes range from 85 mm to 180 mm
- This direct combination of throttle and actuator results in excellent stability and transient characteristics, and does not require any hydraulics, pneumatics, or governor gear train

F-SERIES

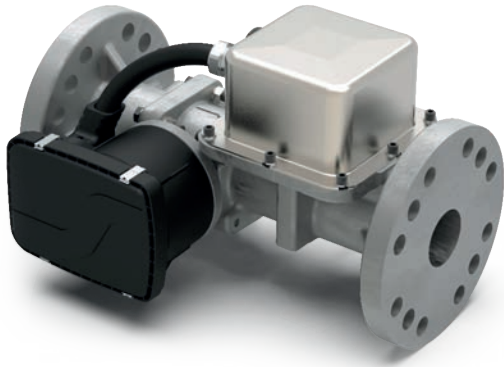
Woodward's F-Series can either be used as stand-alone actuator or a combination actuator + throttle body (Integrated Throttle Body [ITB]) with integral electronics. The robust, bi-directional F-Series actuator uses LAT (Limited Angle Torque) motor technology to drive the actuator to position very quickly. Slew rates are in the order of 80 mSec. The actuator can accept a PWM, J1939 CAN, 4-20 mA, or 0-5 Vdc position demand signal.

- Engine-mounted for various position control functions
- The electric actuator does not require any hydraulics, pneumatics, grease or gear train and is therefore highly reliable
- Integral electronics eliminate the need for a separate dedicated driver box



COMPARATIVE DATA FOR L-SERIES, F-SERIES, PROACT AND R-SERIES ACTUATORS

	L-SERIES		F-SERIES		PA II		PA III		PA IV		R11		R30		R120	
STEADY STATE TORQUE (LB-FT / N-M)	0,25	0,34	0,99	1,34	1,91	2,59	3,82	5,18	7,64	10,36	4,06	5,50	11,06	15,00	44,25	60,00
TRANSIENT TORQUE (LB-FT / N-M)	0,33	0,45	2,00	2,71	3,82	5,18	7,64	10,36	15,28	20,72	8,11	11,00	22,13	30,00	88,51	120,00
STEADY STATE WORK (FT-LB / J)	0,26	0,35	1,21	1,64	2,50	3,39	5,00	6,78	10,00	13,56	5,31	7,20	14,48	19,63	57,92	78,52
TRANSIENT WORK (FT-LB / J)	0,35	0,47	2,44	3,31	5,00	6,78	10,00	13,56	20,00	27,12	10,62	14,40	28,96	39,27	115,84	157,08
STEADY STATE POWER (W)	8		24		65		73,00		101		20		20		20	
TRANSIENT POWER (W)	32		98		251		282,00		371		77		77		77	
STEADY STATE INPUT CURRENT @24V (A)	0,3		1		2,7		3		4,2		1		1		1	
TRANSIENT INPUT CURRENT @24V (A)	1,3		4		10,5		11,7		15,5		3,7		3,7		3,7	
ROTATION (DEGREES/RADIANS)	60	1,047	70	1,222	75	1,309	75	1,309	75	1,309	73	1,274	73	1,274	90	1,57
10-90% TRAVEL SLEW RATE (MS)	33		55		80		80		105		75		105		600	
WEIGHT (LB/KG)	1	0,40	9	4	25	11	32	15	52	24	17,6	8	18,2	8,3	26,3	11,9



TECJET 37, 52, 85, 110, 180

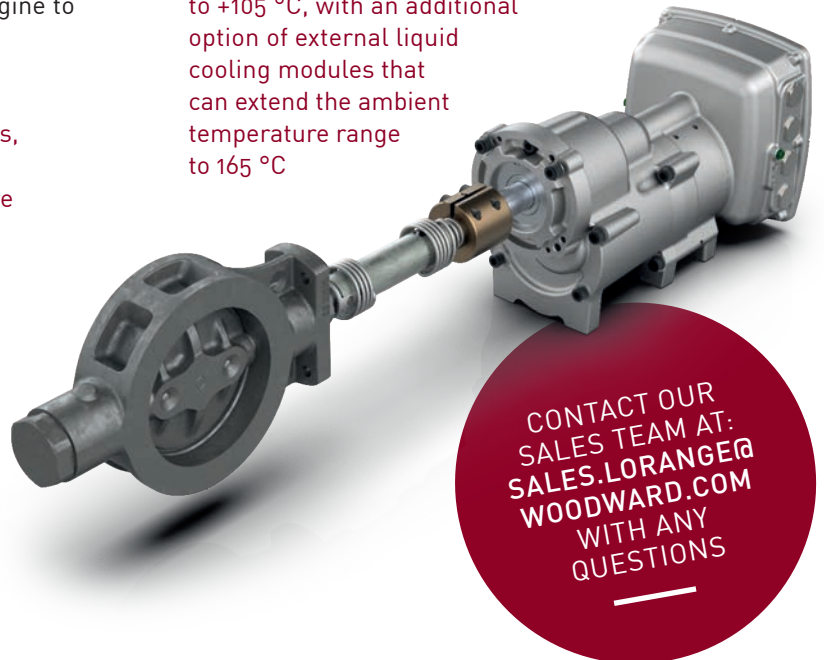
Woodward's Tecjet™ valves are electronic gas metering valves for single-point fuel gas control. Their integrated sensors and electronics ensure the correct gas flow under all specified conditions, enabling the engine to run very lean with low emissions.

- Accurate over entire flow range
- Integrated package: Valve/actuator, sensors, electronic control
- Compensates for pressure and temperature fluctuations and gas fuel density
- Bi-directional communications for easy setup and monitoring
- Field-proven performance and reliability
- Available in various sizes (37, 52, 85, 110 and 180)

GLOTECH II

The R-series is available in four torque models – R11, R30, R120 and R200 – with valve sizes ranging from 40 mm to 150 mm. It allows continuous gas temperatures between 400 °C and 650 °C (Hot Valve) and 200 °C and 500 °C (Mid-Temp Valve).

- Two basic valve configurations are available: a flow-through, non-contacting version and a plate-to-housing contacting version with improved closed-flow leakage capability
- R-series actuators accept either a (4 to 20) mA, (0 to 200) mA, CAN, or PWM (pulse width modulated) command signal while providing a 4 to 20 mA or CAN output shaft position signal
- R-Series actuators are able to operate over a temperature range of -40 °C to +105 °C, with an additional option of external liquid cooling modules that can extend the ambient temperature range to 165 °C



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