TFplus

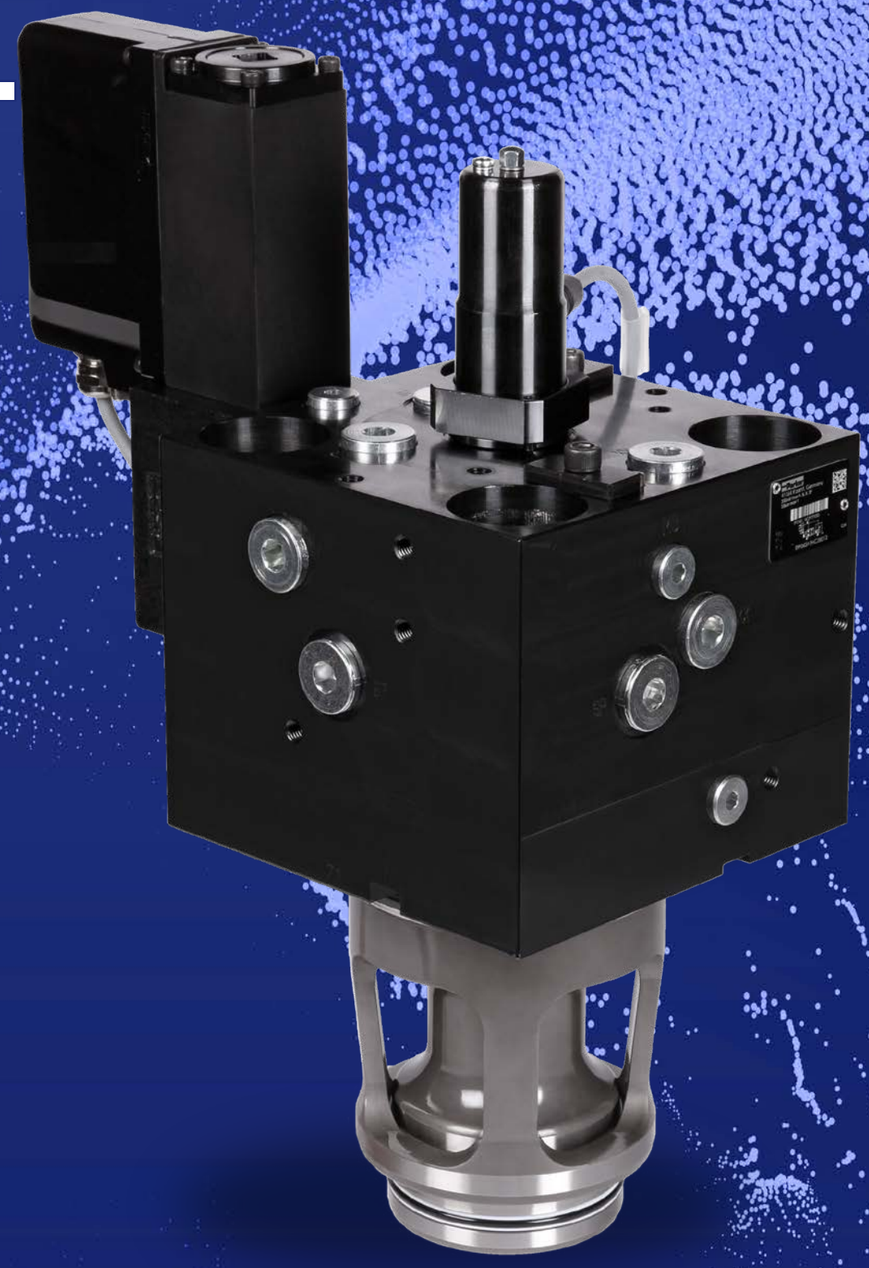
TFplus Mega-Flow Cartridge Valves

Series TFP

Parker

ENGINEERING YOUR SUCCESS.

Downsize your manifold block.
Upgrade your efficiency.



Parker introduces the 2-way servo proportional TFplus valve with VCD® technology series TFP, pioneering a completely new generation of cartridge valves. With higher power density than ever before. This enables the use of smaller sizes and thus the design of size- and cost-optimized manifold blocks. Moreover, the maximum performance is increasing. As a result, systems with significantly higher flow can be realized.

Whether you want to downsize or to improve the performance of your hydraulic controls system: TFplus is the perfect choice.

TFplus

The new mega-flow class.

Parker

Parker

We planned it.

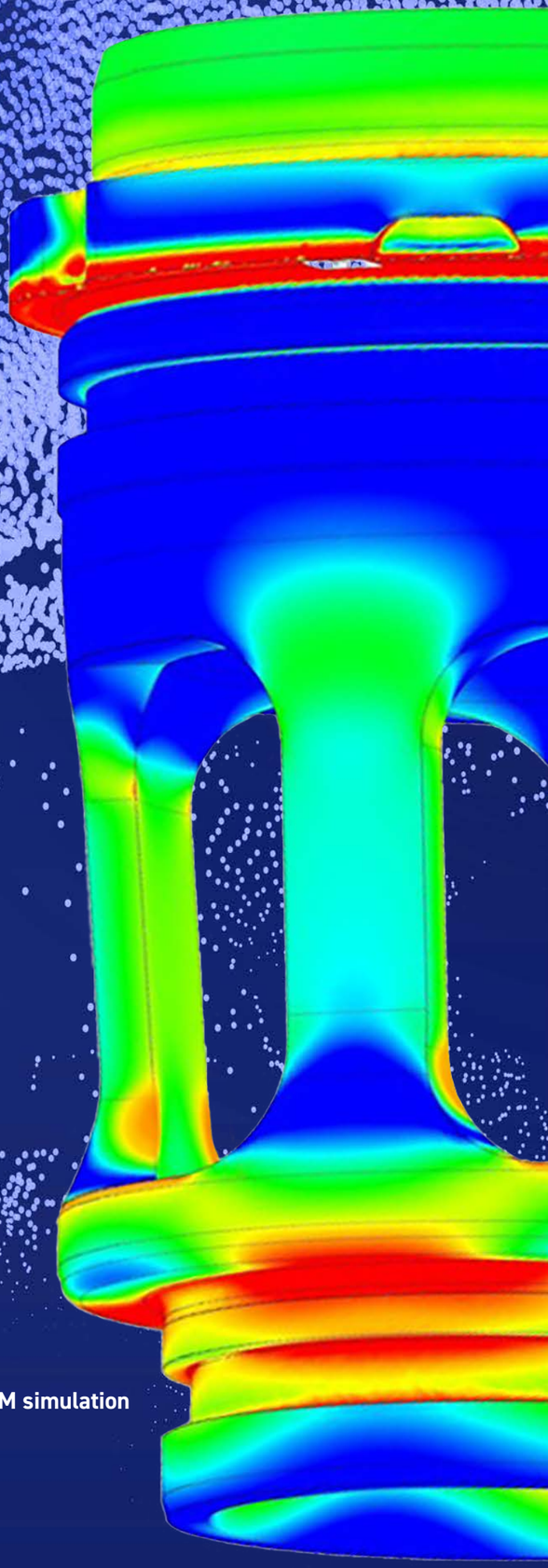
The new TFplus valve series TFP is the result of several years of development work, intensive computer simulations and numerous application tests. Starting point was the well-known TDP valve, benchmark for years regarding flow, precision and dynamics, proven in numerous applications. Desired results were:

- Higher power density but maintaining the ISO cavity
- Increase the operating pressure to 420 bar
- Keep superior dynamics high reliability,
- Compact and safe design

To sustain and expand Parker's technological edge, we designed a completely new main stage which looks different from any other cartridge valve in the market. Through intensive simulation, we developed a new valve in which the mechanical loads that occur are in an optimal ratio to the hydraulic performance of the valve. A pressure-compensated sleeve with an enlarged seat diameter and oriented large windows allows for the first time optimum use of the DIN cavity.

We made it.

First prototype



Detailed FEM simulation

The result: the new TFP. Breaking the limits.

This is power density: the TFplus valve series TFP is our new high-efficient 2-way servo proportional slip-in cartridge valve for the precise control of highest flow at maximum dynamics at up to 420 bar operating pressure. The innovative, patented design of the pressure-compensated sleeve and the spool results in so far unrivaled flow and pressure drop. The improved efficiency compared to conventional cartridge throttle valves enables the use of smaller nominal sizes with the same output. This not only allows to dimension the valves themselves but also other system components like manifold blocks smaller.

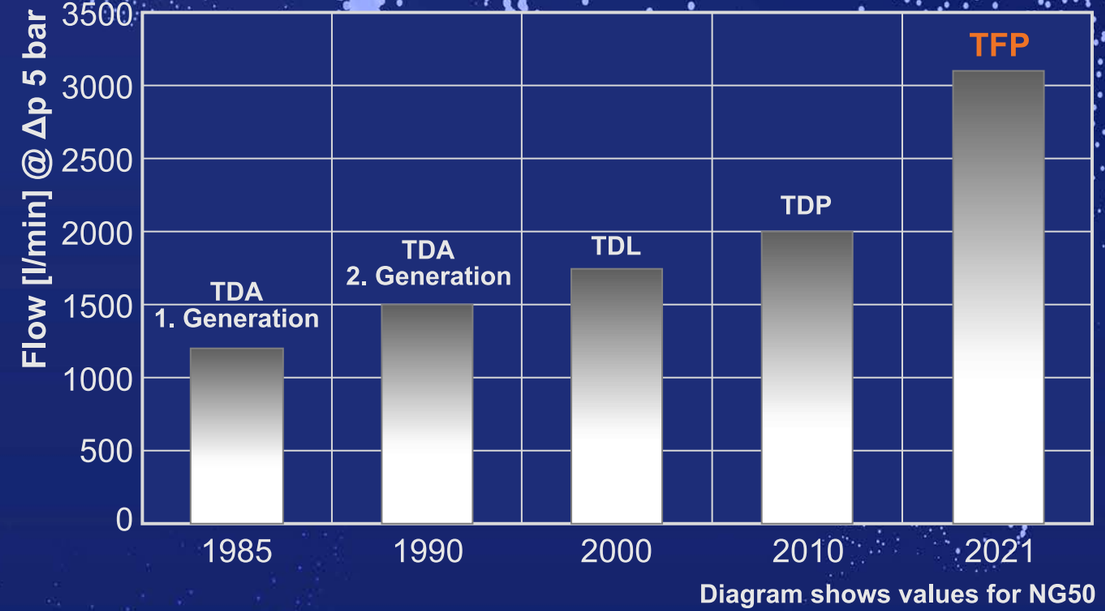


Diagram shows values for NG50

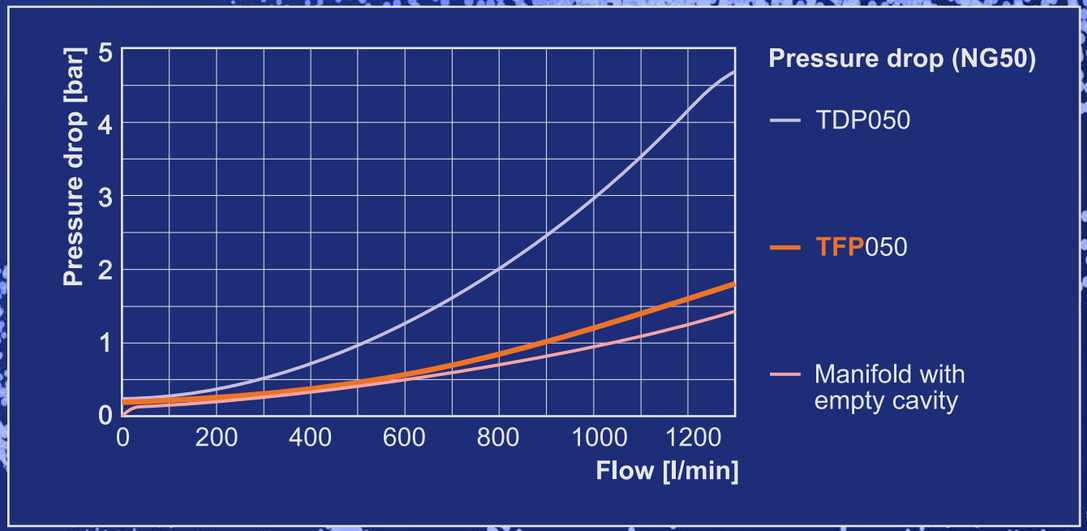
Unique design. Unique values.
Unique advantages.

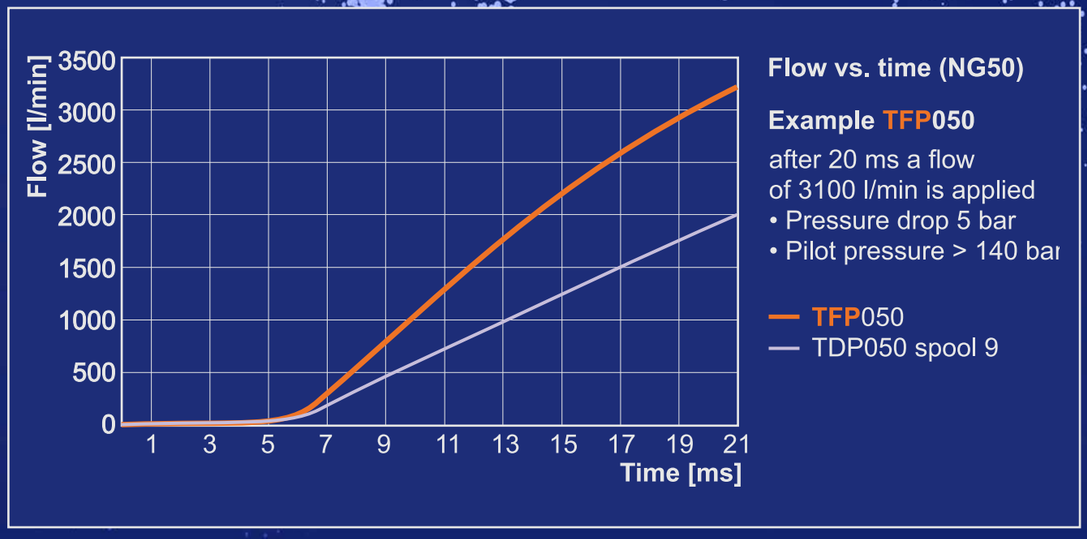
The new TFP provides unique performance characteristics which – together with the increased maximum pressure of 420 bar – enhances the output of demanding applications like die cast machines and presses. The four large windows in the sleeve raise the flow to an entirely new level, particularly in combination with an optimized cavity. Due to the optimized flow conditions between the sleeve and spool, the TFP offers pressure differential values only marginally higher than the manifold block with empty cavity.

With the Voice Coil Drive dynamics of the pilot valve and the optimum control area ratio in the main stage, the TFP provides extremely fast step response times. Considering the increased flow capacity, the flow versus time ratio is significantly better as the TDP series. The combination of precision, higher operating pressure and flow dynamics, almost unique in the premium class, enables shorter cycle times, more stable processes and minimized scrap rates.

In addition to the increased power density of the valve, great emphasis was placed on improving reliability. With the TFP, for example, the LVDT is installed in the pilot chamber and thus protected against possible pressure peaks in the working port.

Size	Ø A + B [mm] acc. ISO	TFP [l/min] ISO Cavity	Ø A + B [mm] optimized	TFP [l/min] Cavity optimized
NG25	25	560	30	650
NG32	32	1030	39	1200
NG40	40	1560	50	1800
NG50	50	2700	63	3100
NG63	63	4460	80	5200
NG80	80	7040	100	7600
NG100	100	10000	125	11100





High tech at a glance. And in detail.

The proportional cartridge throttle valve series TFP has a 2-stage design consisting of a pilot valve and a main stage with pressure-compensated poppet and LVDT. With the DFplus pilot valve, the TFP achieves extremely fast response times: from 11 ms (NG25) up to 32 ms (NG100). The integrated electronics in the pilot valve has two control loops for main poppet and the pilot spool. The active control is positioning the main poppet independent of the pressure conditions occurring in the system.

Features/benefits:

- Active operated 2-way servo proportional valve
- 7 sizes, NG25 up to NG100
- Cavity and mounting pattern according to ISO 7368
- Flow range up to 11.100 l/min at 5 bar Δp
- Highest power density – saves typically one size when designing control manifold blocks and thus enables smaller blocks with the same performance
- High precision – for high quality products, minimum scrap rate and long machine lifetime
- Extremely fast step response – shortens material processing and thus cycle times
- 420 bar maximum operating pressure – increases performance in particularly demanding applications
- LVDT installed in the pilot chamber – protects from pressure peaks and thus increases reliability

Ordering Code

TFP		A	9	H	C				0	
2-way servo proportional valve with LVDT	Nominal size		Flow characteristics linear			Pilot oil	Seal	Command signal	Standard electronics	Design series (not required for ordering)

Code	Nominal size
025	NG25
032	NG32
040	NG40
050	NG50
063	NG63
080	NG80
100	NG100

Code	Supply	Drain
2	External	External
8	Plate with pipe connections X1 (00) and Y1 (99)	

Code	Command signal
B	0...+10 V
E	0...+20 mA
S	4...+20 mA
N	EtherCAT

Code	Seal
N [1]	NBR
V	FPM

1) HFC fluids suitable

Technical Data

			TFP025	TFP032	TFP040	TFP050	TFP063	TFP080	TFP100
Size		ISO 7368	NG25	NG32	NG40	NG50	NG63	NG80	NG100
Pressure	bar	A; B	420						
		X	350						
		Y	35						
Flow	l/min	Q_{nom} @ Δp = 5 bar	650	1.200	1.800	3.100	5.200	7.600	11.100
		Q_{max}	1.400	2.600	4.100	6.200	9.800	17.000	25.000
Hysteresis	%		< 0.1						
Step response (pilot pressure 140 bar)	ms	100 % step	11	14	17	18	23	28	32
Commands			0 - 10 V; 0 - 20 mA; 4…20 mA; optional 0 - 10 mA; EtherCat						

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