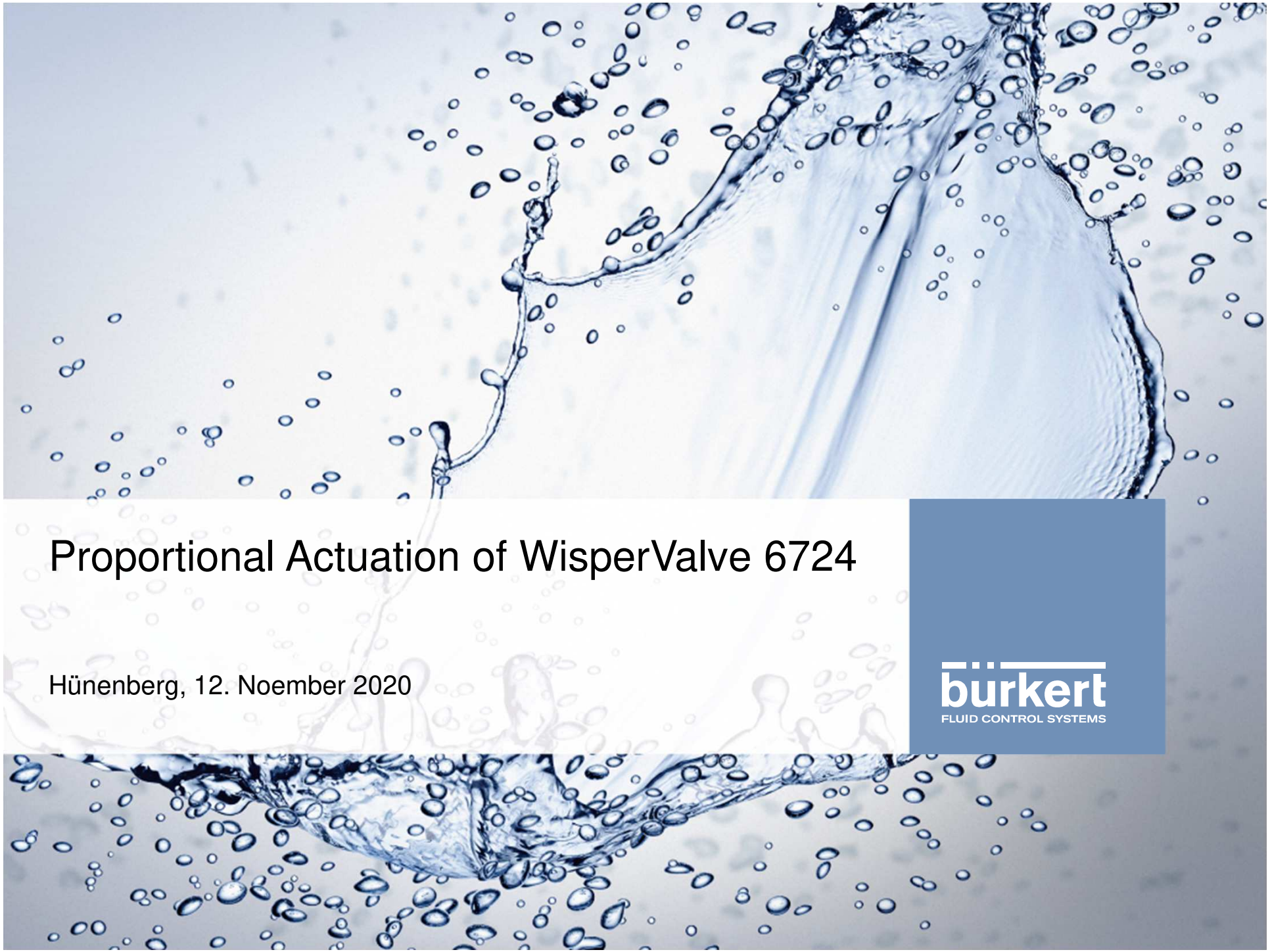
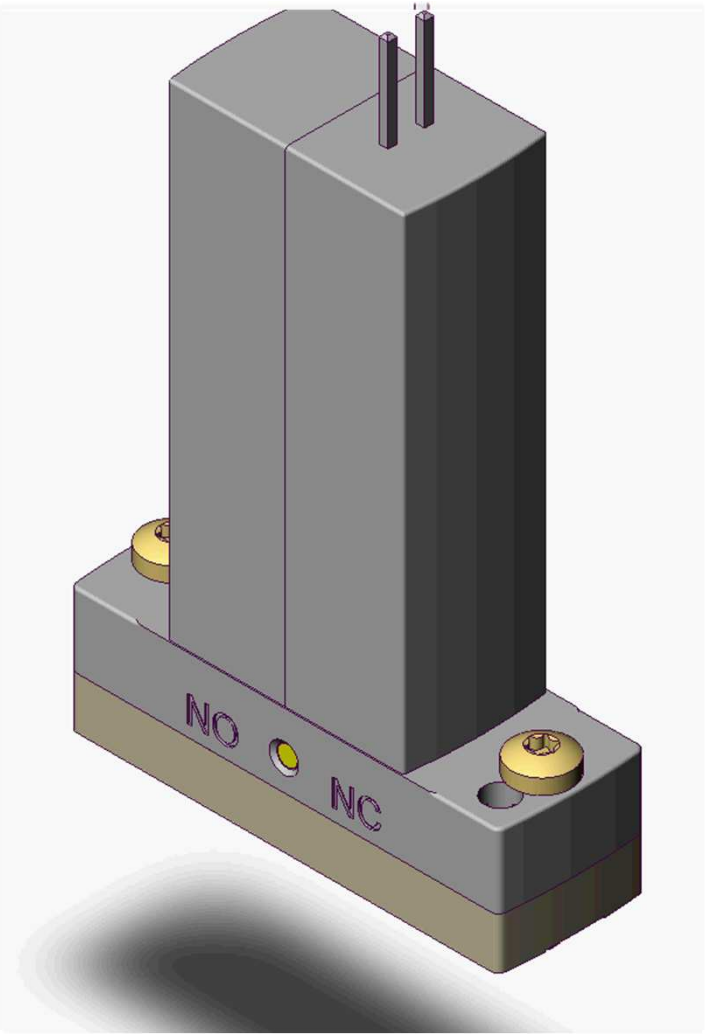


Proportional Actuation of WisperValve 6724

Hünenberg, 12. Noember 2020

bürkert
FLUID CONTROL SYSTEMS

Proportional Actuation of WhisperValve 6724



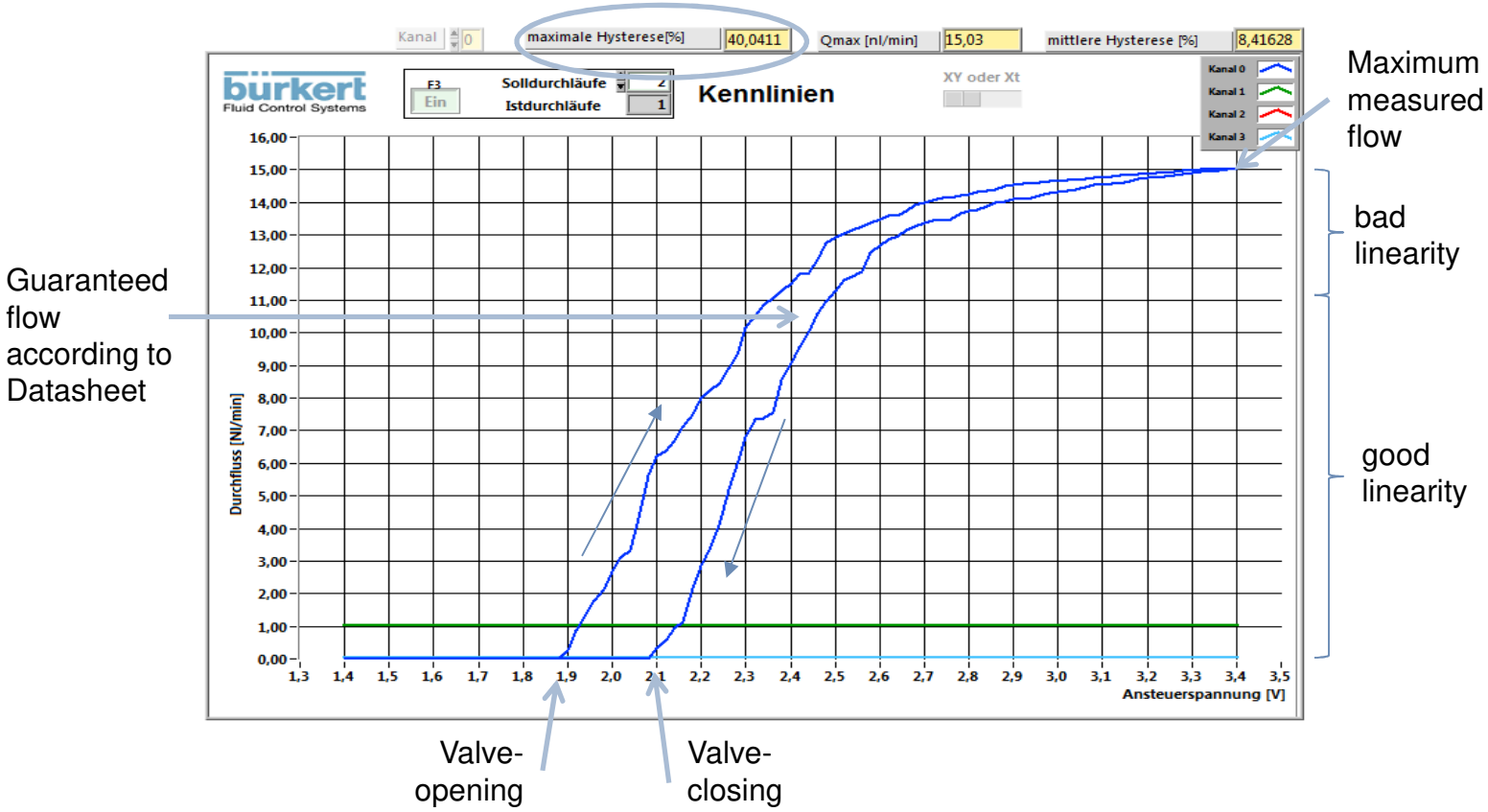
The new and unique electrodynamic actuator allows

- Fast and proportional movement
- High lifecycle
- No noise creation from the hitting of the moving and fixed parts
- Low power consumption at 100% duty cycle

Proportional Actuation of WhisperValve 6724 status quo

Measurement result: Flow characteristic curve

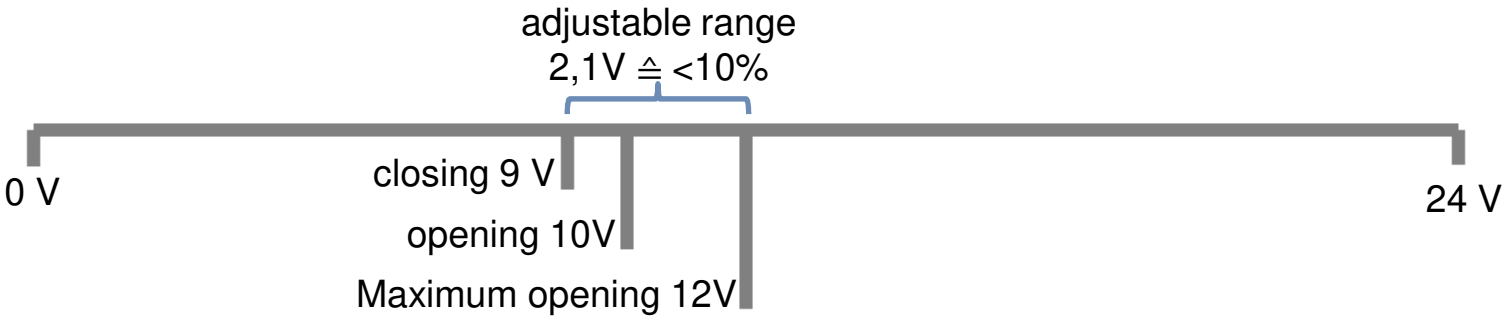
flow direction below seat 1 bar
Control voltage 0-5 V corresponds to device voltage 0-24 V



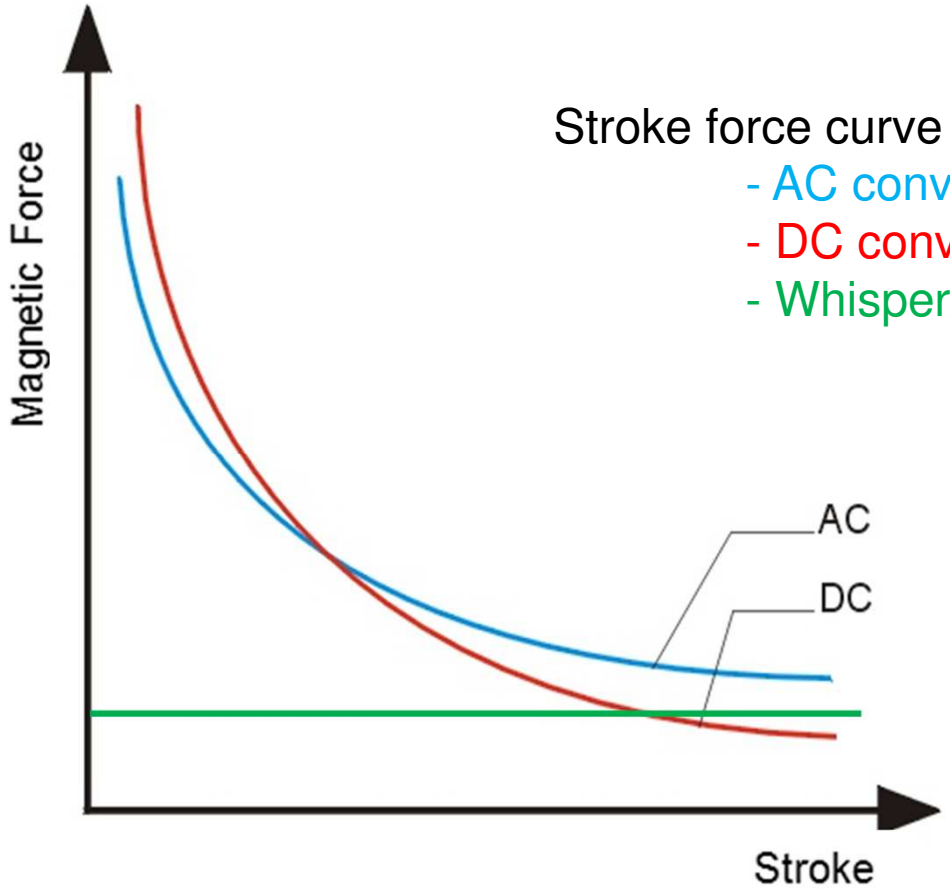
Proportional Actuation of WhisperValve 6724
Status quo

Measurement results:

results		comments
Usable voltage range in which the flow rate changes	About 2,1V	at Kv-value 0,026m³/h (≙ 11,5 lN/min flow rate)
Valve opening / valve closing Maximum valve opening	about 9 – 10V About 12V	Basic condition: 24V
Preferred flow direction	Below seat	
Back pressure	sensitive	Hysteresis increases



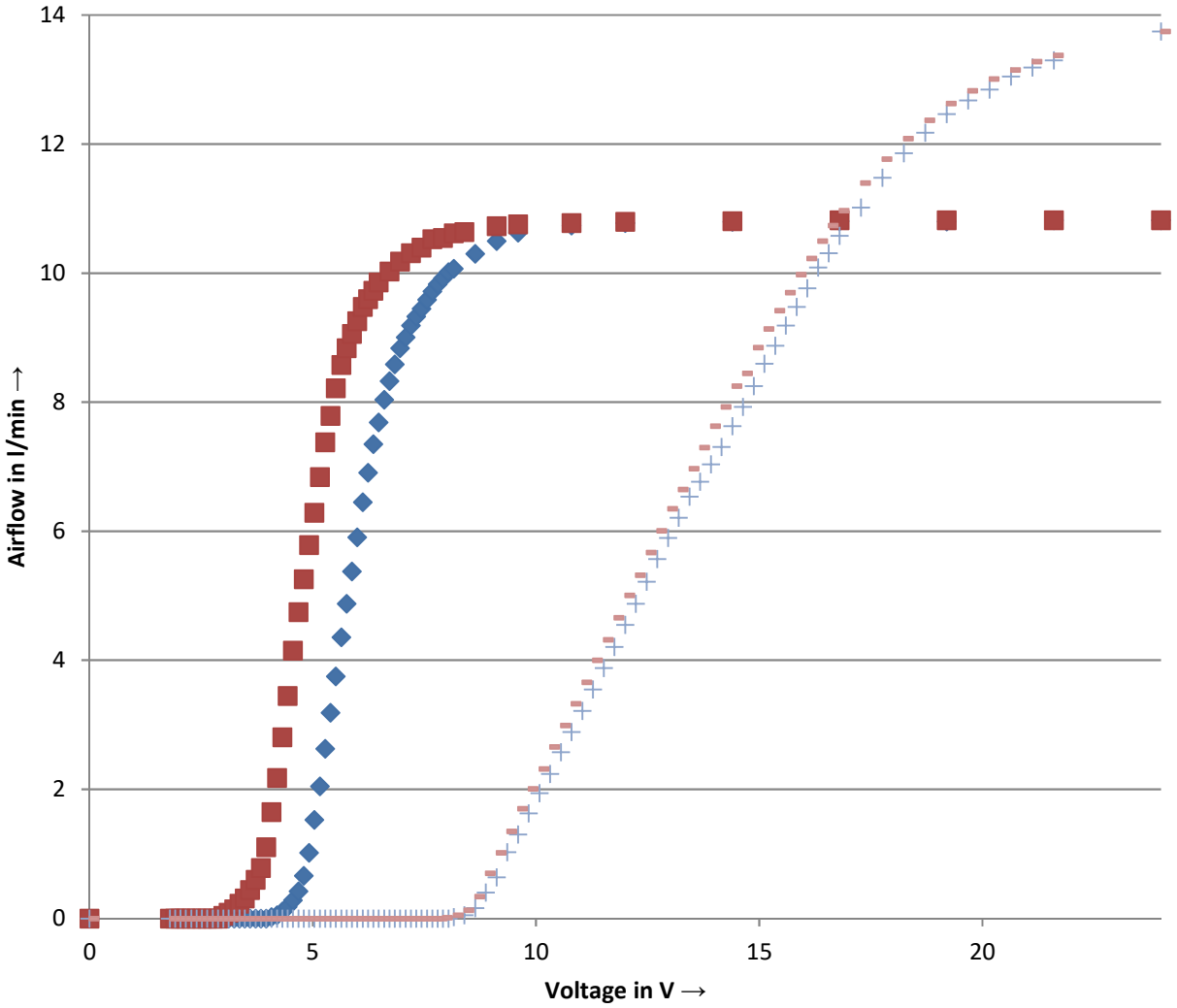
Differences in work principle: Classic prop. valve vs. whisper valve



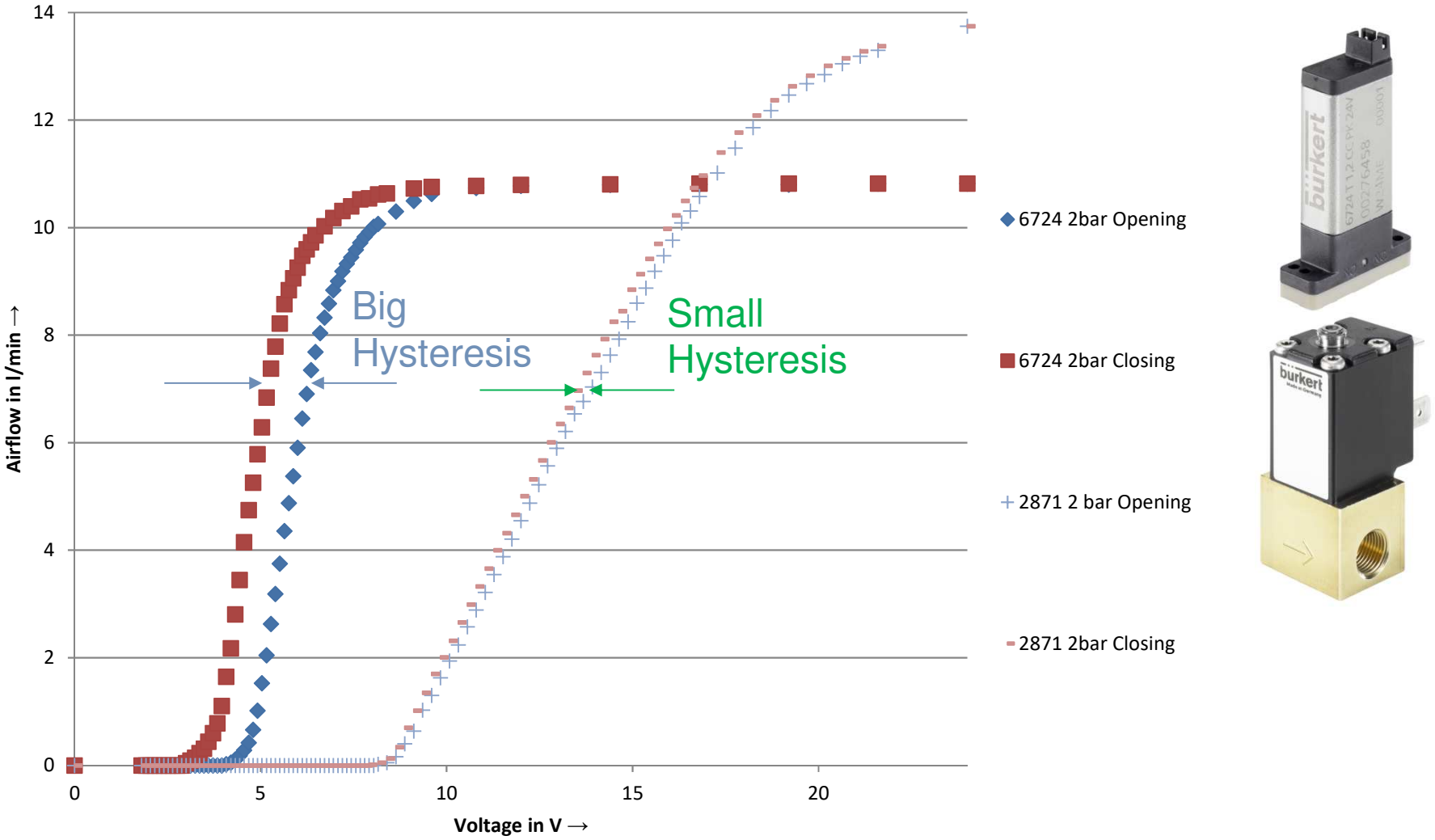
Stroke force curve

- AC conventional proportional valve
- DC conventional proportional valve
- Whisper/Lorenz-force valve

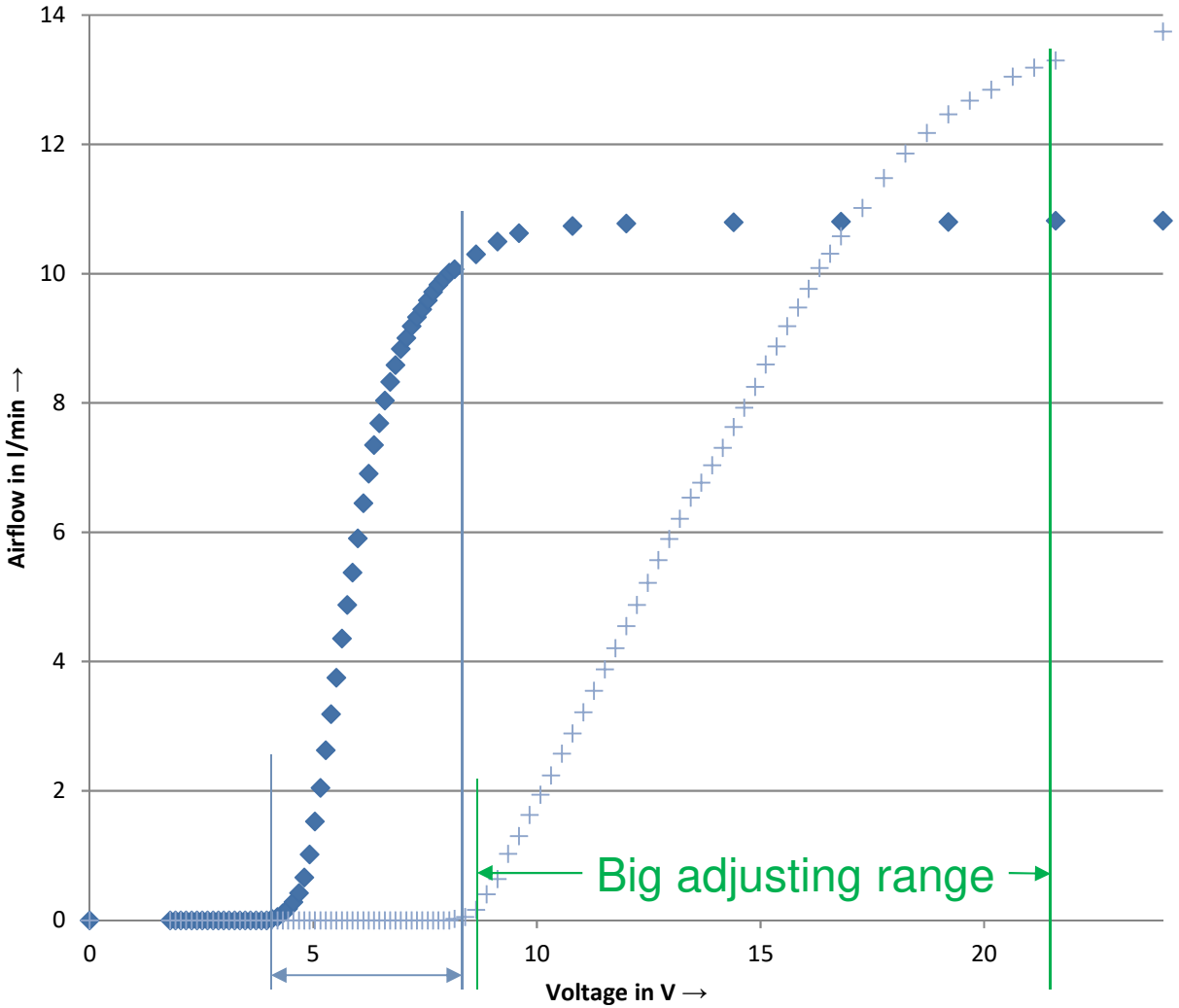
Characteristics 6724 compared to 2871



Characteristics 6724 compared to 2871

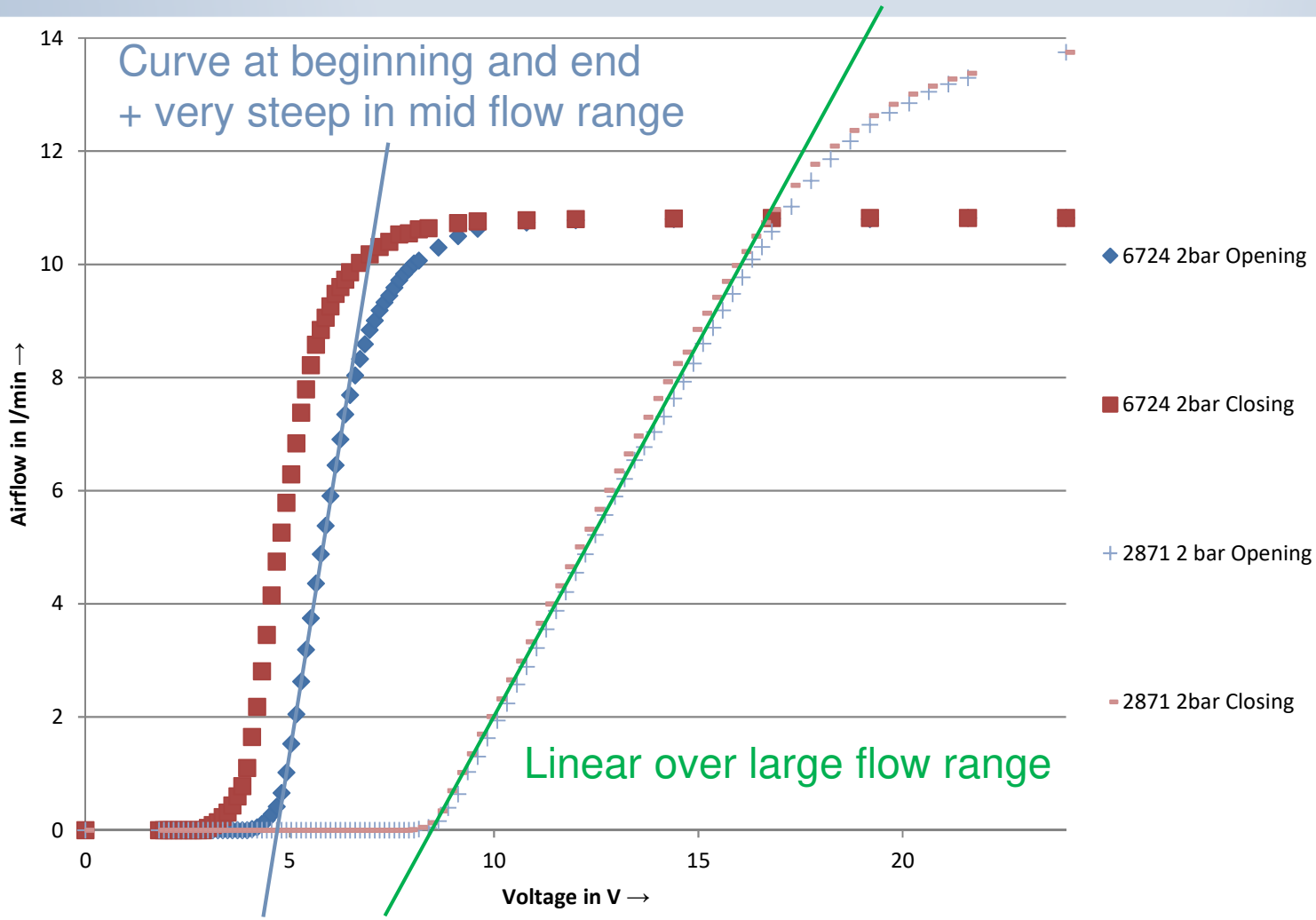


Characteristics 6724 compared to 2871

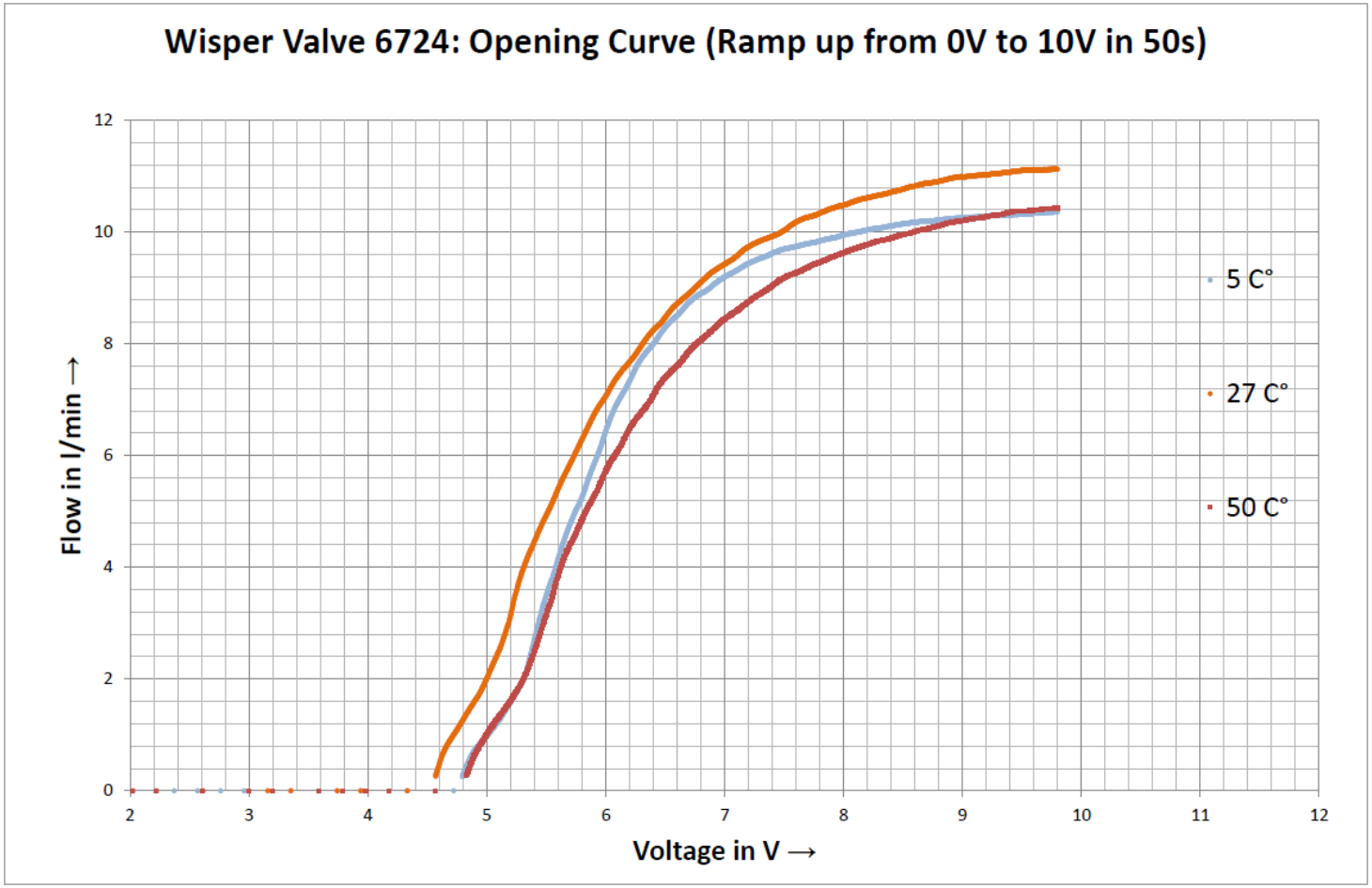


Smaller adjusting range

Characteristics 6724 compared to 2871



Characteristics 6724 compared to 2871
Temperature influence (EPDM)



application example 1:
proportional valve in a Mass Flow Controller MFC

Measurement of settling time t 95% at step wise change of the set-point:

10%, 90%, 10% (1, 9, 1 lN/min)

Flow direction 1 bar over seat

valve position in %

Flow rate in lN/min

"Overshoot"
Control parameters not adapted to the valve, settings for Type 6724 too dynamic

→ Control parameters need to be adapted

Further measurements of other set points:
for example: 0%,100%,0% … 50%,51%,50% … 50%,50,25%,50%

Conclusion

Type 6724 possible applications

- Valve is very suitable for a closed control loop
- The biggest advantage of the valve is the separation of the media.
- The valve is suitable for special applications as the pressure range and the selection of nominal sizes are limited.
- The valve is less dynamic than classic proportional valves.
- It is insensitive to vibration as the separating diaphragm acts as a vibration damper.

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