



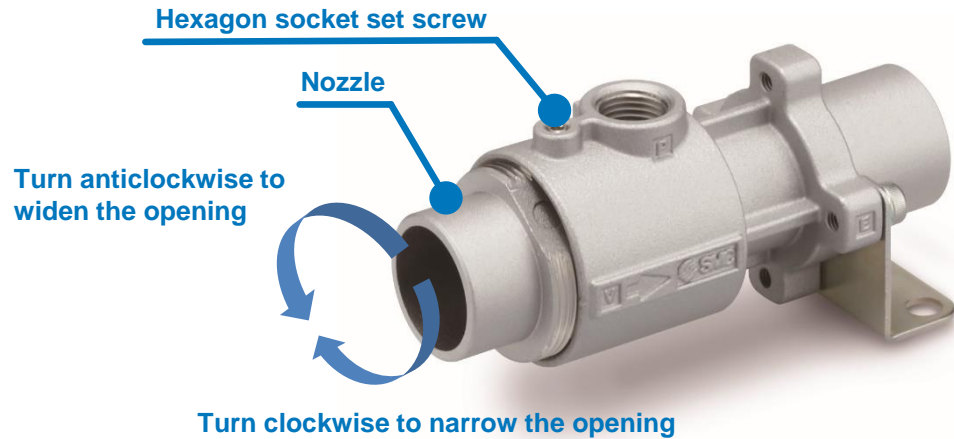
SWITCHOVER DOCUMENT

ZHV Series
Vacuum flow

Improved features and related benefits

Feature

- Adjustable blow and vacuum flow rate:
 - Turning the nozzle counterclockwise increases the flow rate (vacuum pressure increases)
 - Turning the nozzle clockwise decreases the flow rate (vacuum pressure decreases).



| Nozzle turn | Anticlockwise | Clockwise |
|----------------------------------|---------------|-----------|
| Opening | Larger | Smaller |
| Vacuum pressure [kPa] | ↑ | ↓ |
| Suction flow rate [l/min(ANR)] | | |
| Discharge flow rate [l/min(ANR)] | | |
| Air consumption [l/min(ANR)] | | |

Customer Benefit

- Increased flexibility to suit users' specific application requirements.





| | Current model (ZH-X185) | | | | New model (ZHV) | | | |
|--------------------------------------|-------------------------|------|------|------|-----------------|------|------|------|
| Fluid passage diameter [mm] | 13 | 21.6 | 30 | 42 | 13 | 21.6 | 30 | 42 |
| Max. suction flow rate [l/min (ANR)] | 520 | 1975 | 4590 | 5270 | 1800 | 2700 | 6000 | 8000 |
| Vacuum pressure [kPa] | -6 | | | | -33 | -32 | -16 | -15 |

*1 At 0.5 MPa supply pressure

*2 ZHV nozzle opened to its maximum.

Feature

- Compact and lightweight (compared with ZH-X185 Series).
The ZHV series is formed by die-casting, which involves pouring molten aluminium into a mould. Die-casting allows to mould a complex shape, leading to an optimised profile for the ZHV series, as well as a reduction in the amount of aluminium used:
 - Internal volume reduced by up to 50 %
 - Weight reduced by up to 50 %.

| Size | | 10 | 20 | 30 | 40 |
|------------------------------------|---|----|------|------|------|
| Internal volume reduction [%] | | 50 | 47.7 | 42.1 | 41.0 |
| Internal volume [cm ³] | ZHV: Die casting  | 17 | 80 | 198 | 402 |
| | ZH-X185: Machining  | 34 | 153 | 342 | 681 |
| Weight reduction [%] | | 50 | 49.9 | 43.4 | 42.4 |
| Weight [g] | ZHV: Die casting  | 46 | 209 | 526 | 1063 |
| | ZH-X185: Machining  | 92 | 417 | 929 | 1847 |

Customer Benefit

- Downsized machines freeing up factory space
- Reduced moments of inertia in machines' moving parts increase productivity.

Improved features and related benefits

Feature

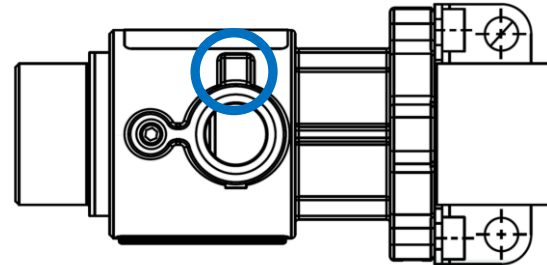
- Availability of Rc, G and NPT threads for the air supply port
- Different appearance by thread type.

Customer Benefit

- Target global markets
- Facilitating identification of thread.





Current model (ZH-X185)




New model (ZHV)

| Thread types | Rc | G | NPT |
|--------------|------------|---|-----|
| Appearance | | | |
| | No marking | F | N |

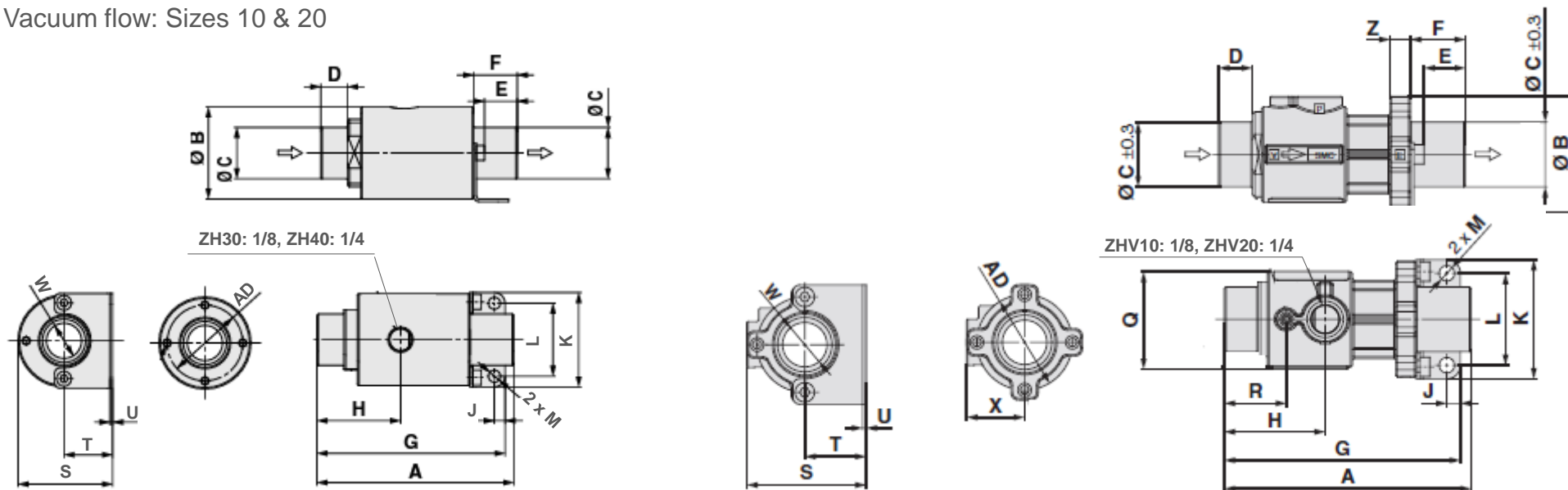
Standard Specification

| Model | | ZH-X185  | | | | ZHV  | | | |
|-------------------------------------|-------------------|--|-------|------|------|---|------|-------|-------|
| Passage diameter [mm] | | 13 | 21.6 | 30 | 42 | 13 | 21.6 | 30 | 42 |
| Suction flow rate [l/min (ANR)] | | 520 | 1200 | 2300 | 3400 | 520 | 1975 | 4590 | 5270 |
| Discharge flow rate [l/min (ANR)] | | 700 | 1600 | 3000 | 4750 | 670 | 2360 | 5310 | 6820 |
| Air consumption [l/min (ANR)] | | 180 | 380 | 710 | 1330 | 180 | 380 | 710 | 1330 |
| Standard vacuum pressure [kPa] | | -6 | | | | -6 | | | |
| Standard supply pressure [MPa] | | 0.5 | | | | 0.5 | | | |
| Supply pressure range [MPa] | | 0 to 0.7 | | | | 0 to 0.7 | | | |
| Adjustable performance | | No | | | | Yes | | | |
| Supply port thread type | | None | | | | Rc, G, NPT | | | |
| Ambient and fluid temperatures [°C] | | -5 to 80 (No freezing or condensation) | | | | -5 to 80 (No freezing or condensation) | | | |
| Weight [g] | | 92 | 417 | 929 | 1847 | 46 | 209 | 526 | 1063 |
| Dimensions [mm] | Length | 73 | 119.5 | 158 | 203 | 72.7 | 119 | 157.3 | 201.5 |
| | External diameter | 34 | 55 | 70 | 90 | 34 | 55 | 70 | 90 |
| Body material | | Aluminium alloy | | | | Aluminium die-cast (ADC12) | | | |

 Difference in specifications

Dimensions

Vacuum flow: Sizes 10 & 20



Current product (ZH-X185 Series)

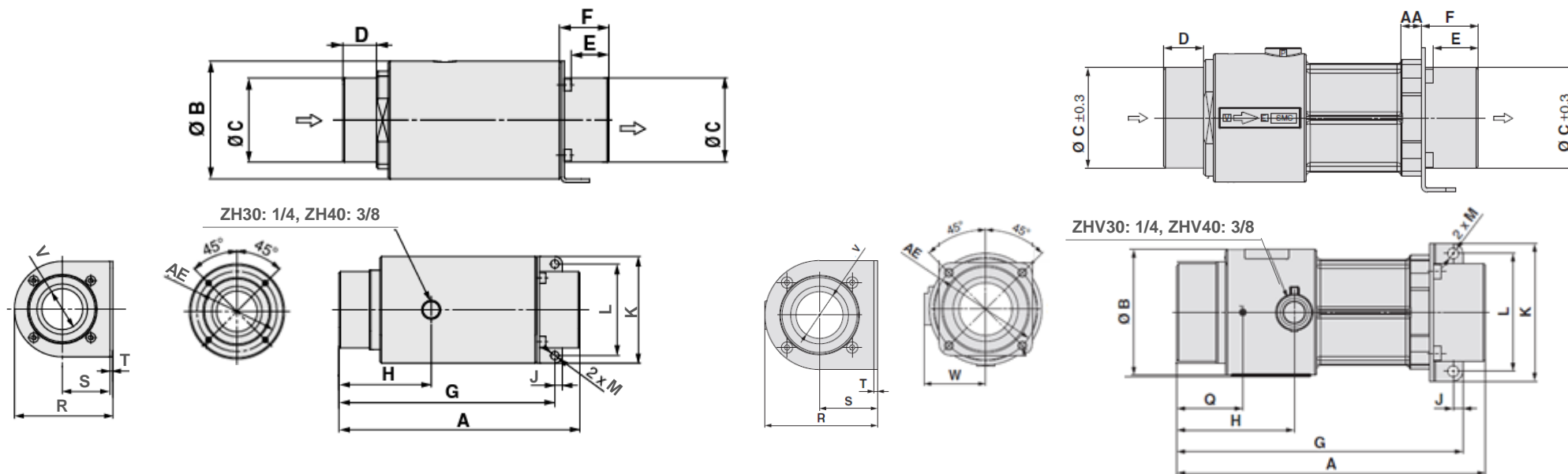
New product (ZHV Series)

| Model | A | | Ø B | | Ø C | | D | | E | | F | | G | | H | | J | | K | |
|-------|-------|------|-----|-----|-----|------|-----|------|------|------|------|------|------|-------|------|------|-----|-----|------|-----|
| | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW |
| ZHV10 | 73 | 72.7 | 34 | 34 | 19 | 19 | 10 | 10 | 12.2 | 12.2 | 16.2 | 16.2 | 69.8 | 69.5 | 31 | 29.7 | 4 | 4 | 35 | 35 |
| ZHV20 | 119.5 | 119 | 55 | 55 | 32 | 32 | 15 | 15 | 18.5 | 18.5 | 23.5 | 23.5 | 111 | 110.5 | 48 | 46.2 | 4 | 4 | 56 | 56 |
| Model | L | | M | | Q | | R | | S | | T | | U | | Ø W | | Z | | Ø AD | |
| | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW |
| ZHV10 | 27 | 27 | 4.5 | 4.5 | - | 28.7 | - | 18.3 | 35 | 35 | 18 | 18 | 1 | 1 | 13 | 13 | - | 6 | 28 | 28 |
| ZHV20 | 56 | 56 | 48 | 48 | - | 48.7 | - | 28.1 | 56.5 | 56.5 | 29 | 29 | 1 | 1 | 21.6 | 21.6 | - | 8 | 44 | 44 |

Difference in specifications

Dimensions

Vacuum flow: Sizes 30 & 40



Current product (ZH-X185 Series)

New product (ZHV Series)

| Model | A | | Ø B | | Ø C | | D | | E | | F | | G | | H | | J | | K | |
|-------|-----|-------|-----|-----|-----|------|-----|-----|------|------|------|------|-------|-------|------|------|-----|-----|------|-----|
| | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW |
| ZHV30 | 158 | 157.3 | 70 | 64 | 50 | 50 | 20 | 20 | 22.5 | 22.5 | 28.5 | 28.5 | 146.5 | 145.8 | 60.5 | 59.8 | 5 | 5 | 70 | 70 |
| ZHV40 | 203 | 201.5 | 90 | 87 | 64 | 64 | 25 | 25 | 27.2 | 27.2 | 33.5 | 33.5 | 196.8 | 195.3 | 74.5 | 73 | 6 | 6 | 90 | 90 |
| Model | L | | M | | Q | | R | | S | | T | | Ø V | | W | | AA | | Ø AE | |
| | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW | OLD | NEW |
| ZHV30 | 60 | 60 | 5.5 | 5.5 | - | 33.6 | 72 | 72 | 37 | 37 | 2 | 2 | 30 | 30 | - | 35 | - | 10 | 59 | 59 |
| ZHV40 | 78 | 78 | 6.5 | 6.5 | - | 43.4 | 92 | 92 | 47 | 47 | 2.3 | 2.3 | 42 | 42 | - | 45 | - | 10 | 76 | 76 |

Difference in specifications