

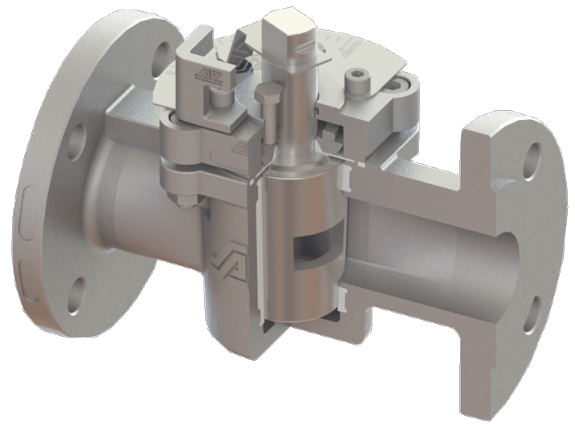
# RH

## Control plug valve

DIN-EN: DN 15 – 600 / PN 10 – 40

ASME: NPS ½" – 24" / class 150

Einsatzbereich:  $-30 < T < 230/280^{\circ}\text{C}$ , Vakuum 10-8 mbar



## Design Features

### Design Characteristics

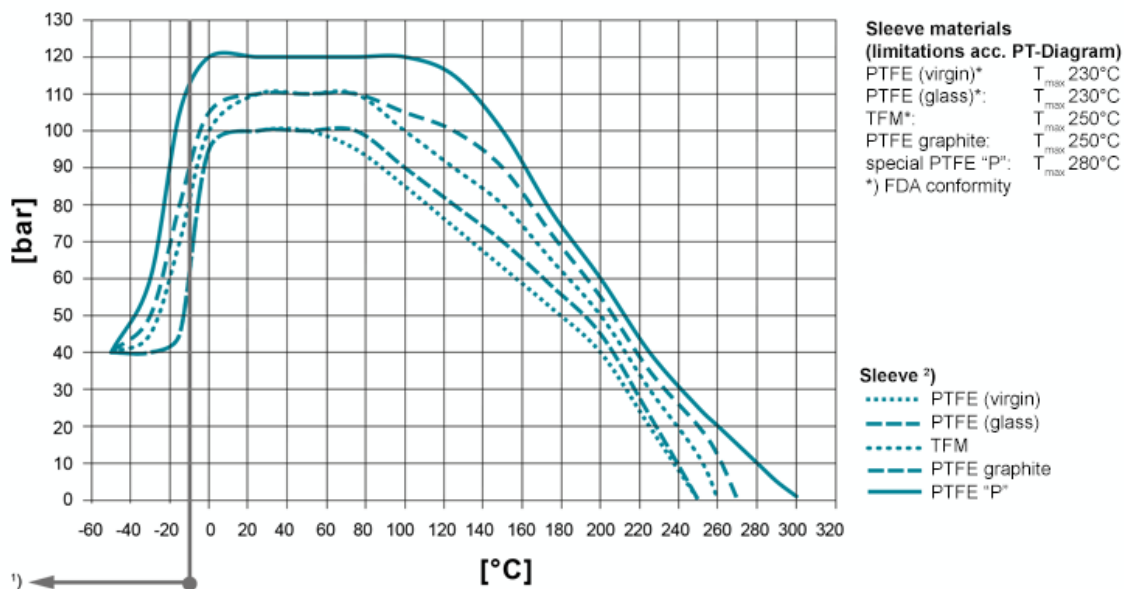
- different KVS values
- individual control characteristics
- free passage possible with open valve
- equal percentage or linear characteristic line
- cost-effective automation
- readily reproducible control position

The construction of the control valves Type RH is based on our standard cavity-free plug valve with PTFE-sleeve. A wide range of materials for housings, plugs, as well as for sleeves or linings are available for different areas of application. If required, the control valves can also be supplied with a heating jacket.



## PT-Diagram

General Pressure-Temperature-Diagram



**Operating temperatures < -30°C and > 220 °C have to be checked and approved by AZ according to the operating conditions.**

Besides the P/T value of the sleeve the limitations of the valve bodies also have to be considered. Please refer to the EN 12516-1 resp. ASME B16.34 in order to choose a proper pressure rating (PN/class). The shown values refer to austenitic stainless steel 1.4408 (A351 Gr. CF8M).

- 1) For operating temperatures below -10°C low temperature / austenitic steels are required.
- 2) Sleeve: There are different sleeve materials / compounds available.

## Materials

### Standard body materials

- Carbon Steel 1.0619, ASTM A216 WCB
- Stainless Steel 1.4408, ASTM A351 CF8M
- Stainless Steel 1.4308, ASTM A351 CF8
- Unalloyed stainless steel casting (low Temp.) 1.1138, LCC/LCB/A352

### Standard plug materials

- Stainless Steel 1.4408, ASTM A351 CF8M
- Stainless Steel 1.4308, ASTM A351 CF8

### Special materials

- Ductile cast iron ENJS 1049, ASTM Gr 60-40-18 / A395
- Alloy
- Monel
- Nickel
- Zirconium
- Titan
- Tantal
- other materials on request

## Sealing Systems

Standard sealing for all major applications;  
Tmax 230°C

### Type STD

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Firesafe sealing (API 607) with graphite  
packing for additional  
stem sealing; Tmax 230°C

### Type FS

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Firesafe safety sealing (API 607) for fluctuating  
temperatures  
with 3x graphite packing (adjustable) for additional  
stem sealing; Tmax 280°C

### Type FSN

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Firesafe safety sealing (API 607) for fluctuating  
temperatures  
with 3x graphite packing (live loaded disc springs) for  
additional  
stem sealing; Tmax 280°C

### Type FSN-SL

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Chemical sealing to prevent fugitive emission of aggressive and toxic media with PTFE packing for additional stem sealing;  
 $T_{\max} 230^{\circ}\text{C}$

### Type CA

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Chemical safety sealing for fluctuating temperatures with 3x PTFE packing (adjustment) for additional stem sealing;  
 $T_{\max} 230^{\circ}\text{C}$

### Type CASN

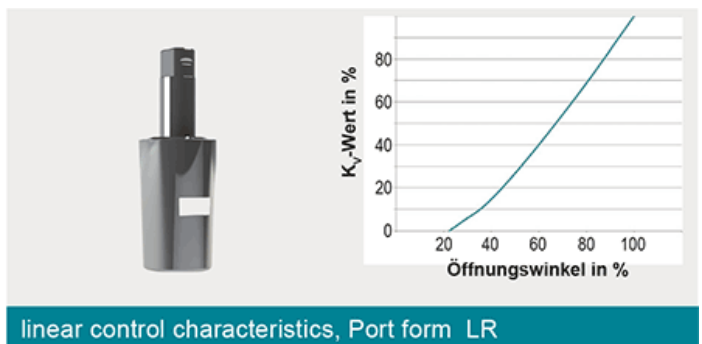
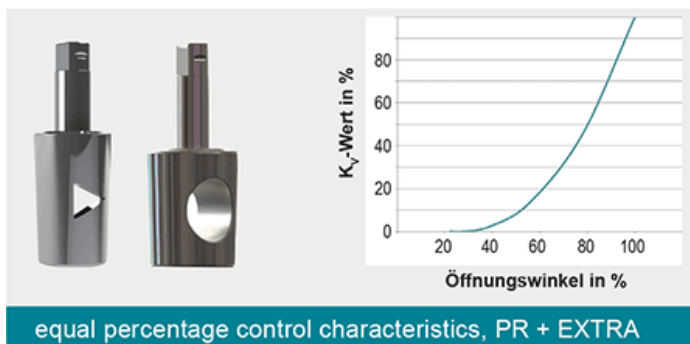
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Chemical safety sealing for fluctuation temperatures with 3x PTFE packing (live loaded disc springs) for additional stem sealing;  $T_{\max} 230^{\circ}\text{C}$

### Type CASN-SL

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## Port Forms



As standard, there are ten plugs forms available per valve size, consisting of five linear and five equal percentage control characteristics. Type “EXTRA” full bore plug valves with equal percentage control characteristics are recommended for very large flow rates (only RH and RH-S types).

Furthermore, bespoke plug forms can be calculated and designed according to customer-specific requirements that combine, for example, control properties and free passage.

## Characteristics

### Type RH, linear control characteristics



Type RH-LR

#### Plug: linear control characteristics



ASME / DIN EN	DIN	NPS	LR I $K_{vs}$ value [m³/h]	LR II $K_{vs}$ value [m³/h]	LR III $K_{vs}$ value [m³/h]	LR IV $K_{vs}$ value [m³/h]	LR V $K_{vs}$ value [m³/h]
	DN 15	½	0,9	1,9	3,1	4,7	6,5
	DN 20	¾	0,5	1,5	2,8	4,3	5,3
	DN 25	1	1,0	1,9	3,1	5,6	10
	DN 32	1 ¼	1,8	3,6	5,8	11	21
	DN 40	1 ½	3,0	6,0	9,3	18	36
	DN 50	2	5,5	12	27	37	74
	DN 65	2 ½	9,6	21	32	62	111
	DN 80	3	9,2	19	28	54	97
	DN 100	4	9,1	19	28	49	81
	DN 100S	4S	23	48	75	160	358
	DN 125	5	32	67	105	209	367
	DN 150	6	32	64	101	182	315
	DN 200	8	63	129	207	380	666

#### Type RH, equal percentage control characteristics



Type RH-PR

#### Plug: equal percentage control characteristics



ASME / DIN EN	DIN	NPS	PR I $K_{vs}$ value [m³/h]	PR II $K_{vs}$ value [m³/h]	PR III $K_{vs}$ value [m³/h]	PR IV $K_{vs}$ value [m³/h]	PR V $K_{vs}$ value [m³/h]	EXTRA $K_{vs}$ value [m³/h]
	DN 15	½	0,7	1,4	2,2	3,1	4,9	19
	DN 20	¾	0,4	1,1	1,8	2,6	4,6	36
	DN 25	1	0,9	2,0	3,1	4,4	6,7	70
	DN 32	1 ¼	1,7	3,7	5,9	8,8	12	113
	DN 40	1 ½	3,0	6,0	9,5	14	19	193
	DN 50	2	5,4	11	18	26	30	323
	DN 65	2 ½	9,3	21	32	46	68	569
	DN 80	3	8,8	18	29	42	58	947
	DN 100	4	8,7	18	28	39	56	1446
	DN 100S	4S	22	47	76	104	124	-
	DN 125	5	32	65	104	151	198	-
	DN 150	6	31	63	100	144	193	3338
	DN 200	8	62	128	205	290	368	6362

#### Model structure

The data was determined by flow simulation and based on the VDI/VDE 2173 with a permissible deviation of +/- 10% (medium = water 20°C, pressure loss  $\Delta p = 1$  bar).

### Definition Kvs

The Kvs value designates the maximum possible throughput for a valve with a 100% opening

### Definition Kv

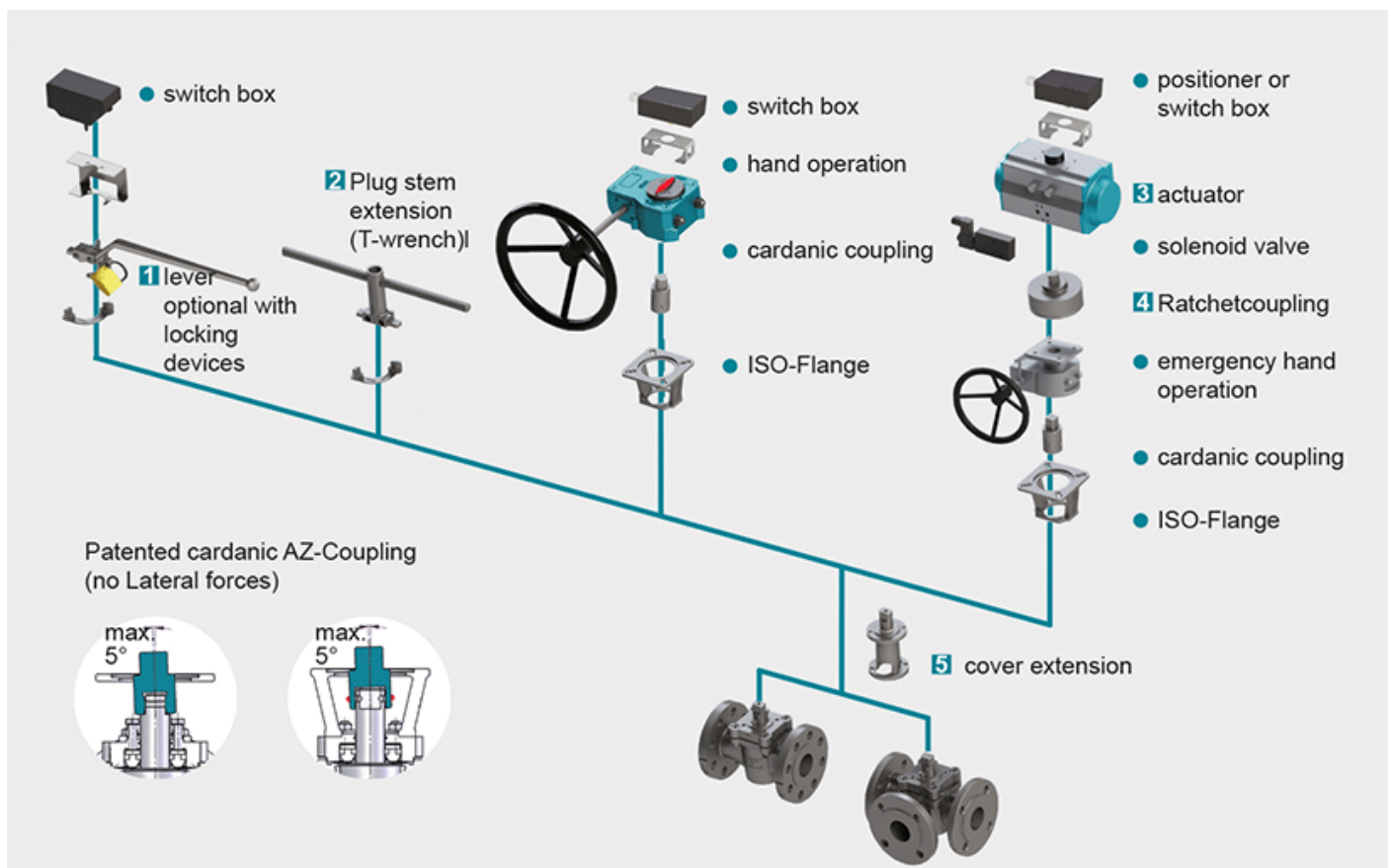
The flow coefficient Kv [ $\text{m}^3/\text{h}$ ] is a specific volume flow for the following conditions:

- The pressure loss ( $\Delta p$ ) via the valve is  $10^5$  Pa (1 bar)
- The medium is water with a temperature between 278 K and 315 K (5°C to 40°C)

### Definition Cv

The flow coefficient Cv is a valve flow coefficient that does not correspond to S.I. units. It represents the number of U.S. gallons of water which flow through a valve with a pressure loss of 1 psi (68.95 mbar) at a temperature of 40°F to 100°F (4°C to 38°C) within a minute.  $Cv = Kv/0,865$

## Actuation



### 1 Locking Devices

Pilot valve combinations, pad lock eyelets, linear key conception, indexing plunger arrestor.

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## **2 Plug stem extension**

Solid construction in stainless steel with T-wrench, Standard extension 100 mm or 150 mm, non standard lengths are available on request

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## **3 Actuators**

Actuators for mounting-flange acc. to DIN ISO 5211

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NEW: Pneumatic actuator AIR GEAR for plug valves with high torque =150.000 Nm

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## **4 Ratched coupling**

To use on multiport valves with standard 90° actuator for bigger switchpositions than 90°

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## **5 Cover extension**

Solid construction in stainless steel, Standard extension 100 mm or 150 mm high, non standard lengths are available on request . Hexagonal bolts on adjustment ring freely accessible. Note: Don't use with sealing FSN/FSN-SL and CASN/CASN-SL

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