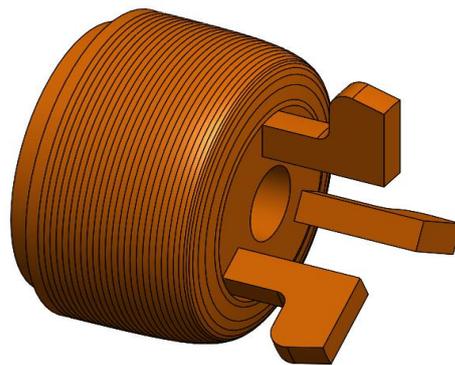


Flow plugs



Certified according
ISO 9001

Certified according
PED

Certified according
ATEX/IECEX



Datasheet

20150066
Rev.
17.12.2025

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Valve Flow Coefficient Kv or Cv

The flow coefficient of a valve is a relative measure of its efficiency at allowing fluid flow. It describes the relationship between the pressure drop across an orifice, valve or other assembly and the corresponding flow rate.

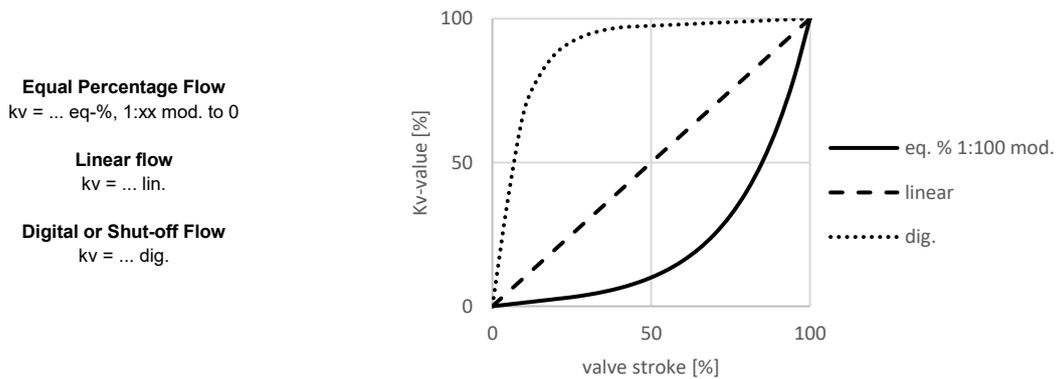
- Kv: SI units: Numerical value in m³/h of H₂O at 5-40 °C flowing through the valve at Δp = 1 bar
- Cv: Customary US units: Numerical value in US gal/min of H₂O at 60 °F - 16 °C flowing through the valve at Δp = 1 psi
- Conversion: Cv = 1.16 * Kv
Kv = 0.86 * Cv

To control the fluid flow in a pipe an energy drop is required. At least 10 % of the system pressure drop should be performed by the control valve for an acceptable fluid control and up to 30% for a good fluid control.

Rules for calculation the valve flow coefficient Kv are standardised in the international standard IEC 534.
For sizing of control valves by Kv value WEKA is using the CONVAL 10 software pack by F.I.R.S.T. GmbH, Germany.

Flow Characteristics

The flow characteristic is the relationship between the valve travel and the throughput. The inherent flow characteristic represents the relationship with constant pressure drop across the valve.
The different flow plug characteristics are displayed in the diagram below.



- Equal Percentage Flow**
kv = ... eq-%, 1:xx mod. to 0
- Linear flow**
kv = ... lin.
- Digital or Shut-off Flow**
kv = ... dig.

Equal percentage flow characteristics (eq-%, = %)

The eq-% flow characteristic is standard for all flow plugs from DN6 to DN150.
An ideal equal percentage flow characteristic would yield to the same percentage of Kv-flow increase for each percentage of valve stroke. Often, control valves have a maximum throughput at full stroke (Kv_s value) and a minimum throughput at minimum stroke (Kv₀ value).
Because WEKA control valves are fully closing at 0 stroke the equal percentage flow plugs are linear modified at the beginning of the valve travel for an exact fine flow control down to the closed valve position (eq-% mod., = % mod.).

The rangeability is the ratio of Kv_s : Kv₀ which defines the shape of the equal percentage flow characteristic. It is for standard flow plugs 1:100. Smaller or higher values are available on request.

Linear flow characteristics (lin.)

The linear flow characteristic is standard for all flow plugs from DN2 to DN4.
If the pressure drop across the valve remains constant independent of the flow, the linear flow characteristic will be an optimal inherent flow characteristic, because in that case the inherent flow characteristic equals in the installed flow characteristic.
In an ideal linear flow characteristics the Kv values increases by the same increment for each fraction of travel.
Flow plugs with linear character for DN6 - 150 are available on request and is possible for all kv-values.

Digital flow characteristics (dig.)

Digital flow plugs are marked with the "dig." tag in the flow plug type description.
If a fast opening and a large kv value at full stroke (kvs-value) is needed a digital flow plug is recommended. These flow plugs are designed with a parabolic shape for highest possible flow value.

Material:

Standard material for flow plugs is CuAl10Fe5Ni5 (Al-Bz)
Other materials are available on request.

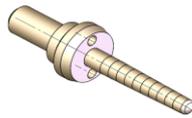
Correction factors for different body patterns

- The standard valve housing has a E-pattern. Following correction factors are applicable for valves in other body pattern:
- D-pattern i.e. globe pattern: Correction factor = 0,85 - 1,0 (depending on size of kv-value and valve DN)
 - Z-pattern i.e. inlet and outlet on different levels: Correction factor = 0,9 - 1,0 (depending on size of kv-value and valve DN)
 - Y-pattern i.e. slanted globe pattern: Correction factor = 0,95 - 1,15 (depending on size of kv-value and valve DN)

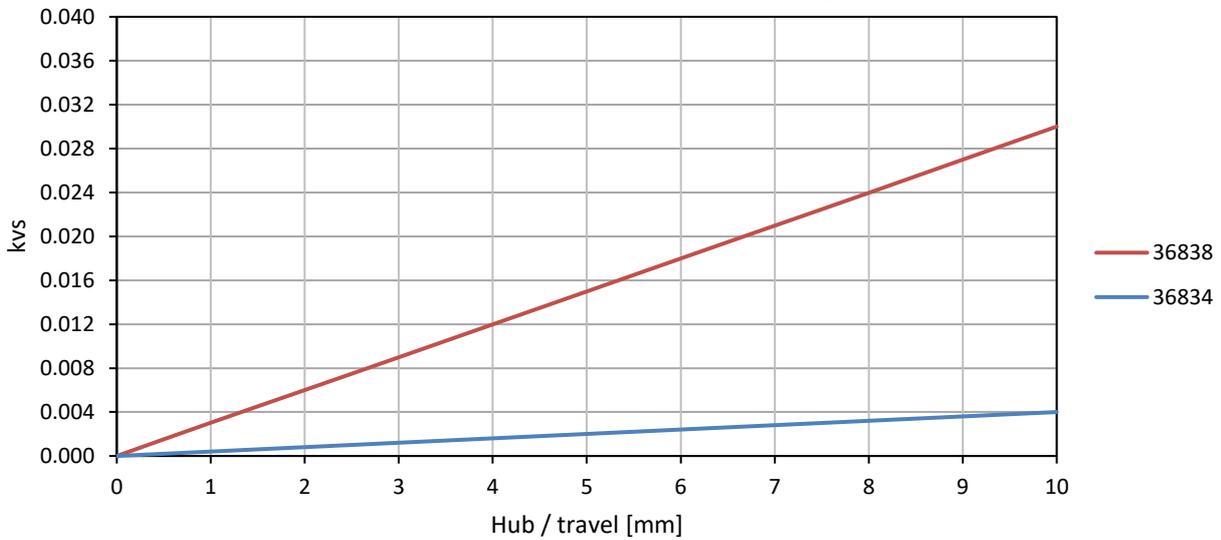
Size of correction factor is depending on kv-value on the valve DN. This means as smaller the kv-value as a higher factor is possible.
For other valve body patterns see WEKA catalogue no. 911003

Ventilgrösse / Valve size	DN2
Durchmesser der Ventilbohrung / Diameter of valve bore	2mm
Ventilhub / Valve travel	10mm
Kvs max. / kvs max.	0.1
Kvs min. / kvs min.	0.006

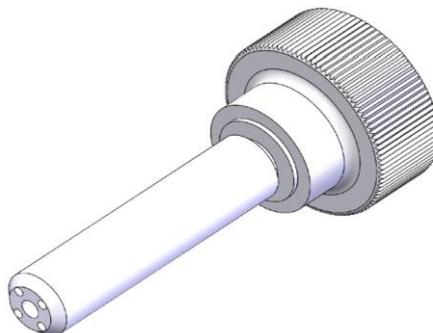
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
36834	2/10	0.004	0.005	34091
36838	2/10-1.2	0.030	0.035	34091



Flow characteristic of control plugs



Mounting tool 34091

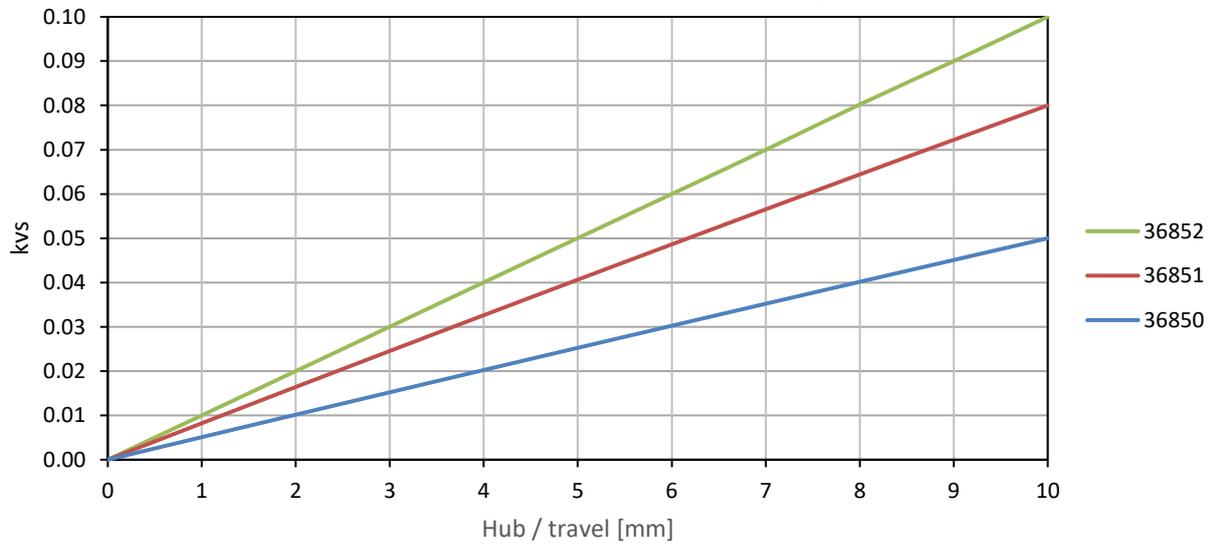


Ventilgrösse / Valve size	DN4
Durchmesser der Ventilbohrung / Diameter of valve bore	4mm
Ventilhub / Valve travel	10mm
Kvs max. / kvs max.	0.6
Kvs min. / kvs min.	0.006

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
36850	4/10	0.05	0.06	34092
36851	4/10	0.08	0.09	34092
36852	4/10	0.10	0.12	34092



Flow characteristic of control plugs



Mounting tool 34092

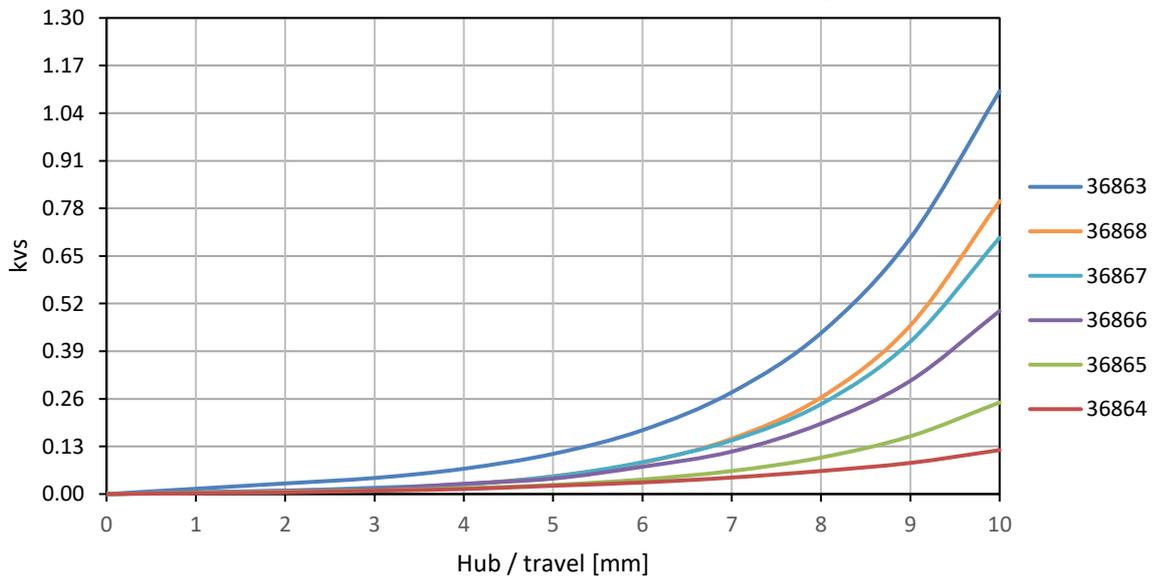


Ventilgrösse / Valve size	DN6
Durchmesser der Ventilbohrung / Diameter of valve bore	6mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	1.2
Kvs min. / kvs min.	0.006

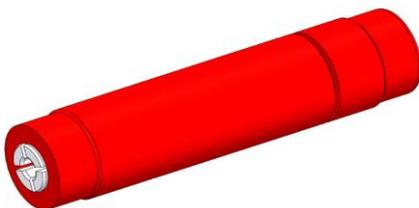
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
36864	6/10	0.12	0.14	34093 / slot screwdriver
36865	6/10	0.25	0.29	34093 / slot screwdriver
36866	6/10	0.50	0.58	34093
36867	6/10	0.70	0.81	34093
36868	6/10	0.80	0.93	34093
36863	6/10	1.10	1.28	34093 / slot screwdriver
36858	6/dig	1.2 dig	1.39 dig	slot screwdriver



Flow characteristic of control plugs



Mounting tool 34093



Mounting tool slot screwdriver no. 3

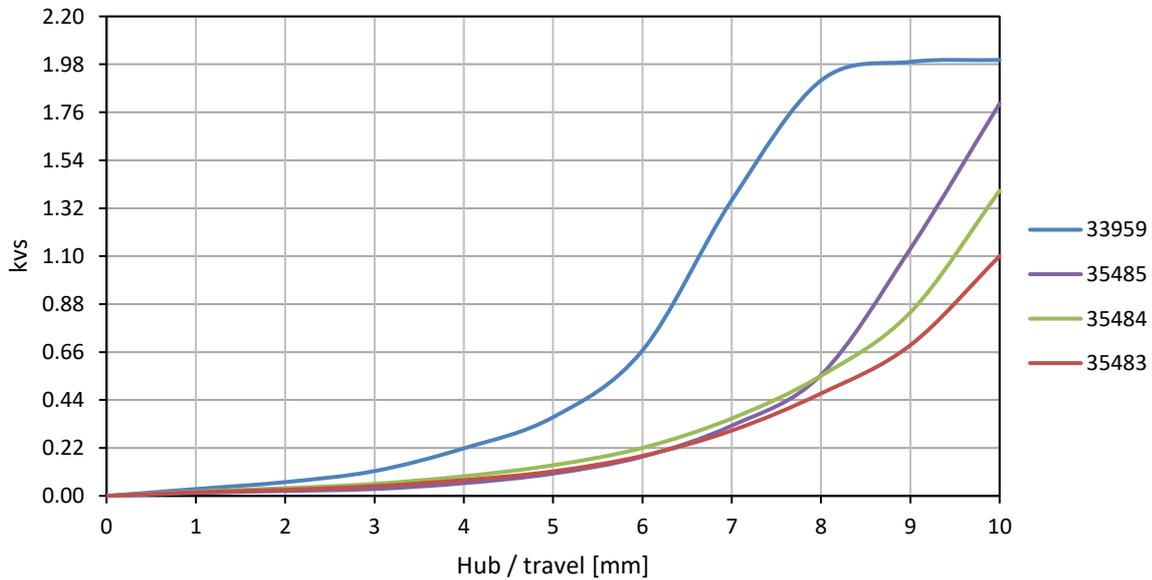


Ventilgrösse / Valve size	DN8
Durchmesser der Ventilbohrung / Diameter of valve bore	8mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	2.1
Kvs min. / kvs min.	0.015

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
33959	8/8	2.00	2.32	34094 / slot screwdriver
35483	8/10	1.10	1.28	34094 / slot screwdriver
35484	8/10	1.40	1.62	34094 / slot screwdriver
35485	8/10	1.80	2.09	34094
83308	8/dig	2.1 dig	2.44 dig	34094 / slot screwdriver



Flow characteristic of control plugs



Mounting tool 34094

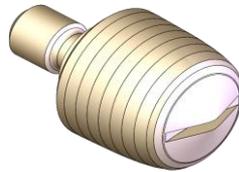


Mounting tool slot screwdriver no. 3

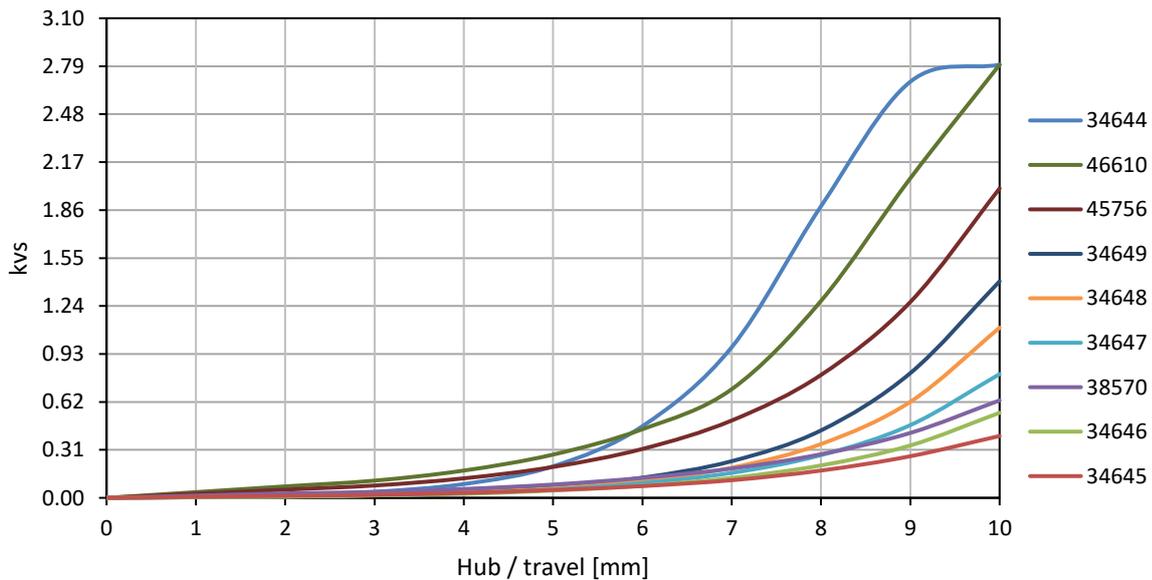


Ventilgrösse / Valve size	DN10
Durchmesser der Ventilbohrung / Diameter of valve bore	10mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	3.0
Kvs min. / kvs min.	0.017

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
34644	10/8	2.80	3.25	34051
34645	10/10	0.40	0.46	34051
34646	10/10	0.55	0.64	34051 / slot screwdriver
38570	10/10	0.63	0.73	34051 / slot screwdriver
34647	10/10	0.80	0.93	34051 / slot screwdriver
34648	10/10	1.10	1.28	34051
34649	10/10	1.40	1.62	34051
45756	10/10	2.00	2.32	34051 / slot screwdriver
46610	10/10	2.80	3.25	34051 / slot screwdriver
34658	10/dig	3 dig	3.48 dig	slot screwdriver



Flow characteristic of control plugs



Mounting tool 34051



Mounting tool slot screwdriver no. 3

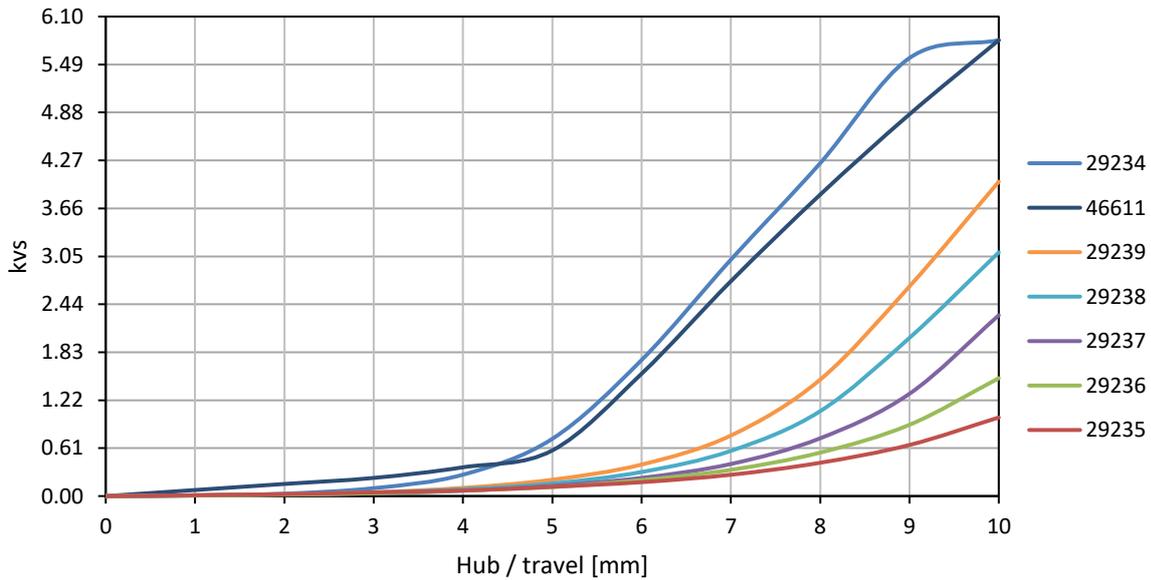


Ventilgrösse / Valve size	DN15
Durchmesser der Ventilbohrung / Diameter of valve bore	15mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	6.0
Kvs min. / kvs min.	0.028

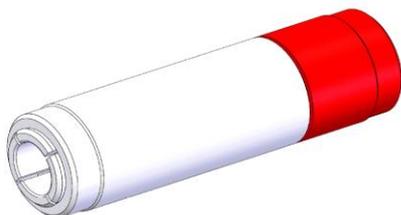
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
29234	15/7	5.80	6.73	34055
29235	15/10	1.00	1.16	34055
29236	15/10	1.50	1.74	34055
29237	15/10	2.30	2.67	34055 / slot screwdriver
29238	15/10	3.10	3.60	34055
29239	15/10	4.00	4.64	34055
46611	15/10	5.80	6.73	34055 / slot screwdriver
27983	15/dig	6 dig	6.96 dig	slot screwdriver



Flow characteristic of control plugs



Mounting tool 34055



Mounting tool slot screwdriver no. 3

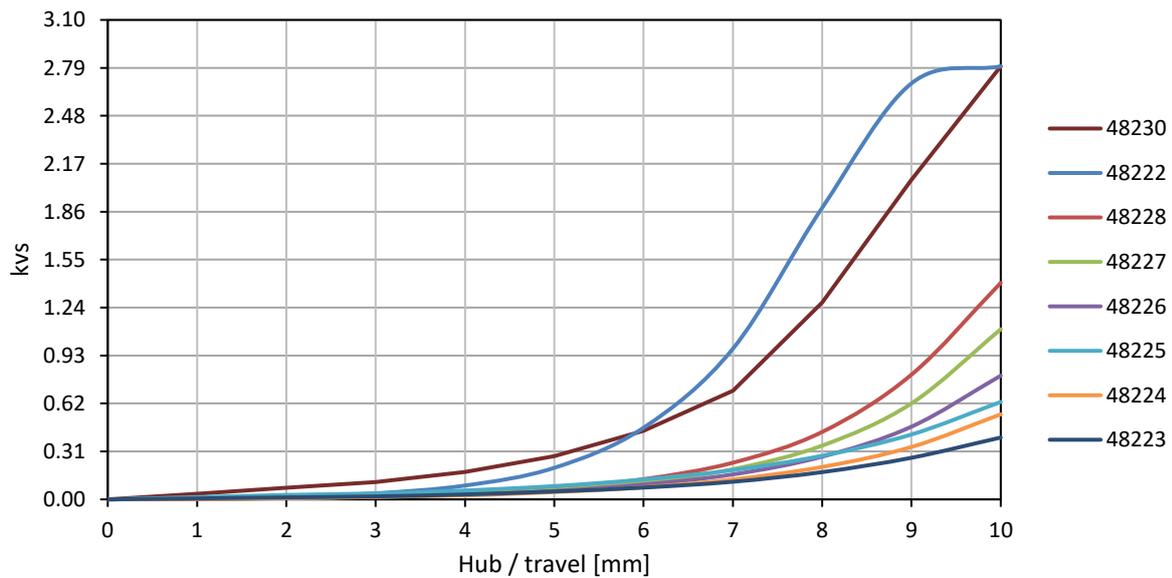


Ventilgrösse / Valve size	DN15-10
Durchmesser der Ventilbohrung / Diameter of valve bore	10mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	3.0
Kvs min. / kvs min.	0.017

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
48222	15-10/8	2.80	3.25	34051
48223	15-10/10	0.40	0.46	34051
48224	15-10/10	0.55	0.64	34051 / slot screwdriver
48225	15-10/10	0.63	0.73	34051 / slot screwdriver
48226	15-10/10	0.80	0.93	34051 / slot screwdriver
48227	15-10/10	1.10	1.28	34051
48228	15-10/10	1.40	1.62	34051
48229	15-10/10	2.00	2.32	34051 / slot screwdriver
48230	15-10/10	2.80	3.25	34051 / slot screwdriver
48231	15-10/dig	3 dig	3.48 dig	slot screwdriver



Flow characteristic of control plugs



Mounting tool 34051



Mounting tool slot screwdriver no. 3

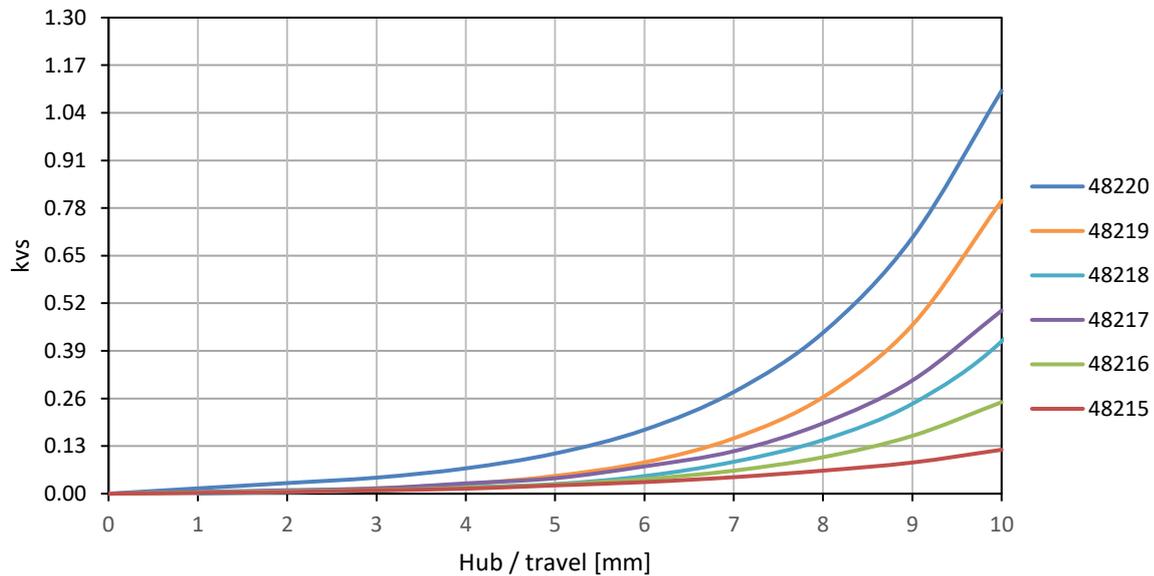


Ventilgrösse / Valve size	DN15-6
Durchmesser der Ventilbohrung / Diameter of valve bore	6mm
Ventilhub / Valve travel	10mm (+1mm)
Kvs max. / kvs max.	1.2
Kvs min. / kvs min.	0.006

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
36864	15-6/10	0.12	0.14	34093 / slot screwdriver
36865	15-6/10	0.25	0.29	34093 / slot screwdriver
36866	15-6/10	0.50	0.58	34093
36867	15-6/10	0.70	0.81	34093
36868	15-6/10	0.80	0.93	34093
36863	15-6/10	1.10	1.28	34093 / slot screwdriver
36858	15-6/dig	1.2 dig	1.39 dig	slot screwdriver

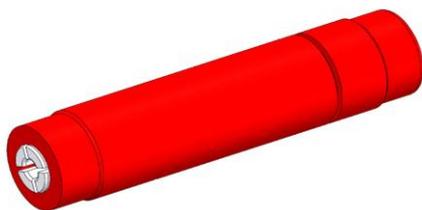


Flow characteristic of control plugs



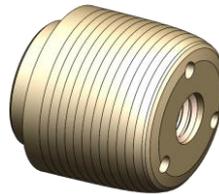
Mounting tool 34093

Mounting tool slot screwdriver no. 3

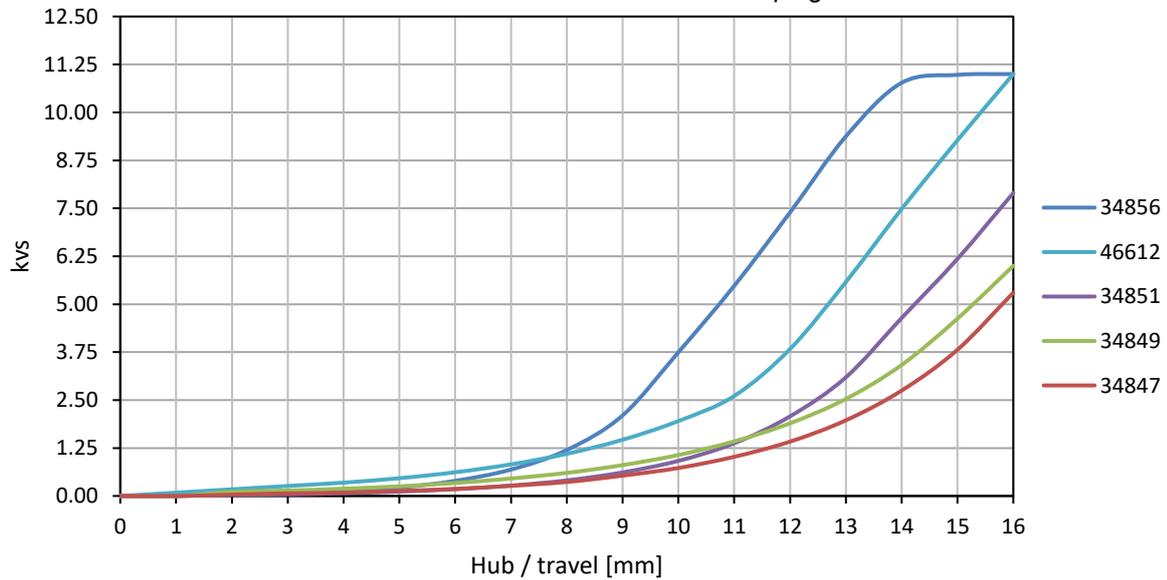


Ventilgrösse / Valve size	DN20
Durchmesser der Ventilbohrung / Diameter of valve bore	20mm
Ventilhub / Valve travel	16mm (+1mm)
Kvs max. / kvs max.	12
Kvs min. / kvs min.	0.049

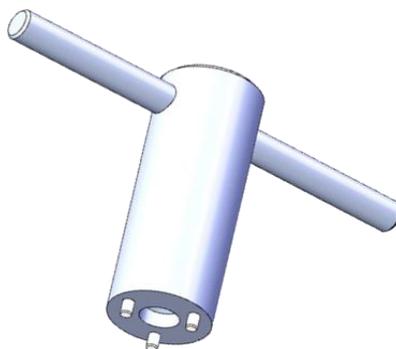
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
34856	20/12	11.00	12.76	34305
34847	20/16	5.30	6.15	34305
34849	20/16	6.00	6.96	34305
34851	20/16	7.90	9.16	34305
46612	20/16	11.00	12.76	34305
34304	20/dig	12 dig	13.92 dig	34305



Flow characteristic of control plugs

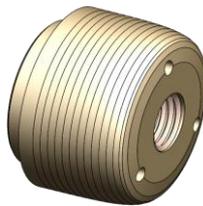


Mounting tool 34305

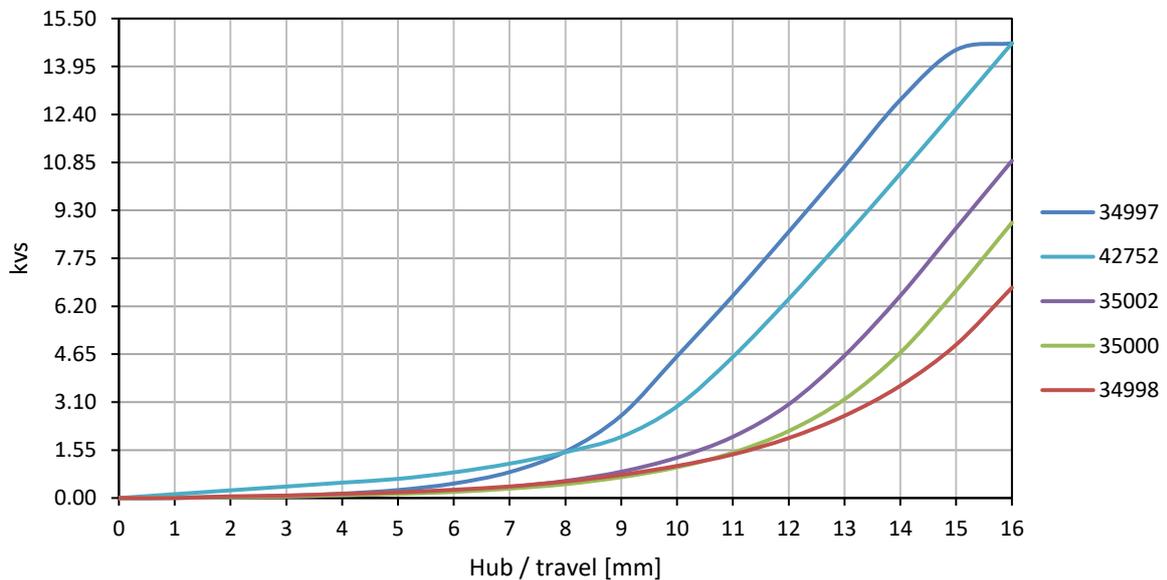


Ventilgrösse / Valve size	DN25
Durchmesser der Ventilbohrung / Diameter of valve bore	25mm
Ventilhub / Valve travel	16mm (+1mm)
Kvs max. / kvs max.	15
Kvs min. / kvs min.	0.049

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
34997	25/12	14.70	17.05	34992
34998	25/16	6.80	7.89	34992
35000	25/16	8.90	10.32	34992
35002	25/16	10.90	12.64	34992
42752	25/16	14.70	17.05	34992
35900	25/dig	15 dig	17.4 dig	34992



Flow characteristic of control plugs



Mounting tool 34992

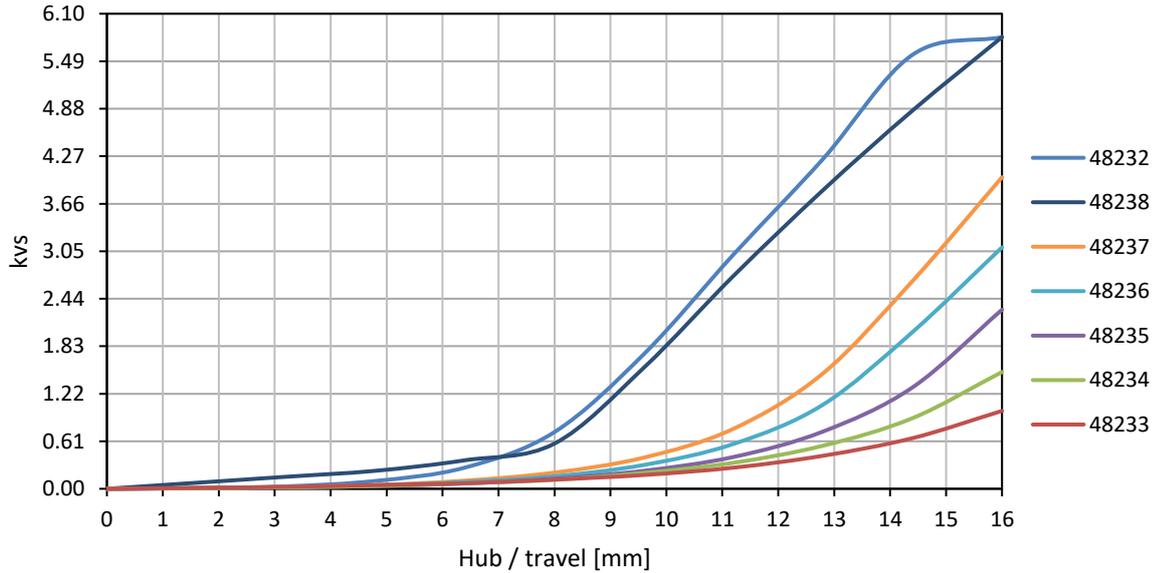


Ventilgrösse / Valve size	DN25-15
Durchmesser der Ventilbohrung / Diameter of valve bore	15mm
Ventilhub / Valve travel	16mm (+1mm)
Kvs max. / kvs max.	6.0
Kvs min. / kvs min.	0.028

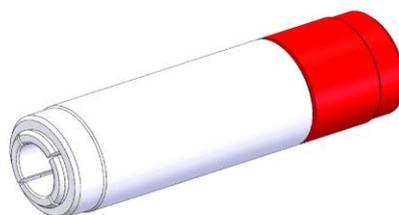
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
48232	25-15/16	5.80	6.73	34055
48233	25-15/16	1.00	1.16	34055
48234	25-15/16	1.50	1.74	34055
48235	25-15/16	2.30	2.67	34055
48236	25-15/16	3.10	3.60	34055
48237	25-15/16	4.00	4.64	34055
48238	25-15/16	5.80	6.73	34055
48239	25-15/dig	6 dig	6.96 dig	34055



Flow characteristic of control plugs

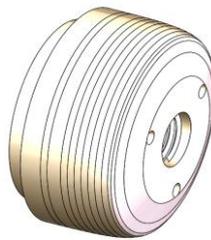


Mounting tool 34055

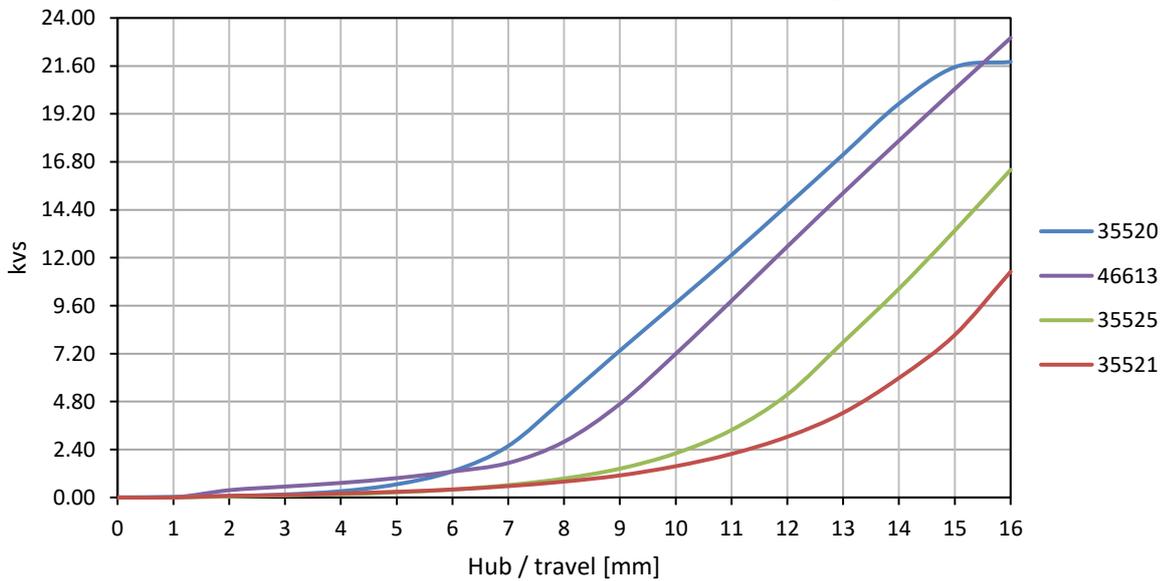


Ventilgrösse / Valve size	DN32
Durchmesser der Ventilbohrung / Diameter of valve bore	32mm
Ventilhub / Valve travel	16mm (+1mm)
Kvs max. / kvs max.	23.5
Kvs min. / kvs min.	0.073

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
35520	32/10	21.80	25.29	34992
35521	32/16	11.30	13.11	34992
35525	32/16	16.40	19.02	34992
46613	32/16	23.00	26.68	34992
35526	32/dig	23.5 dig	27.26 dig	34992



Flow characteristic of control plugs

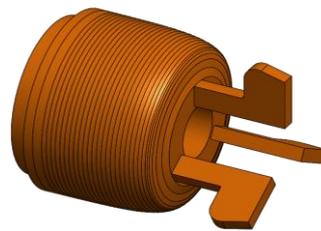


Mounting tool 34992

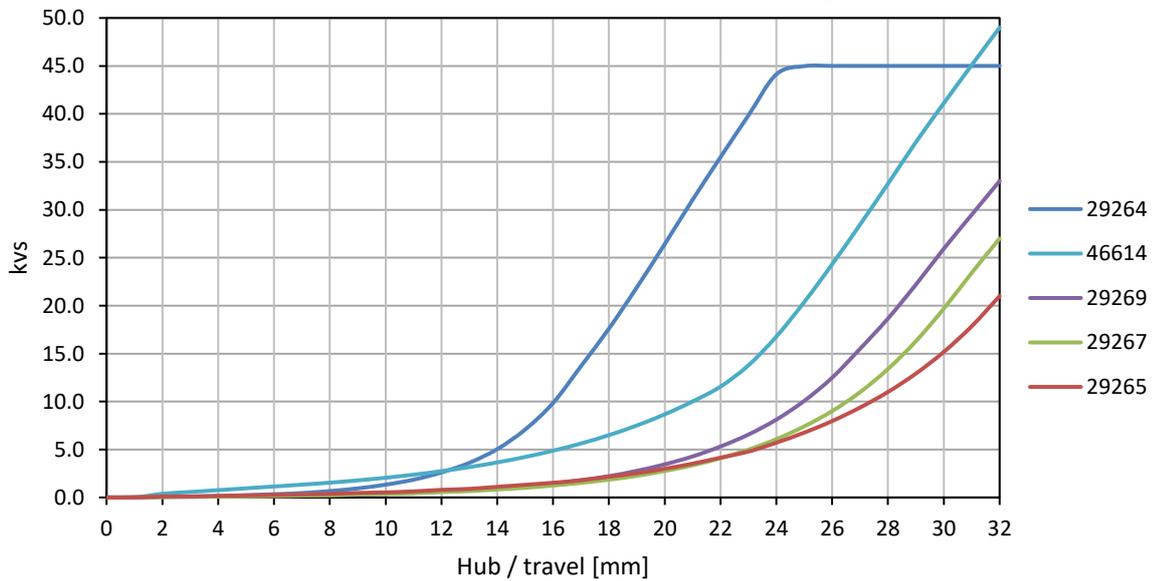


Ventilgrösse / Valve size	DN40
Durchmesser der Ventilbohrung / Diameter of valve bore	40mm
Ventilhub / Valve travel	32mm (+1mm)
Kvs max. / kvs max.	50
Kvs min. / kvs min.	0.125

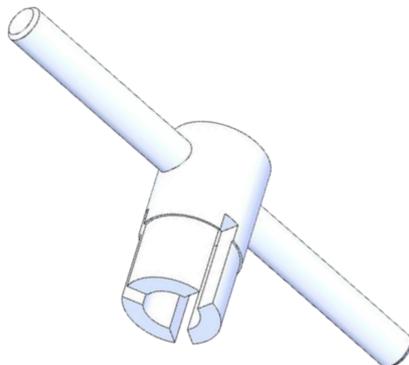
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
29264	40/21	45.00	52.20	31490
29265	40/32	21.00	24.36	31490
29267	40/32	27.00	31.32	31490
29269	40/32	33.00	38.28	31490
46614	40/32	49.00	56.84	31490
26455	40/dig	50 dig	58 dig	48360



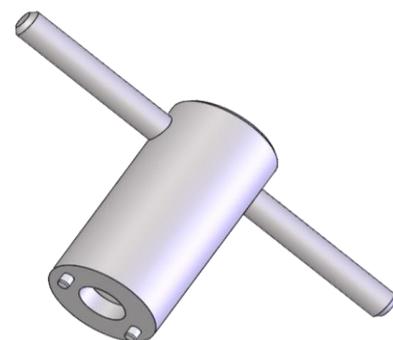
Flow characteristic of control plugs



Mounting tool 31490

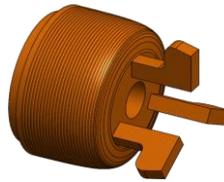


Mounting tool 48360

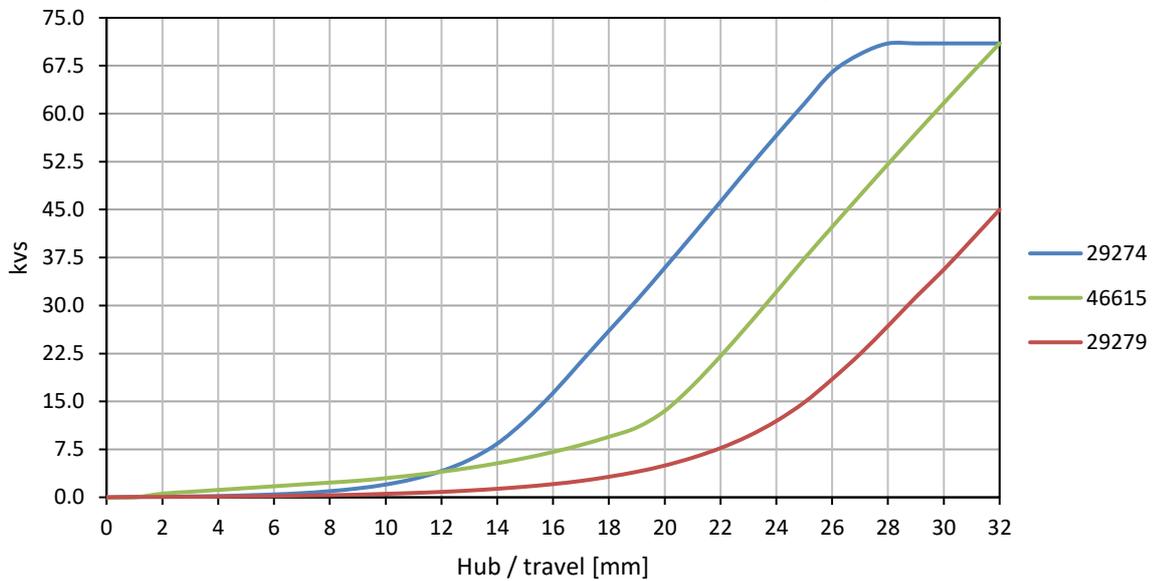


Ventilgrösse / Valve size	DN50
Durchmesser der Ventilbohrung / Diameter of valve bore	50mm
Ventilhub / Valve travel	32mm (+1mm)
Kvs max. / kvs max.	75
Kvs min. / kvs min.	0.142

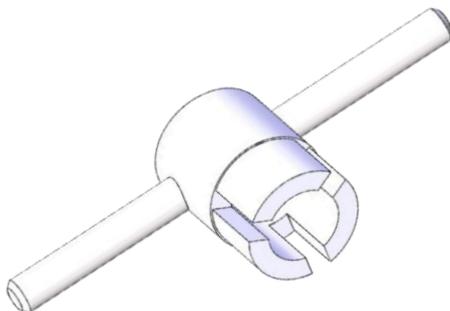
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
29274	50/20	71.00	82.36	31491
29279	50/32	45.00	52.20	31491
46615	50/32	71.00	82.36	31491
26469	50/dig	75 dig	87 dig	48184



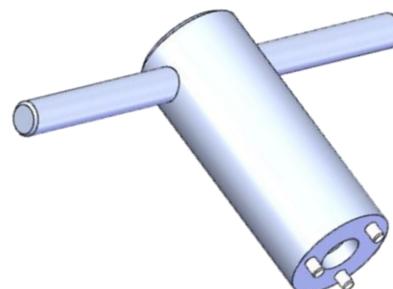
Flow characteristic of control plugs



Mounting tool 31491

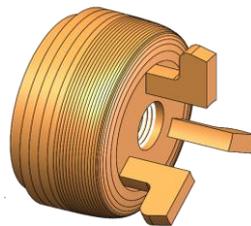


Mounting tool 48184

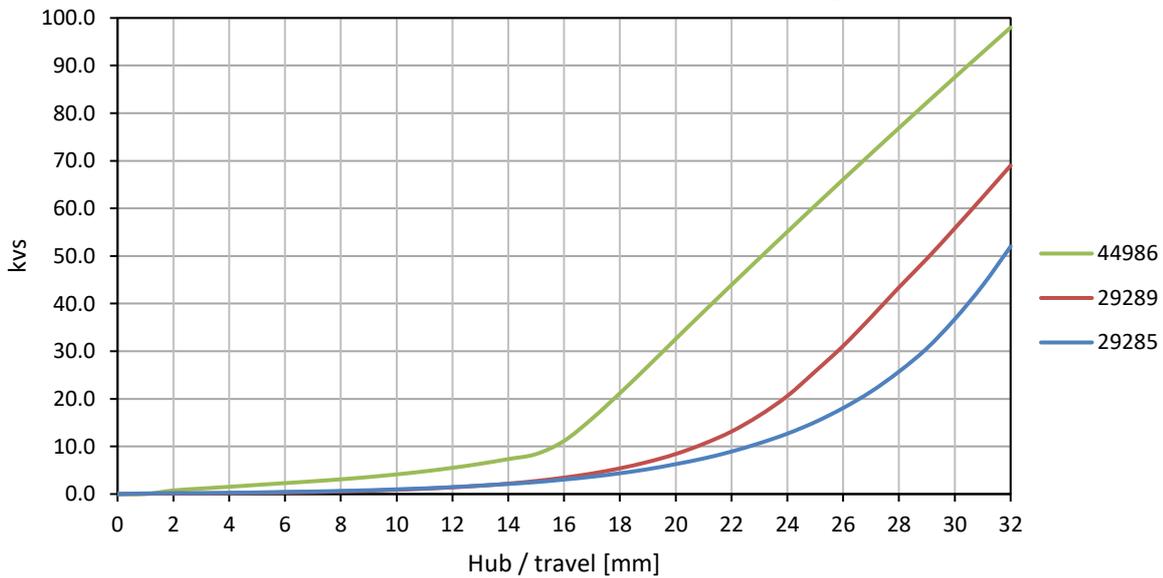


Ventilgrösse / Valve size	DN65
Durchmesser der Ventilbohrung / Diameter of valve bore	65mm
Ventilhub / Valve travel	32mm (+1mm)
Kvs max. / kvs max.	100
Kvs min. / kvs min.	0.182

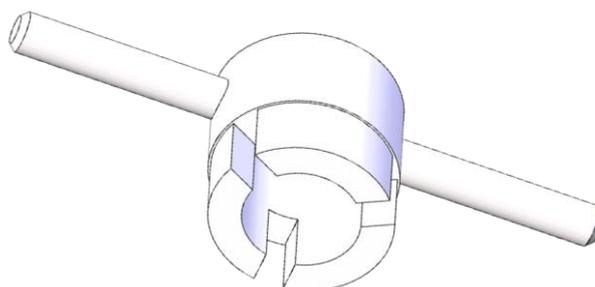
Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
29285	65/32	52.00	60.32	31492
29289	65/32	69.00	80.04	31492
44986	65/32	98.00	113.68	31492
28186	65/dig	100 dig	116 dig	31492



Flow characteristic of control plugs

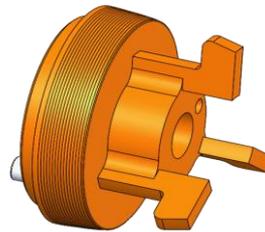


Mounting tool 31492

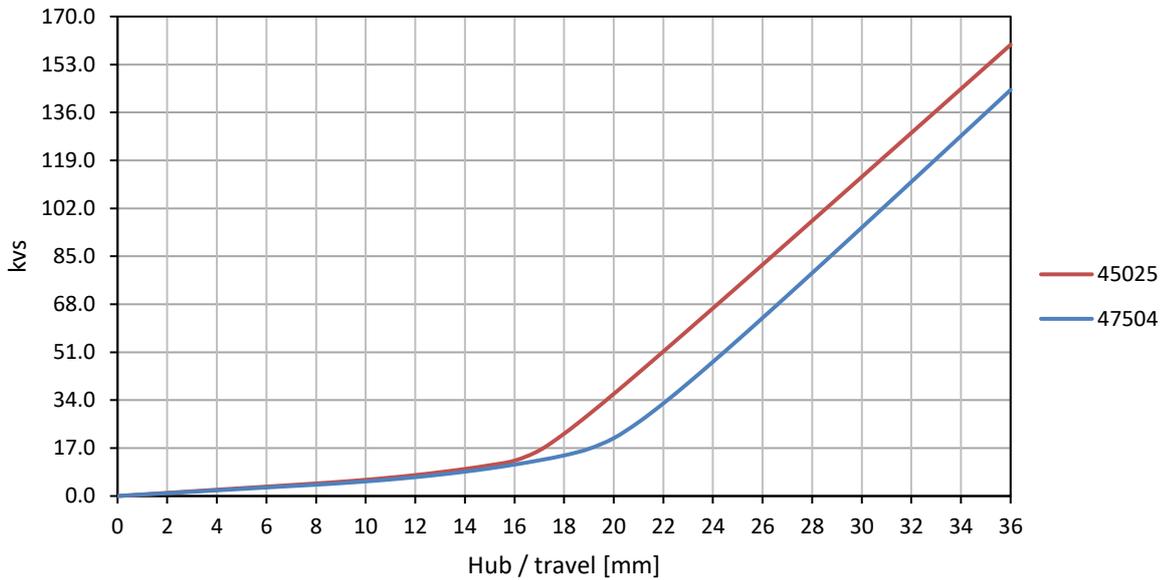


Ventilgrösse / Valve size	DN80
Durchmesser der Ventilbohrung / Diameter of valve bore	80mm
Ventilhub / Valve travel	36mm (+1mm)
Kvs max. / kvs max.	170
Kvs min. / kvs min.	0.251

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
47504	80/36	144.00	167.04	open end wrench 24mm
45025	80/36	160.00	185.60	open end wrench 24mm
31719	80/dig	170 dig	197.2 dig	open end wrench 24mm



Flow characteristic of control plugs

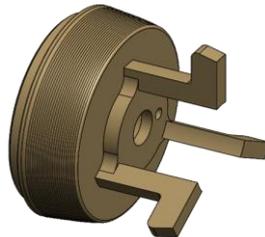


Mounting tool open end wrench 24mm

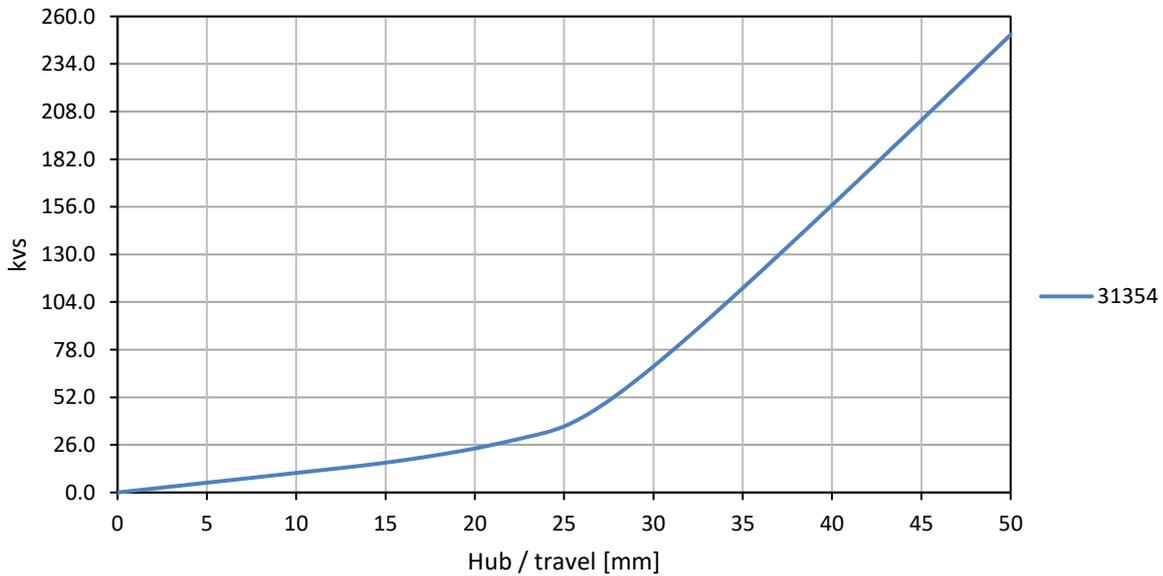


Ventilgrösse / Valve size	DN100
Durchmesser der Ventilbohrung / Diameter of valve bore	100mm
Ventilhub / Valve travel	50mm (+1mm)
Kvs max. / kvs max.	260
Kvs min. / kvs min.	0.359

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
31354	100/50	250.00	290.00	open end wrench 24mm
41904	100/dig	260 dig	301.6 dig	open end wrench 24mm



Flow characteristic of control plugs

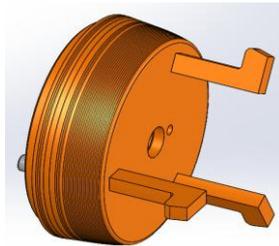


Mounting tool open end wrench 24mm

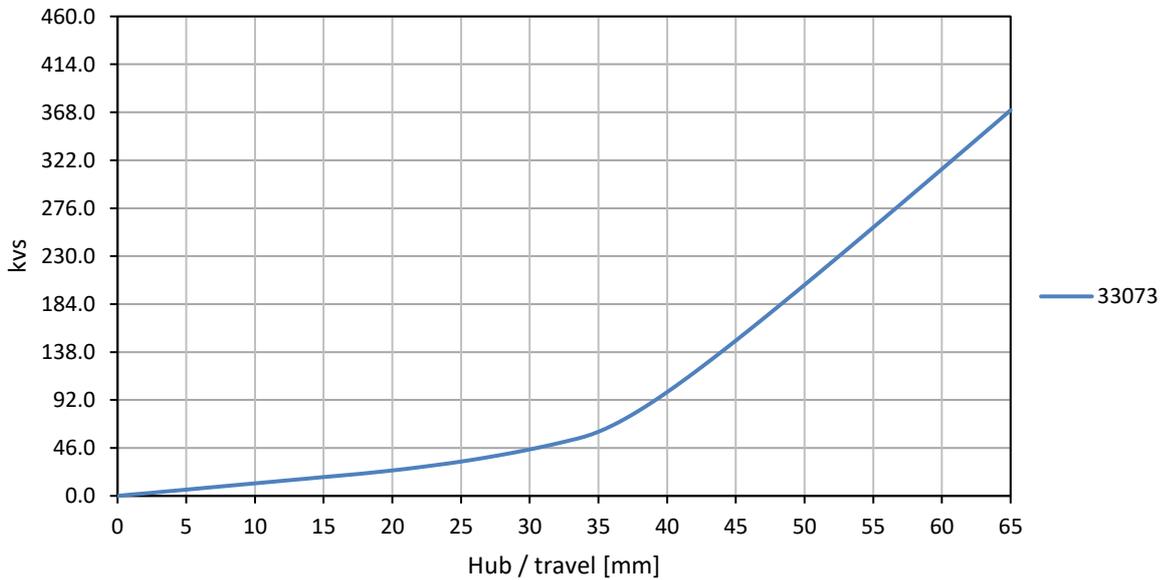


Ventilgrösse / Valve size	DN125
Durchmesser der Ventilbohrung / Diameter of valve bore	120mm
Ventilhub / Valve travel	65mm (+1mm)
Kvs max. / kvs max.	390
Kvs min. / kvs min.	0.449

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
33073	120/65	370.00	429.20	open end wrench 24mm
33879	120/dig	390 dig	452.4 dig	open end wrench 24mm



Flow characteristic of control plugs

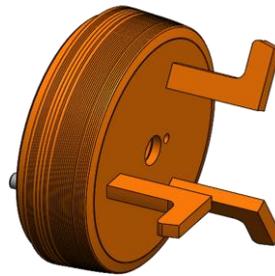


Mounting tool open end wrench 24mm

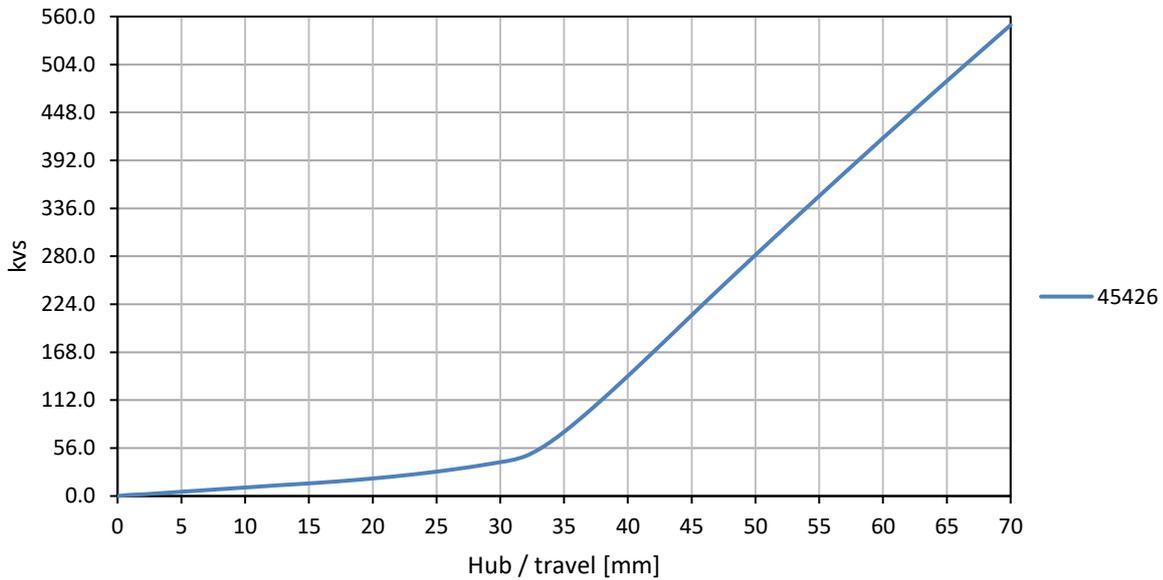


Ventilgrösse / Valve size	DN150
Durchmesser der Ventilbohrung / Diameter of valve bore	144mm
Ventilhub / Valve travel	70mm (+1mm)
Kvs max. / kvs max.	600
Kvs min. / kvs min.	0.604

Art.-Nr. Art.-no.	Typ Type	kvs	cvs	Montagewerkzeug Mounting tool
45426	144/70	550.00	638.00	open end wrench 24mm
41901	144/dig	600 dig	696 dig	open end wrench 24mm



Flow characteristic of control plugs



Mounting tool open end wrench 24mm

