Check valves

Technical Data Sheet

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WATTS®

Summary

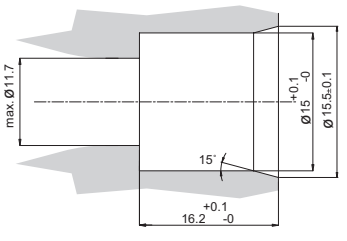
CS015 DN10

The Watts check valve type CS015 is the latest generation of check valves.
They operate ideally, and offer added advantages:
- identical contours in open and closed position (stem of valve doesn't protrude);
- variable outlet system, facing side or rear side.

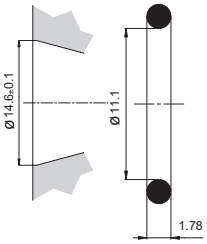
The innovative use of materials makes them more resistant to both chemicals and high temperatures. The CS is also more compact than conventional check valves, and therefore easier to fit!

Approvals: Kiwa (NL), DVGW (D), NF - ACS (F), ETA (DK), SITAC (S), Belgaqua (B).

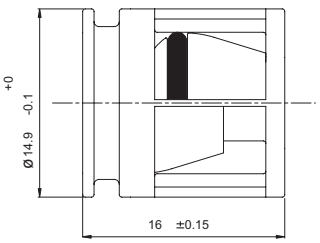
Mounting dimensions



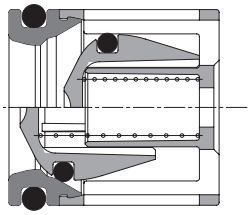
O-ring



Product dimensions



Other diameters on request.

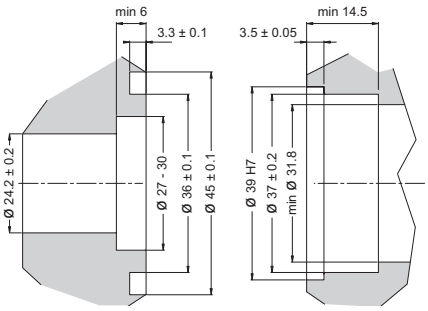


Model	DN	Part number
CS015	10	W149015685

WI020 DN20

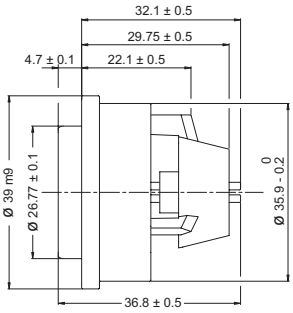
The check valve type WI020 shows the inventive solutions of Watts.
Our R&D made this check valve for our customers with the same performances they are used to.
Other diameters and closing pressures are also optional.
Approvals: Kiwa (NL), DVGW (D), Belgaqua (B), SITAC (S), GDV (DK), NSF (US).

Mounting dimensions

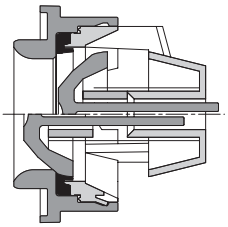


O-ring

Product dimensions



Other diameters on request.

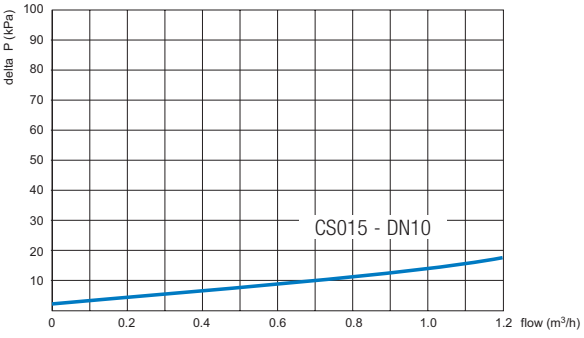


Model	DN	Part number
WI020	20	W149020650

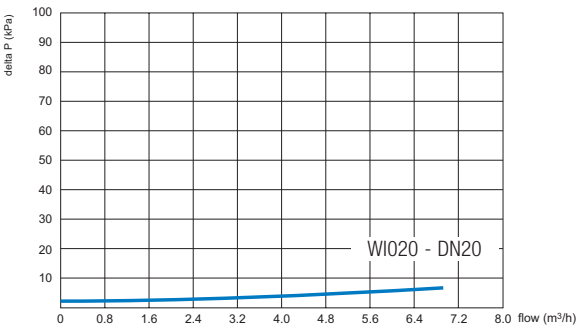
Technical specifications	DN
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	CS015 DN10
Diameter nominal	WI020 DN20

Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
O-ring	NBR
Spring	Stainless steel

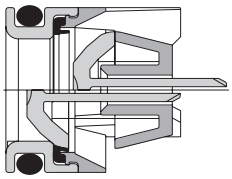
Pressure loss-curve



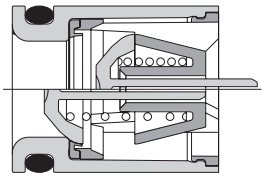
Pressure loss-curve



CO010 DN8
CO014 DN10



CO013 DN10
CO015 DN10
CO020 DN15



CO

The Watts check valves type CO with unique sealing principle offers outstanding performances.

These check valves are used in plumbing fittings, sanitary taps and in threaded non-return valves where building codes and international standards are required.

Other diameters on request.

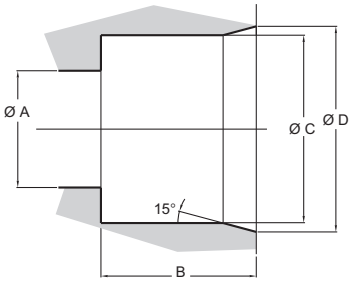
Approvals: Kiwa (NL), Belgaqua (B), DVGW (D), NF - ACS (F), WRAS (UK), ETA - GDV (DK), SITAC (S), NSF (US).

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	C0010: DN8
	C0014: DN10
	C0013: DN10
	C0015: DN10
	C0020: DN15

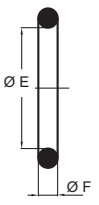
Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
O-ring	NBR
Spring	Stainless steel

Model	DN	Part Number
C0010	8	W149010630
C0014	10	W149014630
C0013	10	W149013630
C0015	10	W149015630
C0020	15	W149020630

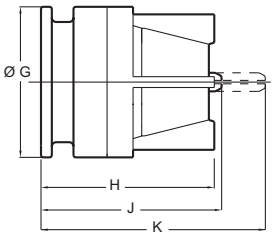
Mounting dimensions

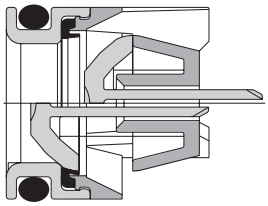


O-ring



Product dimensions

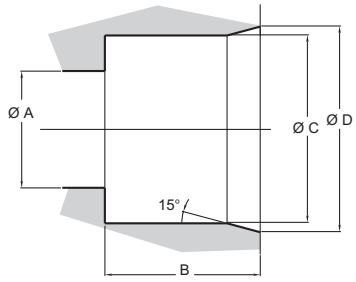




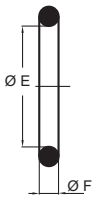
All dimensions are given in mm.

DN	model	ØA	B	ØC	ØD	ØE	ØF	ØG	H	J	K
8	C0010	7.60	10.7	10 $^{+0.1}_{0}$	10.7 $^{+0.1}_{0}$	7 ± 0.1	1.5	9.9	10.5 ± 0.05	10.65 ± 0.15	13.75
10	C0014	11.70	16.3	14 $^{+0.1}_{0}$	14.5 $^{+0.1}_{0}$	10.82 ± 0.1	1.78	13.9	16 ± 0.05	17.2 $^{+0.15}_{-0.2}$	21.2

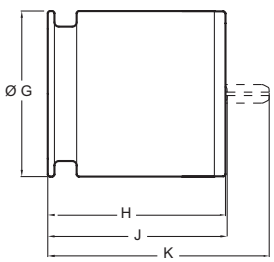
Mounting dimensions

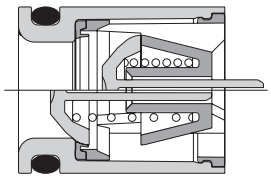


O-ring



Product dimensions

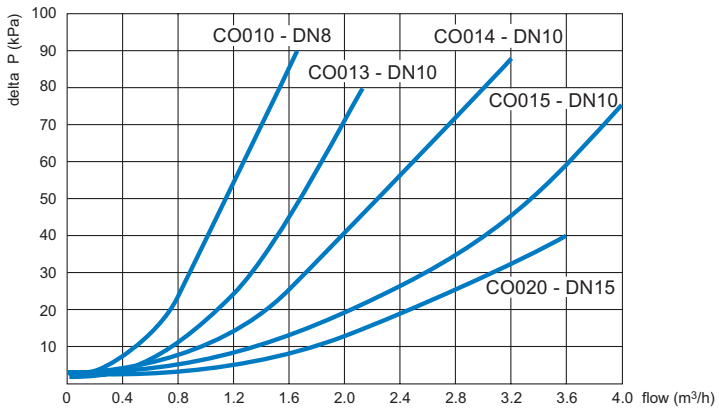




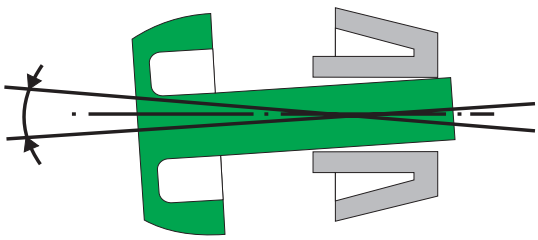
All dimensions are given in mm.

DN	model	ØA	B	ØC	ØD	ØE	ØF	ØG	H	J	K
10	C0013	10.05	16.2 $^{+0.1}_{0}$	13 $^{+0.1}_{0}$	13.5 ± 0.1	9.25	1.78	12.9 $^{+0.05}_{-0.1}$	16 ± 0.1	16.1	19.2
10	C0015	11.70	16.3 $^{+0.1}_{0}$	15 $^{+0.1}_{0}$	15.5 ± 0.1	11.1	1.78	14.9 $^{+0.05}_{-0.1}$	16 ± 0.15	16.15	20.4
15	C0020	11.70	17.8 $^{+0.1}_{0}$	20 $^{+0.1}_{0}$	20.5 ± 0.1	16	2	19.9 $^{+0.05}_{-0.1}$	17.5 ± 0.1	17.6	23.1

Pressure loss-curve



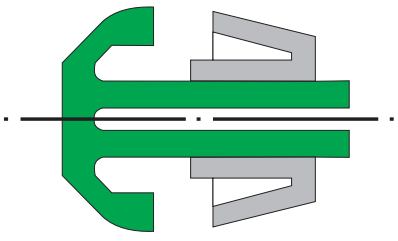
Classical guiding of valve stem



Some vibrations can occur at low flow rates (water flush at night). These vibrations are generated by possible lateral movements of the valve.

Until now it was not possible to avoid this defect without affecting the hydraulic characteristics.

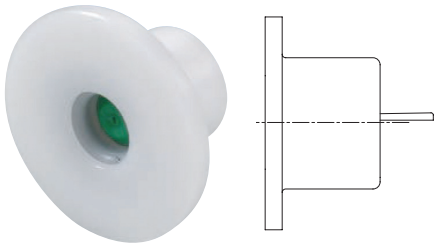
Guiding of valve stem (WATTS)



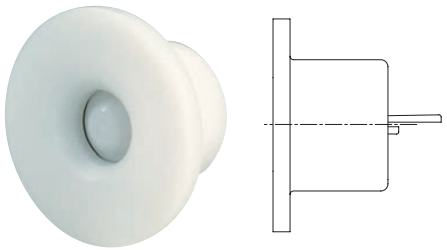
Thanks to the unique guide system by slotted stem that eliminates the possibility of movement and optimal hydraulic profile, vibrations are eliminated.

By providing this guidance without the possibility of movement avoids calcareous deposits and vibration, ensuring a flawless and quiet operation for years.

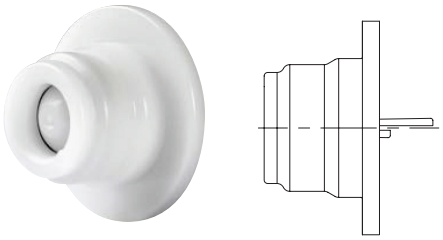
FI010 DN8



FI015 DN15

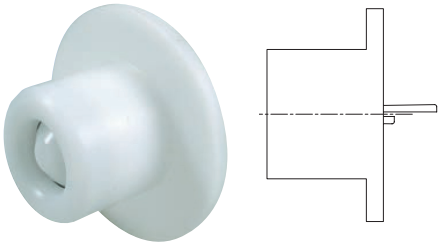


FO015 DN15



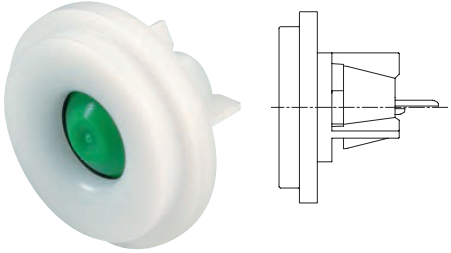
Approval: GDV (DK)

FO020 DN20



Approval: GDV (DK)

FW010 DN10



Approvals: Kiwa (NL), Belgaqua (B), DVGW (D), NF - ACS (F), NSF (US).

FI - FO - FW

The Watts check valve type FI, FO and FW is a perfect slide-in cartridge with added advantages.

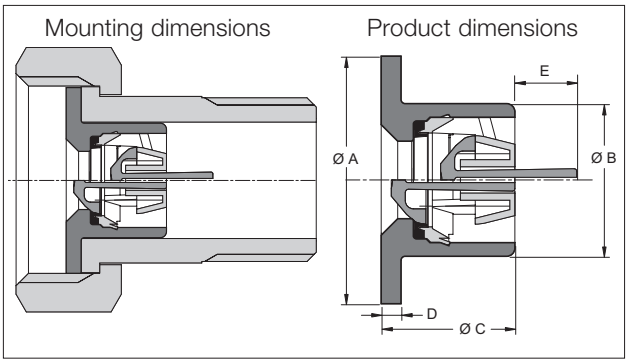
The best performance in those inlet sides where tightening has to be simple. It is marked by its unique construction and its universal applications.

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	FI010: DN8
	FI015: DN15
	F0015: DN10
	C0015: DN10
	C0020: DN15

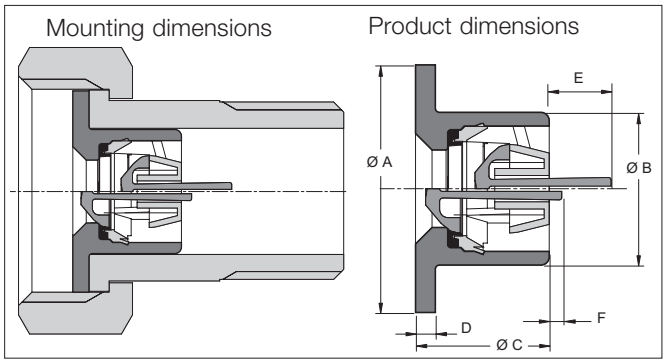
Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
O-ring	NBR
Spring	Stainless steel

Model	DN	Part Number
FI010	8	W149010670
FI015	15	W149015670
F0015	15	W149015665
F0020	20	W149020665
FW010	10	W149010060

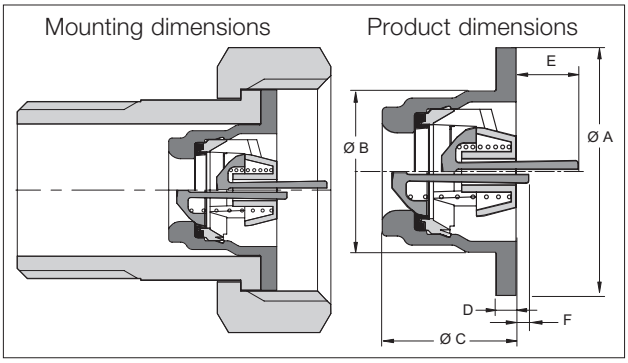
FI010 DN8



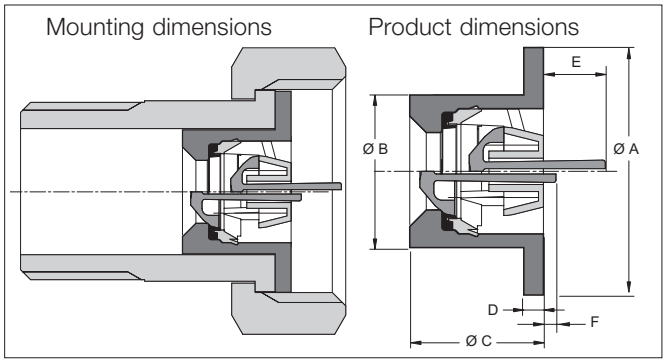
FI015 DN15



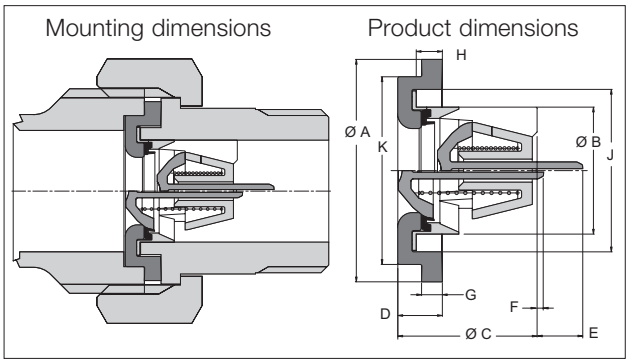
FO015 DN15



FO020 DN20



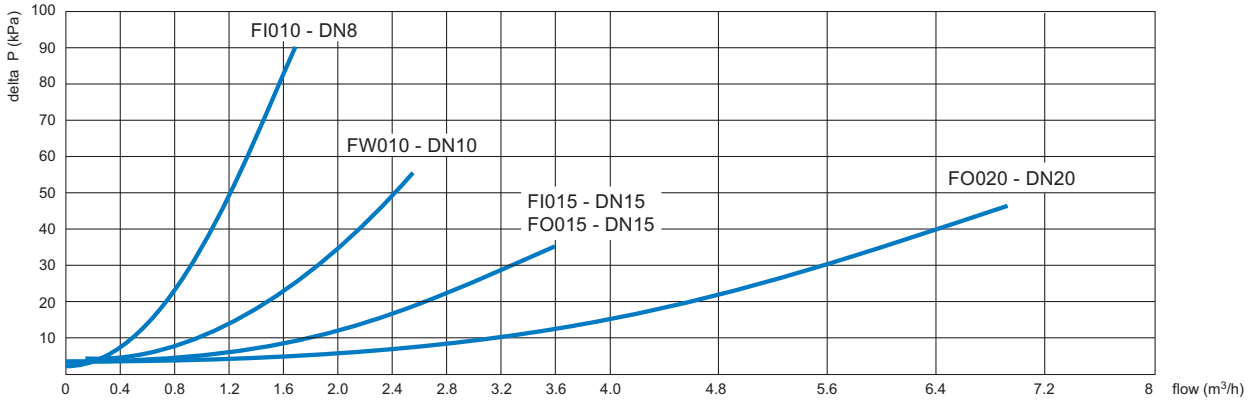
FW010 DN10

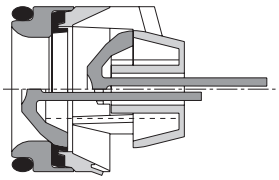


All dimensions are given in mm.

DN	model	ØA	ØB	ØC	D	E	F	G	H	J	K
8	FI010	23 ± 0.1	12	12.7 ± 0.1	2 ± 0.2	2.15	-	-	-	-	-
15	FI015	30 ± 0.5	18.5 ± 0.1	16.2 ± 0.2	2.4 ± 0.2	7.7	2.7	-	-	-	-
15	F0015	30 ± 0.5	19.5 ± 0.1	16.2 ± 0.2	2.4 ± 0.2	7.7	2.7	-	-	-	-
20	F0020	44.5 ± 0.2	24 ± 0.2	22 ± 0.2	2.5 ± 0.2	10.5	2.5	-	-	-	-
10	FW010	23 ± 0.1	13.13	14.4 ± 0.2	2.15 ± 0.1	4.7 ± 0.2	0.7 ± 0.2	4.6 ± 0.1	2.7 ± 0.1	16.8 ± 0.05	19.4 ± 0.1

Pressure loss-curve





IN

The Watts snap-in valve type IN is a compact and therefore easy to install check valve.

The advantage for OEM applications is, that in case of a side-connection in the housing, the O-ring can be mounted first and secondly the check valve itself.

This way the O-ring will not be damaged by the sharp edges of the side- connection.

This check valve will meet all quality requirements.

Its advantages are yours.

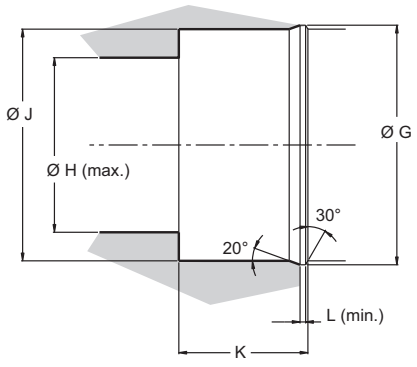
Approvals: Kiwa (NL), Belgaqua (B), DVGW (D), NF - ACS (F), WRAS (UK), ETA - GDV (DK), SITAC (S), NSF (US), AWQC (AUS).

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	IN015: DN15
	IN020: DN20
	IN025: DN25
	IN032: DN32
	IN040: DN40
	IN050: DN50

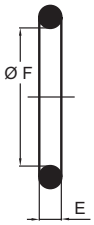
Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
O-ring	NBR
Spring	Stainless steel

Model	DN	Part Number
IN015	15	W149015610
IN020	20	W149020610
IN025	25	W149025610
IN032	32	W149032610
IN040	40	W149040610
IN050	50	W149050610

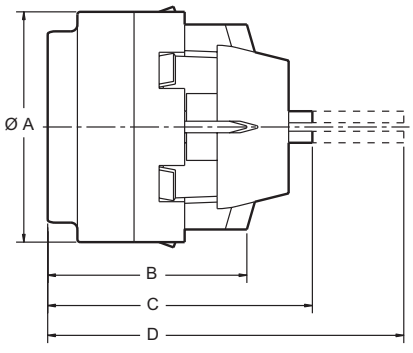
Mounting dimensions

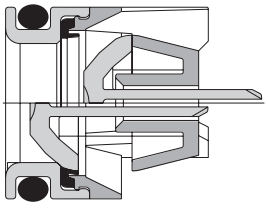


O-ring



Product dimensions

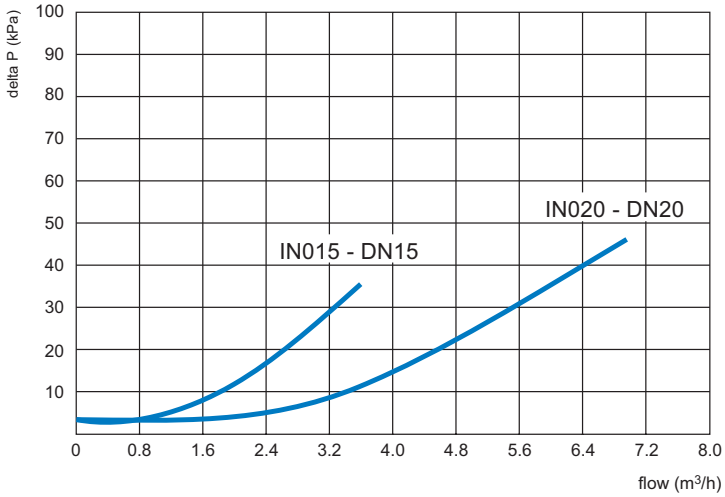




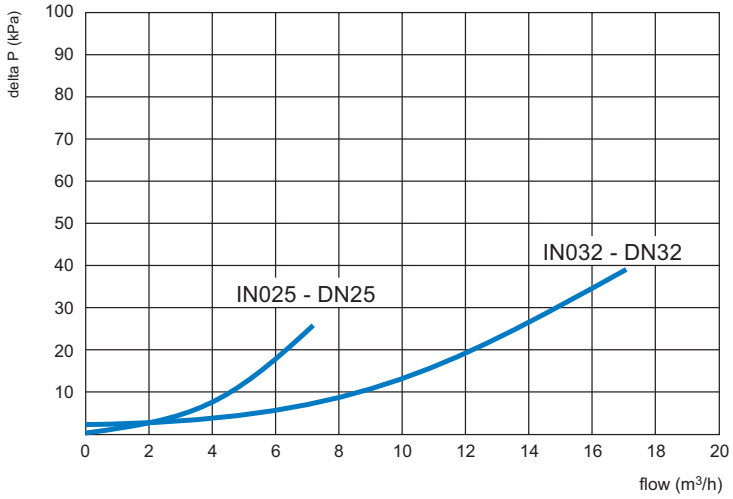
All dimensions are given in mm.

DN	model	ØA	B	C	D	E	ØF	ØG	ØH	ØJ	K	L
15	IN015	15.10 $^{0}_{-0.05}$	12.2 ± 0.4	17 ± 0.5	23.0 ± 0.5	1.2	12	15.8 ± 0.1	11.5	15.2 $^{+0.1}_{0}$	7.4 $^{+0.3}_{0}$	0.2
20	IN020	19.65 $^{0}_{-0.05}$	17.0 ± 0.4	23.2 ± 0.5	32.4 ± 0.5	2.0	16	20.6 ± 0.1	15.2	19.8 $^{+0.1}_{0}$	10.8 $^{+0.1}_{0}$	0.4
25	IN025	24.80 $^{0}_{-0.07}$	21.5 ± 0.4	28.5 ± 0.5	38.4 ± 0.5	2.5	20	25.8 ± 0.1	18.8	24.95 $^{+0.1}_{0}$	13.9 $^{+0.3}_{0}$	0.6
32	IN032	31.60 ± 0.07	26.65 ± 0.4	37.7 ± 0.5	51.4 ± 0.5	2.95	26.61	32.9 ± 0.1	24.2	31.75 $^{+0.1}_{0}$	17.0 $^{+0.3}_{0}$	0.8
40	IN040	39.30 ± 0.1	33.3 ± 0.4	45.3 ± 0.5	61.1 ± 0.5	3.53	32.92	41.2 ± 0.1	30.1	39.5 $^{+0.1}_{0}$	20.15 $^{+0.3}_{0}$	1.0
50	IN050	49.40 ± 0.1	45.8 ± 0.4	57.3 ± 0.5	80.5 ± 0.5	4.0	42	51.9 ± 0.1	37.7	49.6 $^{+0.1}_{0}$	24.3 $^{+0.3}_{0}$	1.2

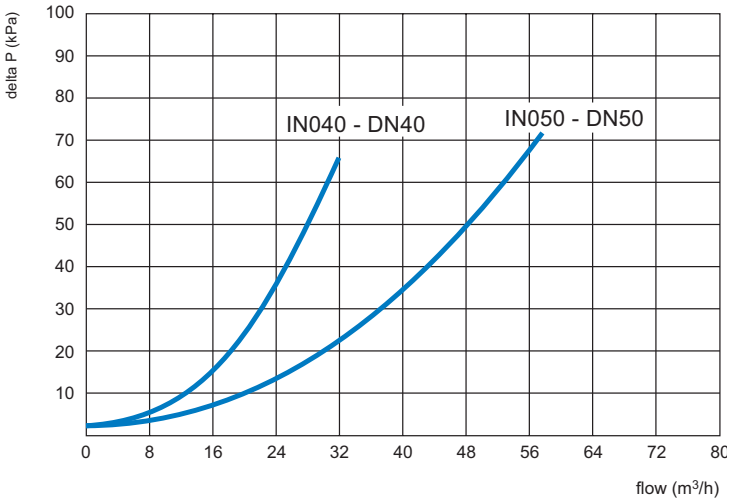
Pressure loss-curve



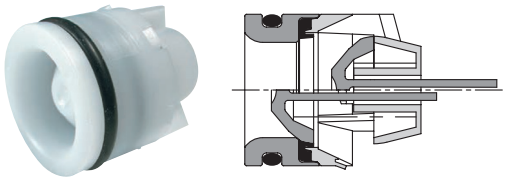
Pressure loss-curve



Pressure loss-curve



IO



To meet the ever increasing quality requirements, Watts developed the snap-in check valve type IO.

The O-ring is already mounted and fixated on the check valve, thus creating an easy to mount check valve.

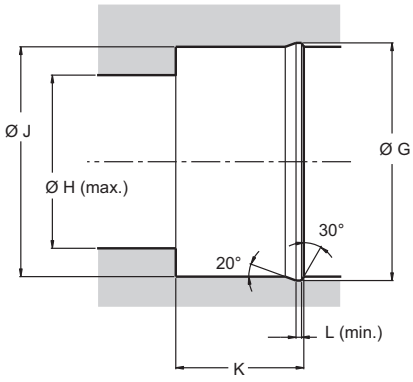
Approvals: Kiwa (NL), Belgaqua (B), DVGW (D), NF - ACS (F), WRAS (UK), ETA - GDV (DK), SITAC (S), NSF (US).

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	I0015: DN15
	I0020: DN20
	I0025: DN25
	I0032: DN32
	I0040: DN40
	I0050: DN50

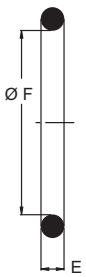
Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
O-ring	NBR
Spring	Stainless steel

Model	DN	Part Number
I0015	15	W149015620
I0020	20	W149020620
I0025	25	W149025620
I0032	32	W149032620
I0040	40	W149040620
I0050	50	W149050620

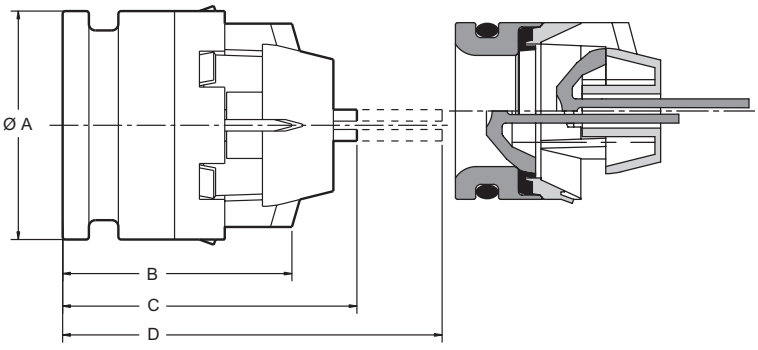
Mounting dimensions



O-ring



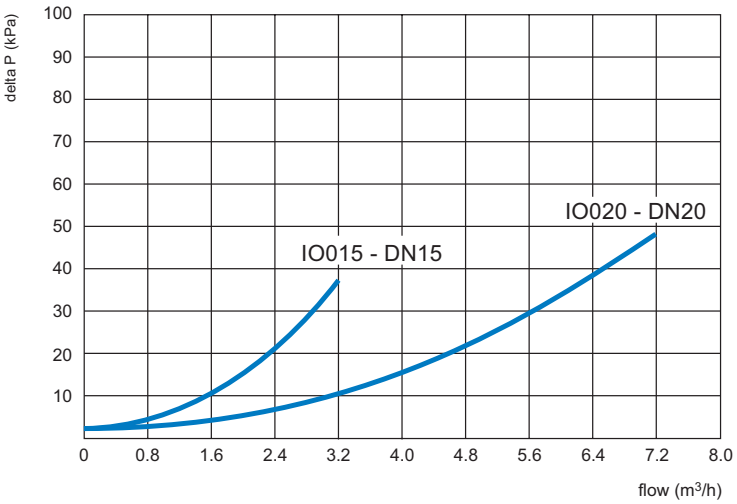
Product dimensions



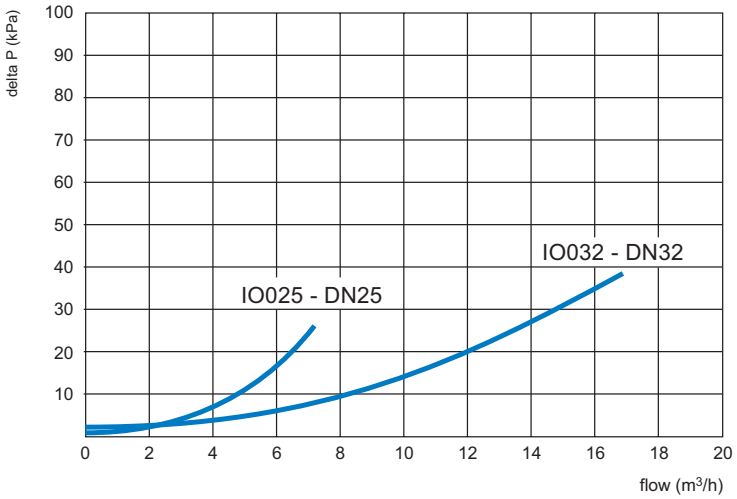
All dimensions are given in mm.

DN	model	ØA	B	C	D	E	ØF	ØG	ØH	ØJ	K	L
15	I0015	15.10 $^{0}_{-0.05}$	13.3 ± 0.4	18.0 ± 0.5	24.5 max	1.5	12	15.8 ± 0.1	11.5	15.2 $^{+0.1}_{0}$	8.4 $^{+0.3}_{0}$	0.2
20	I0020	19.65 $^{0}_{-0.05}$	17.0 ± 0.4	23.2 ± 0.5	32.9 max	2.0	16	20.6 ± 0.1	15.2	19.8 $^{+0.1}_{0}$	10.8 $^{+0.1}_{0}$	0.4
25	I0025	24.80 $^{0}_{-0.07}$	24.3 ± 0.4	31.3 ± 0.5	41.7 max	2.5	20	25.8 ± 0.1	18.8	24.95 $^{+0.1}_{0}$	16.7 $^{+0.3}_{0}$	0.6
32	I0032	31.60 ± 0.07	26.65 ± 0.4	37.7 ± 0.5	51.9 max	2.95	26.61	32.9 ± 0.1	24.2	31.75 $^{+0.1}_{0}$	17.0 $^{+0.3}_{0}$	0.8
40	I0040	39.30 ± 0.1	33.3 ± 0.4	45.3 ± 0.5	61.1 max	3.53	32.92	41.2 ± 0.1	30.1	39.5 $^{+0.1}_{0}$	20.15 $^{+0.3}_{0}$	1.0
50	I0050	49.40 ± 0.1	45.8 ± 0.4	57.3 ± 0.5	80.5 max	4.0	42	51.9 ± 0.1	37.7	49.6 $^{+0.1}_{0}$	24.3 $^{+0.3}_{0}$	1.2

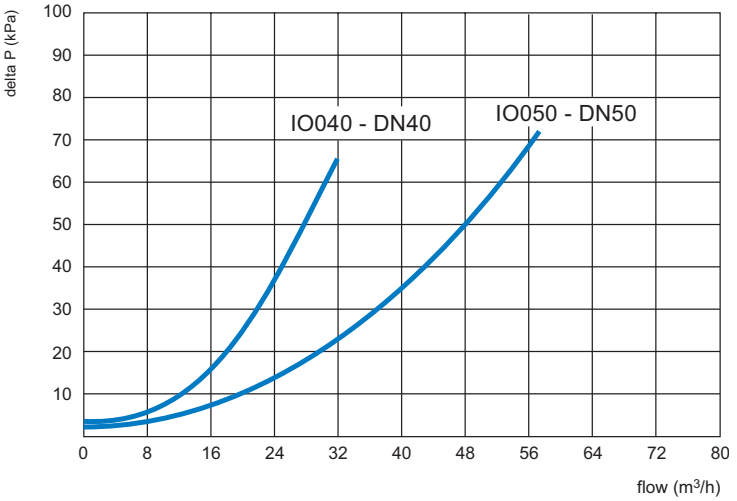
Pressure loss-curve



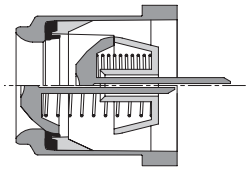
Pressure loss-curve



Pressure loss-curve



WM



The Watts slide-in check valve type WM features a noiseless operation, very low pressure loss and absolute sealing at high and low back pressures.

The split valve stem principle guarantees a trouble free operation for many years.

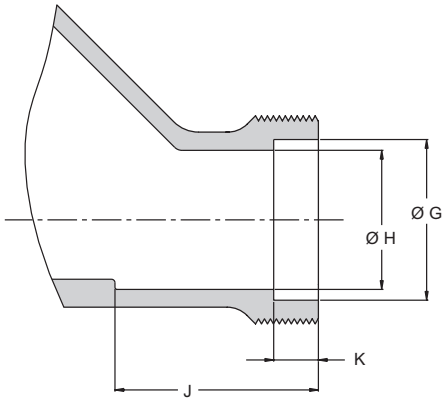
Approvals: Kiwa (NL), Belgaqua (B), DVGW (D), NF (F) except DN40, - ACS (F), ETA - GDV (DK), SITAC (S), NSF (US).

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	WM015: DN15
	WM020: DN20
	WM025: DN25
	WM040: DN40

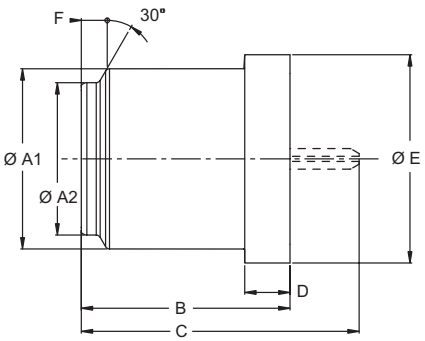
Material specifications	DN
House	POM
Valve	POM
Torpedo	POM
Diaphgram	NBR
Spring	Stainless steel

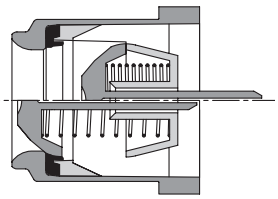
Model	DN	Part Number
WM015	15	W149015600
WM020	20	W149020600
WM025	25	W149025600
WM040	40	W149040600

Mounting dimensions



Product dimensions

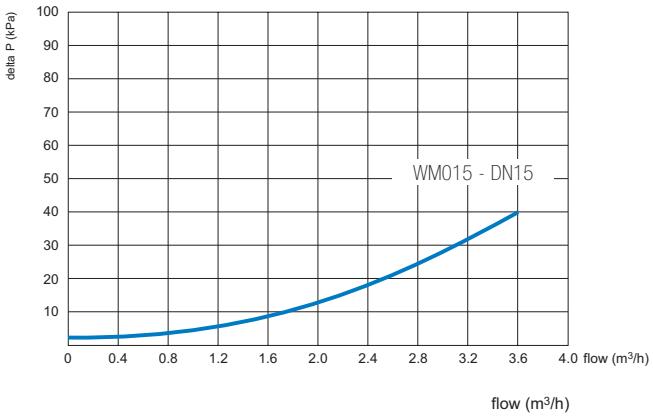




All dimensions are given in mm.

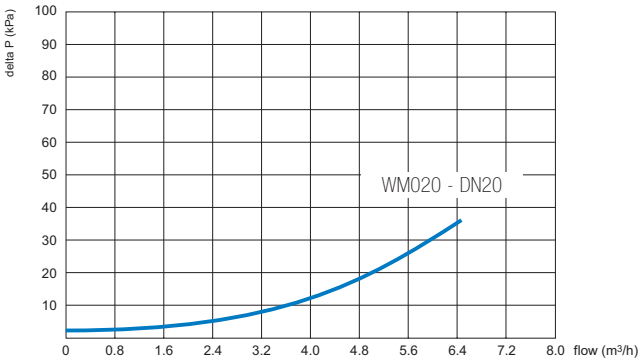
DN	model	ØA1	ØA2	B	C	D	ØE	F	ØG	ØH	J	K
15	WM015	18.30 $^{0}_{-0.1}$	15.3 ± 0.05	19.0 $^{0}_{-0.1}$	24.95 max	1.5	20 $^{0}_{-0.15}$	3.2 $^{+0.1}_{0}$	20.5 $^{0}_{-0.2}$	18.7 $^{+0.2}_{0}$	21.0 $^{+0.5}_{0}$	3.0 $^{0}_{-0.2}$
20	WM020	22.10 $^{0}_{-0.1}$	18.1 $^{0}_{-0.1}$	25.5 $^{0}_{-0.1}$	34.1 max	2.0	25 $^{0}_{-0.15}$	4.0 $^{+0.1}_{0}$	25.3 $^{+0.2}_{0}$	22.4 $^{+0.2}_{0}$	26.0 $^{+0.5}_{0}$	7.0 $^{0}_{-0.3}$
25	WM025	28.50 $^{0}_{-0.1}$	24.0 $^{+0.1}_{0}$	38.5 $^{0}_{-0.1}$	40.05 max	2.5	32 $^{0}_{-0.2}$	4.5 $^{+0.1}_{0}$	32.5 $^{+0.1}_{0}$	30.0 ± 0.1	42.0 ± 0.1	8.0 ± 0.1
40	WM040	40.30 ± 0.07	33.65 ± 0.1	46.1 ± 0.1	61.6 max	3.53	46 $^{0}_{-0.3}$	4.3 $^{0}_{-0.1}$	46.5 $^{+0.05}_{0}$	40.5 ± 0.1	49.0 ± 0.1	10.0 ± 0.1

Pressure loss-curve



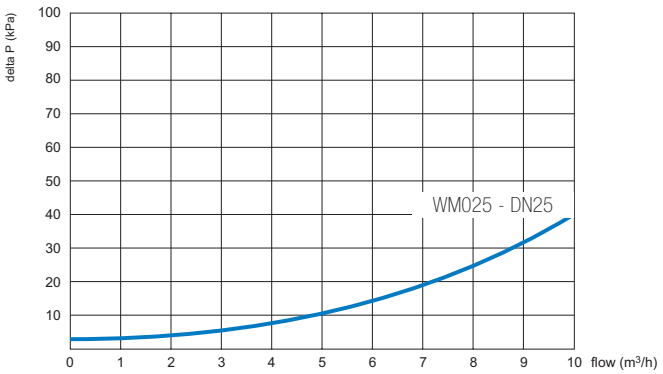
flow (m³/h)

Pressure loss-curve



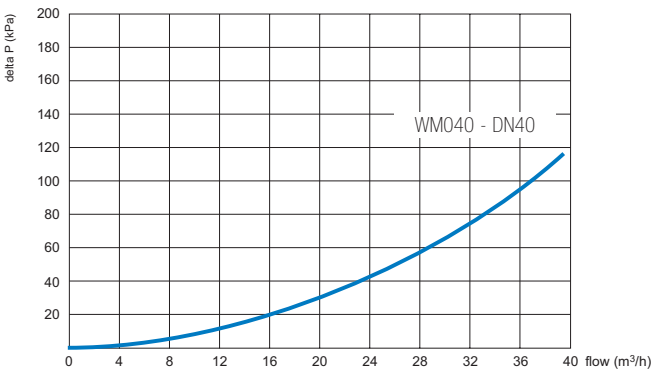
flow (m³/h)

Pressure loss-curve



flow (m³/h)

Pressure loss-curve



flow (m³/h)

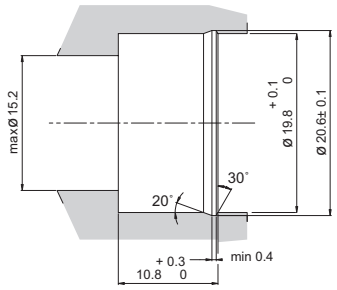
IW020 DN20

The check valve type IW020 shows the inventive solutions of Watts.
Our R&D made this check valve for our customers with the same performances they are used to.

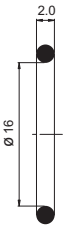
Other diameters are also possible.

Approvals: GDV (DK), NSF (US).

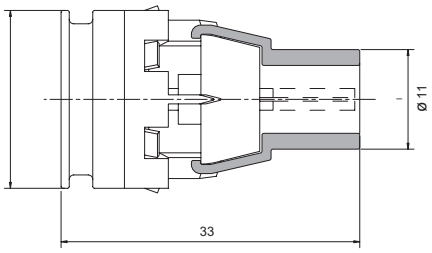
Mounting dimensions



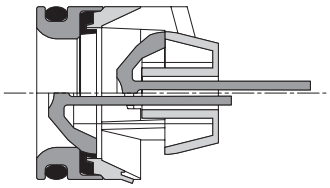
O-ring



Product dimensions



Other diameters on request.



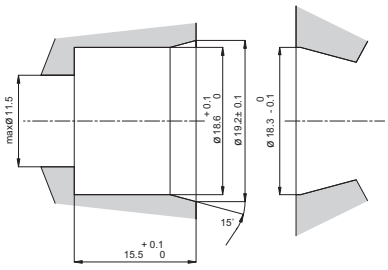
Model	DN	Part Number
IW020	20	W149020167

TO015 DN15

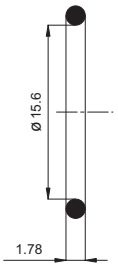
The TO015 is specially designed for hydraulic safety groups that are fitted to the cold water supply of storage water heaters.
This special valve is tested according to the EN1487 and will stand a maximum half hour of heavy treatment with saturated steam up to 180°C during calamities.
Due to the PPS material, the TO015 valve will keep its form and function.
The lip-seal is mounted in such a way that it will survive the passage of high temperature steam during this simulated calamity.

Approvals: Belgaqua (B), NF - ACS (F), ETA (DK), SITAC (S), AWQC (AUS).

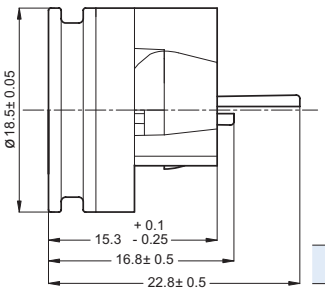
Mounting dimensions



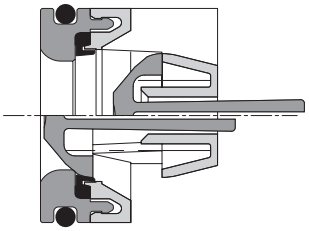
O-ring



Product dimensions



Other diameters on request.

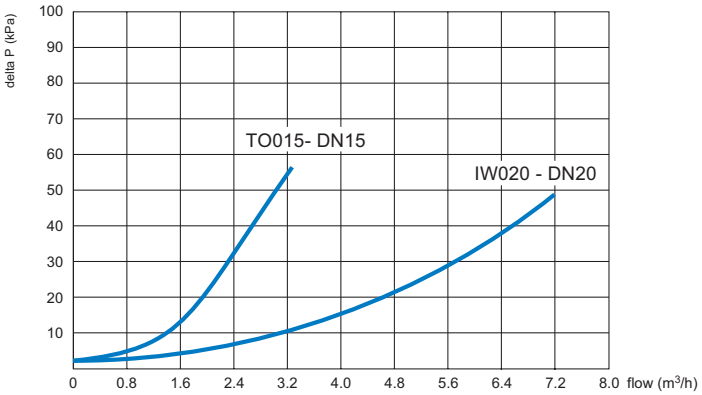


Model	DN	Part Number
T0015	15	W149015640

Technical specifications	
Working pressure	PN10
Testing pressure	1600 kPa
Nominal operating temperature	65°C
Peak temperature	90°C for 1h/day
Diameter nominal	IW020: DN20
	T0015: DN15

Material specifications	IW020	T0015
House	POM	PPS
Valve	POM	PPS
Torpedo	POM	PPS
Diaphgram	NBR	
0-Ring	NBR	
Spring	Stainless steel	

Pressure loss-curve



Auxiliary mounting tools

In order to achieve a perfectly leaktight check valve construction, it is of crucial importance that mounting dimensions are respected.

On each check valve data sheet, you will find the required mounting dimensions to be created in the housing to the check valve.

In order to avoid any damage of the check valves and O-rings it is very important that check valves are mounted in the correct way.

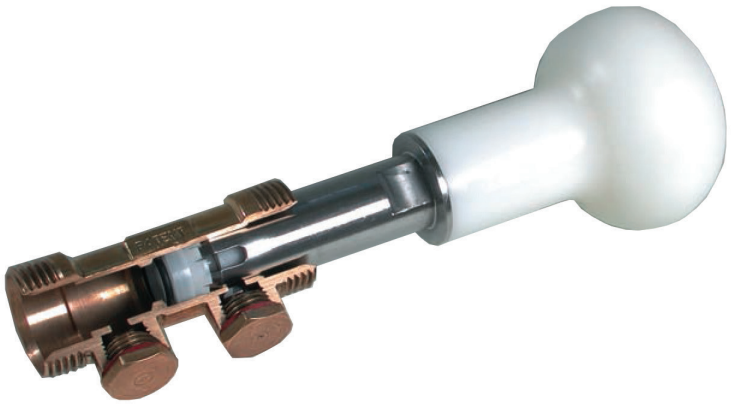
To support positioning and mounting in the right way Watts produced a mounting tool for every check valve.

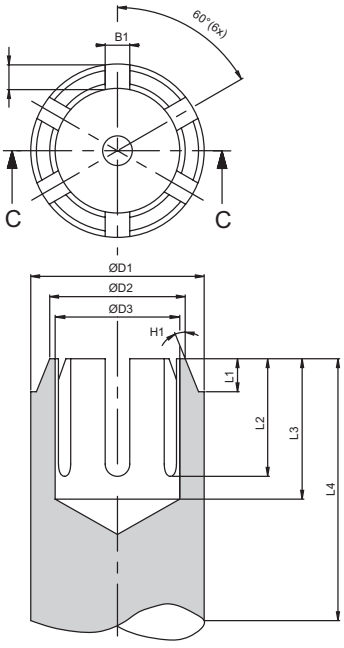
The dimensions of the tools are given below.

All dimensions are given in mm.

DN	model	H1	ØD1	ØD2	ØD3	L1	L2	L3	L4	B1	B2
8	FI010	26°	9.6 ± 0.05	7.85 ± 0.05	7.4 ± 0.05	1.65 ± 0.05	6.15 +0.1 0	6.15 +0.1 0	min. 30	1.5 +0.2 0	-
8	C0010	26°	9.9 ± 0.05	7.85 ± 0.05	7.4 ± 0.05	1.65 ± 0.05	6.15 +0.1 0	6.15 +0.1 0	min. 30	1.5 +0.2 0	-
10	C0012	0°	11.6 ± 0.1	10.2 ± 0.05	8.7 ± 0.1	2.9 0 -0.1	2.9 0 -0.1	2 +0.1 0	min. 30	2 +0.1 0	2.6 0 -0.5
10	C0013	0°	12.6 ± 0.1	10.2 ± 0.05	8.7 ± 0.1	2.9 0 -0.1	2.9 0 -0.1	2 ± 0.1	min. 30	2 +0.1 0	2.6 0 -0.5
10	C0014	24°	13.9 0 -0.1	12.85 ± 0.05	11.9 ± 0.1	0.5 +0.1 0	8 ± 0.1	8 ± 0.1	min. 50	2 +0.1 0	-
10	C0015	0°	15.1 0 -0.1	12.5 ± 0.05	11 ± 0.1	2.5 ± 0.1	2.5 ± 0.1	2.5 ± 0.1	min. 50	2 +0.1 0	-
15	C0020	27°	15 0 -0.1	11.75 ± 0.05	10.8 +0.1 0	2.5 ± 0.05	9.5 ± 0.2	12 +0.1 0	min. 65	3 ± 0.2	-
15	IN/IO/WM	27°	15 0 -0.1	11.75 ± 0.05	10.8 +0.1 0	2.5 ± 0.1	9.5 ± 0.2	12 +0.1 0	min. 65	3 ± 0.2	-
20	IN/IO/WM	17°	19.7 0 -0.1	15.8 ± 0.05	14.5 +0.1 0	-	14 ± 0.2	16 ± 0.2	min. 65	4 +0.2 0	-
25	IN/IO/WM	23°	24.8 0 -0.1	19.3	18 +0.1 0	-	14 ±0.02 0	17.5 ± 0.1	min. 75	5 +0.2 0	-
32	IN/IO	22°	31.6 0 -0.02	24.7 ± 0.05	22.5 +0.1	5.8 ± 0.1	17.5 ± 0.2	24 ± 0.2	min. 85	3 +0.1 0	-
40	IN/IO/WM	22°	39.3 0 -0.02	30.7 ± 0.05	28.5 +0.1 0	7.3 ± 0.1	23 ± 0.2	30 ± 0.2	min. 90	6 +0.2 0	-
50	IN/IO	22°	49.4 ± 0.05	38.6 0 -0.02	35.5 +0.1 0	9.4 ± 0.1	33.5 ± 0.2	40 ± 0.2	min. 90	7 +0.2 0	-

Remark: dimensions are under usual reserve.





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