

DW 18 SERIES

Technical Datasheet

Mechanical Flow Controller

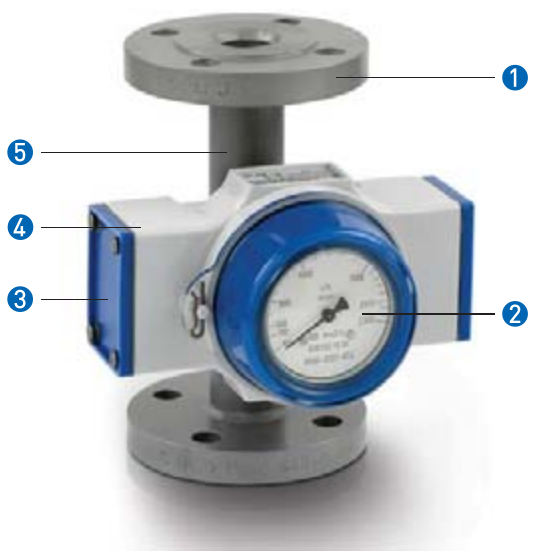
- Mechanical, autonomous flow switches - no power supply needed
- For horizontal and vertical pipes from DN 15 up to DN 3000 - and higher
- High reliability and repeatability up to 300°C / 570°F

KROHNE

The Mechanical Flow Controller

The DW 18 series of flow controller is ideal for locally indicating the flow of homogenous clean liquids. Adjustable switches generate alarms once switching points are reached.

The units are robust. Several variants are available to suit a wide variety of applications.



1. Mounting options: flange, threaded or insertion-type
2. Indicator options: linear scale with flow limits or dial
3. Wiring compartment with cable gland
4. Plastic housing with or without indicator
5. Material options: Bronze, stainless steel, low-carbon steel or carbon steel with stainless steel cladding

Highlights

- Proven technology - for more than thirty years
- Bistable reed switches, SPDT switches and relays available
- Optional second limit switch
- Switch position can be adjusted under process conditions
- Suitable for pipes DN 15…3000 or ½...120" in diameter
- High-temperature version (without indicator) for operating conditions up to 300°C / 570°F
- Housing is removable under process conditions
- Optional approval for Ex ia, Ex c or Ex d applications
- No maintenance needed

Industries

- Petrochemical
- Oil & Gas
- Chemical
- Water
- Air-conditioning (HVAC)

Applications

- Flow detection
- Cooling systems
- Pump protection
- Lubrication control
- Cavitation alarm

Variants



DW 181 flow controller

The DW 181 inline flow controller is suitable for horizontal or vertical pipes. It can have G or NPT threaded connections, sizes ranging from ¾...2". The measuring tube and connection are made of either bronze or 316 L (1.4404) stainless steel. There are two types of indicator available for this variant:

- a linear scale with up to two alarm positions at the top and bottom of the indicator (as shown) or
- a dial which has been made specifically for this instrument and tested on a calibration rig.

For information on DW 181 flow ranges, please refer to the flow range tables.



DW 182 flow controller

The DW 182 inline flow controller is suitable for horizontal or vertical pipes. It has flanged connections, sizes ranging from DN 15...DN 65 or from ½...2½". The measuring tube and connection is made of 316 L (1.4404) stainless steel. There are two types of indicator available for this variant:

- a linear scale with up to two alarm positions at the top and bottom of the indicator or
- a dial (as shown) which has been made specifically for the instrument and tested on a calibration rig.

For information on DW 182 flow ranges, please refer to the flow range tables.

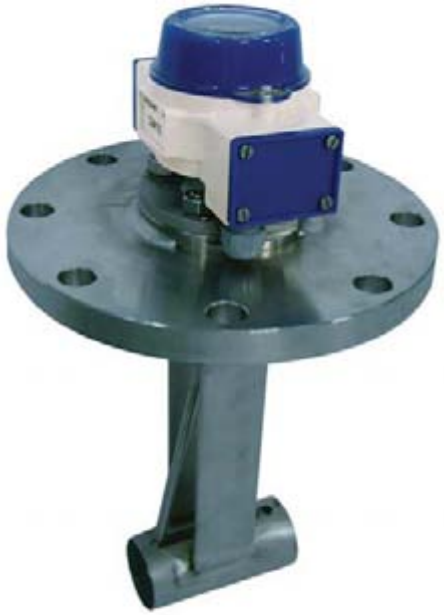


DW 183 flow controller

The DW 183 inline flow controller is suitable for horizontal or vertical pipes. It has with flanged connections , sizes ranging from DN 65...DN 200 and 2½...8". The measuring tube and connection is made of either XC 18 (1020) carbon steel or 316 L (1.4404) stainless steel. Carbon steel flanges with nominal diameters bigger than 100 or 4" can have 316 L stainless steel cladding. There are two types of indicator available for this variant:

- a linear scale with up to two alarm positions at the top and bottom of the indicator or
- a dial (as shown) which has been made specifically for this instrument and tested on a calibration rig.

For information on DW 183 flow ranges, please refer to the flow range tables.



DW 184 flow controller

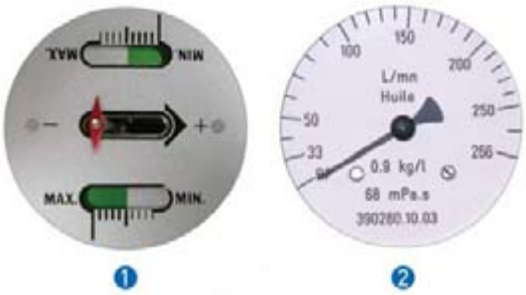
The DW 184 insertion-type flow controller checks flow velocity. It is suitable for horizontal and vertical pipes with nominal diameters of 250 mm / 10" or bigger - there is no maximum pipe diameter. It is installed on a DN 150 PN 16/40 or 6" ASME150/300 lbs mounting flange.

The measuring tube and connection is made of either 1020 (XC 18) carbon steel or 316 L (1.4404) stainless steel. A mounting flange made of carbon steel can also have 316 L stainless steel cladding. One type of indicator is available for this variant:

- a linear scale with alarm positions at the top and bottom of the indicator.

For information on DW 184 flow velocity ranges, please refer to the flow range tables.

Options



❶ ❷

Indicator options

Standard and intrinsically-safe flow switches are equipped with a local indicator. There are two types:

❶ The type G linear indicator is supplied as standard for all variants. Up to two switching points (alarm positions) are indicated at the top and the bottom of the indicator. The switching points are set according to customer order and tested on a calibration rig. Switching points can be changed during operation.

❷ The type A dial indicator is optional for the DW 181, DW 182 and DW 183. It has been made specifically for the instrument and tested on a calibration rig. Switching points can be changed during operation.



ATEX approval: intrinsically-safe devices

The DW 18 intrinsically-safe flow switch has the same housing as a standard device. Type G or A indicators are available. It is suitable for use in potentially explosive atmospheres.

A DW 18 with this option is in equipment category 1 GD.



ATEX approval: explosion-proof devices

The DW 18 explosion-proof (Ex d) flow switch has an aluminium housing without an indicator. It is suitable for use in potentially explosive atmospheres. It is possible to change the switch position under process conditions.

A DW 18 with this option is in equipment category 1/2 GD.



High-temperature (HT) option

The DW 18 high-temperature (HT) flow switch is suitable for operating conditions up to 300°C / 570°F. It does not have an indicator. The switch is sheathed in a PTFE cartridge. It is possible to change the switch position under process conditions.

Technical data: inline instruments

	DW 181	DW 182	DW 183

Functions

Description	Flow switch	
Function	Monitors flow in horizontal or vertical pipes	
User interface options	Linear scale (type G) ❶	
	Dial (type A) ❶	Dial (type A) ❷
Scale marking options	l/h, m^3/h or US GPM ❸	

Design

Installation type	Inline connection

Measurement accuracy

Repeatability	±3%		
Accuracy	±15% ❹		
Reference temperature	+20°C ±5°C / +70°F ±10°F		
Reference pressure	1013 mbar abs. ±20 mbar / 14.69 psig ±0.29 psig		
Reference relative humidity	60% ±15%		
Reference product	Water		
Measuring range	0.09…30 m³/h / 0.09…132 US GPM ❺	0.02…30 m³/h / 0.09…132 US GPM ❺	10…250 m³/h / 44…1100 US GPM ❺

Operating conditions

Ambient temperature		
Standard housing	-40…+80°C / -40…+175°F (Ex: see supplementary operating instructions or approval certificates)	
Ex d housing	Ex: see supplementary operating instructions or approval certificates	
High-temperature housing	-25…+60°C / -15…+140°F	
Storage temperature	-40…+85°C / -40…+185°F	
Process temperature		
Standard housing	-40…+120°C / -40…+250°F (Ex: see supplementary operating instructions or approval certificates)	
Ventilated housing	-40…+150°C / -40…+300°F	
Ex d housing	Ex: see supplementary operating instructions or approval certificates	
High-temperature housing	-25…+300°C / -15…+570°F	
Max. allowable operating pressure,	As given below and according to the flange pressure rating. See "Process connections".	
Standard	40 bar / 580 psig	16 bar / 232 psig

	DW 181	DW 182	DW 183
Dangerous fluids (Group 1, Regulation (EC) No 1272/2008)	n/a		with DN150 PN16 flanges: <13 bar or 190 psig
			with DN80 PN40 flanges: <25 bar or 362 psig
Viscosity, standard variants	≤30 mPas/ 0.02 lb/fts		
Viscosity, special variants	≤250 mPas/ 0.168 lb/fts		
Protection category acc. to EN 60529			
Standard variants + Ex Versions	IP 65		
High-temperature option	IP 66		

Installation conditions

Minimum inlet run	5 x nominal diameter, depending on the flow profile
Minimum outlet run	2 x nominal diameter, depending on the flow profile

Materials

Measuring tube	Bronze; SS 316 L (1.4404)	SS 316 L (1.4404)	XC 18 (1020) steel; SS 316 L (1.4404)
Measuring system assembly	SS 316 L (1.4404)		
Connection	Bronze; SS 316 L (1.4404) ❻	SS 316 L (1.4404)	XC 18 (1020) steel; SS 316 L (1.4404); SS 316 L (1.4404)-clad carbon steel ❼
Housing - non-Ex / Ex ia / Ex c versions	Polycarbonate		
Housing - Ex d version	Aluminium		
Wiring box - HT version	Aluminium		
Switch sheath - HT version	PTFE		
Electric cable sheath - HT version	Fibre glass		
Gasket			
Standard	NBR; FKM/FPM*; Silicone*; Klingerit* *on request		
High-temperature (HT)	Klingerit; fully welded housing on request		
Cap (Pressure housing)	SS 316 L (1.4404)		

Process connections

Thread	G ¾…2; NPT ¾…2	-	
Flange, DIN 2526 - PN40 - Form C	-	DN15….50	DN80
Flange, DIN 2526 - PN16 - Form C	-	DN65	DN65, DN100...150
Flange, DIN 2526 - PN10 - Form C	-		DN200 ❽
Flange, ASME B16.5 - 150 lbs RF	-	½…2½"	2½…8"
Flange, ASME B16.5 - 300 lbs RF	-	½…2½"	-

	DW 181	DW 182	DW 183

Power supply

Instrument terminal	Refer to the "Switch options" page

Input and output

Parameter	Flow rate
Output signal	Refer to the "Switch options" page

Approvals

ATEX	II 1 GD Ex ia IIC T6…T3 Ga Ex ia IIIC T195 °C…T80 °C Da IP65 II 1/2 GD Ex d IIC T6…T3 Gb Ex tb IIIC T195 °C…T80 °C Db IP65 ❾ II 1 GD c IIC T6…T3 T195 °C…T80 °C IP65

❶ Not available for Ex d and HT options
❷ Not available for Ex d and HT options. For connection sizes DN ≤100 or ≤4" only.
❸ With type A dial only
❹ With type A dial only
❺ See flow range tables
❻ NPT connections: 316 L (1.4404) stainless steel only
❼ Carbon steel flanges with nominal diameters bigger than 100 mm or 4" can have stainless steel cladding
❽ PN16 on request
❾ no indicator available for the Ex d version. Ex approval not available for the high-temperature option. Refer also to the "Switch options" page.

Technical data: insertion-type instruments

	DW 184

Functions

Description	Flow switch
Function	Monitors flow in horizontal or vertical pipes
User interface options	Linear scale (type G) - not available for Ex d and HT options

Design

Installation type	Insertion-type connection for pipe diameters ≥DN250 or 10"

Measurement accuracy

Repeatability	±3%
Reference temperature	+20°C ±5°C / +70°F ±10°F
Reference pressure	1013 mbar abs. ±20 mbar / 14.69 psig ±0.29 psig
Reference relative humidity	60% ±15%
Reference product	Water
Measuring range	0.2…4 m/s / 0.66…1.31 ft/s, see flow range tables

Operating conditions

Ambient temperature	
Standard housing	-40…+80°C / -40…+175°F (Ex: see supplementary operating instructions or approval certificates)
Ex d housing	Ex: see supplementary operating instructions or approval certificates
High-temperature (HT) housing	-25…+60°C / -15…+140°F
Storage temperature	-40…+85°C / -40…+185°F
Process temperature	
Standard housing	-40…+120°C / -40…+250°F (Ex: see supplementary operating instructions or approval certificates)
Ventilated housing	-40…+150°C / -40…+300°F
Ex d housing	Ex: see supplementary operating instructions or approval certificates
High-temperature (HT) housing	-25…+300°C / -15…+570°F
Max. allowable operating pressure	40 bar or 580 psig, according to the flange pressure rating
Viscosity	
Standard variants	≤30 mPas/ 0.02 lb/fts
Special variants	<90 mPas/ 0.06 lb/fts
Protection category acc. to EN 60529	
Standard + Ex versions	IP 65
High-temperature option	IP 66

	DW 184

Installation conditions

Minimum inlet run	5 x nominal diameter, depending on the flow profile
Minimum outlet run	2 x nominal diameter, depending on the flow profile
Mounting flange clearance above pipeline	50 mm or 2", see "Process connections"

Materials

Measuring tube	SS 316 L (1.4404)
Measuring system assembly	
Connection	XC 18 (1020) steel; SS 316 L (1.4404); SS 316 L (1.4404)-clad carbon steel
Housing - non-Ex / Ex ia / Ex c versions	Polycarbonate
Housing - Ex d version	Aluminium
Wiring box - HT version	
Switch sheath - HT version	PTFE
Electric cable sheath - HT version	Fibre glass
Gasket	
Standard	NBR; FKM/FPM*; Silicone*; Klingerit* *on request
High-temperature (HT)	Klingerit
Cap (Pressure housing)	SS 316 L (1.4404)

Process connections

Flange, DIN 2526 - PN40 - Form C	DN150 (PN25/40) - this is a mounting flange for the insertion-type device. For pipelines ≥DN250 / 10".
Flange, DIN 2526 - PN16 - Form C	
Flange, ASME B16.5 - 150 lbs RF	6" - this a mounting flange for the insertion-type device. For pipelines ≥DN250 / 10".
Flange, ASME B16.5 - 300 lbs RF	

Power supply

Instrument terminal	Refer to the "Switch options" page

Input and output

Parameter	Flow velocity
Output signal	Refer to the "Switch options" page

Approvals

ATEX	II 1 GD Ex ia IIC T6...T3 Ga Ex ia IIIC T195 °C...T80 °C Da IP65 II 1/2 GD Ex d IIC T6...T3 Gb Ex tb IIIC T195 °C...T80 °C Db IP65 ❶ II 1 GD c IIC T6...T3 T195 °C...T80 °C IP65

❶ No indicator available for the Ex d version. Ex approval not available for the high-temperature option. Refer also to the "Switch options" page.

Switch options

The DW 18 series has a large number of switch and relay options.

The DW 18 series can be equipped with either:

- 1 or 2 SPST (single pole, single throw) switches for standard applications,
- 1 or 2 SPST switches for high-temperature (HT) applications,
- 1 SPDT (single pole, double throw) switch, or
- 1 or 2 DPDT (double pole, double throw) relay amplifiers for higher switching capacities.

The normal state of an SPST switch is either N/C, normally closed, or N/O, normally open. N/C switches are closed during operation (closed when flow increases). N/O switches are open during operation (closed when flow decreases).

Switch name	None	K1			K1 (HT)		KV1	K2				K2 (HT)				KV2
Output type	-	SPST switch		SPDT switch	SPST switch		DPDT relay	2 SPST switches				2 SPST switches				2 DPDT relays
Switch state	-	N/C	N/O	Changeover	N/C	N/O	-	2 N/C	1N/C + 1/N/O	1N/O + 1/N/C	2 N/O	2 N/C	1N/C + 1/N/O	1N/O + 1/N/C	2 N/O	-

Housing options

Standard: indicator G		■	■	■			■	■	■	■	■					■
Standard: indicator A ❶	■	■	■	■			■	■	■	■	■					■
High-temperature (HT) ❷					■	■						■	■	■	■	
Ex d-approved ❷		■	■													

Approvals

ATEX, Ex ia, Ex c		■	■	■				■	■	■	■					
ATEX, Ex d		■	■													

■ standard ■ optional □ on request

❶ Option not available for the DW 184 flow controller
❷ Without indicator

Power supply

Instrument terminal - KV1 relay	250/110/48/24 VAC; 110/48/24 VDC
Instrument terminal - KV2 relays	250/110/48/24 VAC; 110/48/24 VDC
Cable entry - non-Ex / Ex ia / Ex c option	M20x1.5 (NPT 1/2 on request)
Cable entry - Ex d option	M20x1.5 (NPT 3/4 on request)
Cable entry - HT option	M16x1.5

Input and output

K1 switch	
SPST max. switching capacity	250 V / 0.4 A / 14 VA
SPDT max. switching capacity	100 V / 0.25 A / 3 VA
Ex ia supply characteristics	I_i <500 mA, C_i = 0 nF, L_i = 0 µF
Ex d power characteristics	Umax. = 250 VAC, Pmax. = 20 VA, Imax. = 1.5 A
K1(HT) switch	
SPST max. switching capacity ❶	250 V / 0.25 A / 20 VA
K2 switches	
SPST max. switching capacity	250 V / 0.4 A / 14 VA
Ex ia supply characteristics	I_i <500 mA, C_i = 0 nF, L_i = 0 µF
K2(HT) switches	
SPST max. switching capacity ❶	250 V / 0.25 A / 20 VA
KV1 relay, KV2 relays	
DPDT relay max. switching capacity	250 V / 8 A AC1
Response time	5…12 ms

❶ With high-temperature (HT) option. Ex approvals are not available.

Flow range tables

Use the tables that follow for the selection of devices and their flow range. Quote the code given.

DW 181 flow ranges

Thread connection		Flow range		Pressure loss			
G / NPT				Pmax for qmin		Pmax for qmax	
[inches]	Code	[l/h]	[US GPM]	[mbar]	[psig]	[mbar]	[psig]
¾	C 011	20…160	0.09…0.70	16	0.23	80	1.16
	C 012	50…400	0.22…1.76	67	0.97	176	2.55
	C 013	150…1000	0.66…4.40	140	2.03	440	6.38
	C 014	300…2500	1.32…11.01	150	2.18	490	7.11
	E 015 (1)	64…160	0.28…0.70	65	0.94	370	5.37
	E 016 (1)	100…250	0.44…1.10	150	2.18	870	12.62
	E 017 (1)	160…400	0.70…1.76	18	0.26	110	1.60
	E 018 (1)	250…630	1.10…2.77	40	0.58	270	3.92
	E 019 (1)	400…1000	1.76…4.40	18	0.26	110	1.60
1	C 021	200…1600	0.88…7.04	18	0.26	80	1.16
	C 022	300…2500	1.32…11.01	26	0.38	180	2.61
	C 023	500…4000	2.20…17.61	85	1.23	400	5.80
	E 025	640…1600	2.82…7.04	15	0.22	110	1.60
	E 026	1000…2500	4.40…11.01	45	0.65	240	3.48
	E 027	1600…4000	7.04…17.61	25	0.36	140	2.03
1½	C 041	500…4000	2.20…17.61	14	0.20	68	0.99
	C 042	800…6300	3.52…27.74	32	0.46	110	1.60
	C 043	1200…10000	17.61…44.03	60	0.87	160	2.32
	E 045	2500…6300	11.01…27.74	15	0.22	100	1.45
	E 046	4000…10000	17.61…44.03	50	0.73	260	3.77
2	C 051	1200…10000	5.28…44.03	30	0.44	80	1.16
	C 052	2000…16000	8.81…70.45	65	0.94	260	3.77
	C 053	2500…20000	11.01…88.06	72	1.04	350	5.08
	C 054	7500…30000	33.02…132.09	47	0.68	360	5.22
	E 055	6400…16000	28.18…70.45	20	0.29	110	1.60
	E 056	8000…20000	35.22…88.06	30	0.44	140	2.03

(1) only with indicator G

DW 182 flow ranges

DIN 2526 flanges		ANSI B16.5 flanges					Pressure loss			
DN	PN	NPS	Rating class	Code	Flow range		Pmax for qmin		Pmax for qmax	
[mm]	[bar]	[inches]	[lbs]		[l/h]	[US GPM]	[mbar]	[psig]	[mbar]	[psig]
15	40	½	150 / 300	C 011	20…160	0.09…0.70	16	0.23	80	1.16
				C 012	50…400	0.22…1.76	67	0.97	176	2.55
				C 013	150…1000	0.66…4.40	140	2.03	440	6.38
				C 014	300…2500	1.32…11.01	150	2.18	490	7.11
				E 015 (1)	64…160	0.28…0.70	65	0.94	370	5.37
				E 016 (1)	100…250	0.44…1.10	150	2.18	870	12.62
				E 017 (1)	160…400	0.70…1.76	18	0.26	110	1.60
				E 018 (1)	250…630	1.10…2.77	40	0.58	270	3.92
				E 019 (1)	400…1000	1.76…4.40	18	0.26	110	1.60
25	40	1	150 / 300	C 021	200…1600	0.88…7.04	18	0.26	80	1.16
				C 022	300…2500	1.32…11.01	26	0.38	180	2.61
				C 023	500…4000	2.20…17.61	85	1.23	400	5.80
				E 025	640…1600	2.82…7.04	15	0.22	110	1.60
				E 026	1000…2500	4.40…11.01	45	0.65	240	3.48
				E 027	1600…4000	7.04…17.61	25	0.36	140	2.03
40	40	1½	150 / 300	C 041	500…4000	2.20…17.61	14	0.20	68	0.99
				C 042	800…6300	3.52…27.74	32	0.46	110	1.60
				C 043	1200…10000	17.61…44.03	60	0.87	160	2.32
				E 045	2500…6300	11.01…27.74	15	0.22	100	1.45
				E 046	4000…10000	17.61…44.03	50	0.73	260	3.77
50	40	2	150 / 300	C 051	1200…10000	5.28…44.03	30	0.44	80	1.16
				C 052	2000…16000	8.81…70.45	65	0.94	260	3.77
				C 053	2500…20000	11.01…88.06	72	1.04	350	5.08
				C 054	7500…30000	33.02…132.09	47	0.68	360	5.22
				E 055	6400…16000	28.18…70.45	20	0.29	110	1.60
				E 056	8000…20000	35.22…88.06	30	0.44	140	2.03

DIN 2526 flanges		ANSI B16.5 flanges		Code	Flow range		Pressure loss			
DN	PN	NPS	Rating class				Pmax for qmin		Pmax for qmax	
[mm]	[bar]	[inches]	[lbs]		[l/h]	[US GPM]	[mbar]	[psig]	[mbar]	[psig]
65	16	2½	150 / 300	C 051	1200…10000	5.28…44.03	30	0.44	80	1.16
				C 052	2000…16000	8.81…70.45	65	0.94	260	3.77
				C 053	2500…20000	11.01…88.06	72	1.04	350	5.08
				C 054	7500…30000	33.02…132.09	47	0.68	360	5.22
				E 055	6400…16000	28.18…70.45	20	0.29	110	1.60
				E 056	8000…20000	35.22…88.06	30	0.44	140	2.03

1 only with indicator G

DW 183 flow ranges

DIN 2526 flanges		ANSI B16.5 flanges		Indicator G			Indicator A			Pressure loss	
DN	PN	NPS	Rating class		Flow range			Flow range			
[mm]	[inches]	[inches]	[lbs]	Code	[m³/h]	[US GPM]	Code	[m³/h]	[US GPM]	[mbar]	[psig]
65	16	2 1/2	150	P 081	10…24	44…106	-	-	-	10	0.15
				P 082	16…40	70…176	P 086	10…40	44…176	20	0.29
				P 083	20…50	88…220	P087	13…50	55…220	10	0.15
				P 084	24…60	106…264	P088	15…60	66…264	12	0.17
				P 085	28…70	123…308	P089	17…70	75…308	12	0.17
80	16	3	150	P 081	10…24	44…106	-	-	-	10	0.15
				P 082	16…40	70…176	P 086	10…40	44…176	20	0.29
				P 083	20…50	88…220	P087	13…50	55…220	10	0.15
				P 084	24…60	106…264	P088	15…60	66…264	12	0.17
				P 085	28…70	123…308	P089	17…70	75…308	12	0.17
100	16	4	150	P 101	16…40	70…176	-	-	-	10	0.15
				P 102	24…60	106…264	P 106	15…60	66…264	23	0.33
				P 103	32…80	141…352	P 107	20…80	88…352	14	0.20
				P 104	40…100	176…440	P 108	25…100	110…440	23	0.33
				P 105	48…120	211…528	P 109	30…120	132…528	33	0.48
125	16	5	150	P 121	24…60	106…264	-	-	-	20	0.29
				P 122	40…100	176…440	P 126	25…100	110…440	24	0.35
				P 123	48…120	211…528	P 127	30…120	132…528	26	0.38
				P 124	60…150	264…660	P 128	37…150	163…660	24	0.35
				P 125	70…180	308…793	P 129	45…180	198…793	30	0.44
150	16	6	150	P 151	40…100	176…440	-	-	-	30	0.44
				P 152	60…150	264…660	P 156	37…150	163…660	32	0.46
				P 153	70…180	308…793	P 157	45…180	198…793	37	0.54
				P 154	90…220	396…528	P 158	55…220	242…969	34	0.49
				P 155	100…250	440…1101	P 159	65…250	286…1101	30	0.44
200	10 (1)	8	150	P 201	60…150	264…660	-	-	-	35	0.51
				P 202	70…180	308…793	-	-	-	40	0.58
				P 203	90…220	396…969	P 205	55…220	242…969	44	0.64
				P 204	100…250	440…1101	P 206	65…250	286…1101	40	0.58

(1) PN 16 on request

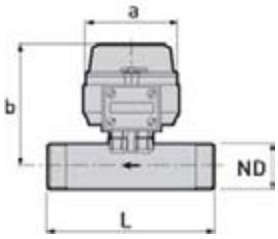
DW 184 flow velocity ranges

DIN 2526 flanges		ANSI B16.5 flanges		Indicator G		
DN	PN	NPS	Rating class	Flow velocity		
[mm]	[bar]	[inches]	[lbs]	[m/s]	[ft/s]	Rangeability
150 (1)	16 / 40	6 (1)	150 / 300	0.2…0.4	0.66…1.31	1 : 2
				0.2…1	1.31…3.28	1 : 2.5
				1…4	3.28…13.12	1 : 4
				4	13.12	1 : 4

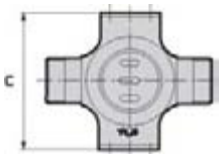
(1) mounting flange size for insertion-type flow controller. For process pipes diameters ≥250 mm/10" in diameter.

Dimensions and Weight

DW 181 non-Ex / Ex ia / Ex c side view



DW 181 non-Ex / Ex ia / Ex c top view



Note:

- The customer must supply cable glands for Ex d-approved flow controllers with Aluminium housings. The standard size for the cable entry is M20x1.5.
  An NPT 3/4 cable entry is available on demand.
- Standard and Ex ia- / Ex c-approved flow controllers have M20x1.5 cable glands.
  An NPT 1/2 cable entry is available on demand.
- High-temperature flow controllers have M16x1.5 cable glands.

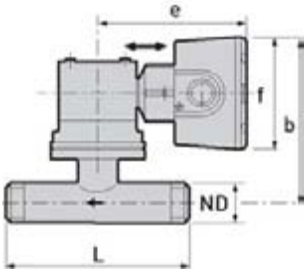
Thread connection, ND	Dimensions [mm]				Weight [kg]
G [inches]	a	b	c	L	
3/4	Ø100	115	170	135	1.7
1	Ø100	120	170	160	1.8
1 1/2	Ø100	130	170	180	2.2
2	Ø100	135	170	190	2.6

Thread connection, ND	Dimensions [inches]				Weight [lbs]
NPT [inches]	a	b	c	L	
3/4	Ø4	4.5	6.7	5.3	1.7
1	Ø4	4.7	6.7	6.3	1.8
1 1/2	Ø4	5.1	6.7	7.1	2.2
2	Ø4	5.3	6.7	7.5	2.6

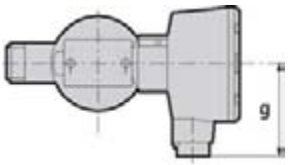
Thread connection, ND	Dimensions [mm]				Weight [kg]
G [inches]	b	e	f	L	
3/4	140	130	Ø98	135	2.35
1	145	130	Ø98	160	2.45
1 1/2	155	130	Ø98	180	2.85
2	160	130	Ø98	190	3.25

Thread connection, ND	Dimensions [inches]				Weight [lbs]
NPT [inches]	b	e	f	L	
3/4	5.5	5.1	Ø3.9	5.3	5.2
1	5.7	5.1	Ø3.9	6.3	5.4
1 1/2	6.1	5.1	Ø3.9	7.1	6.3
2	6.3	5.1	Ø3.9	7.5	7.2

DW 181 Exd side view



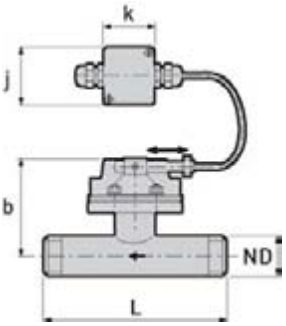
DW 181 Exd top view



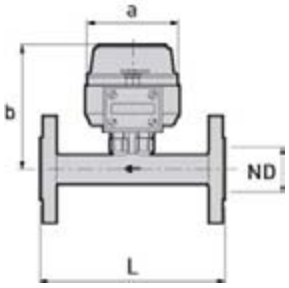
Thread connection, ND	Dimensions [mm]				Weight [kg]
G [inches]	b	j	k	L	
3/4	76	50.4	45.4	135	1.1
1	81	50.4	45.4	160	1.2
1 1/2	91	50.4	45.4	180	1.6
2	96	50.4	45.4	190	2.0

Thread connection, ND	Dimensions [inches]				Weight [lbs]
NPT [inches]	b	j	k	L	
3/4	3.0	2.0	1.8	5.3	2.4
1	3.2	2.0	1.8	6.3	2.6
1 1/2	3.6	2.0	1.8	7.1	3.5
2	3.8	2.0	1.8	7.5	4.4

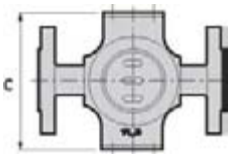
DW 181 HT side view



DW 182 non-Ex / Ex ia / Ex c side view



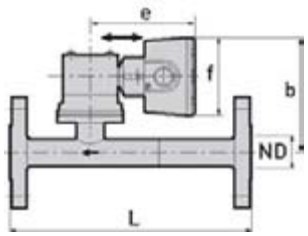
DW 182 non-Ex / Ex ia / Ex c top view



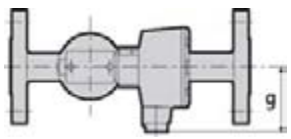
DIN 2526 flanges, ND		Dimensions [mm]				Weight [kg]
DN [mm]	PN [bar]	a	b	c	L	
15	40	Ø100	115	170	200	3.0
25	40	Ø100	120	170	200	4.0
40	40	Ø100	130	170	200	5.5
50	40	Ø100	135	170	200	7.2
65	16	Ø100	135	170	200	9.3

ANSI B16.5 flanges, ND		Dimensions [inches]				Weight [lbs]
NPS [inches]	Rating class [lbs]	a	b	c	L	
1/2	150 / 300	Ø4	4.5	6.7	7.9	6.6
1	150 / 300	Ø4	4.7	6.7	7.9	8.8
1 1/2	150 / 300	Ø4	5.1	6.7	7.9	12.1
2	150 / 300	Ø4	5.3	6.7	7.9	15.9
2 1/2	150 / 300	Ø4	5.3	6.7	7.9	20.5

DW 182 Exd side view



DW 182 Exd top view



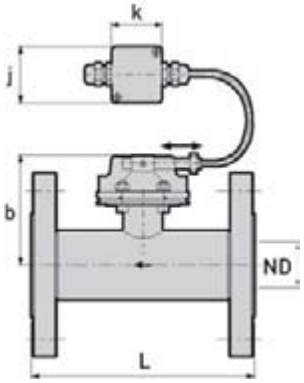
DIN 2526 flanges, ND		Dimensions [mm]					Weight [kg]
DN [mm]	PN [bar]	b	e	f	g	L	
15	40	140	130	Ø98	90	300	3.7
25	40	145	130	Ø98	90	300	4.7
40	40	155	130	Ø98	90	300	6.2
50	40	160	130	Ø98	90	300	7.9
65	16	160	130	Ø98	90	300	10.0

ANSI B16.5 flanges, ND		Dimensions [inches]					Weight [lbs]
NPS [inches]	Rating class [lbs]	b	e	f	g	L	
1/2	150 / 300	5.5	5.1	Ø3.9	3.5	11.8	8.1
1	150 / 300	5.7	5.1	Ø3.9	3.5	11.8	10.3
1 1/2	150 / 300	6.1	5.1	Ø3.9	3.5	11.8	13.6
2	150 / 300	6.3	5.1	Ø3.9	3.5	11.8	17.3
2 1/2	150 / 300	6.3	5.1	Ø3.9	3.5	11.8	21.9

DIN 2526 flanges, ND		Dimensions [mm]				Weight [kg]
DN [mm]	PN [bar]	b	j	k	L	
15	40	76	50.4	45.4	200	2.4
25	40	81	50.4	45.4	200	3.4
40	40	91	50.4	45.4	200	4.9
50	40	96	50.4	45.4	200	6.6
65	16	96	50.4	45.4	200	8.7

ANSI B16.5 flanges, ND		Dimensions [inches]				Weight [lbs]
NPS [inches]	Rating class [lbs]	b	j	k	L	
1/2	150 / 300	3.0	2.0	1.8	7.9	5.3
1	150 / 300	3.2	2.0	1.8	7.9	7.5
1 1/2	150 / 300	3.6	2.0	1.8	7.9	10.8
2	150 / 300	3.8	2.0	1.8	7.9	14.6
2 1/2	150 / 300	3.8	2.0	1.8	7.9	19.2

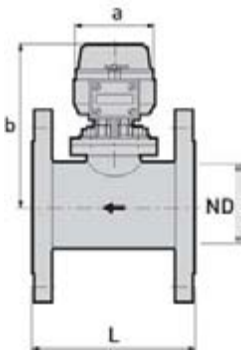
DW 182 HT side view



DIN 2526 flanges, ND		Dimensions [mm]			Weight [kg]
DN [mm]	PN [bar]	a	b	L	
65	16	Ø100	185	200	11.5
80	40	Ø100	185	200	12.5
100	16	Ø100	195	200	14.0
125	16	Ø100	210	300	18.0
150	16	Ø100	220	300	23.0
200	10 (1)	Ø100	250	300	35.0

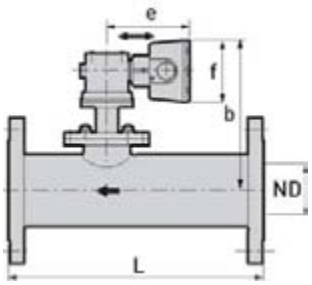
(1) PN 16 on request

DW 183 non-Ex / Ex ia / Ex c side view

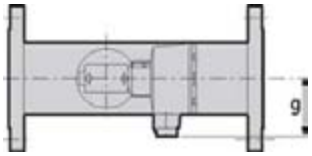


ASME B16.5 flanges, ND		Dimensions [inches]			Weight [lbs]
NPS [inches]	Rating class [lbs]	a	b	L	
2 1/2	150	Ø4	7.3	7.9	25.4
3	150	Ø4	7.3	7.9	27.6
4	150	Ø4	7.7	7.9	30.9
5	150	Ø4	8.3	11.8	39.7
6	150	Ø4	8.7	11.8	50.7
8	150	Ø4	9.8	11.8	77.2

DW 183 Exd side view



DW 183 Exd top view

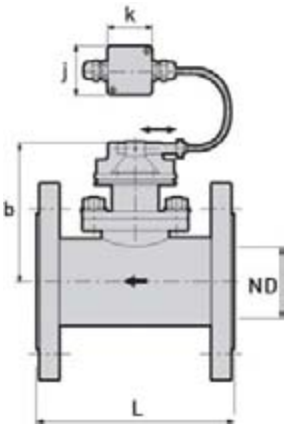


DIN 2526 flanges, ND		Dimensions [mm]					Weight [kg]
DN [mm]	PN [bar]	b	e	f	g	L	
65	16	210	130	Ø98	90	400	12.2
80	40	210	130	Ø98	90	400	13.2
100	16	220	130	Ø98	90	400	14.6
125	16	232	130	Ø98	90	400	18.7
150	16	245	130	Ø98	90	400	23.7
200	10 (1)	275	130	Ø98	90	400	35.7

(1) PN 16 on request

ANSI B16.5 flanges, ND		Dimensions [inches]					Weight [lbs]
NPS [inches]	Rating class [lbs]	b	e	f	g	L	
2 1/2	150	8.3	5.1	Ø3.9	3.5	15.7	26.8
3	150	8.3	5.1	Ø3.9	3.5	15.7	29.0
4	150	8.7	5.1	Ø3.9	3.5	15.7	32.3
5	150	9.1	5.1	Ø3.9	3.5	15.7	41.1
6	150	9.7	5.1	Ø3.9	3.5	15.7	52.1
8	150	10.8	5.1	Ø3.9	3.5	15.7	78.6

DW 183 HT side view



DIN 2526 flanges, ND		Dimensions [mm]				Weight [kg]
DN [mm]	PN [bar]	b	j	k	L	
65	16	146	50.4	45.4	200	10.9
80	40	146	50.4	45.4	200	11.9
100	16	156	50.4	45.4	200	13.4
125	16	168	50.4	45.4	300	17.4
150	16	181	50.4	45.4	300	22.4
200	10 (1)	211	50.4	45.4	300	34.4

(1) PN 16 on request

ANSI B16.5 flanges, ND		Dimensions [inches]				Weight [lbs]
NPS [inches]	Rating class [lbs]	b	j	k	L	
2 1/2	150	5.6	2.0	1.8	7.9	24.0
3	150	5.6	2.0	1.8	7.9	26.2
4	150	6.1	2.0	1.8	7.9	29.4
5	150	6.6	2.0	1.8	11.8	38.4

ANSI B16.5 flanges, ND		Dimensions [inches]				
NPS [inches]	Rating class [lbs]	b	j	k	L	Weight [lbs]
6	150	7.1	2.0	1.8	11.8	49.4
8	150	8.3	2.0	1.8	11.8	75.8

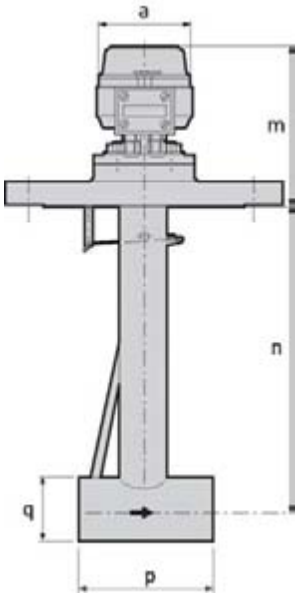
DIN 2526 flanges		Dimensions [mm]					
DN [mm]	PN [bar]	a	m	n	p	q	Weight [kg]
150 (1)	16 / 40	Ø100	170	280	125	Ø125	3.0

(1) mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 250 mm.

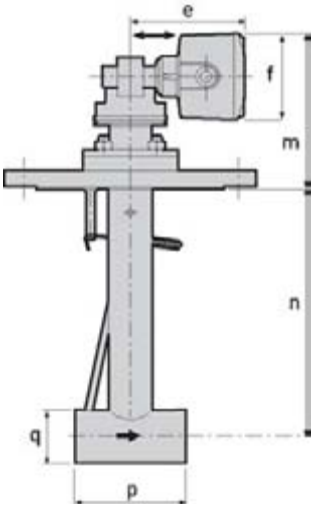
ANSI B16.5 flanges		Dimensions [inches]					
NPS [inches]	Rating class [lbs]	a	m	n	p	q	Weight [lbs]
6 (1)	150 / 300	Ø4	6.7	11.0	4.9	Ø2.4	29.8

(1) mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 10 inches.

DW 184 non-Ex / Ex ia / Ex c side view



DW 184 Exd side view



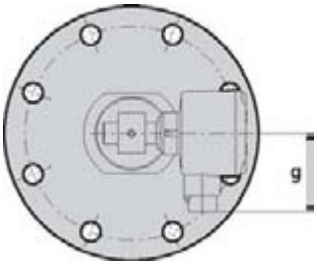
DIN 2526 flanges		Dimensions [mm]							
DN [mm]	PN [bar]	e	f	g	m	n	p	q	Weight [kg]
150 ❶	16 / 40	130	Ø98	90	180	280	125	Ø60	14.2

❶ mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 250 mm.

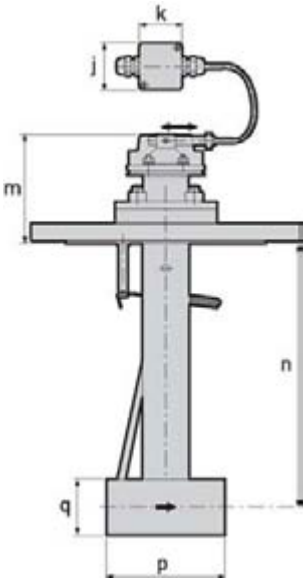
ANSI B16.5 flanges		Dimensions [inches]							
NPS [inches]	Rating class [lbs]	e	f	g	m	n	p	q	Weight [lbs]
6 ❶	150 / 300	5.1	Ø3.9	3.5	7.1	11.0	4.9	Ø2.4	31.2

❶ mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 10 inches.

DW 184 Exd top view



DW 184 HT side view



DIN 2526 flanges		Dimensions [mm]						
DN [mm]	PN [bar]	j	k	m	n	p	q	Weight [kg]
150 ❶	16 / 40	50.4	45.4	116	280	125	Ø60	12.9

❶ mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 250 mm.

ANSI B16.5 flanges		Dimensions [inches]						
NPS [inches]	Rating class [lbs]	j	k	m	n	p	q	Weight [lbs]
6 ❶	150 / 300	2.0	1.8	4.6	11.0	4.9	Ø2.4	28.4

❶ mounting flange size for DW 184 insertion-type flow controller. For process pipe diameters ≥ 10 inches.





KROHNE Product Overview

- Electromagnetic flowmeters
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- Mass flowmeters
- Ultrasonic flowmeters
- Vortex flowmeters
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- Level measuring instruments
- Pressure gauges
- Temperature measuring instruments
- Water solutions & analysis
- Oil and gas turnkey solutions

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