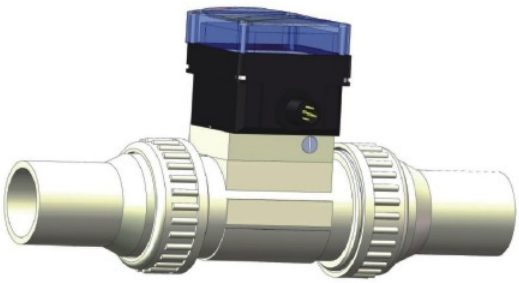
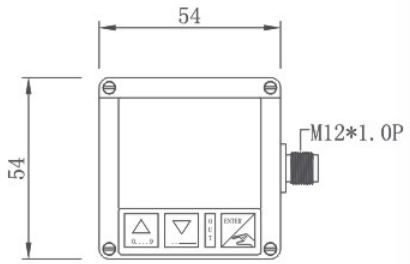
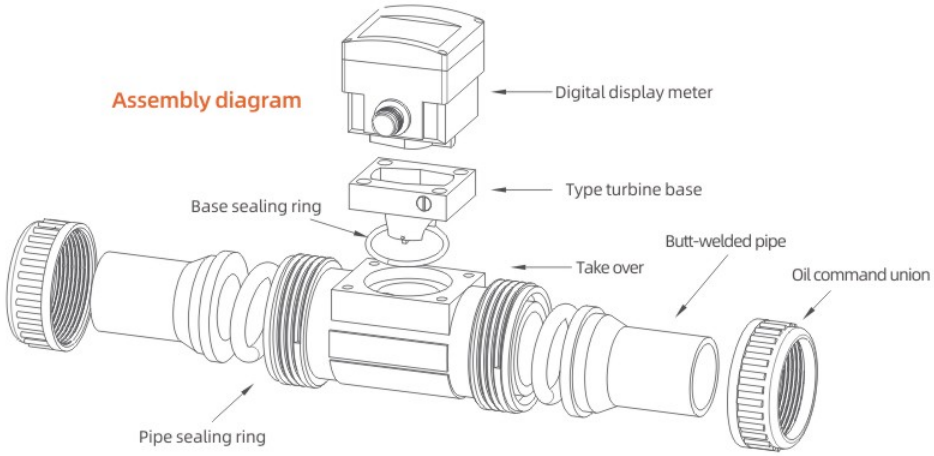
NF3032 Digital flow meter





Assembly diagram



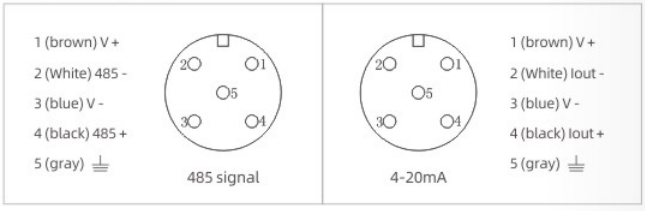
NF3032 - PP - DN15 - BW

- NF3032 — Flowmeter series
- PP — Material of the pipe connection
- DN15 — Pipe diameter for connecting pipe
- BW — Takeover method

// Parameter table

Measured medium: Liquid
Connection method: Five-pin plug, M12x1
Installation method: Rotary snap-on
Applicable pipe sizes: DNO8 to DN50
Connection method: Socket type/butt welding type
/socket type PVC
Pipe material: PP(or PVDF)
Sealing ring material: FKM (or EPDM)
Measurement range: 0.3-10 m/s
Relative humidity: <80%
Power supply: 24 VDC(± 10%)
Signal output: 485 signal /4-20mA
Maximum pressure resistance: 7bar
Operating temperature: 0℃ to 60℃
Protection grade: IP65
Quality guarantee: 12 months

Wiring diagram



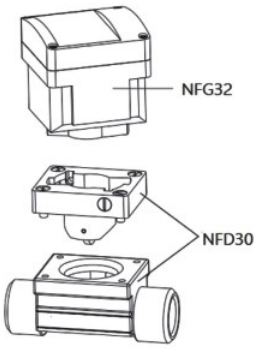
Selection of three-way connectors

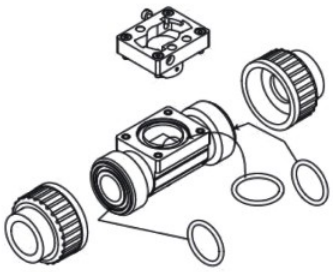
Model		Explanation
Takeover material	PP	Operating temperature: 0 to 60℃
	PF	Operating temperature: 0 to 60℃
Pipe diameter	08	DN08, DIN/ISO
	15	DN15, DIN/ISO
	20	DN20, DIN/ISO
	25	DN25, DIN/ISO
	32	DN32, DIN/ISO
	40	DN40, DIN/ISO
	50	DN50, DIN/ISO
Takeover method	SW	Socket-type
	BW	Butt-welding type
	PVC	Socket-type PVC

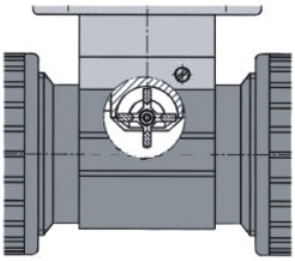
// Structure and Principle

1.1 Structure

The NF3032 flowmeter consists of an NFD30 turbine base and an NFG32 electronic module. The two can be quickly and easily connected through a bayonet joint. The switch points can be set by the three buttons at the bottom of the display or by the 4-20mA signal of the external controller. Electrical connections are made through DIN 43650 and/or M12 multi-pin plugs.







1.2 Working principle

The NF3032 flowmeter detects the rotation of the turbine. The turbine generates a pulse signal whose frequency is proportional to the flow rate (f=K.Q, where f is the frequency Hz, K is the K coefficient related to the connector: pulse/liter, and Q is the flow rate: liters/second).

// Selection data

Model description

Model	FN30□□ -	□□ -	DN□□ -	□	Explanation
Series	NF3032				Flow transmitter, 3-wire system, 1 accumulator, 12-30VDC power supply, 4-20mA output, pulse output, suitable for direct connection to PLC(NPN or PNP) systems
Takeover material		PP			PP, working temperature 0~80℃
		UPVC			UPVC, operating temperature 0~60℃
		PVDF			PVDF, operating temperature -15 to 100℃
Pipe diameter			08		DNO8, DIN/ISO
			15		DN15, DIN/ISO
			20		DN20, DIN/ISO
			25		DN25, DIN/ISO
			32		DN32, DIN/ISO
			40		DN40, DIN/ISO
			50		DN50, DIN/ISO
Takeover method				U	Standard union type

// Technical parameters

General characteristics

Pipe diameter	DN08~DN50
Medium temperature	It depends on the NFD30 base
Medium pressure	It depends on the NFD30 base
Medium viscosity	Maximum 300cSt
Particulate matter content	Up to 1%
Measurement range	The flow rate ranges from 0.3m/s to 10m/s. 0.3m/s Corresponds to a flow rate of 31 m/ min in a DN15 pipe
Precision	±3% at full scale (10 m/s)
Linearity	±0.5% at full scale (10 m/s)
Repeatability	±0.4% of the reading
Measuring element	Turbine with NFD30 connector
Protection grade	IP65, when the connector is properly inserted and tightened

Electrical characteristics

Installation grade (overvoltage)	2
Insulation strength	300VAC
Power supply	24VDC±10%
Maximum current consumption	50mA(with load,PNP output),80mA(without load, relay output
Polarity reverse protection	Have
Transistor output	NPN and/or PNP, collector open, maximum 700mA NPN output :0.2-30VDC PNP output: Power supply voltage (See Appendix)
External setting value input	4-20mA(Option)
ASi interface	Fieldbus (Option)
Short-circuit protection	The output type of the body tube includes
Recommended cable types	Shielded cable, with a conductor cross-sectional area of 0.14 to 0.5mm^2

Material

Shell material	Polycarbonate +20% glass fiber
Front panel	Polyester
NFD30 base	PP /PVDF/ PVC
The turbine of the NFD30 base	PP /PVDF/ PVC
The shaft and bearings of the NFD30 base	Ceramic
O-ring seal	Standard supply FPM(EPDM can be provided upon request)

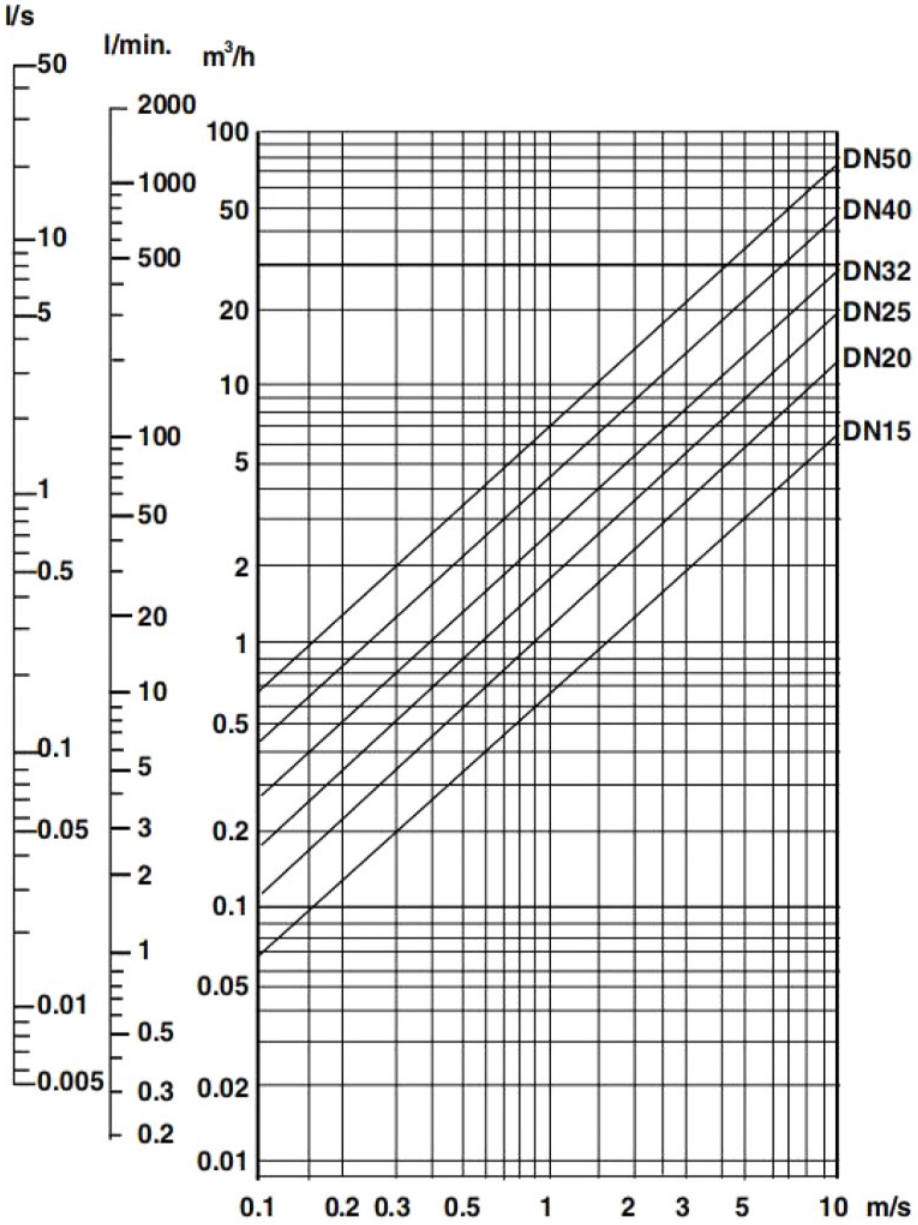
Environment

Ambient temperature	0-60℃
Relative humidity	<80%

Reference value of k coefficient

Material	DN15	DN20	DN25	DN32	DN40	DN50
PP	94	74.2	52.9	28.4	17.4	10.1
PVDF	118	78	57	31.7	19	10.9

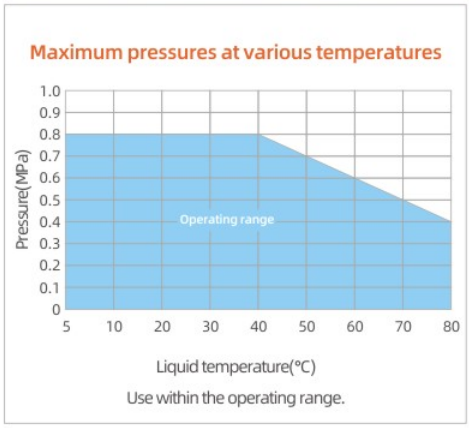
// Appendix: Flow Rate - Flow Velocity - Diameter Diagram

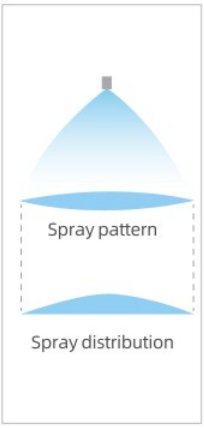


Flow rate

Flow velocity

J-A561 Plastic/PVDF Nozzle





// Features

- Flat spray pattern with a mountain-shaped spray distribution and gradually tapered edges.
- Made of highly chemical and heat resistant plastic
- Quick-detachable design helps to significantly reduce maintenance time.
- Nozzle tips are color-coded by spray capacity for easy identification.
- Adaptors are color-coded by material: gray for PP and black for PPS.(PVDF adaptor is only available on a made-to-orderbasis.)

// STANDARD PRESSURE

- 0.3MPa

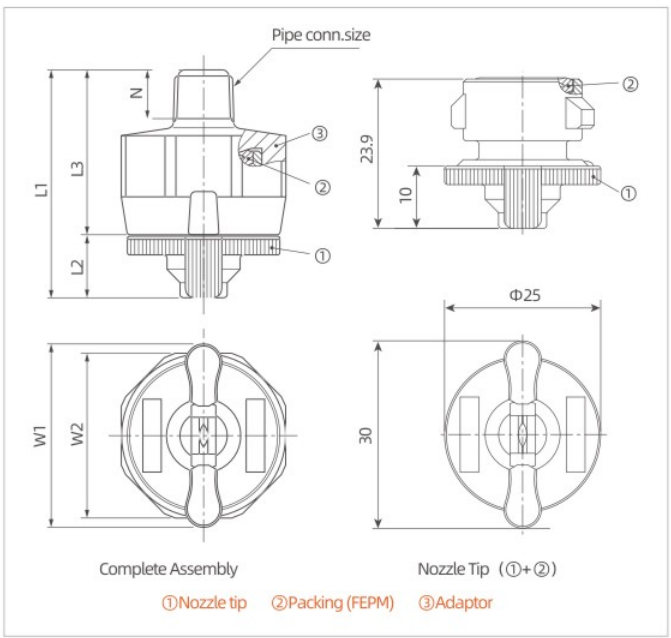
// APPLICATIONS

- Cleaning
- Etching
- Stripping
- Chemical treatment
- For periodic maintenance or for applications where precise spray alignment is required

Structure	• Two-piece structure including a nozzle tip with packing and an adaptor. • Easy installation and removal of the nozzle tip with a twist of about 60°.
Material	• Nozzle tip: PP • Adaptor: PP or PPS(SPECIAL ORDER MATERIAL: PVDF) • Packing: FEPM

Unit : mm

Pipe conn. size	Dimensions(mm)						Weight(g)	
	L1	L2	L3	W1	W2	N	PP	PPS
R1/8	37	10	27	30	27	8	9	12
R1/4	40	10	30	30	27	11.5	10	13
R3/8	40	10	30	30	27	12	11	14



// Note

- **INVV series nozzles are not compatible with the discontinued ISVV series.**
- Appearance and dimensions may differ slightly depending on material and nozzle code.
- The tabs (wings) are in line with the flat spray spread direction.

Spray angle code	Spray capacity code	Pipe connection size			Spray angle (°)			Spray capacity (L/min)							Mean drop. dia. (μm)	Free pass. dia. (mm)	Nozzle tip color
		R1/8	R1/4	R3/8	0.15 MPa	0.3 MPa	0.7 MPa	0.05 MPa	0.1 MPa	0.15 MPa	0.2 MPa	0.3 MPa	0.5 MPa	0.7 MPa			
115	05	○	○	○	102	115	124	—	0.29	0.35	0.41	0.50	0.65	0.76	160	0.3	
	07	○	○	○	103	115	124	—	0.40	0.49	0.57	0.70	0.90	1.07		0.3	
	10	○	○	○	103	115	124	0.41	0.58	0.71	0.82	1.00	1.29	1.53		0.4	
	15	○	○	○	104	115	123	0.61	0.87	1.06	1.23	1.50	1.94	2.29	≀	0.5	
	20	○	○	○	104	115	123	0.82	1.15	1.41	1.63	2.00	2.58	3.06		0.6	
	30	○	○	○	105	115	122	1.23	1.73	2.12	2.45	3.00	3.88	4.58		0.8	
	40	○	○	○	106	115	122	1.63	2.31	2.83	3.27	4.00	5.16	6.11		0.8	
	50	○	○	○	106	115	122	2.04	2.89	3.54	4.08	5.00	6.46	7.64	300	0.9	
90	05	○	○	○	77	90	100	—	0.29	0.35	0.41	0.50	0.65	0.76	170	0.3	
	07	○	○	○	78	90	100	—	0.40	0.49	0.57	0.70	0.90	1.07		0.4	
	10	○	○	○	78	90	99	0.41	0.58	0.71	0.82	1.00	1.29	1.53		0.5	
	15	○	○	○	79	90	99	0.61	0.87	1.06	1.23	1.50	1.94	2.29	≀	0.6	
	20	○	○	○	79	90	98	0.82	1.15	1.41	1.63	2.00	2.58	3.06		0.7	
	30	○	○	○	80	90	97	1.23	1.73	2.12	2.45	3.00	3.88	4.58		0.9	
	40	○	○	○	81	90	97	1.63	2.31	2.83	3.27	4.00	5.16	6.11		1.1	
	50	○	○	○	81	90	97	2.04	2.89	3.54	4.08	5.00	6.46	7.64	300	1.2	
65	05	○	○	○	52	65	74	—	0.29	0.35	0.41	0.50	0.65	0.76	190	0.4	
	07	○	○	○	53	65	74	—	0.40	0.49	0.57	0.70	0.90	1.07		0.5	
	10	○	○	○	54	65	73	0.41	0.58	0.71	0.82	1.00	1.29	1.53		0.6	
	15	○	○	○	54	65	73	0.61	0.87	1.06	1.23	1.50	1.94	2.29	≀	0.8	
	20	○	○	○	55	65	72	0.82	1.15	1.41	1.63	2.00	2.58	3.06		0.9	
	30	○	○	○	56	65	72	1.23	1.73	2.12	2.45	3.00	3.88	4.58		1.1	
	40	○	○	○	56	65	71	1.63	2.31	2.83	3.27	4.00	5.16	6.11		1.3	
	50	○	○	○	57	65	71	2.04	2.89	3.54	4.08	5.00	6.46	7.64	350	1.5	
50	05	○	○	○	38	50	59	—	0.29	0.35	0.41	0.50	0.65	0.76	210	0.4	
	07	○	○	○	38	50	58	—	0.40	0.49	0.57	0.70	0.90	1.07		0.5	
	10	○	○	○	40	50	58	0.41	0.58	0.71	0.82	1.00	1.29	1.53		0.6	
	15	○	○	○	40	50	57	0.61	0.87	1.06	1.23	1.50	1.94	2.29	≀	0.8	
	20	○	○	○	41	50	57	0.82	1.15	1.41	1.63	2.00	2.58	3.06		1.0	
	30	○	○	○	42	50	56	1.23	1.73	2.12	2.45	3.00	3.88	4.58		1.2	
	40	○	○	○	42	50	56	1.63	2.31	2.83	3.27	4.00	5.16	6.11		1.4	
	50	○	○	○	43	50	55	2.04	2.89	3.54	4.08	5.00	6.46	7.64	400	1.6	

HOW TO ORDER

To inquire about or order a specific nozzle please refer to this coding system.

①Complete Assembly

Example: 1/8M INVV 9030 PP(FEPM)+PP

1/8M	INVV	90	30	PP (FEPM) +	PP
Pipe conn. Size*		Spray angle code	Spray capacity code	Nozzle tip material (packing:FEPM)	Adaptor material and color
■1/8M ■1/4M ■3/8M		■115 ≀ ■50	■05 ≀ ■50		■PP ■PPS

②Nozzle Tip Only (with packing)

Example: INVV 9030 PP(FEPM)

INVV	90	30	PP (FEPM)
	Spray angle code	Spray capacity code	Nozzle tip material (packing:FEPM)
	■115 ≀ ■50	■05 ≀ ■50	

③Adaptor is available for purchase separately.

*"M" indicates male thread ("R" of the ISO standard),e.g.1/8M=R1/8.

Note: If a plug tip is required instead of a nozzle tip, see page 27 for the quick-detachable IN PLuG series

ALSO AVAILABLE!

Quick-Detachable
Off-Center Even Flat
Spray Nozzles

NOVVE SERIES

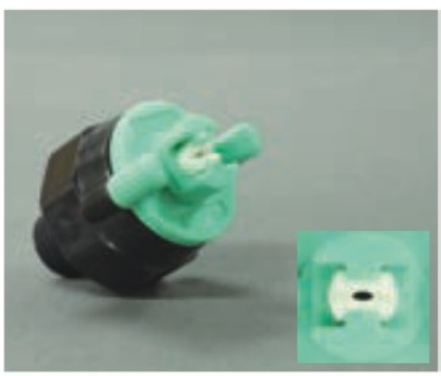
See page 28 for more details.

Quick-Detachable
Full Cone
Spray Nozzles

INJJX SERIES

See page 72 for more details.

Custom Order Example Featuring Ceramic Orifice



In applications where wear resistance is required due to the sprayed liquid, a customized solution, such as using ceramic for the nozzle orifice, may be considered. Contact us for more details.

Key Points:

- Features a high-purity alumina ceramic orifice in the nozzle tip.
- Improved wear resistance for longer service life and reduced replacement frequency.
- One-piece molded design without adhesive for superior chemical resistance.