Multiterminal MT

Fluidcontrol

Global competition demands standardized basic functions from hydraulic systems with a flow volume of up to 100 l/min and tank sizes up to 150 liters. National and international standards also require minimum maintenance and monitoring requirements. The Multiterminal ideally fulfills these tasks in the performance class mentioned. In a compact basic housing it combines essential functions such as filling, ventilation and return filtration, offers the monitoring functions temperature and level as well as the safe taking of oil samples from tank and return line. The Multiterminal can be installed easily accessible on just one opening on the tank top, making maintenance considerably easier. The filter elements are standardized according to DIN 24550, temperature and level are communicable via IO-Link.

- Return filter for DIN elements up to NG 100
- Three connections for return line
- Filling port with quick coupling
- Filling control optional
- Visual/electronic return filter monitoring
- Sampling ports in tank and return line
- Air breather with integrated liquid level and temperature monitoring
- Visual air breather monitoring optional

Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0, Fax: +49 (0) 21 02 / 49 89-20
E-Mail: fluidcontrol@buehler-technologies.com
Internet: www.buehler-technologies.com

Technical Data

Multiterminal

Material	
Multiterminal block	GK-AlSi12
Block seal	GI cork
Filter cover and bell cover	Plastic
Filter data (return filter)	
Bypass opening pressure	Δp 3.5 bar ±10 %
Filter sizes	NG 40/NG 63/NG 100
for filter elements per	DIN 24550
Weight	
Multiterminal base version (NG 40, NG 63 or NG 100)	~ 3.5 kg

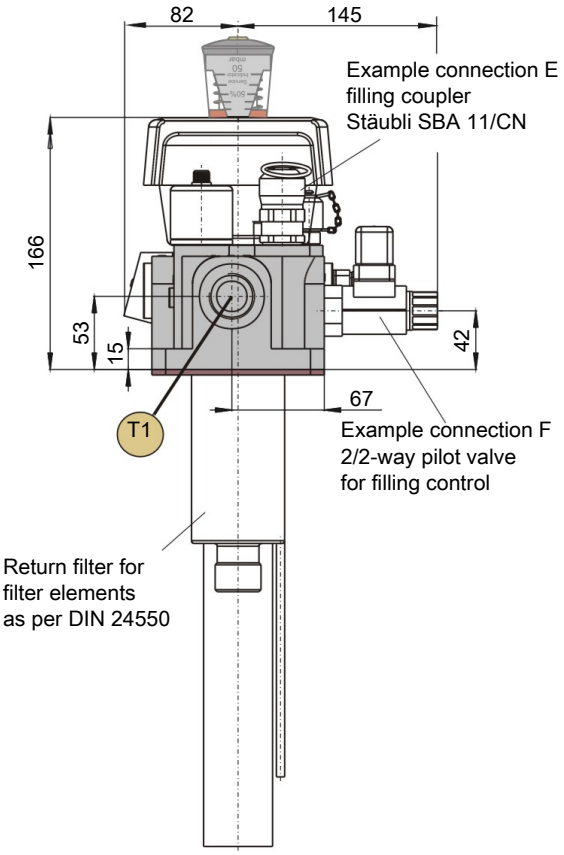
Dimensions

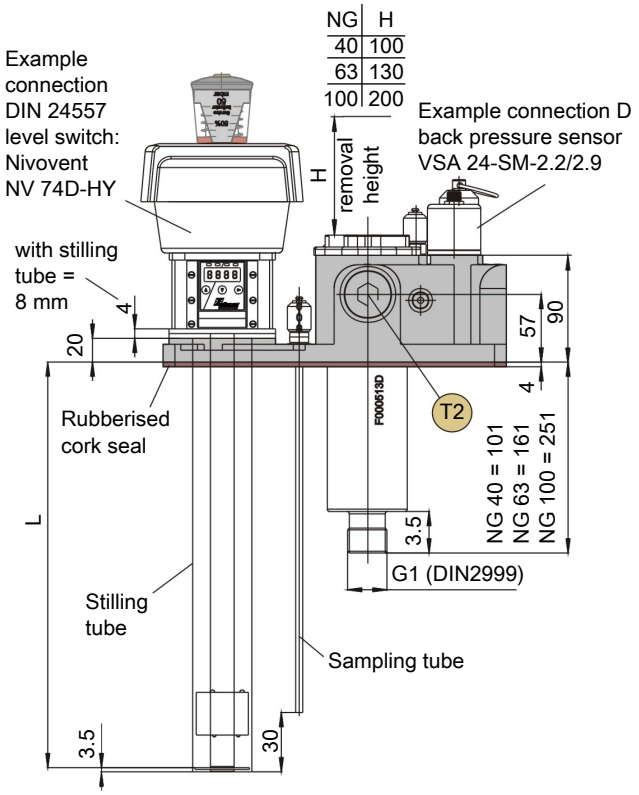
NOTICE

Sample multiterminal equipment

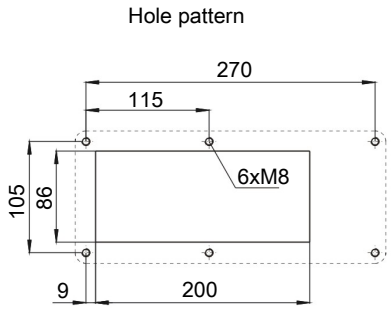
The drawing shows the sample equipment of the multiterminal. The hole pattern as per DIN 24557 and the connections D, E, F can optionally be equipped as specified. Die connections T1, T2, T3, X1, X2 and X3 are prefixed as specified. The built-in return filter (without filter element) is available in three different nominal sizes and is part of the basic multiterminal.

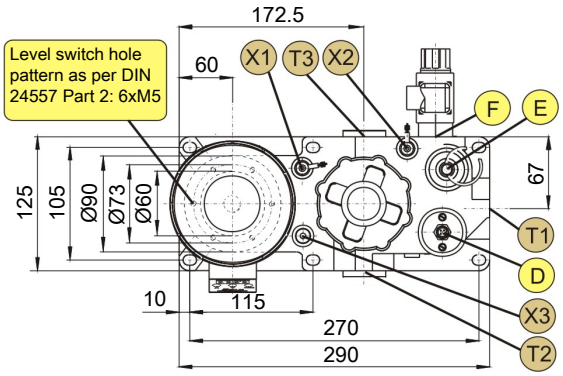
Dimensions





Hole pattern





Optional connections:

D	= back pressure sensor or sealing plug M30x1.5
E	= G1/2 filling coupler
F	= Flutec 2/2-way pilot valve or M27x2 sealing plug
DIN 24557/T2	= Nivovent 7 series level- and temperature switch (others on request), as desired

Prefixed connections:

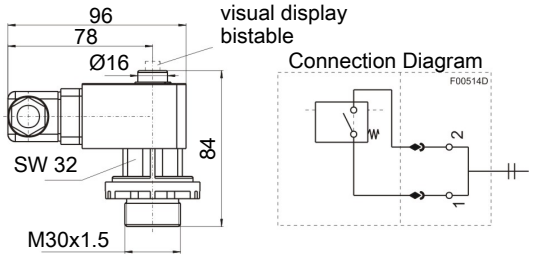
T1	= available G1 connection to return filter
T2/T3	= G1 sealing plug (alternative connections for return filter - connection T1)
X1	= G1/8 Minimess screw connection with attached tube for sampling from the tank
X2	= G1/8 Minimess screw connection for sampling upstream from the return filter
X3	= G1/8 sealing plug (alternative connection for X1)

(The equipment on connection T1, T2 and T3 as well as connections X1 and X3 can be interchanged by the customer.)

Connection D - Back Pressure Sensor Or Sealing Plug

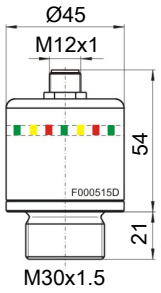
Type Mahle PIS 3085 / 2.2

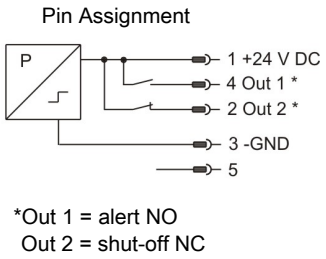
Max. operating voltage	250 VAC / 200 VDC
Switching current max.	1 A
Max. switching output:	70 W
Rated pressure / temperature	10 bar / -10 to + 80°C
Gauge pressure	2.2 bar
Display type	Visual / electric
IP rating	IP65 (mated)
Contact type:	NO contact / NC contact
Electrical connection	DIN EN 175301-803, PG11
Material	PA 66 / PA 6



Type Bühler VSA 24-SM-2.2/2.9 – self-monitoring

Max. operating voltage	24 VDC ± 10%
Switching current max.	1 A at 24 VDC
P max.	10 bar
Display type	Visual (LEDs) / electric
Alert	2.2 bar
Shut-off	2.9 bar
Operating temperature	-20 °C to 70 °C
Alarm release	From 30 °C (medium temperature)
Electrical connection	M12x1 base (5-pin)
IP rating	IP67 (with plug top)
Material	Al / PC
Also see data sheet DE130002 in chapter filter monitoring	

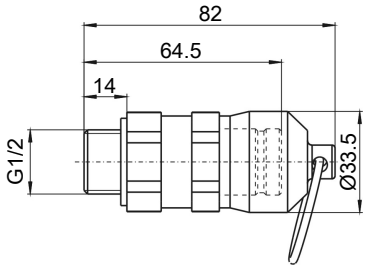




Connection E - Filling Coupler Or Sealing Plug

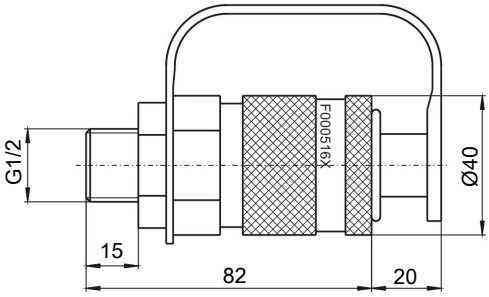
Type Stäubli SBA 11/CN

	(receptacle)
Nominal width	11
Thread	G ½
Material	Chromium steel / tempered steel



Type Walther MD-012

	(filling coupler)
Nominal width	12
Thread	G ½
Material	Galvanised / bronzed steel



Connection F - Filling Control Or Sealing Plug

Function description of the filling control:

The filling control is used to automatically stop tank filling once the maximum level is reached. The valve is controlled using the top level contact Lx.

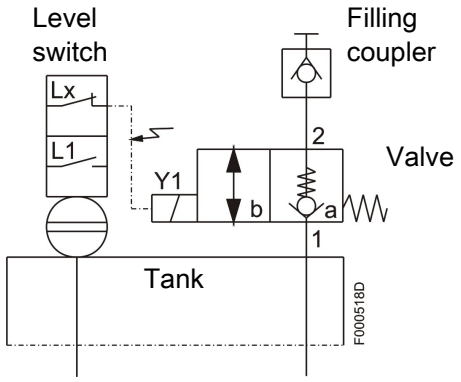
When the system is switched on, the valve switches to position "b", i.e. the valve is flowing freely from 2 to 1, oil can be added using the filling coupler.

When the top level contact (NC contact on Lx) is reached, the valve returns to position "a". The valve is closed from 2 to 1 and oil cannot enter the tank through the filling coupler.

During operation, a second level contact (NO contact on L1) emits an alert when the oil level is low. In the case of external control, the tank can now automatically be filled via the filling coupler or service staff be prompted to add oil.

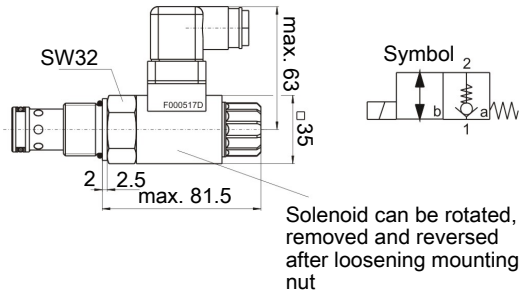
In both cases, when the top level contact Lx is reached, the valve is switched back to position "a" and filling stops.

The entire control unit for automatic filling with NV 7x series level switch (except NV73 K/KN) of your choice is also available from Bühler Technologies GmbH.



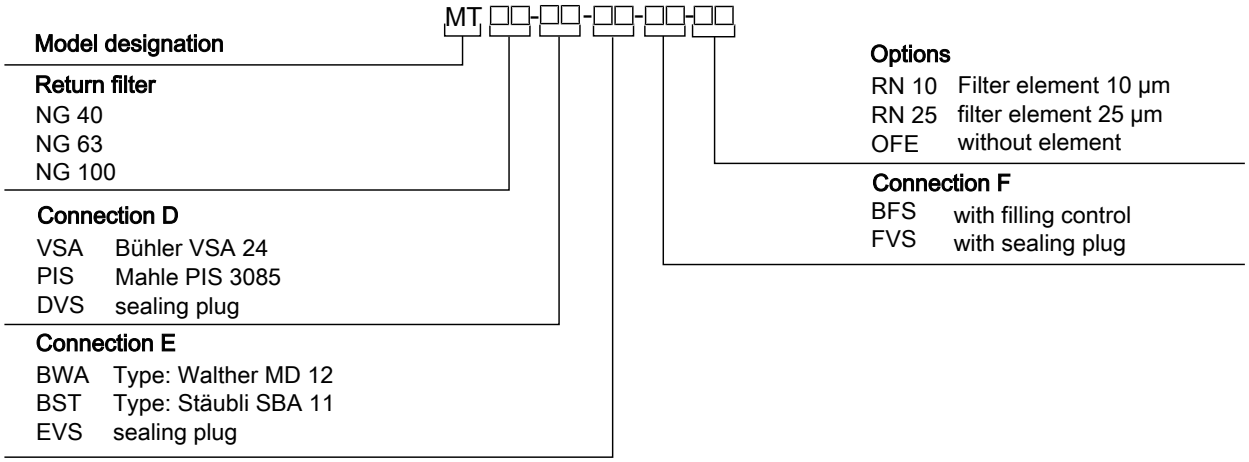
Type Flutec (2/2-way pilot valve)

Q max.	100 L/min.
p max.	280 bar
Nominal voltage	24 VDC (-5/+10%)
Nominal current	1.04 A
IP rating	IP65
Hydraulic fluid temperature range	min. -20 °C, max. +80 °C
Viscosity range	min. 10 mm²/s, max. 380 mm²/s
Connector	DIN EN 175301-803, PG11



For hydraulics as per DIN 51524 Part 1 and 2
Max. operating fluid contamination as per NAS 1638 Class 10.

Multiterminal Model Key



Ordering example:

You require:

Basic NG 63 multiterminal optional connections equipped as follows:

Connection:

D (back pressure sensor)	Bühler VSA 24-SM-2.2/2.9
E (filling coupler)	Walther MD-012
F (filling control)	Sealing plug M27x2
Accessories	Filter element N 0063 RN 10, filter fineness 10 µm

Order:

MT NG 63-VSA-BWA-FVS-RN10

Connection DIN 24557 Part 2 (Level- / temperature switch with vent filter)

Example:

Level switch type Nivovent NV 74 for multiterminal, brass, length L= 370 mm (measured from multiterminal block bottom edge), M12 plug, one level contact at L=190 mm as falling NO contact (NO), one temperature contact 60 °C as NC contact (NC) and vent filter with visual contamination indicator.

Order:

NV 74-HY-MS-M12-370-1K-TK60NC-MT-VS

L1=190 mm f.S.

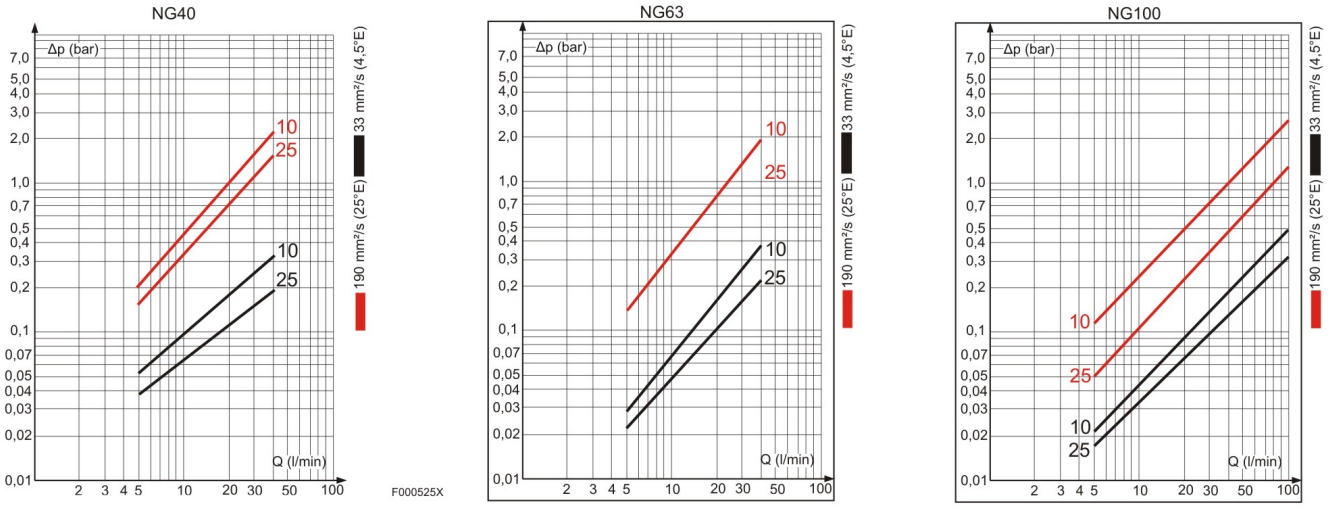
Spare Parts And Consumables

Return filter replacement elements:

Filter	Filter unit	Filter element	Item no.
NG 40	10 µm	N 0040 RN 10	100 10 040 10
	25 µm	N 0040 RN 25	100 10 040 25
NG 63	10 µm	N 0063 RN 10	100 10 063 10
	25 µm	N 0063 RN 25	100 10 063 25
NG 100	10 µm	N 0100 RN 10	100 10 100 10
	25 µm	N 0100 RN 25	100 10 100 25

For air filter elements, please refer to the respective operating and installation instructions for the level switch or the documentation from the air filter manufacturer.

Return performance curves:



Connection DIN 24557

NOTICE

Multiterminal MT equipment

With the DIN 24557 Part 2 connection equipped with a level/temperature switch, the multiterminal always consists of two parts. The first part being the multiterminal MT from this data sheet, and the second part being a Nivovent NV 7x series level switch (see ordering example). This also shows a list of the NV Nivovent models which can be used. Please refer to the respective data sheet for the exact configuration of the level switch. (Please contact us regarding built-in filling control.)

Multiterminal base unit consists of:

Multiterminal block, block seal, connections T1-T3, X1-X3 pre-equipped as specified.

Level Switch Overview

Level switch	**NV 74 for multiterminal**
For technical data, please see data sheet no. 10 0205	

- Hydac vent filter
- Easy and quick to adjust level contacts
- Plug and play system
- Up to 4 contacts
- Bi-metal contacts, Pt 100 or 4-20 mA output signal for temperature
- **NV 74D plus display and control unit**
- Easy to operate via three keys
- Bevelled LED display for optimal visibility
- Up to 4 programmable temperature switching outputs
- Optional continuous temperature output signal, programmable 4-20 mA, 0-10 V or 2-10 V

Level switch

NV 71 for multiterminal

For technical data, please see data sheet no. 10 0204

- Hydac vent filter
- Easy and/or adjustable level contacts
- Up to 4 contacts
- 230 V supply voltage possible
- Bi-metal contacts, Pt 100 or 4-20 mA output signal for temperature
- **NV 71D plus display and control unit**
- Easy to operate via three keys
- Bevelled LED display for optimal visibility
- Up to 4 programmable temperature switching outputs
- Optional continuous temperature output signal, programmable 4-20 mA, 0-10 V or 2-10 V

Level switch

NV 73 for multiterminal

For technical data, please see data sheet no. 10 0206

- **Continuous liquid level measurement**
- Hydac vent filter
- Alternatively with continuous temperature measurement 4-20 mA output
- Resolution 5 mm
- Various plug options

Level switch

NV 77-XP for multiterminal

For technical data, please see data sheet no. 10 0203

- **Continuous liquid level measurement**
- Hydac vent filter
- 4-20 mA
- Resolution 5 mm
- Sensor length up to 1420 mm
- **Display and control unit**
- 4 switching outputs programmable as level- and temperature alarm output
- Alternatively 2 switching outputs programmable as level- and temperature alarm outputs + 1 analog output each for continuous level- and temperature analysis
- Analog output programmable 4-20 mA, 0-10 V, 2-10 V or 0-5 V