

InTrac® 781/784

Versatile and rugged – Designed for the toughest process conditions

Technical Data



InTrac 781

InTrac 784



Short description

The InTrac 781/784 series of retractable housings combine rugged design with great versatility to meet the demands of the harshest process conditions in chemical, petrochemical, pulp and paper, or utilities applications.

The retractable InTrac 781/784 series provides easy sensor access whenever maintenance is needed. The small footprint of the housings and various insertion lengths and process connections provide excellent flexibility at the measurement point and minimum reengineering is required. New innovations in the design of the internal cleaning chamber makes sensor cleaning more efficient than ever. Operation with EasyClean systems is possible for fully automatic sensor cleaning, flushing and calibration (for pH sensors). The housings meet the strict requirements of major international guidelines, including ATEX and FM Approvals.

The housings feature the following highlights:

- Intelligent sensor locking system – If no sensor is installed, no action is possible, preventing unwanted operation
- Various insertion lengths and process connections suit a wide range of tank and pipe sizes
- Integrated sensor protective cage for greater sensor protection in high particle load media
- Highly efficient cleaning chamber and large bore size design ensures particle/dirt is flushed away
- Sensor cleaning and calibration without stopping the process
- Large choice of materials for wetted parts
- Long life and easily exchangeable O-rings reduce downtime
- Operates in high process temperature and pressure
- The complete retractable housing conforms with ATEX (94/9/EC) directive and FM requirements

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METTLER TOLEDO

General description

The InTrac 781 /784 series of retractable sensor housings help ensure reliable measurements of pH/ORP, dissolved oxygen, dissolved carbon dioxide and conductivity in various applications. The InTrac 781 operates mainly with 12 mm diameter (Pg 13.5) sensors, while the InTrac 784 is designed for use with the long-proven pH measurement problem solver InPro 2000 or 465 pH/ORP sensor.

The housings are specially designed for use in harsh applications. Wetted parts are available in different materials (1.4404/SS316L; Alloy C-22; PP; PVDF or PEEK), offering suitability with many applications. Various immersion lengths and type of process connections are available, giving excellent flexibility at the measurement point and minimum reengineering is required.

An intelligent sensor locking system in the housing enhances operating safety. Without the presence of a sensor, the housing's insertion rod cannot be deployed into the process. The locking system makes it possible to remove the sensor from the housing when in the service position without stopping the process.

The insertion rod includes a protective cage which can be turned to protect the sensor from damage from fast flowing or high particle load media.

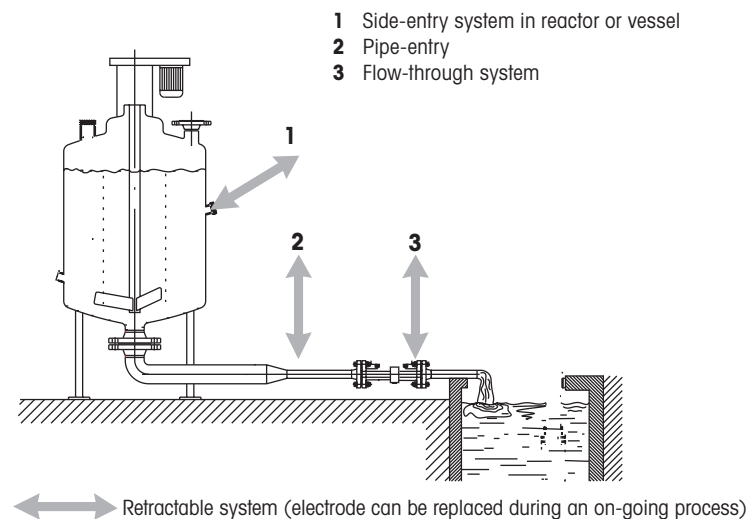
The housing is able to operate with EasyClean systems for programmable automatic sensor cleaning, flushing and calibration (for pH sensors). With the specially designed cleaning chamber and four integrated spray nozzles, the sensor can be thoroughly and quickly cleaned.

InTrac 781 and InTrac 784 housings allow user to retract the sensor from the running process medium for maintenance/replacement. The sensor (with stainless steel housing version) is retractable from the process in up to 16 bar with no compromise to operator safety. The housings meet major international requirements including installation in Ex-classified area and Pressurized Equipment Directive requirements.

Complete measuring system

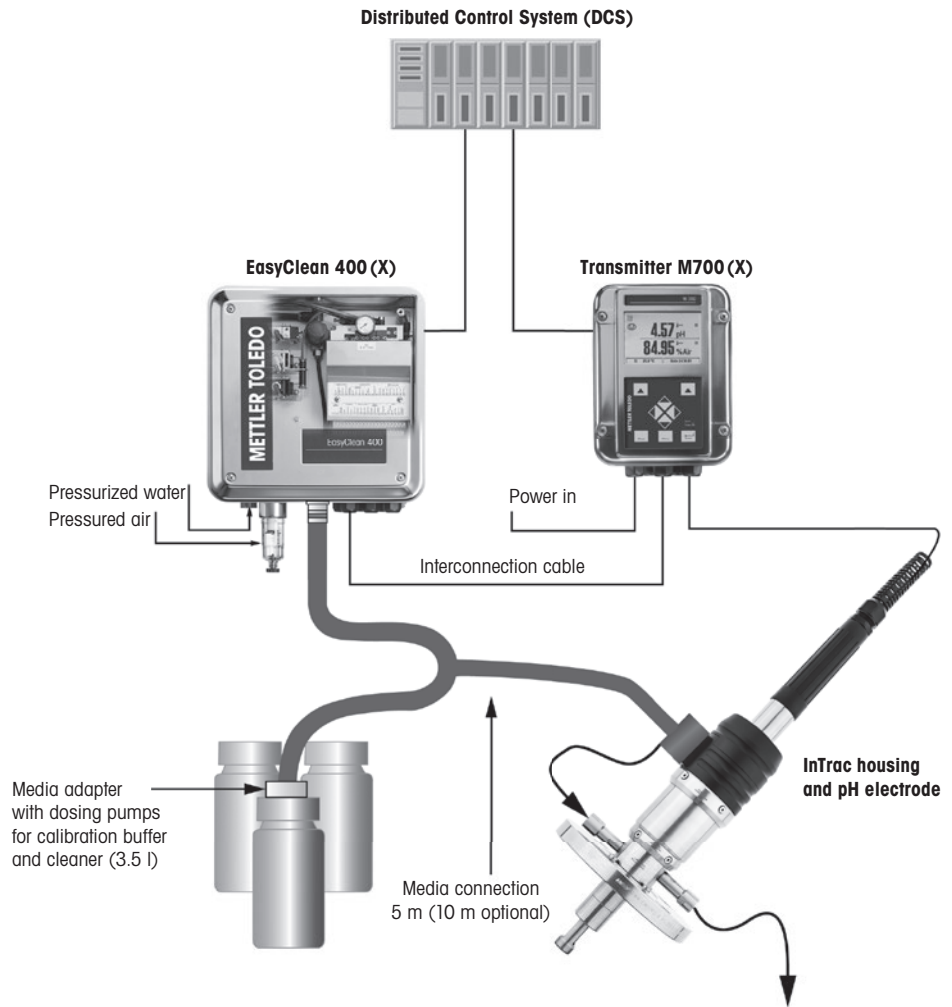
Basic measuring system

The InTrac781/784 offer excellent flexibility in the installation on a vessel/tank, pipe entry or flow-through system (i.e. with InFlow).



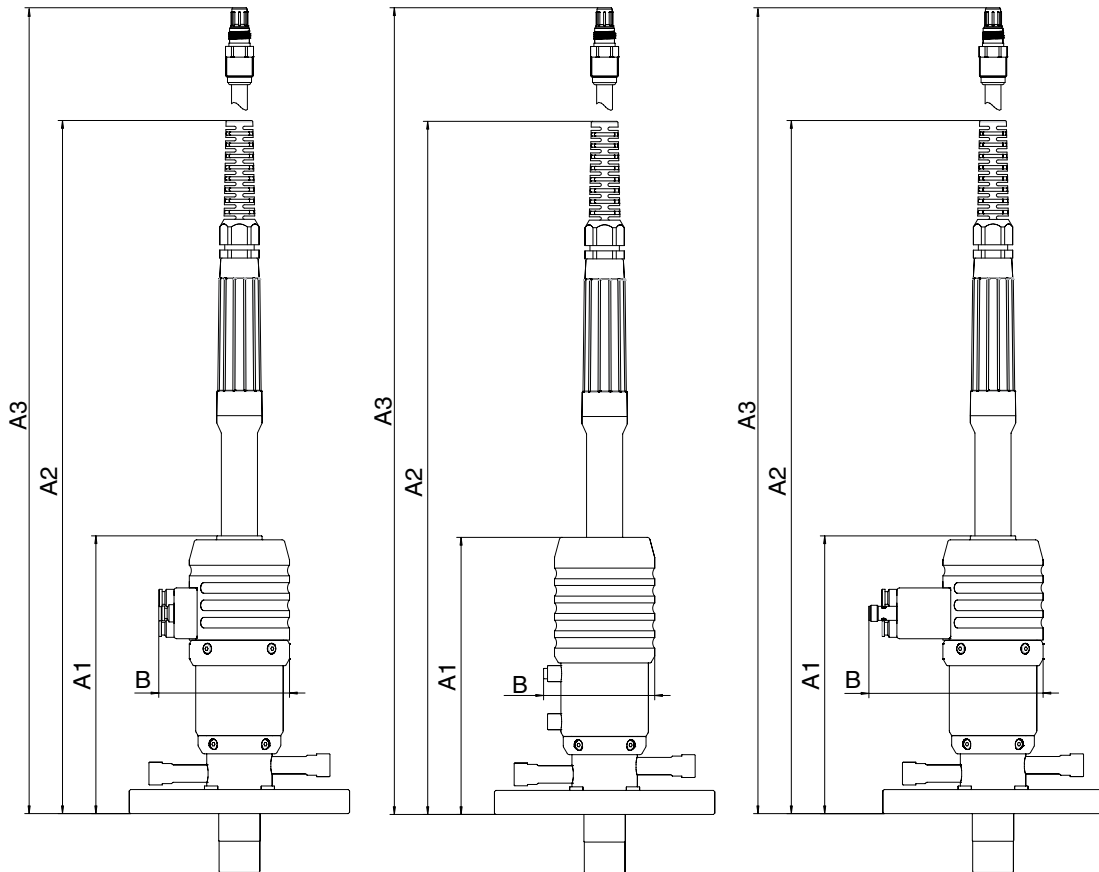
Measuring system combined with fully automatic EasyClean cleaning and calibration system

In combination with an EasyClean cleaning and calibration system you can fully automate your pH measurement. The measuring system consists of an InTrac781/784 housing with position indicators, a sensor, a transmitter and the EasyClean system. For complete installation in hazardous areas an EasyClean 400X is required.



Dimension drawing

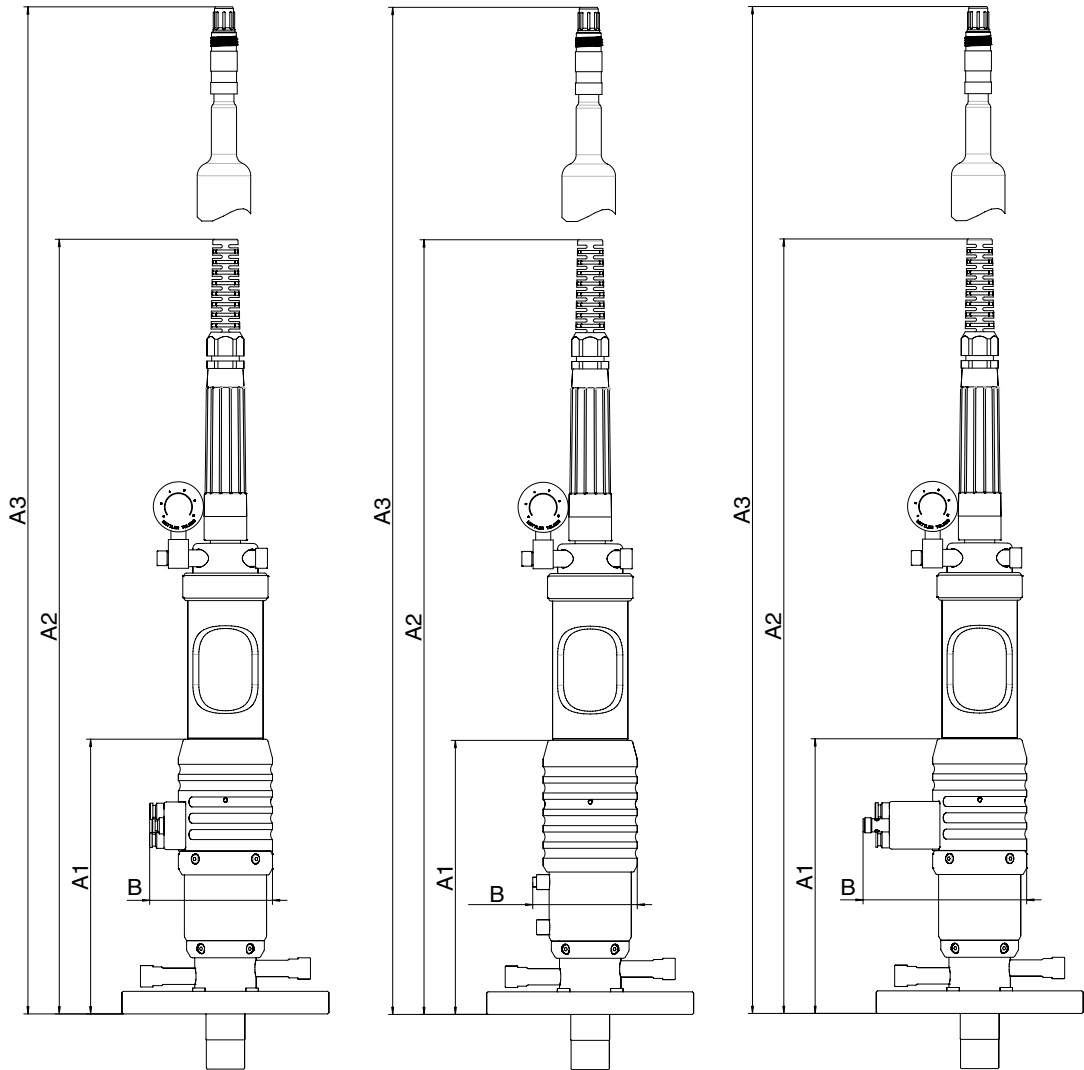
InTrac 781 – Operation mode R, M and I



	InTrac 781R		InTrac 781M		InTrac 781I	
Sensor length [mm]	225	450	225	450	225	450
A1 [mm]	208	208	208	208	208	208
A2 [mm]	518	518	518	518	518	518
Recommended space clearance for sensor maintenance;						
A3 [mm]	590	790	590	790	590	790
B [mm]	98	98	79	79	131	131

Legend: R: Pneumatic check back
 M: Manual
 I: Pneumatic, Inductive check back

InTrac 784 – Operation mode R, M and I



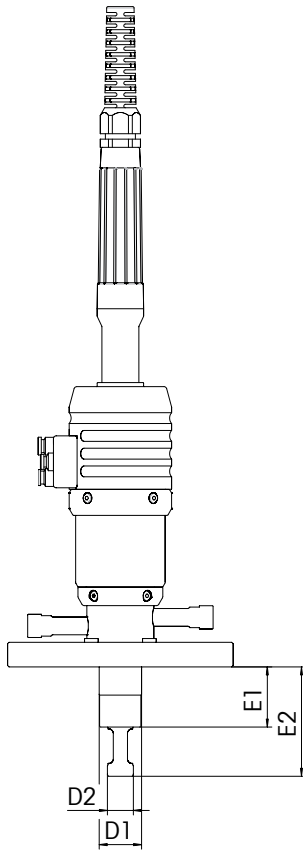
	InTrac 784R		InTrac 784M		InTrac 784I	
Sensor length [mm]	250	450	250	450	250	450
A1 [mm]	219	219	219	219	219	219
A2 [mm]	618	618	618	618	618	618
Recommended space clearance for sensor maintenance;						
A3 [mm]	850	1050	850	1050	850	1050
B [mm]	98	98	79	79	131	131

Legend: R: Pneumatic check back
M: Manual
I: Pneumatic, Inductive check back

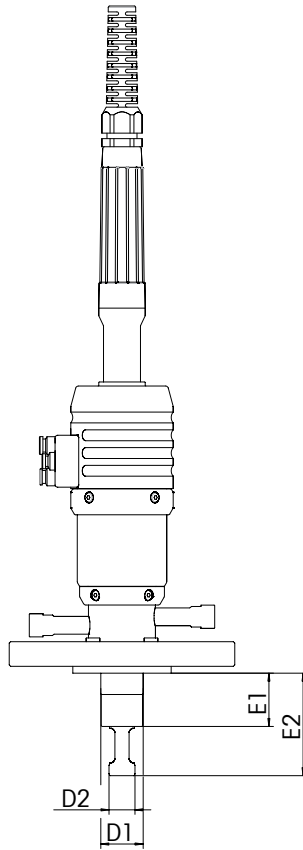
InTrac 78X with various process connections

Process connection InTrac 781/784 (independent of operation mode)

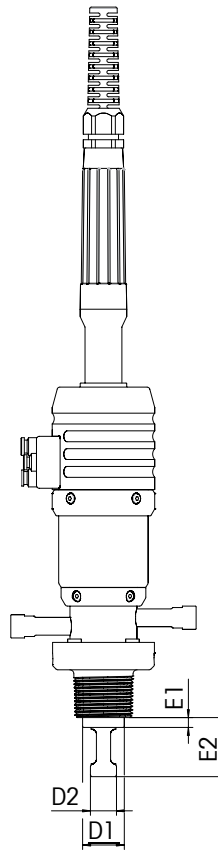
Flange AISI 316 L



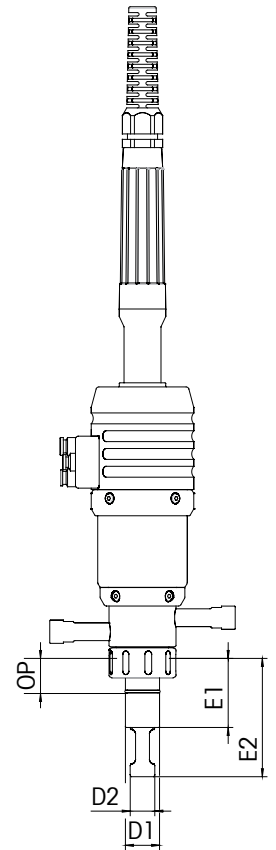
Flange AISI Alloy C22



NPT thread



Ingold DN 25



**InTrac 781/784
(R, M or I)**

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(R, M or I)**

	InTrac 781/784 (R, M or I)		InTrac 781/784 (R, M or I)		InTrac 781/784 (R, M or I)		InTrac 781/784 (R, M or I)	
Sensor length [mm]	225/250	425/450	225/250	425/450	225/250		225/250	
E1 [mm]	44	244	39	239	7		51	
E2 [mm]	80	280	75	275	43		87	
OP [mm]	-	-	-	-	-		25	
D1 [mm]	31	36	31	36	31		25	
D2 [mm]	19	19	19	19	19		18	

Legend: R: Pneumatic check back
M: Manual
I: Pneumatic, Inductive check back

Technical specifications

Ambient conditions

Ambient temperature range	SS316L, Alloy C-22	- 10 ... 70 °C (14 ... 158 °F)
	PP, PVDF, PEEK	0 ... 70 °C (32 ... 158 °F)

Operating mode

manual or pneumatic or with inductive check back

Weight

InTrac 781 (80 mm insertion length)	approx. 4.0 kg
InTrac 784 (80 mm insertion length)	approx. 4.5 kg

Dimension

See dimension drawings

Material

Refer to product structure

Cleaning liquid

Max. 1 to 6 bar

Control air for pneumatic operation (InTrac 78X, type R and I)

Free of oil, dust and water. 4–6 bar

Inductive check back sensor (InTrac 78X, type I only)

NAMUR, NC and connector M12×1, 4-pin

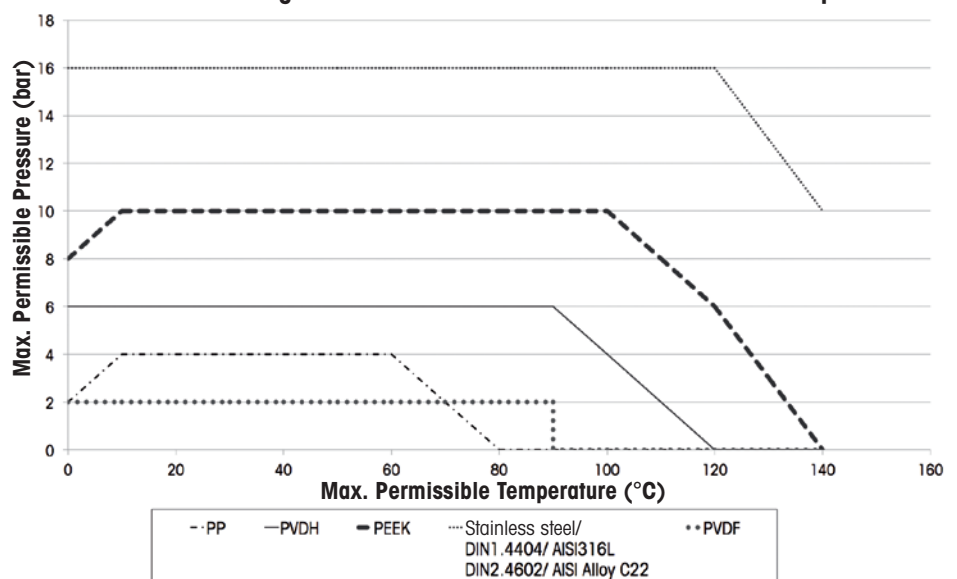
Certificate/approvals

Declaration of conformity CE; pressure equipment directive (PED); ATEX; FM

Process condition

See diagram "Maximum Process Permissible Pressure and Temperature" below

Maximum Housing Wetted Material Permissible Pressure and Temperature



Electrode/sensor selection

This is a brief overview of METTLER TOLEDO pH and redox sensors suitable for use with specific media. For further information on the extensive range of sensors available from METTLER TOLEDO, please contact your local METTLER TOLEDO representative.

Suitable electrodes/sensors	Sensor length (mm)		Suitable housing	
			InTrac 784	InTrac 781
pH/ORP				
InPro 2000	250	450	•	–
InPro 2000 i	250	450	•	–
InPro 3100	225	425	–	•
InPro 3100 i (SG)	225	425	–	•
InPro 3250 (SG)	225	425	–	•
InPro 3250 i/SG	225	425	–	•
InPro 3251	225	425	–	•
InPro 3252	225	425	–	•
InPro 3253 (SG)	225	425	–	•
InPro 3253 i/SG	225	425	–	•
InPro 3300	225	425	–	•
InPro 4260	225	425	–	•
InPro 4260 SG	225	425	–	•
InPro 4262	225	425	–	•
InPro 4260 i/SG	225	425	–	•
InPro 4281 i/SG	225	425	–	•
InPro 4800-1-2-i/SG	225	425	–	•
InPro 4800 (SG)	225	425	–	•
InPro 4802 (SG)	225	–	–	•
InPro 4881 i/SG	225	425	–	•
DXK pH-Redox-Reference Electrode	225	425	–	•
DPA				
HA-405-DPA-SC-S8	225	425	–	•
Pt 4805-DPA-SC-S8	225	425	–	•
DPAS				
405-DPAS-SC-K8S	225	425	–	•
Pt 4805-DPAS-SC-K8S Pt	225	425	–	•
DO/GPO				
InPro 6860 i	220	420	–	•
InPro 6980 i	220	420	–	•
InPro 6800/6850 i	220	420	–	•
InPro 6950 (i)/InPro 6900 (i)	220	420	–	•
InPro 6000 G Series	220	420	–	•
CO₂				
InPro 5000 (i)	220	–	–	•
Conductivity				
InPro7001-VP	225	–	–	•
InPro7100(i)	–	425	–	•

Product structure (InTrac 78X)

Sensor type																													
7	8	1	Solid [781] solid electrolyte, DO, Cond																										
7	8	4	Liquid [784] liquid electrolyte (InPro 2000, 465)																										
Operating mode and indicators																													
	M	Manual [M]																											
	R	Pneumatic check back [R]																											
	I	Pneumatic, Inductive check back [I]																											
Material, medium-wetted parts																													
4	4	0	4	1.4404 [4404]																									
C	2	2	_	2.4602/Alloy C22 [C22_]																									
P	P	_	_	PP [PP_]																									
P	V	D	F	PVDF [PVDF]																									
P	E	E	K	PEEK [PEEK]																									
P	V	D	H	PVDF/Alloy C22 [PVDH]																									
Sealing Material (wetted sealings)																													
V	I	Viton [Vi]																											
K	A	Kalrez [Ka]																											
E	P	EPDM [EP]																											
Sensor length																													
2	2	5	225 mm [225]																										
4	2	5	425 mm [425]																										
2	5	0	250 mm [250]																										
4	5	0	450 mm [450]																										
Process connection																													
D	0	0	Ingold DN25 [D00]																										
D	0	2	DN32 PN16 [D02]																										
D	0	3	DN40 PN16 [D03]																										
D	0	4	DN50 PN16 [D04]																										
D	0	6	DN80 PN16 [D06]																										
A	0	1	A150-1¼ [A01]																										
A	0	2	A150-1½ [A02]																										
A	0	3	A150-2 [A03]																										
A	0	4	A150-3 [A04]																										
N	0	2	NPT 1¼ [N02]																										
Flushing connections																													
O	0	_	Without (blind plugs included)																										
G	1	8	G½" thread female [G18]																										
G	1	4	G¼" thread female [G14]																										
N	1	4	¼" NPT female [N14]																										

InTrac	7	8	/						/						/					/														
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30										

Please contact your local METTLER TOLEDO representative for more options.

Ordering information

Spare parts**For InTrac 78X in operation with sensor length 220/225/250 mm (with flange or NPT connection)**

Designation	Order No.
Set of seals FPM (Viton®)	30 283 337
Set of seals FFKM (Kalrez®)	30 283 338
Set of seals EPDM	30 283 339

For InTrac 78X in operation with sensor length 220/225/250 mm (with Ingold DN 25 connection)

Designation	Order No.
Set of seals FPM (Viton®)	30 335 858
Set of seals FFKM (Kalrez®)	30 360 071
Set of seals EPDM	30 360 072

For InTrac 78X in operation with sensor length 420/425/450 mm (with flange or NPT connection)

Designation	Order No.
Set of seals FPM (Viton®)	30 283 340
Set of seals FFKM (Kalrez®)	30 283 341
Set of seals EPDM	30 283 342

Blind plugs for flushing connections

Designation	Order No.
Blind plugs 2 × G $\frac{1}{8}$ " (1.4301)	30 327 316
Blind plugs 2 × G $\frac{1}{8}$ " (2.4602)	30 327 317
Blind plugs 2 × G $\frac{1}{8}$ " (PVDF)	30 327 318
Blind plugs 2 × G $\frac{1}{8}$ " (PP)	30 327 319
Blind plugs 2 × G $\frac{1}{8}$ " (PEEK)	30 327 390

Replacement of all other parts of the housings may only be carried out by appropriately trained personnel. Please contact your local METTLER TOLEDO representative.

For addresses of METTLER TOLEDO
Market Organizations please go to:
www.mt.com/pro-MOs



Management System
certified according to
ISO 9001 / ISO 14001



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