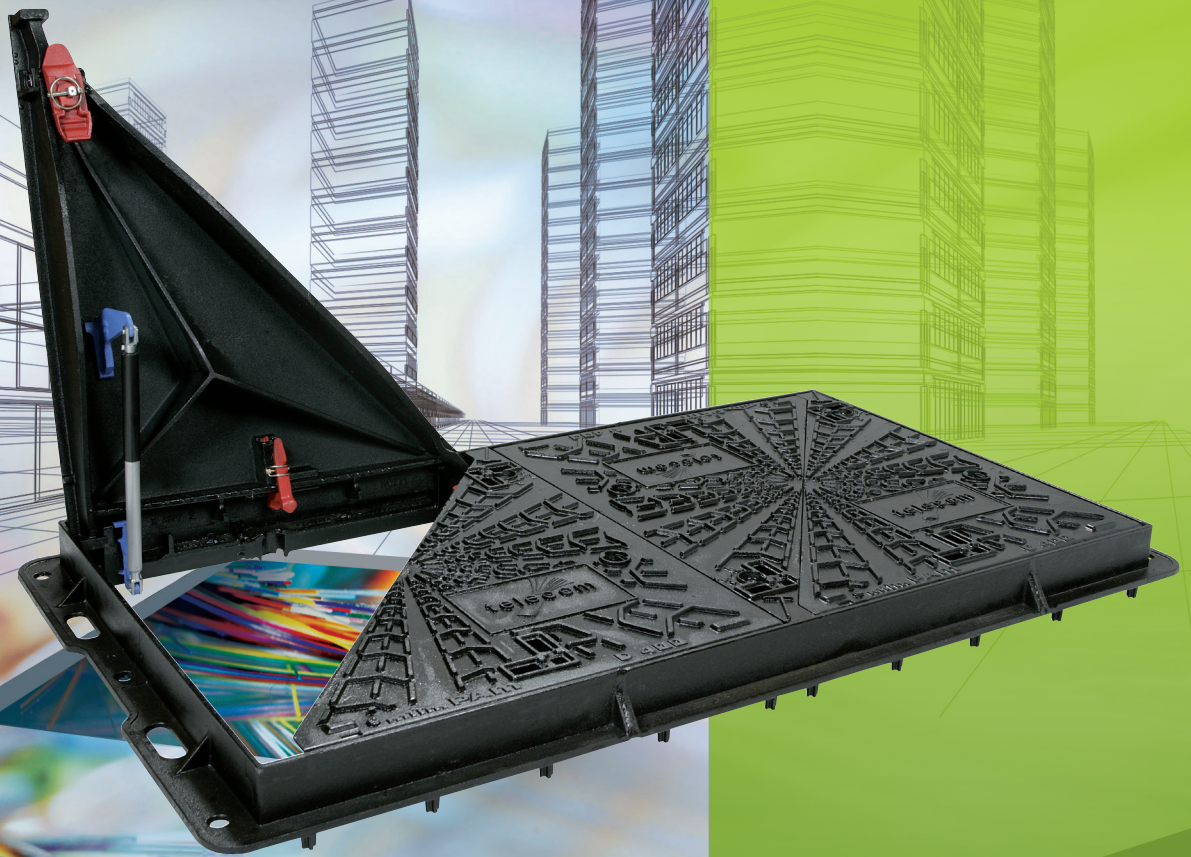


Solutions  
for Telecom  
network  
duct covers

**T-MAX**

New ranges  
Telecom duct covers



**PAM**  
SAINT-GOBAIN, your ideas,  
our expertise

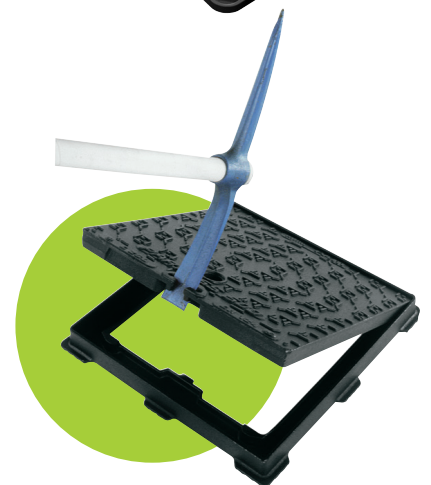
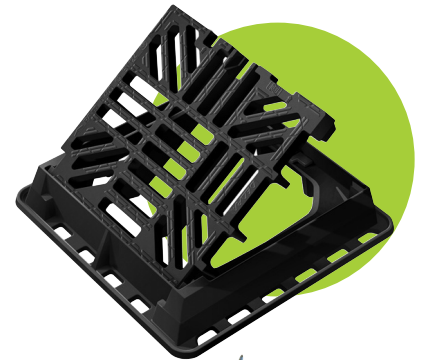
**At the service of water and sewerage, PAM is worldwide leader in ductile iron pipeline systems.**

**PAM proposes solutions dedicated to the water, sewage, roads, telecom and building sectors.**

Interface between the roadway and the networks, the municipal castings must meet the numerous performance and quality criteria set by the network managers in terms of:

- **resistance to traffic constraints:**  
safety, stability, silence,
- **easy to access and operation:**  
simple, fast and ergonomic handling,
- **quick and easy implementation:**  
installation under all worksite conditions.

A combination of performance and innovation, quality and durability, the PAM ranges of manholes and duct covers, gratings and gully holes benefit from all the specific mechanical properties of ductile iron and the know-how of PAM.



## T-MAX *i* D400

- Ductile iron frame
- Built-in hinge
- Safety kits
- Opening assistance kit

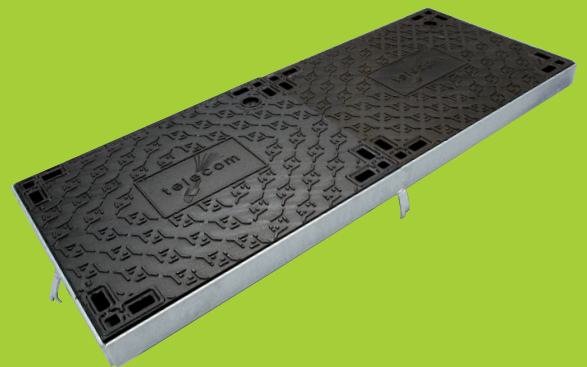
P 2 to 5



## T-MAX *i* C250

- Steel angle bar frame
- 2 covers C250
- Safety kits
- Opening assistance kit

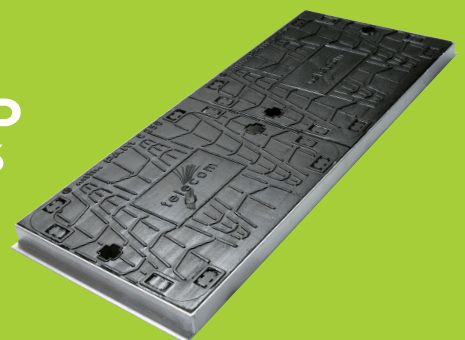
P 6 to 9



## T-MAX OPTIMISÉES C250 ou B125

- Steel angle bar frame
- 1 cover C250 or  
1 cover B125

P 10 to 11



# Duct covers **T-MAX i D400**

Specialist in the design and distribution of innovating technical solutions in municipal castings, sewerage and Telecom, **PAM** proposes a range of intelligently designed duct covers which adapt to all your constraints, in respect of the environment.

**T-Max D400** duct cover has truly innovating features.

Beneath the apparent simplicity lies an ingenious technology offering outstanding results in terms of durability (frame rigidity and sealing performance), adaptation to requirements that change over time, but also in terms of easy installation and, if necessary, intervention (optimum safety and opening assistance).

DUCTILE  
IRON FRAME  
FOR PERFECT  
SEALING

A brand new and **PATENTED** design with technicality in mind as well as:

- the aesthetics (frame shape, anti-skid pattern on the covers, etc.)
- the environment (recyclable packaging)

Result of extensive functional analysis, the traditional hinge is now replaced by two guide rails and two retaining pins hold the cover in closed position

Welded ductile iron frame of total height 120 mm. Under the T profile (80 mm), studs for improved sealing.



## Intelligent hinge with numerous advantages

- 1 Built into the basic version, the internal hinge allows the hinged cover to be lifted in the traditional manner by 2 operators



- 2 However, due to its low weight (< 45 kg) and safety blocking, the cover can now be open by a single maintenance operator. The lifting force is less than 16 kg.



- 3 With traditional hinges the cover has to be raised. In this case, the 90° blocking is released by simply moving the tip of the cover sideways.



- 4 Thanks to the new design with no external ball joint hinges, not only is the duct cover more aesthetic but the tarmac laying and sealing operations are also simplified. In addition, the built-in ball joints do not clog up as if often the case with ordinary duct covers.



## ASSISTANCE OR SAFETY KITS

Convert the duct covers on your site yourself.

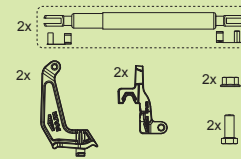
- The additional functions offered by the kits must be mounted after installation of the duct covers.
- The kits mounting is done with a limited number of tools and the structure requires no preparation.

> the kits are supplied with installation instructions

> visit the site [www.pamline.fr](http://www.pamline.fr) to see animation videos



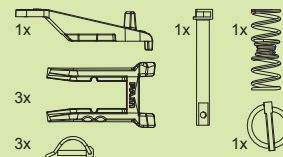
### Opening assistance with gas spring



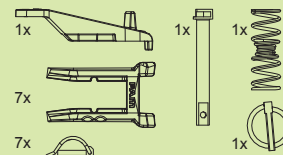
Kit D28 for opening assistance of 2 triangular covers for formats K1C - K2C - K3C

### Safety

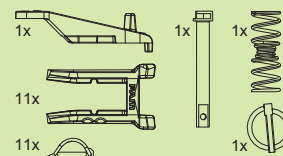
Safety kit D25 for format K1C



Safety kit D26 for format K2C



Safety kit D27 for format K3C



# T-MAX *i* D400

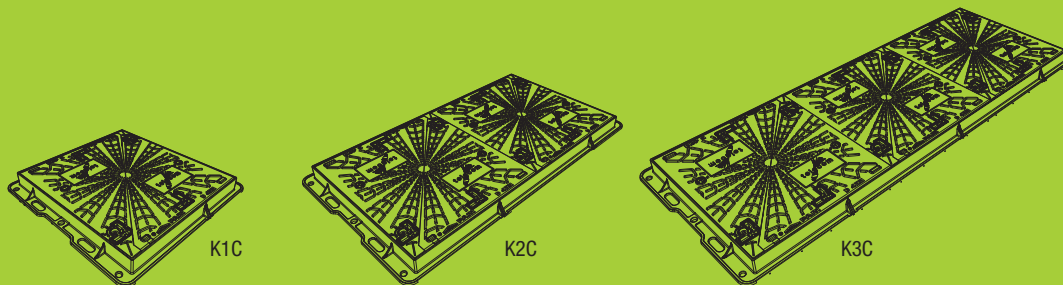
**Ductile iron frame:** 80 mm T profile + studs for improved sealing (total height 120 mm).

Built-in **hinge** to retain traditional horizontal lifting and hinge with 90° **safety blocking**.

**Safety or assistance kits** (gas arm):

- to be installed on site after the duct covers embedment
- the structure requires no preparation
- installed with a limited number of tools
- supplied with installation instructions
- animated videos on [www.pamline.fr](http://www.pamline.fr)





## T-MAX i D400 duct covers with ductile iron covers and frames

Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	C.O. / mm	Weight / kg	Packing
<b>D400 type K - Ductile iron frame and triangular covers with built-in hinge</b>						
DDK1ARTXTEL	DDK1ARTX	K1C	2	750 x 750	128.5	4
DDK2ARTXTEL	DDK2ARTX	K2C	4	1500 x 750	238	4
DDK3ARTXTEL	DDK3ARTX	K3C	6	2250 x 750	349	4

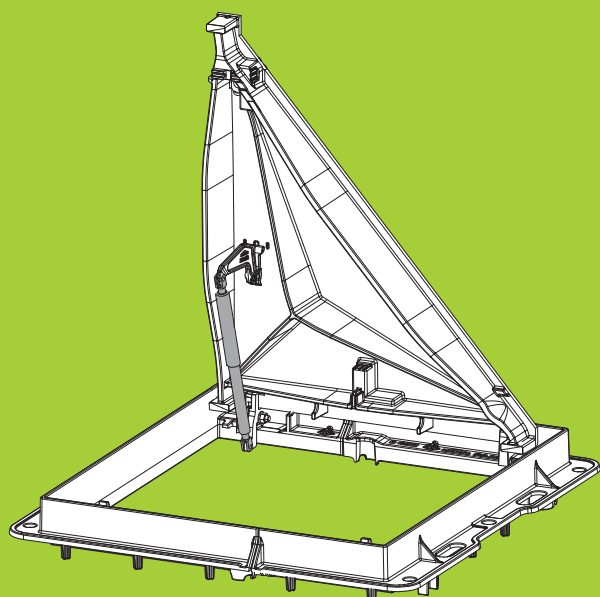
Other logos or specific marking: please contact us

## The kits to be installed on site

Type	Description	Reference	Weight / kg	Packing
<b>Opening assistance kit for 2 covers <sup>(1)</sup></b>	- 2 anti-ejection clips to be screwed on the frame - 2 oscillating fasteners to be installed under the cover - 2 gas arms with stainless steel quick couplings	D 28	2.8	Unit Installation manual included
<b>Safety kit for K1C duct cover</b>	- Lock with SCS head <sup>(2)</sup> - Safety clamp for master cover - 2 safety clamps for slave cover	D 25	2.2	Unit Installation manual included
<b>Safety kit for K2C duct cover</b>	- Lock with SCS head <sup>(2)</sup> - Safety clamp for master cover - 6 safety clamps for slave covers	D 26	4.0	Unit Installation manual included
<b>Safety kit for K3C duct cover</b>	- Lock with SCS head <sup>(2)</sup> - Safety clamp for master cover - 10 safety clamps for slave cover	D 27	5.8	Unit Installation manual included
<b>SCS key for safety kit</b>		C 18	0.4	Unit Installation manual included

<sup>(1)</sup> If assistance is required for all covers, order 2 kits for a K2C and 3 for a K3C

<sup>(2)</sup> Other locks be developed for special work sites or specific operators



## Advantages of the PAM offer

Safety and assistance are provided by kits to be installed on site.

Since the covers are interchangeable, the master cover can be positioned as required.

With the oscillating fastener, when the cover is open the gas arm is not under tension and can therefore be removed easily.

# Duct covers **T-MAX i C250**

The class C 250 duct covers are a generic product with a wide range of applications. On pavements, they are preferred to the traditional sewage manhole covers due to their wide free opening allowing easy intervention on the underground equipment. Applications for example, urban heating, and wiring, etc.

Using traditional but optimised components, with the **T-Max i C250** range, **PAM** offers innovating solutions which are especially intended for current market requirements :

- cost-effective solutions
- modular on site and therefore no special programming
- efficient in terms of additional functions (hinge, safety at little extra cost)

A NEW RANGE  
DEVELOPED  
FROM A KNOWN,  
HIGH-POTENTIAL  
TRADITIONAL  
CONCEPT

Development of the **PATENTED T-Max i** concept in class C 250, retaining the current principles:

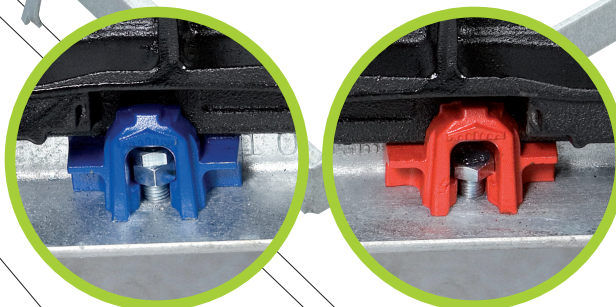
- Modular range:  
11 possible duct covers from 2 covers
- Galvanised steel frames 60 x 60 x 6 mm

Gas arm reaction plate independent from the chamber



2 ductile iron hinges to be bolted in the frame rabbet provide the following functions:

- Hinge
- 90° blocking
- Anti-lifting in closed position



## Innovating solutions applied to standard components

### 1 Soundproofing pads

inserted in the factory under the prising slots, limited deformation and therefore increased durability



### 2 Cover optimisation

C 250 - 633 x 495 mm

**26 kg** instead of 36 kg

C 250 - 990 x 633 mm

**61 kg** instead of 80 kg

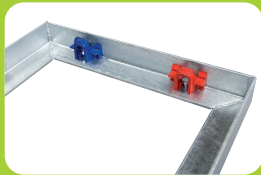
Covers interchangeable with old generation covers



### 3 Standard frames

Galvanised steel 60 x 60 x 6 mm

2 holes per cover to fit the hinges.



### 4 Highly innovating functions provided by the components in the Kits:

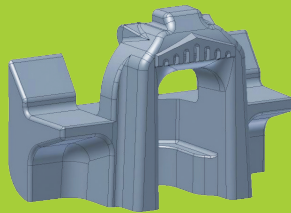
#### Ductile iron hinges

Bolted onto the frame, they allow:

**Pivoting and 90° blocking.** One of the two has a bolt with nut under the head. To cancel the 90° blocking, simply pivot the cover instead of lifting.

**Cover can be raised to the 90° position** or opened fully to 110°

**Anti-lifting of cover in horizontal position:** The 2 horizontal pins of the hinges engage in the cover prising slots and offer a vertical tearout strength greater than 10kN.



#### Steel lock bar

**Anti-vandalism tearout strength** 35 % better than the ordinary versions, it can also withstand a force greater than 10 kN.

#### Steel safety pin

**Anti-lifting of secondary covers.** Designing an efficient safety mechanism often means complex solutions for the secondary covers, the pin is hammered into the walls of the prising slots.

The 4 handling boxes are designed to take this pin.

#### Gas arm reaction plate

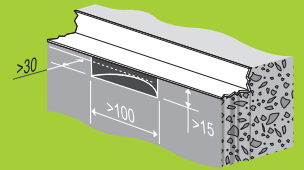
With all the solutions currently available, the gas arm must be removed in order to lift the cover. In this case, the patented plate is independent.

With the cover in the frame, it rests on the vertical wall of the chamber with a verticality tolerance of +/- 2 cm.

## KITS TO BE INSTALLED ON SITE BEFORE SEALING THE HATCH

The kits are installed with a limited number of tools and require only minor changes of the chamber:

Clearance under the frame for insertion of the lock back

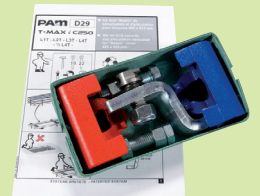
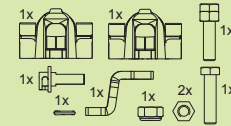


> the kits are supplied with installation instructions

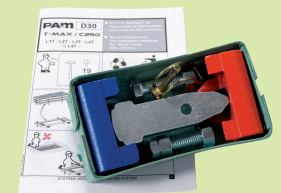
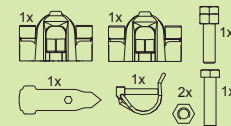
### 2 kit types:

#### Safety and Hinge for 633 x 495 mm covers

##### D29 Safety and Hinge «Master» Kit

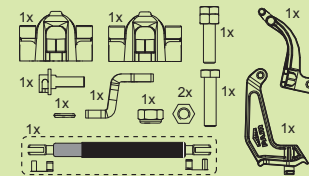


##### D30 Safety and Hinge «Slave» Kit

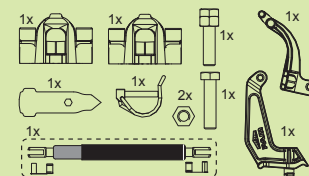


#### Safety and Assisted opening for 633 x 990 mm covers

##### D31 Safety and Assisted opening «Master» Kit



##### D32 Safety and Assisted opening «Slave» Kit

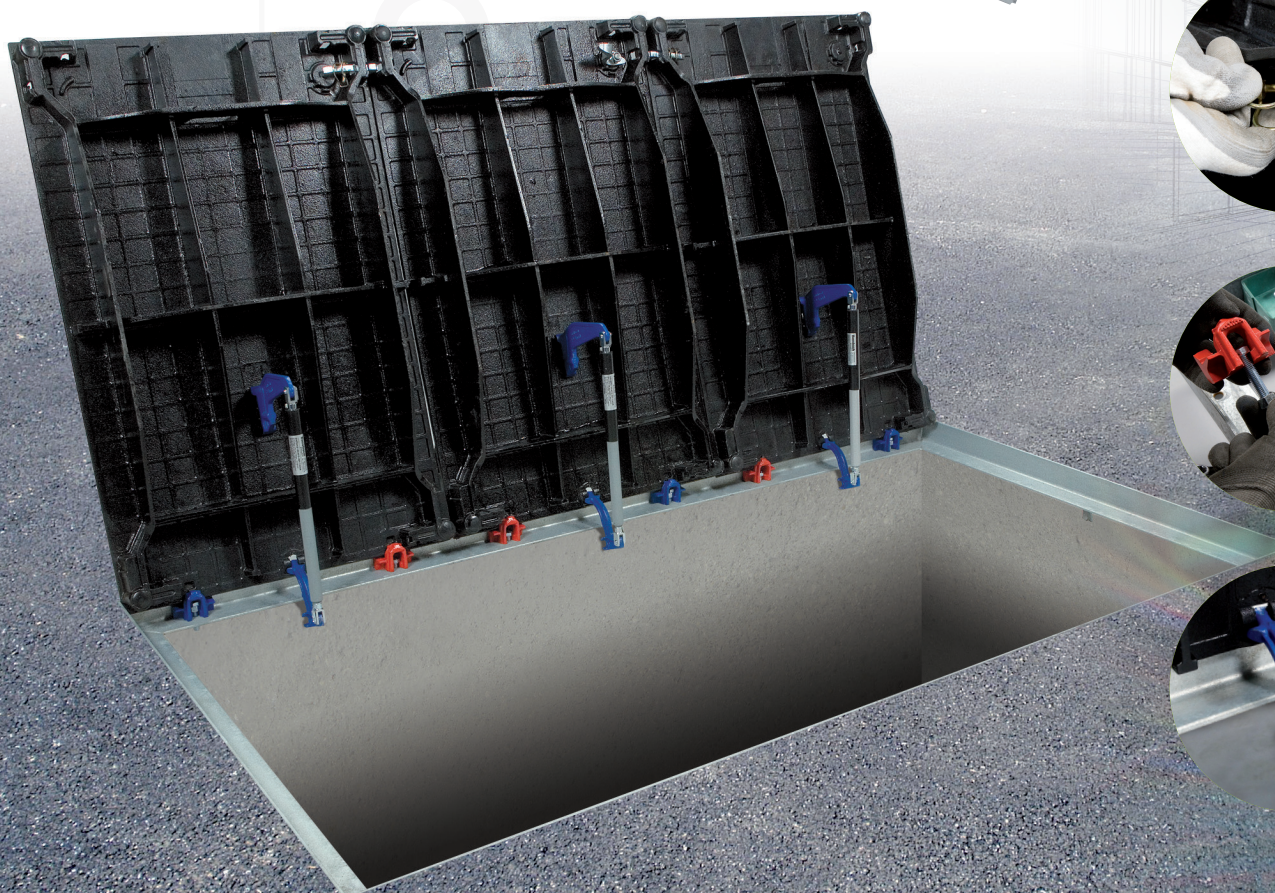


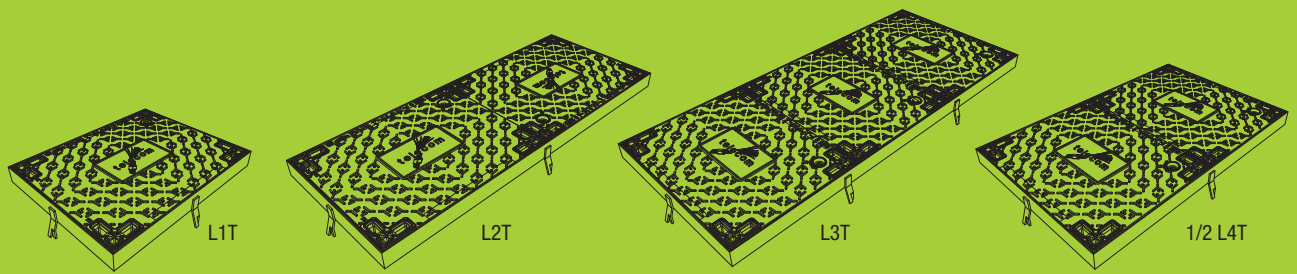
# T-MAX *i* C250

**Special frames:** galvanised steel angle bars 60 x 60 x 6 mm with 2 holes per cover to install the kits.

**Ductile iron covers:** • Optimised

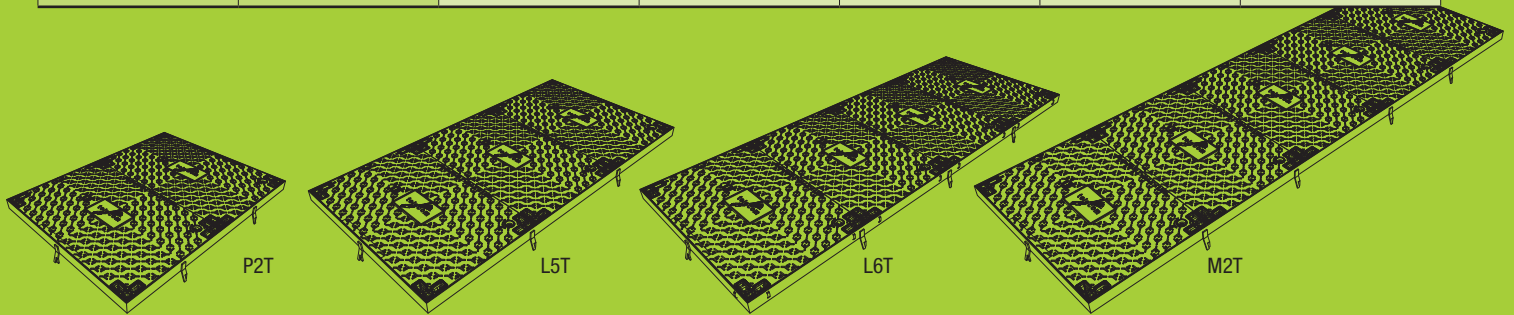
- Equipped with ergonomic handling boxes, compatible with plate hammers
- Soundproofing pads under the handling boxes, limited deformation and therefore increased durability





## T-MAX *i* C250 duct covers with ductile iron covers 633 x 495 mm

Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	C.O. / mm	Weight / kg	Packing
<b>C250 type L1T to L4T - Optimised steel angle bar frame and ductile iron covers</b>						
DCL1TMIXTEL	DCL1TMIX	L1T	1	527 x 389	38.25	5
DCL1TMIXTEL	DCL2TMIX	L2T	2	1161 x 389	71.65	5
DCL3TMIXTEL	DCL3TMIX	L3T	3	1381 x 527	101.25	5
DCL4TMIXTEL	DCL4TMIX	L4T	4	1876 x 527	132.60	5
DC1LTMIXTEL	DCL1TMIX	1/2L4T	2	884 x 527	69.90	5

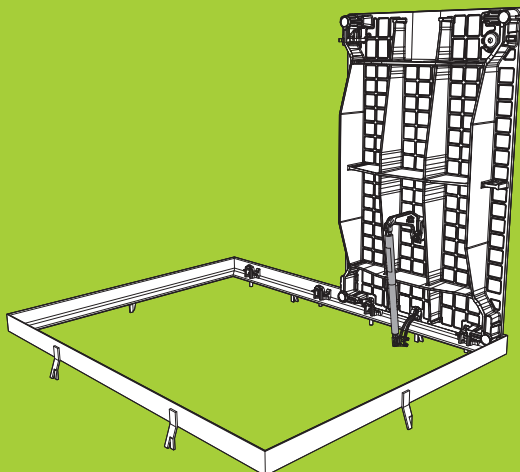


## T-MAX *i* C250 duct covers with ductile iron covers 990 x 633 mm

Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	C.O. / mm	Weight / kg	Packing
<b>C250 type P2T to M2T - Optimised steel angle bar frame and ductile iron covers</b>						
DCP2MIXTEL	DCP2TMIX	P2T	2	1161 x 884	146.70	5
DCL5TMIXTEL	DCL5TMIX	L5T	3	1795 x 884	214.60	5
DCL6TMIXTEL	DCL6TMIX	L6T	4	2429 x 884	282.70	5
DCM2MIXTEL	DCM2TMIX	M2T	5	3062 x 884	350.75	5

## The kits quantity to be ordered depending on the type of chamber

Chamber type	Safety	&	Hinge	Chamber type	Safety	&	Assisted opening
L1T	1 kit D29		0	P2T	1 kit D31		1 kit D32
L2T & 1/2 L4T	1 kit D29		1 kit D30	L5T	2 kit D31		1 kit D32
L3T	1 kit D29		2 kit D30	L6T	2 kit D31		2 kit D32
L4T	2 kit D29		2 kit D30	M2T	3 kit D31		2 kit D32



## Advantages of the PAM offer

- Cost-effective development of the T-Max *i* D 400 concept for C 250 duct covers
- Just 4 kits for the entire range
- Possibility of choosing on site the position of the duct covers to be equipped with additional functions (no delay to procure specific reference)
- Covers interchangeable with old generation covers

# T-MAX OPTIMISÉES C250 ou B125

**New optimised duct covers** to close standardised chambers L0T to L4T

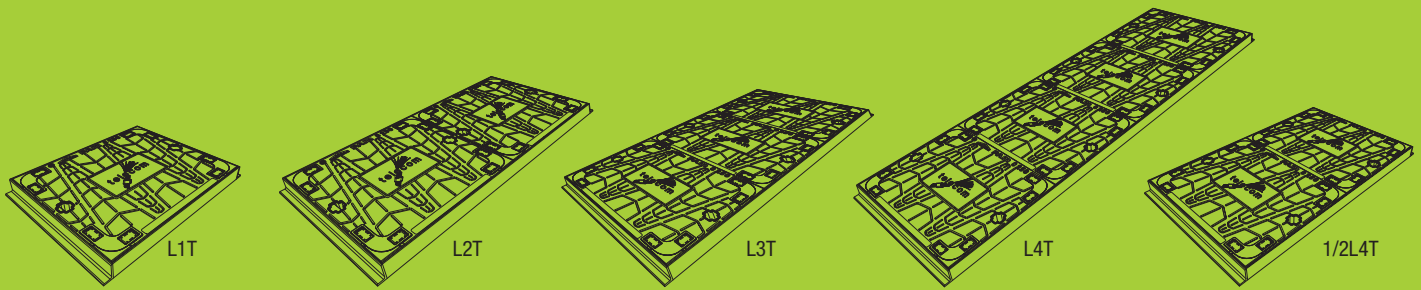
**Angle bar frame:** galvanised steel 50 x 30 x 5 mm.

**B125 cover for L0T**

**C250 cover for L1T to L4T**

**Registered models**





T-MAX *optimized* **C250** duct covers with ductile iron covers on **ductile iron** frame

Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	Dimensions outside frame / mm	C.O. / mm	Weight / kg	Packing
<b>C250 type LT - Optimised steel angle bar frame 50 x 30 x 5 mm and covers 578 x 468 mm equipped with soundproofing pads</b>							
DCL1LIGXTEL	DCL1LIGX	L1T	1	641 X 481	581 x 421	28	10
DCL2LIGXTEL	DCL2LIGX	L2T	2	481 X 1221	1161 x 421	53.5	5
DCL3LIGXTEL	DCL3LIGX	L3T	3	591 X 1469	1409 x 531	77.7	5
DCL4LIGXTEL	DCL4LIGX	L4T	4	591 X 1938	1878 x 531	102.4	5
DC1LLIGXTEL	DC1LLIGX	1/2 L4T	2	591 X 1000	940 x 531	52.8	5

Other logos or specific marking: please contact us



LOT

T-MAX *optimized* **B125** duct covers with ductile iron covers on **ductile iron** frame

Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	Dimensions / mm	C.O. / mm	Weight / kg	Packing
<b>B125</b>							
DBL0LIGXTEL	DBL0LIGX	LOT	1	308 X 488	428 x 248	13.4	10

Other logos or specific marking: please contact us

## Advantages of the PAM offer

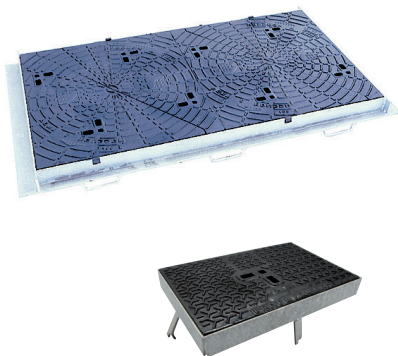
Despite being lightweight, the covers can withstand accidental traffic.

The ductile iron feet of the covers are protected by soundproofing pads:

- efficient attachment of the pad,
- effective soundproofing.

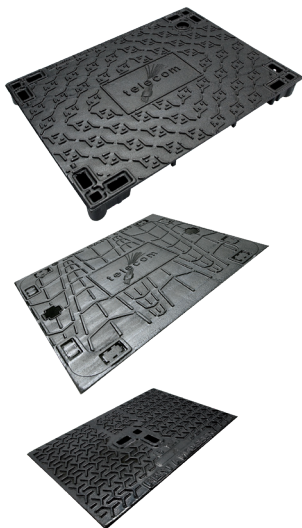
# Telecom duct covers for replacement work

Telecom duct covers with ductile iron covers on **galvanised steel** frame



Reference with Telecom logo	Reference without logo	Chamber type	Nr of covers	C.O. / mm	Weight / kg	Packing
<b>D400 type LC - Steel frame length 70 mm and triangular covers 633 x 472</b>						
-	DDLD53BX	L1C	2	527 x 389	88	5
-	DDLD13GX	L2C	4	1161 x 389	159	5
-	DDLD15JX	L3C	6	1381 x 527	223	5
<b>B125 type LT - Steel angle bar frame 60 x 40 x 5 mm</b>						
DBLOT42AF	DBLOT42AX	LOT	-	430 x 250	25	5

Ductile iron covers only **C250** and **B125** for **galvanised steel** frame



Reference with Telecom logo	Reference without logo	Chamber type	Dimensions / mm	Weight / kg	Packing
<b>T-MAXi C250 - suitable for replacing «old generation» covers</b>					
DCL1TMIXTEL-T	DCL1TMIX-T	L1T à L4T	<b>633 x 495</b>	26	15
DCP2TMIXTEL-T	DCP2TMIX-T	P2T à M2T	<b>990 x 633</b>	61	10
<b>T-MAX OPTIMISÉS C250 covers</b>					
DCL1LIGXTEL-T	DCL1LIGX-T	L1T à L4T	578 x 468	22	60
<b>T-MAX OPTIMISÉS B125 covers</b>					
DBL0LIGXTEL-T	DBL0LIGX-T	LOT	424 x 294	8.2	20
<b>B125 «old generation» covers</b>					
DBL042W	DBL042WX773	LOT	495 x 316	17.5	60

Plate hammers



Reference	Description
D10	FT homologated plate hammer
D11	simplified plate hammer

Telecom Europe duct covers with hinged triangular covers on **ductile iron** frame



Free opening / mm	Reference	Nr of covers	Weight / kg			Height / mm
			Covers	Frame	Total	
600 x 630	DDTT66BX*	2	31 x 2	37	99	100
700 x 800	DDTT87BX*	2	46 x 2	41	131	100
750 x 750	DDTT75GX	2	44 x 2	38	126	100
750 x 1200	DDTT12GX	4	35 x 4	68	208	100
750 x 1500	DDTT17GX	4	44 x 4	75	251	100
750 x 2250	DDTT27JX	6	44 x 6	94	358	100

\* Duct covers equipped with an SCS lock

# Sealing of access duct covers to Telecom Networks

## Design of concrete chamber top

Most of the access duct covers in this catalogue are designed for installation on prefabricated chambers. In principle, therefore, the frame dimensions are adapted to the chamber rabbet.

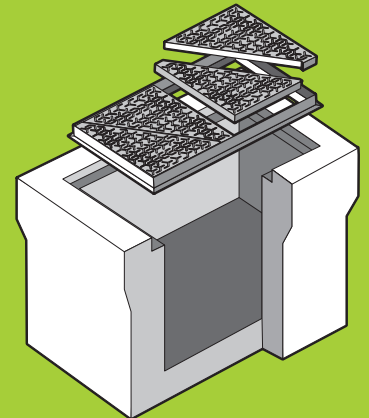
Check that the strength class of the 2 products (chamber and duct cover) is suitable for the intended purpose.

### For «non Telecom» use:

Check that the chamber seating rim is compatible.

The frame must never overhang the free opening.

Clean the seating rim and check its strength. Find a sound bearing surface, if necessary excavate then create a new sound seating rim.



## Levelling

### Small frames

- Spread a bed of sealing product at least 5 cm thick for a quick setting product.
- Place the frame on the fresh sealing product.
- Adjust the frame to the finished level, lowering the frame so that the sealing product flows under the bearing flange.
- If the frame is below the finished level, it is essential to repeat the operation from paragraph 1.

### Large frames and welded steel frames

- Centre the frame.
- Place the formwork inside the chamber if necessary.  
The frame must not rest on the formwork.
- Level the frame without wedging underneath.  
For example, use 2 battens to hang it.
- Check the flatness by positioning the covers, make sure that they do not rock. Otherwise, level again.

### Steel angle bar frames

- When sealing, take care (cover in the frame for example) to prevent any deformation of the frame (reduction of the free opening).



## Sealing product

Use concrete or a sealing mortar depending on the expected traffic. The concrete can be reinforced and vibrated, making sure however that the frame remains level. A quick setting sealing mortar is best if traditional mortar is not sufficient to meet the traffic requirements.

Irrespective of the product used, it is important to strictly comply with the implementation instructions indicated on the packaging: external temperature, quantity of water, mixing with shovel or mixer in order to obtain a consistent, workable and homogeneous product.

## Sealing

Check that the support is clean. Remove crumbly or dirty (grease) parts.

It may be necessary to wet the support in order to improve adherence (see product implementation conditions).

Pack all the spaces between the frame and the excavation.

Finish off with a float or trowel at road surface level or allow a reserve of 3 to 5 cm for subsequent application of the asphalt layer.

## Finishing and reopening to traffic

If formwork was used, it should only be removed once the sealing product has set.

Check the quality of sealing inside the chamber.

If necessary, clean the surfaces inside the frame.

Sealing must have reached optimum performance level before reopening to traffic.

# HOW TO CONTACT PAM

## **AUSTRIA**

Saint-Gobain Rigips AUSTRIA GesmbH  
Vertriebsbüro PAM  
Archenweg 52  
6020 Innsbruck  
Tel: + 43 512 34 17 17 -0

## **BELGIUM**

Saint-Gobain PAM BELGIUM  
Raatshovenstraat, n°2  
3400 – LANDEN  
Tel: + 32 11 88 01 00

## **FINLAND**

Saint-Gobain PAM FINLAND  
Strömberginkuja 2  
00380 HELSINKI  
Tel: +358 207 424 600

## **GREECE**

Saint-Gobain HELLAS  
5 KLEISOURAS STR,  
14452 METAMORGOSI ,ATHENS GREECE  
Tel: +30 210 2831804

## **NORWAY**

Saint-Gobain BYGGEVARER  
Nils Hansens vei 13,  
0667 OSLO  
Tel: + 47 23 17 58 60

## **THE NETHERLANDS**

Saint-Gobain PAM Netherlands  
Markerkant 10-17  
1316 AB ALMERE  
Tel: + 31 36 53 333 44

## **POLAND**

Saint-Gobain Construction Products POLSKA SP Z O.O.  
Ul. Cybernetyki 9  
PL - 02-677 WARSZAWA  
Tel: + 48 22 751 41 72

## **PORTUGAL**

Saint-Gobain PAM PORTUGAL, S.A.  
Rua das Marinhas do Tejo , n° 15  
2690-361 SANTA IRIA DE AZÓIA  
Tel: + 351 218 925 000

## **CZECH REPUBLIC**

Saint-Gobain PAM CZ  
Budova DOCK II,  
Smrčková ulice,  
Praha 8 – Libeň  
Tel: + 420 311 712 611

## **ROMANIA**

Saint-Gobain Construction Products Romania S.r.l.  
**SGCPRo SRL**  
Soseaua Pipera nr.43, Cladirea Floreasca Park,  
corpul A, etajul 3, birourile 25-41, cod 014254,  
sector 2, Bucuresti, Romania  
Tel: + 40 21 207 57 29

## **SLOVAKIA**

Saint-Gobain Construction Products, s.r.o.  
Dlha 1780/6  
90031 Stupava  
Tel: +421 (0) 2 654 569 61

Enquiries from other EU and overseas countries:  
please consult Saint-Gobain PAM Canalisation



**Saint-Gobain PAM Canalisation •  
Head office**

21, avenue Camille Cavallier  
54705 Pont-à-Mousson Cedex • FRANCE  
Phone : +33 (0) 383 807 350  
[www.pamline.com](http://www.pamline.com)