

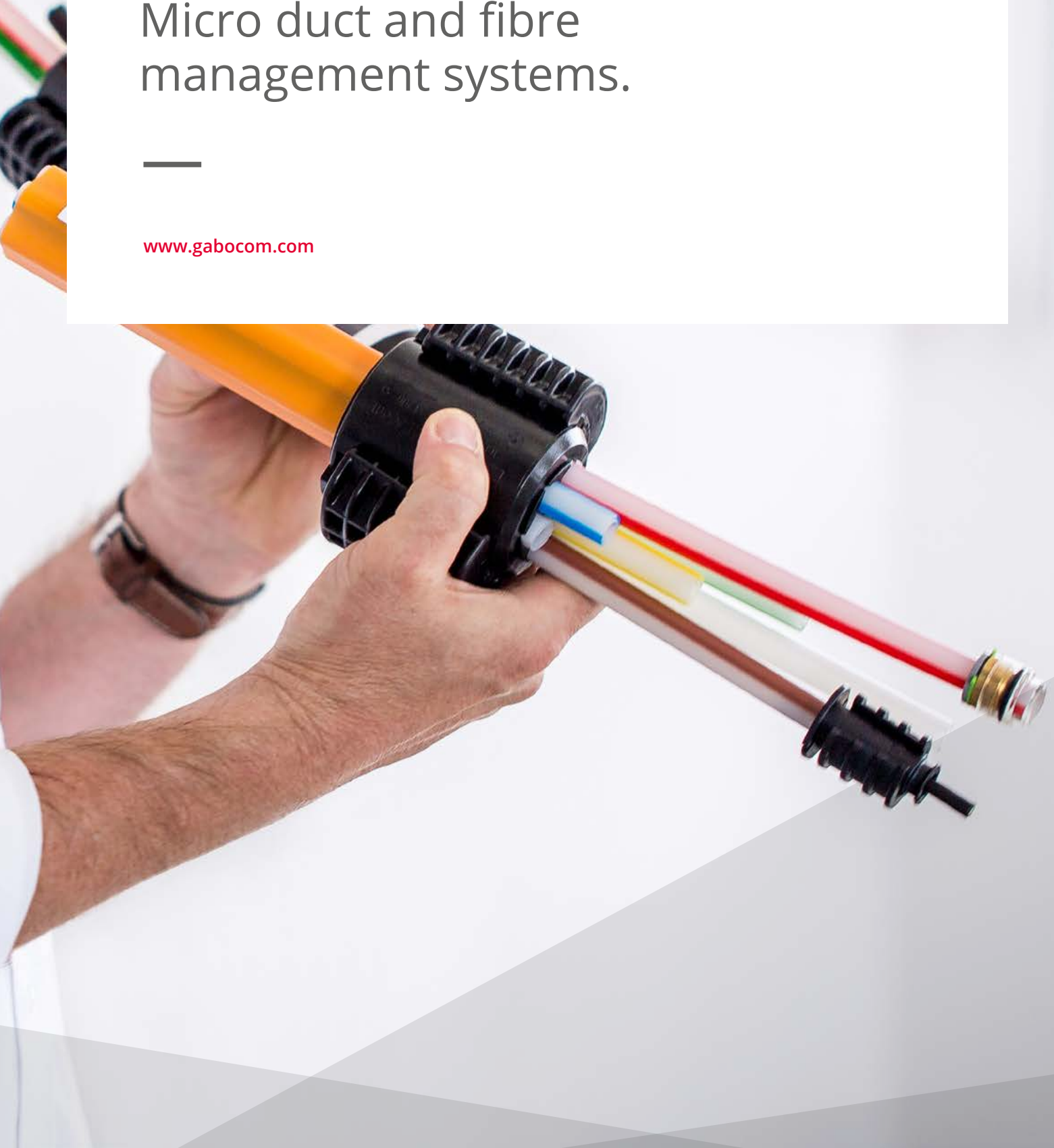


Network level 3 and 4

Solutions for all FTTx areas. Micro duct and fibre management systems.



www.gabocom.com



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Your plan for networks of the future. Location factor internet.

Whether streaming services, home office supply or smart building: internet more and more penetrates our everyday life. The increasing demands for high-performance and extensively available broadband connections culminate in one common denominator: the quick, efficient and sustainable development of fibre-optic networks.

The challenge is: planning yet today for tomorrow.

Wherever ranges of 30 megabit per second were considered as needs-based now it is definite: Only fibre-optic connections right to each house – and inside! – meet the requirements of the future.

Planners, Manufacturers, Network operators – all of them are in charge of pushing the broadband rollout. Looking at “the” cost driver civil engineering and the development of low-maintenance, long-lasting and secure networks are the key to successful broadband project.

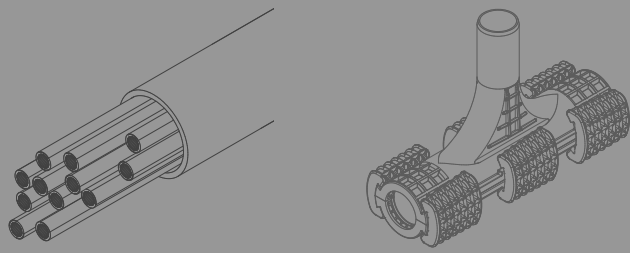
The speed•pipe® micro duct system by gabocom and the fibre management systems by HellermannTyton constitute the basis for all types of fibre-optic extension (FTTx):

- FTTN // Fibre to the node
- FTTC // Fibre to the curb
- FTTB // Fibre to the building
- FTTH // Fibre to the home

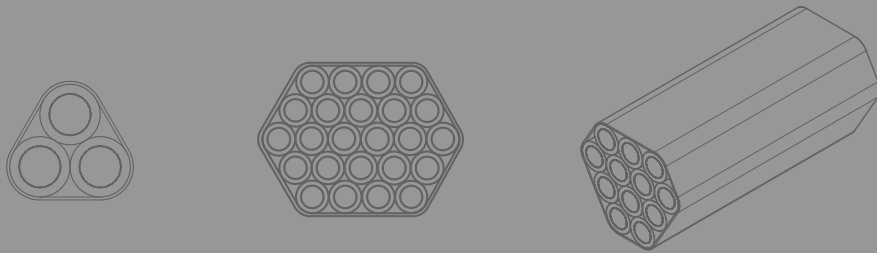
→ **Note:**

On the following pages you will discover more about how we can support you with your broadband project.

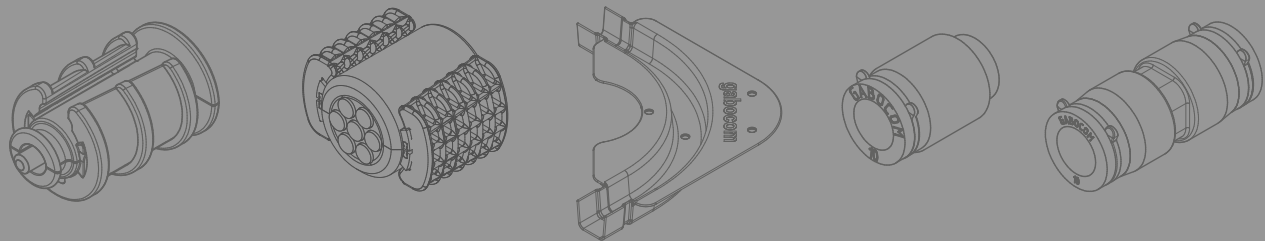
Use existing duct systems.



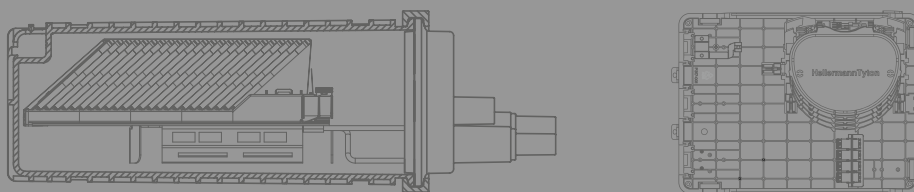
Solutions for direct burying.



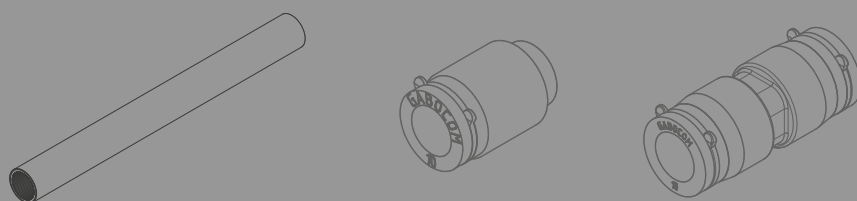
Seal, connect and fix.



Connect networks.



The next level.



gabocom. Your future network partner.

From drainage pipe to speed•pipe®: what began in 1970 with the production of the first plastic pipes and general fittings for telecommunications is today a coordinated complete system from a single source. Consistent performance capabilities throughout the entire life cycle and more than 50 years of experience in telecommunications make us what we are today:

gabocom is your manufacturer of micro duct systems - made in Germany and since 2019 'a member of HellermannTyton'.

We give our advice eye-to-eye already during the development process of your fibre-optic network. Along with you we consider all requirements of the broadband extension. By means of our products you use existing duct systems, lay new duct routes and master the crossover between both variants. All times we are growing by new challenges in the FTTx-sector – every single experience gained improves our speed•pipe® system.

Not for nothing our products are complementary to one solution like made of one piece: fittings for sealing and fixing all dimensions of ducts and variants of bundles as well as our general fittings and split ducts for existing duct routes complete our portfolio as system provider.

With HellermannTyton we have found our perfect match. As a leading provider of fibre management systems, HellermannTyton offers a complete end-to-end range of FTTx solutions that, together with gabocom products, cover fibre connectivity and distribution along the broadband roll-out.

Visit our website:
www.gabocom.com

Your investment in infrastructure is supposed to be secure and successful. Thereto we are by your side with pleasure. You can find your personal contact on our website at any time – Germany- and Europe-wide. Just make use of our callback service on www.gabocom.com.



gabocom.
That's what defines us.



→ 50⁺
Years experience

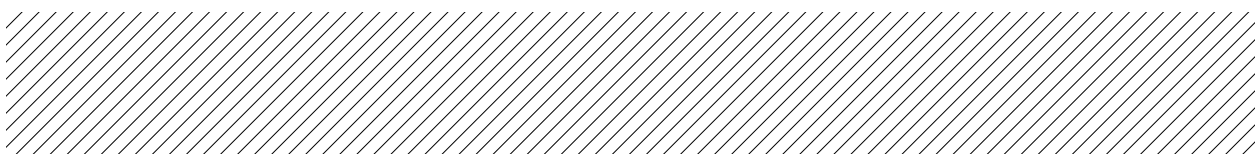
→ 250⁺
Employees

→ Matched
complete systems

→ Since 2019
a Member of HellermannTyton

→ All under one roof.

our
suc
ce
SS



speed•pipe[®] system. flexible. reliable. proven.

The gabocom speed•pipe[®] system has been proven Europe-wide since 2002:

- with existing duct routes
- for the construction of fibre-optic networks
- in all FTTx-sectors
- with each type of laying

You can rely on the gabocom speed•pipe[®] system at any time. The materials used for the production of speed•pipe[®] components not only comply with the REACH (EU regulations 1970/2006) and RoHs (EU directives 2011/65) standards for environmentally friendly production and recycling, but are also subjected to comprehensive quality tests in the in-house test laboratory.

In the following three examples:

- speed•pipe[®] are tested for several hours according to DIN 16874: you use your micro duct system like on the first day, even after decades. tested. documented. demonstrable.
- Every sealing element withstands an x-fold of the required tensile force during the tensile test - and still remains reusable. Thus, a real repeat offender, because also take into consideration here: the capacity remains continuously.
- Even during production we control the constant inner diameter of the speed•pipe[®] - indispensably for an optimal airflow during the blowing-in process. As soon as the tolerance value has been exceeded the process is immediately stopped.

→ **Our efforts - your benefit?**

The higher the range when blowing in the fibre-optic cable, the less subsequent (and cost-intensive) excavation work is necessary. This is our contribution for minimizing your expansion costs.



The speed•pipe[®] and speed•pipe[®] bundles correspond to the EU Low-Voltage Directive 2014/35/EU and to the 1st Product Safety Regulation (ProdSV). Thereby gabocom speed•pipe[®] meet the needs of the safety- and health-requirements of the European Union. As evidence of this our duct systems are equipped with the CE label for secure, faultless and high-quality products on all European markets.



Tensile test

Step 1 in broadband expansion.

Utilization of existing duct systems. **speed•pipe®** **pipe-in-pipe solutions.**

The fastest and cheapest kind of broadband expansion: reduction of civil engineering costs by using already existing duct systems. PE-HD ducts that are non-occupied or occupied with cables or cable duct constructions often still contain valuable, unused underground space.

With the speed•pipe® system – single ducts as well as duct bundles – for pipe-in-pipe solutions as basis, you are able to upgrade existing plants with fibre-optic in only two steps. In this the current occupation with cables at first only is a downstream issue: our pipe-in-pipe solutions often have enough space beside already installed cables. Thus you optimally exhaust existing resources and remain flexible for the future.

By means of a jacket pipe, speed•pipe® bundles combine varicolored speed•pipe® to a loose compound. In just one step several speed•pipe® can be pulled into the existing duct system simultaneously.

For every single diameter of the duct system as well as for every FTTx-section you will find the appropriate solution for pipe-in-pipe installations in the speed•pipe® system.



Further information online.

Step 1: Utilization of existing duct systems. speed•pipe® for pipe-in-pipe solutions.

SPEED•PIPE® – PIPE-IN-PIPE SOLUTION

speed•pipe® for pipe-in-pipe solutions are blown into PE-HD ducts over long distances. Due to their inner wall concept the empty space within occupied or empty duct systems can be optimally used. At the same time the higher inner diameter compared to the buriable micro ducts offers space for high fibre capacities – which you can exploit also decades afterwards for every single speed•pipe®.

- Characteristics*
- small outer diameter for an optimum exploitation of the existing duct capacity
 - can also be blown into occupied PE-HD protective ducts (Ø 40, 50, 63 mm)
 - even reusable after the removal of installed fibre-optic cables – practically like on the first day
 - for all dimensions specified sliding ribs providing an optimum air cushion for the fibre-optic during the blowing-in process
 - available in various dimensions in intense colours for better distinction

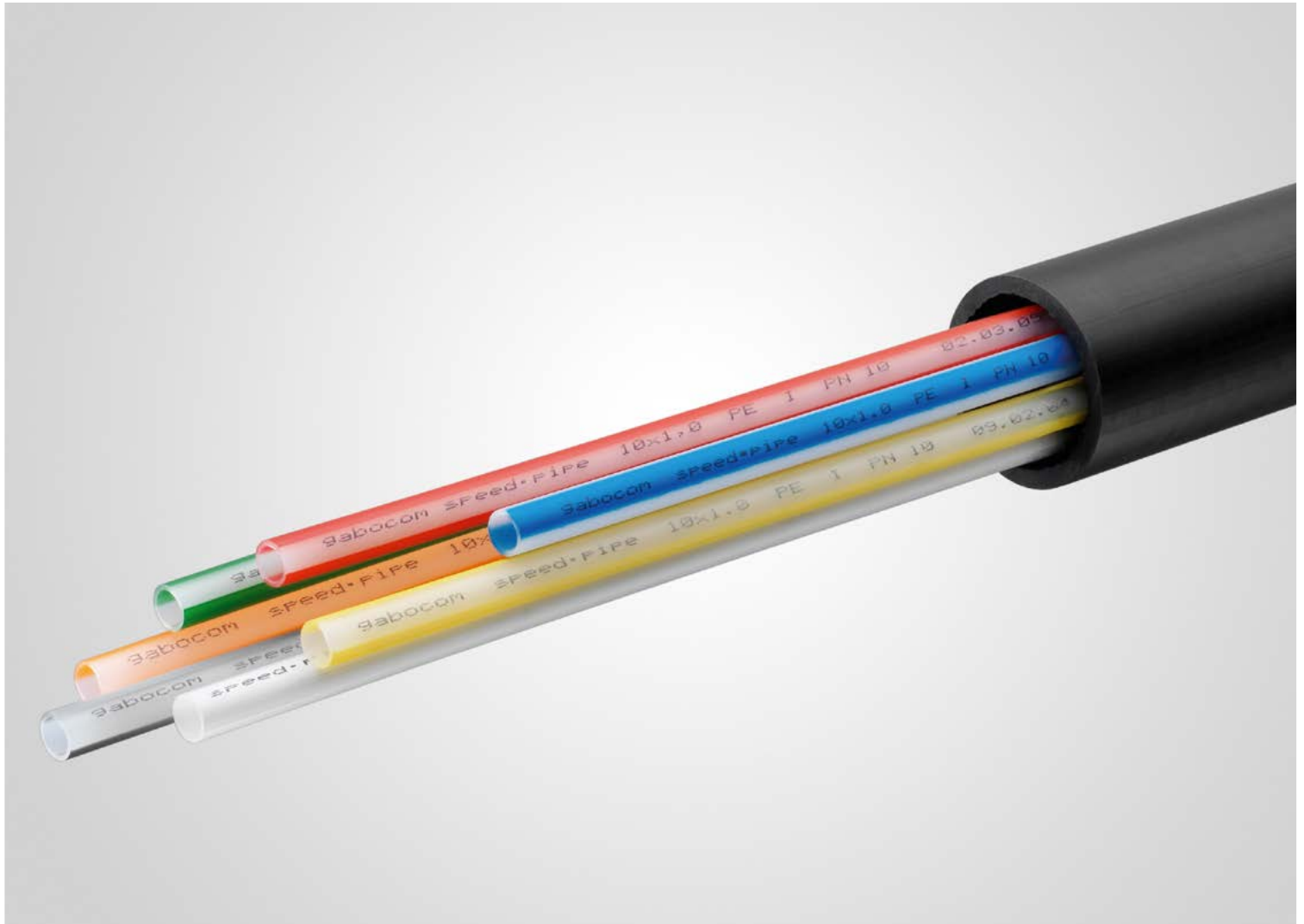
Notice Each pipe-in-pipe system is only as good as its durability! Gas-, dirt- and water-tight sealing and fixing elements are essential for a long usability and for the protection of your network technology.

SPEED•PIPE® FOR PIPE-IN-PIPE APPLICATIONS

Term	Colour	D × s (mm)*	Length (m)	Wooden one-way spool D × B (mm)**
speed•pipe® 7 × 0.75	red, green, blue, yellow, white, grey, orange, black, brown, violet	7 × 0.75	5000	1200 × 370
speed•pipe® 10 × 1.0	red, green, blue, yellow, white, grey, orange	10 × 1.0	2500	1200 × 370
speed•pipe® 12 × 1.1	red, green, blue, yellow, white	12 × 1.1	2000	1200 × 370
speed•pipe® 14 × 1.3	red, green, blue, yellow, white	14 × 1.3	1500	1200 × 370
speed•pipe® 16 × 1.5	red, green, blue	16 × 1.5	1200	1200 × 370

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width

→ **Additional colours available on request**
Fitting overview in the product catalog or under www.gabocom.com



speed•pipe® bundles. Solid and progressive in one go.

FOR CABLE DUCT SYSTEMS Ø > 110 MM

Thin-walled single tubes: SRV and D-SRV

By means of a cable basket on the flexible jacket pipe the speed•pipe® bundles SRV and D-SRV are pulled into cable duct systems.

- Characteristics**
- With the eight speed•pipe® 10 × 1.0 mm inside up to two bundles can be pulled into an empty cable duct Ø 110 mm.
 - Even in case of an occupation with a cable up to Ø 55 mm the SRV optimally exploits the remaining residual cross section for additional fibre-optic cables.
 - The comparison with a standard multi pipe MR4 clearly shows the advantages of the bundle with regard to effort in material and work.
 - **Main practical application with FTTN and FTTC**

Notice Every pipe-in-pipe system is only as good as its durability! Gas-, dirt- and water-tight sealing and fixing elements are essential for a long usability and for the protection of your active network technology.

SRV 50 / 8 × 10 AND D-SRV 50 / 8 × 10 FOR FTTN AND FTTC

Term	Jacket pipe colour	Jacket pipe D × s (mm)*	Length (m)	speed•pipe® amount	speed•pipe® D × s (mm)*	(Double-) spool D × B (mm)**
SRV 50 / 8 × 10	black	50 × 0.5	2300	8	10 × 1.0	2400 × 1200
SRV 50 / 8 × 10	orange-black	50 × 0.5	2300	8	10 × 1.0	2400 × 1200
D-SRV 50 / 8 × 10	black and orange-black	50 × 0.5	1100 per SRV	8 per SRV	10 × 1.0	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width



speed•pipe® bundles. Solid and progressive in one go.

FOR CABLE DUCT SYSTEMS Ø > 80 MM

Thick-walled single tubes: SRV-G

By means of a cable basket on the flexible jacket pipe the speed•pipe® bundles SRV-G are pulled into cable duct systems.

- Characteristics*
- Reduce the time of installation and simplify the assembly at the same time: due to the thick-walled, inside speed•pipe® ground (see page 24) a higher tensile strength at the bundle is permitted.
 - For higher distances the use of lubricants and turning the spool is recommended.
 - **Suitable for all FTTx-sections: FTTN, FTTC, FTTB, FTTH**

Notice Every pipe-in-pipe system is only as good as its durability! Gas-, dirt- and water-tight sealing and fixing elements are essential for a long usability and for the protection of your active network technology

SRV-G FOR FTTC AND FTTN

Term	Jacket pipe orange D × s (mm)*	l (m)	speed•pipe® ground / amount	speed•pipe® ground / D × s (mm)*	Spool D × B (mm)**
SRV-G 32 / 3 × 12	32 × 0.5	400	3	12 × 2.0	1200 × 370
SRV-G 40 / 4 × 12	40 × 0.5	2700	4	12 × 2.0	2400 × 1200
SRV-G 50 / 5 × 12	50 × 0.5	2700	5	12 × 2.0	2400 × 1200
SRV-G 40 / 3 × 14	40 × 0.5	3400	3	14 × 2.0	2400 × 1200
SRV-G 50 / 4 × 14	50 × 0.5	1700	4	14 × 2.0	2400 × 1200
SRV-G 50 / 5 × 14	50 × 0.5	1700	5	14 × 2.0	2400 × 1200
SRV-G 40 / 3 × 16	40 × 0.5	2100	3	16 × 2.0	2400 × 1200
SRV-G 50 / 4 × 16	50 × 0.5	2100	4	16 × 2.0	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width



SRV-G FOR FTTB AND FTTH

Term	Jacket pipe orange D × s (mm)*	l (m)	speed·pipe® ground / amount	speed·pipe® ground / D × s (mm)*	Spool D × B (mm)**
SRV-G 32 / 6 × 7***	32 × 0.5	4000	6	7 × 1.5	2400 × 1200
SRV-G 40 / 8 × 7	40 × 0.5	4000	8	7 × 1.5	2400 × 1200
SRV-G 50 / 10 × 7	50 × 0.5	4000	10	7 × 1.5	2400 × 1200
SRV-G 32 / 4 × 10	32 × 0.5	450	4	10 × 2.0	1200 × 370
SRV-G 40 / 5 × 10*	40 × 0.5	3650	5	10 × 2.0	2400 × 1200
SRV-G 50 / 7 × 10	50 × 0.5	3500	7	10 × 2.0	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width // *** after technical clarification

speed•pipe® bundles. Solid and progressive in one go.

FOR PE-HD DUCTS Ø 32, 40, 50, 63 MM

Thick-walled single tubes with cutting device: SRV-G

The higher permissible tensile strength of speed•pipe® ground especially pays off in case of a tight relation of the existing capacity to the outer diameter of the speed•pipe®. Nevertheless for being able to use the remaining space, a cutting device removes the loose duct coat before the pulling-in process. A pulling head that is mounted directly at the ends of the speed•pipe® fixes the single tubes and guarantees the optimum focus on power – without taking up more space inside the duct. Thus also bundles with more than eight speed•pipe® inside or additional single tubes can be linearly fed into the duct system.

- Characteristics*
- A pulling head directly fixes the single speed•pipe®, without increasing the outer diameter of the speed•pipe® bundle.
 - A cutting device removes the flexible jacket pipe before reaching the duct system, for minimizing the friction losses.
 - For higher distances the use of lubricants and turning the spool is recommended.
 - In practical application for FTTB and FTTH

SRV-G WITH CUTTING DEVICE FOR FTTB AND FTTH

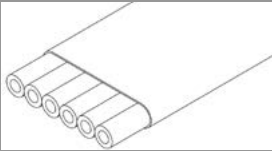
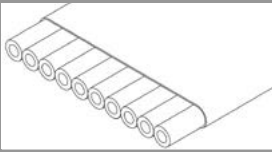
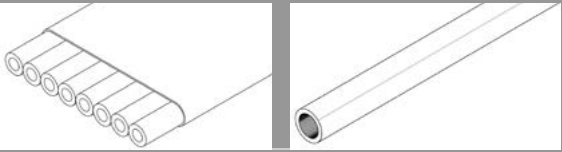
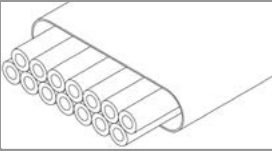
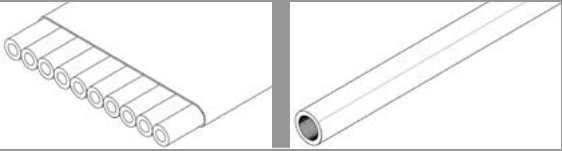
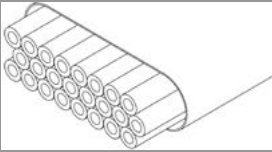
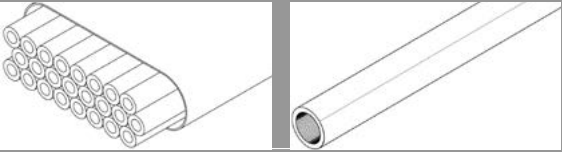
Term	Jacket Pipe orange D × s (mm)*	l (m)	speed•pipe® ground / amount	speed•pipe® ground / D × s (mm)*	Spool D × B (mm)**
SRV-G 32 / 6 × 7***	32 × 0.5	4000	6	7 × 1.5	2400 × 1200
SRV-G 40 / 8 × 7	40 × 0.5	4000	8	7 × 1.5	2400 × 1200
SRV-G 50 / 10 × 7	50 × 0.5	4000	10	7 × 1.5	2400 × 1200
SRV-G 40 / 14 × 7	40 × 0.5	3500	14	7 × 1.5	2400 × 1200
SRV-G 50 / 18 × 7	50 × 0.5	1950	18	7 × 1.5	2400 × 1200
SRV-G 50 / 24 × 7	50 × 0.5	1800	24	7 × 1.5	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width // *** after technical clarification

Term	Colour	D × s (mm)*	Length (m)	Spool D × B (mm)**
speed•pipe® ground 12 × 2.0	yellow-green	12 × 2.0	2000	1200 × 370
speed•pipe® ground 14 × 2.0	orange	14 × 2.0	1500	1200 × 370
speed•pipe® ground 16 × 2.0	turquoise	16 × 2.0	1200	1200 × 370

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width



PE-HD duct	bundles with speed-pipe® ground 7 × 1.5	bundles with speed-pipe® ground 7 × 1.5 + speed-pipe® ground
Ø 32 × 2.9 (2.0)	SRV-G 32 / 6 × 7 	
Ø 40 × 3.7 (2.5)	SRV-G 50 / 10 × 7 	SRV-G 40 / 8 × 7 + 14 × 2.0 (12 × 2.0) 
Ø 50 × 4.6 (3.0)	SRV-G 40 / 14 × 7 	SRV-G 50 / 18 × 7 + 14 × 2.0 (12 × 2.0) 
Ø 63 × 5.8 (4.7)	SRV-G 50 / 24 × 7 	SRV-G 50 / 24 × 7 + 16 × 2.0 (14 × 2.0) 

Possible capacity of PE-HD ducts

gabocom as system provider.

Pipe-in-pipe solutions intended further ahead.

The beginnings of gabocom more than 40 year ago started off in intelligent duct systems for telecommunication and communications engineering. Until today we always keep in mind the big picture of durable broadband networks. With pipe-in-pipe solutions the reliability and the maintenance of the surrounding protective pipes are at least as important as the efficiency of the speed•pipe® inside.

SPLIT DUCT SYSTEM

- The standard for later interventions at cable ducts.
- By means of the divisible split duct components blowing-in points are sealed or already occupied ducts ($\varnothing > 32$ mm) are repaired quickly, easily and sustainably.
- Inside speed•pipe® or cables and the ongoing data transmission remain unaffected by the interventions at the protective pipe.
- The joint of split duct system and protective pipe is permanently gas- and water-tight up to 0.5 bar.
- Also PE-HD ducts ($\varnothing 32, 40, 50$ mm) retain their technical characteristics: after having connected the split ducts, blowing-in procedures with a compression pressure up to 10 bar furthermore are possible.

(DOUBLE-) SPLIT DUCT TEE HRMA

- **Function 1:** Apertures of existing duct systems for branching off standard cables or inside speed•pipe® are sealed in a safe and simple way.
- **Function 2:** For branches off the duct system no manhole is necessary any more. Place the branches exactly there, wherever you minimize and optimize routes.
- **Function 3:** Due to the mechanical protection at the branch optimal results in blowing-in fibre-optic cables into the inside speed•pipe® are gained also decades later.

The continuation beyond the branch either is possible into another pipe-in-pipe system or directly into the ground. The appropriate speed•pipe® and fittings can be found starting page 24.

Term	D1 (mm)	D2 (mm)	α	Length (mm)	Pcs. / unit
HRMA 32 / 32 – 30°	32	32	30°	261	6
HRMA 40 / 32 – 30°	40	32	30°	125	6
HRMA 40 / 40 – 90°	40	40	90°	261	6
HRMA 50 / 32 – 30°	50	32	30°	125	6
HRMA 50 / 50 – 30°	50	50	30°	261	6
HRMA 50 / 50 – 90°	50	50	90°	261	6
HRMA 110 / 50 – 30°	110	50	30°	300	5



Step 2 in broadband expansion.

Construction of micro duct systems. **speed•pipe® ground – solutions for direct burying.**

In case no existing duct systems are available for sections of a fibre-optic project, the new construction of subterranean routes is recommendable – especially with respect to the reliability and durability of the fibre-optic network.

In the construction of new fibre-optic routes using speed•pipe® ground and speed•pipe® bundles ground for direct burying, you can waive additional protective pipes without any losses in efficiency. You save material and work time: no additional storing of the protective pipes, no additional process for blowing-in micro ducts. In only one step – the professional laying of speed•pipe® ground – you raise a long-lasting passive infrastructure for long-lasting high ranges by blowing-in fibre-optic cables.

Depending on the ambient conditions you choose the construction style that is most economical for you – speed•pipe® ground are suitable for each type of laying. Of course the complete speed•pipe® system covers, in addition to the pipe-in-pipe system and solutions for direct burying, also the transition between both applications.

Due to constant performance characteristics throughout the whole durability you remain flexible for decades: so already today consider the future capacity requirements concerning quantity and dimension of ducts.



Further information online.

Step 2: Expansion of existing infrastructure and new construction of passive infrastructure. speed•pipe® ground for direct burying.

SPEED•PIPE® GROUND FOR DIRECT BURYING

speed•pipe® ground are suitable for direct burying in all FTTx-sections as well as for branches off existing duct routes. The dimensionally stable wall thickness out of first-class PE-HD protects every single duct against the emerging soil pressure. Due to the higher vertex pressure in comparison for example to a PE-HD duct Ø 50, the ducts keep their round cross-section. Also after decades the inside slide ribs contribute to the establishment of an optimum air cushion for high distances during the blowing-in process of fibre-optic cables.

- Characteristics*
- for branches off existing duct routes or for house connections in direct burying
 - dimensionally stable due to the higher wall thickness: high vertex pressure for a consistently round cross-section and high distances when blowing-in fibre-optic cables
 - specified slide ribs for each dimension, for an optimum air cushion of the fibre-optic cable during the blowing-in process
 - available in various dimensions and in strong colours for better distinction
 - combination with pipe-in-pipe solutions by means of appropriate fittings (see page 32)



SPEED-PIPE® GROUND FOR DIRECT BURYING

Term	Colour	D × s (mm)*	Length (m)	Non-returnable wooden spool D × B (mm)**
speed-pipe® ground 7 × 1.5	orange	7 × 1.5	1250	700 × 370
speed-pipe® ground 10 × 2.0	pink	10 × 2.0	500 / 2500	700 × 370 / 1200 × 370
speed-pipe® ground 12 × 2.0	yellow-green	12 × 2.0	2000	1200 × 370
speed-pipe® ground 14 × 2.0	orange	14 × 2.0	1500	1200 × 370
speed-pipe® ground 16 × 2.0	turquoise	16 × 2.0	1200	1200 × 370
speed-pipe® ground 20 × 2.5	pink	20 × 2.5	1400	1200 × 700

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width

➔ Fitting overview in the product catalog or under www.gabocom.com

speed•pipe® bundles ground for direct burying. The all-rounder among the bundles.

FOR DIRECT BURYING

Thick-walled single ducts: SRV-G tc

speed•pipe® bundles ground for direct burying bundle varicolored speed•pipe® ground by a tight outer sheath. Due to the diversity of single duct dimensions of the speed•pipe® ground and their combinations within the bundle, with the speed•pipe® bundles ground SRV-G tc you respect the capacity reserves for the future.

Our system concept is reflected in the protective function and ease of assembly of the tight outer sheath: it is sturdy against impacts of the surrounding soil, but still can be opened quickly, easily and safely for branches off the bundle.

For a secure laying the tight outer sheath fixes the inside speed•pipe® ground in their position. Additionally you insert the bundle by stripping it under tension in linear direction of the speed•pipe® ground directly into the provided aperture in the soil. The soil above also keeps the bundle and the single ducts on the spot in the future.

(Continued on the next page: speed•pipe® bundles ground for direct burying)



SRV-G TC FOR FTTN AND FTTC

Term	Length (m)	speed•pipe® ground amount	speed•pipe® ground D × s (mm)*	Spool D × B (mm)**
SRV-G 2 × 12 tc	650	2	12 × 2.0	1200 × 370
SRV-G 3 × 12 tc	2700	3	12 × 2.0	2400 × 1200
SRV-G 7 × 12 tc	900 / 2400	7	12 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 7 × 12 + 1 × 16 tc	1750	7 / 1	12 × 2.0 / 16 × 2.0	2400 × 1200
SRV-G 12 × 12 tc	1050	12	12 × 2.0	2400 × 1200
SRV-G 12 × 12 + 1 × 16 tc	1000	12 / 1	12 × 2.0 / 16 × 2.0	2400 × 1200
SRV-G 14 × 12 tc	1050	14	12 × 2.0	2400 × 1200
SRV-G 2 × 14 tc	450 / 3400	2	14 × 2.0	1200 × 370 / 2400 × 1200
SRV-G 3 × 14 tc	3400	3	14 × 2.0	2400 × 1200
SRV-G 4 × 14 tc	1100 / 3000	4	14 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 5 × 14 tc	1700	5	14 × 2.0	2400 × 1200
SRV-G 7 × 14 tc	800 / 1700	7	14 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 7 × 14 + 1 × 20 tc	1100	7 / 1	14 × 2.0 / 20 × 2.5	2400 × 1200
SRV-G 10 × 14 tc	1100	10	14 × 2.0	2400 × 1200
SRV-G 2 × 16 tc	2650	2	16 × 2.0	2000 × 1200
SRV-G 3 × 16 tc	2100	3	16 × 2.0	2400 × 1200
SRV-G 4 × 16 tc	2100	4	16 × 2.0	2400 × 1200
SRV-G 6 × 16 tc	600 / 1300	6	16 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 7 × 16 tc	1300	7	16 × 2.0	2400 × 1200
SRV-G 2 × 20 tc	1400	2	20 × 2.5	2000 × 1200
SRV-G 3 × 20 tc	650 / 1400	3	20 × 2.5	2000 × 1200 / 2400 × 1200
SRV-G 4 × 20 tc	650 / 1400	4	20 × 2.5	2000 × 1200 / 2400 × 1200
SRV-G 5 × 20 tc	1100	5	20 × 2.5	2400 × 1200
SRV-G 6 × 20 tc	650	6	20 × 2.5	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width // speed•pipe® bundles SRV-G tc available in DIN colour code // all mentioned bundles available in jacket pipe colour orange // SRV-G 7 × 12 tc - 900 m, SRV-G 7 × 12 + 1 × 16 tc, SRV-G 12 × 12 + 1 × 16 tc, SRV-G 14 × 12 tc, SRV-G 3 × 20 tc only available in jacket pipe colour green

- ➔ **Available upon request:**
- further jacket pipe colours
 - further combined bundles
 - gabocom colour code

speed•pipe® bundles ground for direct burying. The all-rounder among the bundles.

On account of the variety in variants of the SRV-G tc you are prepared for all steps of broadband expansion and application scenarios – optionally even combined in one design. The combination of smaller dimensions with an inside duct of a higher diameter is suitable as well for FTTB/FTTH as for FTTN/FTTC: speed•pipe® ground 7 × 1.5 or 10 × 2.0 are adapted for house connections, the additional speed•pipe® ground 12 × 2.0 or 14 × 2.0 expands your access network.

Alternatively with this combination you are equipped against unforeseen external interferences: in case the bigger duct diameter remains unoccupied, in the event of loss simply use the speed•pipe® ground as average-duct. Your fibre-optic network quickly returns to operation, simultaneously there is time for the professional repair of the fibre-optic cable.

Owing to the resistant material of the speed•pipe® ground and the outer sheath the bundles SRV-G tc are suitable for all common types of laying in compacted and open ground like for example in

- open trench
- ploughing method
- flush drilling method
- all common milling technologies

The above mentioned construction methods depend on the ambient conditions. For further details, especially how to apply our speed•pipe® bundle ground with tight outer sheath securely to each of the mentioned laying methods, please refer to our laying instructions and the laying videos on www.gabocom.com. For a personal consultation we are gladly at your disposal.



Further information online.



SRV-G TC FOR FTTB AND FTTH

Term	Length (m)	speed•pipe® ground amount	speed•pipe® ground D × s (mm)*	Spool D × B (mm)**
SRV-G 2 × 7 tc	400	2	7 × 1.5	700 × 370
SRV-G 3 × 7 tc	4000	3	7 × 1.5	2400 × 1200
SRV-G 3 × 7 + 3 × 12 tc	4000	3 / 3	7 × 1.5 / 12 × 2.0	2400 × 1200
SRV-G 4 × 7 tc	4000	4	7 × 1.5	2400 × 1200
SRV-G 7 × 7 tc	750 / 4000	7	7 × 1.5	2000 × 1200 / 2400 × 1200
SRV-G 8 × 7 + 1 × 12 tc	4000	8 / 1	7 × 1.5 / 12 × 2.0	2400 × 1200
SRV-G 10 × 7 + 1 × 16 tc	2650	10 / 1	7 × 1.5 / 16 × 2.0	2400 × 1200
SRV-G 12 × 7 tc	1950 / 4000	12	7 × 1.5	2000 × 1200 / 2400 × 1200
SRV-G 12 × 7 + 1 × 14 tc	1550 / 2650	12 / 1	7 × 1.5 / 14 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 12 × 7 + 3 × 14 tc	1570	12 / 3	7 × 1.5 / 14 × 2.0	2400 × 1200
SRV-G 14 × 7 tc	1550 / 2650	14	7 × 1.5	2000 × 1200 / 2400 × 1200
SRV-G 18 × 7 tc	2650	18	7 × 1.5	2400 × 1200
SRV-G 22 × 7 + 1 × 12 tc	950 / 1950	22 / 1	7 × 1.5 / 12 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 24 × 7 tc	850 / 1950	24	7 × 1.5	2000 × 1200 / 2400 × 1200
SRV-G 24 × 7 + 1 × 14 tc	750 / 1570	24 / 1	7 × 1.5 / 14 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 2 × 10 tc	900	2	10 × 2.0	1200 × 370
SRV-G 7 × 10 tc	3650	7	10 × 2.0	2400 × 1200
SRV-G 12 × 10 tc	1000 / 1800	12	10 × 2.0	2000 × 1200 / 2400 × 1200
SRV-G 12 × 10 + 1 × 16 tc	1800	12 / 1	10 × 2.0 / 16 × 2.0	2400 × 1200
SRV-G 14 × 10 tc	1800	14	10 × 2.0	2400 × 1200
SRV-G 24 × 10 tc	900	24	10 × 2.0	2400 × 1200

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width // speed•pipe® bundles SRV-G tc available in DIN colour code // all mentioned bundles available in jacket pipe colour orange // SRV-G 3 × 7 + 3 × 12 tc, SRV-G 12 × 7 tc - 1950 m, SRV-G 12 × 10 + 1 × 16 tc only available in jacket pipe colour green

- ➔ **Available upon request:**
- further jacket pipe colours
 - further combined bundles
 - gabocom colour code

Connect, seal and fix. Small-scale investment, huge effect.

Whether pipe-in-pipe or direct burying: only with matching sealing, fixing and connecting elements you exploit your micro duct system also in the long run – and remain flexible with the fibre-optic occupancy.

On the following pages you will find an overview of

- how to connect speed•pipe® gas- and water-tight up to 0.5 bar – also by direct burying.
- how to cope with the transition from pipe-in-pipe to direct burying – for all speed•pipe® dimensions.
- how to prepare yourself against linear elongations in case of pipe-in-pipe installations – and therewith to be on the safe side for the future.
- how to avoid excavation works – by dint of marginal investments into the network security.
- how to handle speed•pipe® professionally – for a low-maintenance system for many years.

The simple assembly of the fittings has been standing alone to this day:

- Once learnt, always known: proven principles are repetitive in several products.
- Without great effort: every fitting is mounted by hand or standard tools.

Our extensive fitting accessories for all our speed•pipe® dimensions and bundles offer the carefree package in the matter of fibre-optic up to the building.



Further information online.

Connecting elements. Simple. Gas- and water-tight.

TRANSPARENT PERMANENT CONNECTORS DSM 7 / 10 / 12 / 14 / 16 / 20

Tensile, suitable for direct burying, pressure-tight up to 15 bar: By means of the transparent connectors two speed•pipe® with the same outer diameter can be connected – without any negative impact on the blowing-in distance. Quickly and easily mounted, the fittings are separated by removing the locking ring.



REDUCERS RSM 10 – 7 / 12 – 10 / 14 – 12 / 16 – 14

In contrast to the transparent permanent connectors, the reducers allow two speed•pipe® with the same inner diameter to be easily connected to each other - without any negative effects on the blowing-in distance. The result is not only tension-resistant, directly buriable and pressure-tight up to 15 bar, but the speed•pipe® can also be separated from each other quickly and easily by removing the locking ring of the reducer.



BLOWING-IN CONNECTORS EBM 7 / 10 / 12 / 14 / 16 / 20

Short assembly time, huge time-saver at blowing-in fibre-optic cables: As soon as the maximum blowing-in length has been reached, the speed•pipe® is opened and the blowing-in procedure is simply continued at this point. The divisible connectors permanently connect the occupied speed•pipe® up to 0.5 bar – for jetting-in the complete length – gas- and water-tight up to 10 bar for 30 minutes.



SPEED•PIPE® BUNDLE CONNECTORS

The SRV-M and SRV-M MAXI protect the joints of two buried speed•pipe® bundles against gas- and water-ingress through the gaps between the ducts in a pressure-tight way. At a pipe-in-pipe solution with a jacket pipe up to Ø 63 mm or at the transition to a buried bundle, the connectors link the whole duct system, as well gas-, pressure and water-tight.



Branch supports, protective elements, tools. Quick installed.

BRANCH SUPPORTS

Single speed•pipe® can be branched off the bundles ground. The T-branch-support TBS or the L-branch-support LBS lead them in a safe bend to the customer or to the distribution box. Cable ties are used for fixation. The use of the gabocom markerpeg facilitates the subsequent localisation.



CABLE BOX

The cable box has been developed for excess lengths of mini cables. It is easy to install and is locked with a cover. This way it protects the installed cables in a secure and reliable manner against damages.



SPEED•PIPE® BOX

The speed•pipe® box is a direct buried storing element for the mechanical protection of the excess length of a bundle of speed•pipe® ground 7×1.5 up to maximum 50 m and speed•pipe® ground 10×2,0 up to 15 m. The use of a marking system like for example the 3M ball marker facilitates the subsequent localisation of the box.



TOOLS

The speed•pipe® cutter (incl. appropriate additional blades) and the bundle cutter are used for the professional installation. These tools allow the chipless and rectangular cut of speed•pipe® and speed•pipe® bundles. The sheath cutter with sliding guide and the ceramic safety cutter are particularly suitable for opening a coated bundle because these tools reduce the risk of injury in contrast to a knife for instance.



Seal and fix. Safe. For a lifetime.

DIVISIBLE SEALING ELEMENTS EZA-T FOR PIPE-IN-PIPE OCCUPATION, SRV, SRV-G, SRV-G TC

Tailored to all SRV-G tc and occupancy variants of PE-HD ducts: due to the variable gaskets bundles and protective pipes that are empty or occupied with speed•pipe® / cables, remain clean, dry and operational over decades. Gas- and water-tight even up to 0.5 bar, the divisible sealing elements fix speed•pipe® against temperature-affected length changes in pipe-in-pipe solutions.



DIVISIBLE SEALING ELEMENTS MICRO EZA-T MICRO 7 / 10

Tensile and stable: due to the compact design, they seal occupied speed•pipe® ground securely even in extremely limited space. The different coloured sealing rubbers are ideally suited for all common cable diameters due to the intuitive assembly.



DIVISIBLE SEALING ELEMENTS EZA-T 7 / 10 / 12 / 14 / 16 / 20

Tensile and reusable: the divisible sealing elements seal occupied and empty speed•pipe® against gas and water up to 0.5 bar. The integrated safety valve opens before having reached a blowing-in pressure of 10 bar.



CONNECTORS WITH GAS-STOP EBM-GS 7 / 10 / 12 / 14 / 16

Tensile and directly buriable: the divisible connectors link already occupied speed•pipe®. Particularly before transfer points of buildings and before underground connectors the integrated gas-stop pays off: It provides a gas- and water-tight sealing of the speed•pipe® up to a pressure of 0.5 bar also in longitudinal direction. Houses and connectors remain dry and safe.



**TRANSPARENT PERMANENT END PLUGS****ES 7 / 10 / 12 / 14 / 16 / 20**

Tensile and directly buriable: the cover of the speed•pipe® ends protects the whole duct system against the ingress of water, dirt, and gas. The end plug itself is gas- and water-tight up to 0.5 bar. Mounted by simply pushing it onto the speed•pipe®, the end plug is just as easily removed by stripping off the locking ring.

**MARKING LABELS WITH PIPE PLUG****KMR 7 / 10 / 12 / 14 / 16**

Sealing and labelling in one step: by means of the pipe plug unoccupied speed•pipe® are gas- and water-tight up to 0.5 bar. Before the blowing-in process starts, the protection cap is broken off and remains at the speed•pipe® exit in the distributor as marking label.

**INSIDE STIFFENER****SHI 32 / 40 / 50 / 63**

For all pipe-in-pipe bundles: before mounting the divisible sealing element, the flexible jacket pipe of the speed•pipe® bundle SRV and SRV-G is strengthened with a stiffener. A round duct with a normed diameter is the result.

**(DOUBLE-) OUTSIDE STIFFENER****(D)SHA 50**

For SRV bundles: the sealing element ADE / TDUX 90 / 100 (CommScope) seals occupied cable ducts > 110 mm. For this purpose the stiffeners strengthen the flexible jacket pipe of up to two SRV 50 / 8 × 10 from the outside. This way the divisible fittings avoid that the pressure of the TDUX changes the shape of the inside speed•pipe® (ovalization). Fibre-optic cables can be blown-in further on.

House lead-ins. Master the transition.

IN CONCRETE WITHOUT RESIN INJECTION: ADSB, ADSB-D, ADSB-F

For ambiances with soil moisture and non-pressing water - to be used without any tools: Each kit contains an inner and an outer part with integrated seals, for a gas- and water-tight lead-in up to 1 bar of up to two speed•pipe® or cables into the house through the cellar. The ADSB-F can also be installed in buildings without a cellar. After the blowing-in procedure the speed•pipe® ground is lead into the integrated deflection duct and further on is lead along the wall of the cellar.

INSIDE WALLS WITH CASING TUBE: SKW

Applicable for the direct use in concrete, the house lead-in meets all requirements for brickwork. Please note: For allowing a complete grip of the integrated sealing by the lever mechanism also in case of brickwork we recommend the additional application of a sanded casing tube.

RESIN INJECTION SYSTEMS FOR CONCRETE AND BRICKWORK: GFH, MIS

For ambiances with soil moisture and non-pressing water or with moderate exposure to pressing water up to 3 m immersion depth: GFH (applicable in buildings with and without cellar) and MIS (applicable in buildings with cellar) supplement the gabocom range with universal house lead-ins with injection systems for boreholes in the most common wall types. They are gas- and water-tight up to 1 bar. The professional sealing is carried out with the help of a resin injection.

ABOVE GROUND WITHOUT RESIN INJECTION: HEO

In the outdoor part to be mounted on the house wall, a blowing-in connector converts speed•pipe® ground to speed•pipe® indoor for the inside of the building. This product fixes the cable and seals it longitudinally against gas and water up to 0.5 bar. speed•pipe® and joint are covered by unobtrusive and simple blinds and are mechanically protected.



IN CONCRETE WITHOUT RESIN INJECTION: ADSB, ADSB-D, ADSB-F

Term	Suitable for cable D (mm)	Suitable for speed•pipe® ground (mm)	Quantity cable / speed•pipe® ground
Set ADSB 28 / 7		7 × 1.5	1
Set ADSB 7.0 – 9.0	7.0 – 9.0	7 × 1.5	1
Set ADSB-D 7.0 – 9.0	7.0 – 9.0	7 × 1.5	2
Set ADSB 9.0 – 12.5	9.0 – 12.5	10 × 2.0 / 12 × 2.0	1
Set ADSB-D 9.0 – 12.5	9.0 – 12.5	10 × 2.0 / 12 × 2.0	2
Set ADSB-F 28 / 7		7 × 1.5	1
Set ADSB-F 28 / 10		10 × 2.0	1

→ The set contains an inner and an outer part.

INSIDE WALLS WITH CASING TUBE: SKW

Term	D (mm)	Length (mm)
SKW 32	32	390
SKW 32	32	500
SKW 50	50	390
SKW 50	50	500

RESIN INJECTION SYSTEMS FOR CONCRETE AND BRICKWORK: GFH, MIS

Term	Suitable for speed•pipe® ground (mm)	Quantity cable / speed•pipe® ground
GFH 20 2 × 7 - 10 PRO	7 × 1.5 / 10 × 2.0	2
GFH 20 1 × 12 - 16 PRO	12 × 2.0 / 14 × 2.0 / 16 × 2.0	1
MIS 40D 2 × 5 - 7 K Set	7 × 1.5	2
MIS 40D 1 × 9 - 12 K Set	10 × 2.0 / 12 × 2.0	1
MIS 60D K Set	7 × 1.5 / 10 × 2.0 12 × 2.0 / 14 × 2.0 / 16 × 2.0	4 / 3 1

→ MIS are only available on request.

ABOVE GROUND WITHOUT RESIN INJECTION: HEO

Term	speed•pipe® ground (mm)
Set HEO 7 (with gas-stop)	7 × 1.5
Set MOB 7 (without gas-stop)	7 × 1.5
Set HEO 10 (with gas-stop)	10 × 2.0

→ Details of house lead-ins in the product catalog or at www.gabocom.com

Connecting networks. gabocom and HellermannTyton for all FTTx areas.

Since 2019 gabocom is a member of the world's leading supplier of cabling solutions for network infrastructures. Together with HellermannTyton, gabocom offers the perfect system for FTTx projects.

Why gabocom and HellermannTyton are an excellent match?

Shared values build the foundation:

- Highest quality standards are a matter of course for gabocom and HellermannTyton.
- Customer orientation is a top priority for us.
- You can rely on us: reliability and excellent service are our trademarks.
- As your partner for future networks, we offer solutions for complex challenges and make your project ours!

With HellermannTyton, gabocom is expanding its product range to include a comprehensive range of fibre optic solutions, including FDN closures, street cabinets, customer connection points (APL/HÜP), as well as fibre wall outlets and much more.

With HellermannTyton we have a strong brand at our side.

Find out more on the next pages about how HellermannTyton's products take our range at gabocom to a new level.



Further information online.

Connecting networks. HellermannTyton Data system solutions.

CLOSURES

HellermannTyton's product range includes a wide variety of closures in different versions. To accommodate a flexible number of fibre splices in FTTx areas, various types of lengths are available. The modular Integrated Routing System (IR) is ideally suited to the length options of the closures. All HellermannTyton closures are suitable for direct burying.



POC AND POP STREET CABINET SOLUTIONS

Through the modular IR system, HellermannTyton offers street cabinet solutions for PoP and PoC fibre applications – as well as additional features for fibre connectivity and storage. The IR system for street cabinets takes the modular approach to the next level by mounting main components on a back board. The back board has grid style mounting points which allows the fibre management system to be installed in almost every configuration.



COSTUMER CONNECTION POINT (CCE/CCP)

With the MDU series (MDU S1 – S5), the connection of one residential unit up to 96 residential units can be realized. In addition, the MDUs are also available as pure splice boxes – whereby up to 432 splices can be managed. As with all IR-products, the integrated fibre management system in the MDU S3 as well as MDU S5 is fully scalable and consists of common components.



FIBRE WALL OUTLET

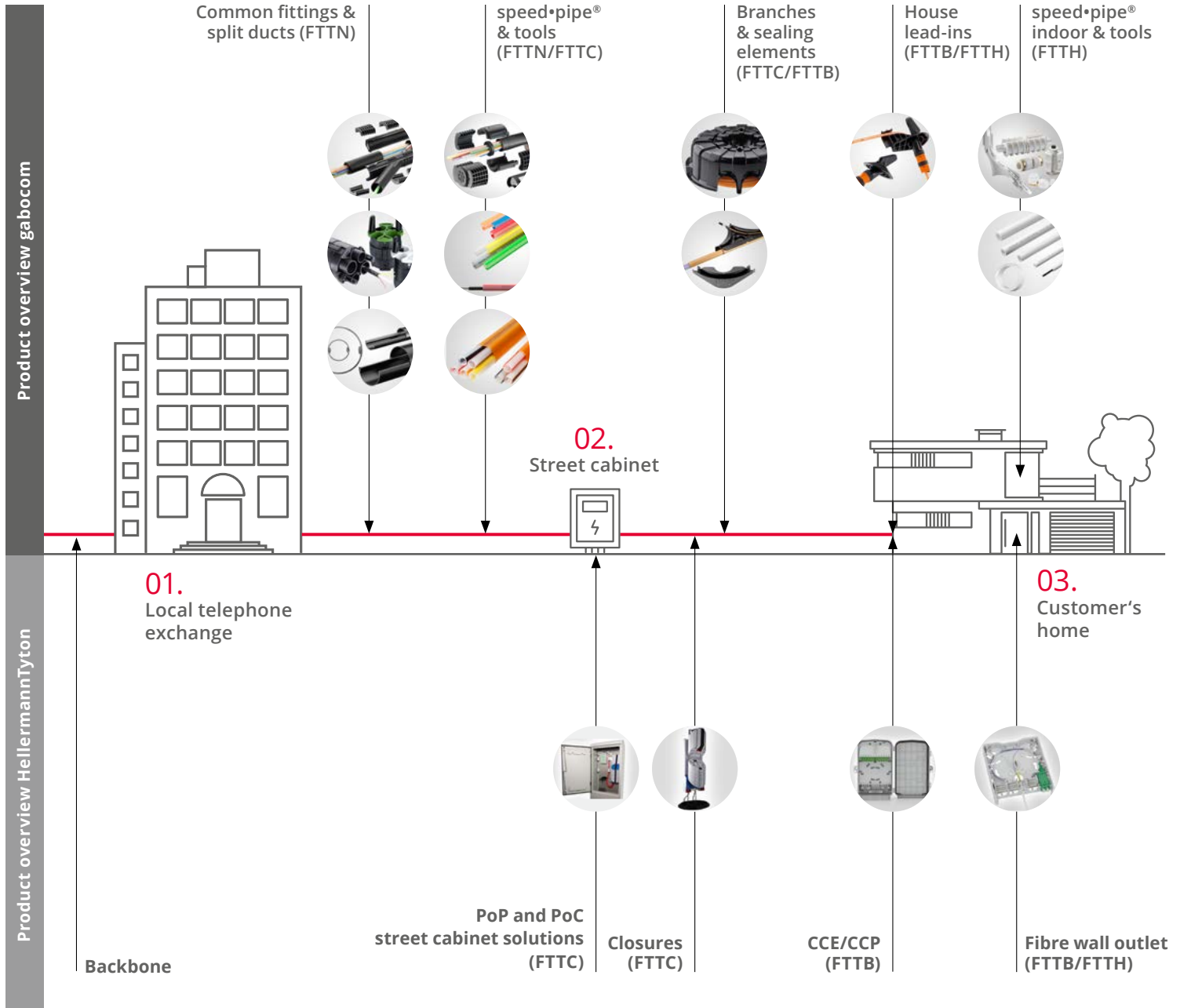
The wall-mounted fibre optic wall outlet – with or without pre-assembled connection cable, provides an internal connection point in the end users house or flat. The pre-assembled cable makes it possible to install the fibre optic cable outside the customer's premise.



System solutions thought further. gabocom and HellermannTyton as your partner.

Why gabocom and HellermannTyton products are the right choice for you:

- Between POP and customer connection network
– everything from a single source.
- High quality end-to-end solutions with numerous certifications
– compliant with subsidies.
- Individual support – we make your project to our project.
- Professional product training in our training center or on site.



The next level. speed•pipe® indoor for buildings, drains and tunnels.

Provisions are obligatory – and meanwhile are engraved in stone for the whole European Union:
„The existence of high-speed electronic communications networks up to the end-user should [...] be facilitated, in particular by high-speed-ready in-building physical infrastructure. Given that providing for mini-ducts during the construction of a building has only a limited incremental cost while retrofitting buildings [...], all new buildings or buildings subject to major renovation should be equipped with physical infrastructure, allowing the connection of end-users with high-speed networks.“

(Excerpt from EU directive 2014/61/EU)

Article 8 of the directive demands the integration of high-speed-ready, in-building physical infrastructures for all new buildings and extensive renovations with applied building permit after the 31st of December 2016.

The directive for almost whole Europe has already been transposed into German law: According to § 77 k TCA (Telecommunications Act) new buildings, that are supposed to have connections for telecommunication services for the end-user, must be equipped with high-speed-ready passive network infrastructures inside the building up to the network termination points.

Regardless of the legal obligation especially in apartment buildings or highly charged buildings the infrastructure inside the building envelope must be suitable for a fast connection to the outside. But especially inside buildings particularly strict requirements are effective – primarily with regard to fire protection.

The speed•pipe® indoor system masters the line between safety, optimum blowing-in characteristics and ease of assembly.



Further information online.

Secure networks inside buildings. speed•pipe® indoor.

SPEED•PIPE® INDOOR

speed•pipe® indoor may look rather unimposing – but just optically! With regard to their technical characteristics they withstand all requirements. According to the EU Low-Voltage Directive 2014/35/EU the speed•pipe® indoor system entirely is tested in accordance with EN 61386-22, e. g.

- fire tests corresponding to the statutory security objectives
- regulations for installation and laying
- compatibility with firewalls

speed•pipe® indoor are flame-retardant and tested according to EN 60684-2 with regard to the absence of halogens and EN 61034-2 with regard to low smoke density. With speed•pipe® indoor every single homeowner and resident is well prepared for the case of emergency.

SPEED•PIPE® INDOOR FITTINGS

Tested according to EN 61386 and EN 60684-2 the halogen-free and flame-retardant speed•pipe® indoor fittings constitute the ideal complement to the speed•pipe® indoor.

- Components*
- indoor divisible sealing elements
 - indoor connectors with gas-stop
 - indoor end plugs
 - indoor connectors
 - indoor divisible connectors
 - indoor bends
 - indoor marking labels with pipe plug

AVAILABLE SPEED•PIPE® INDOOR DIMENSIONS

Term	Colour	D × s (mm)*	Length (m)	Non-returnable wooden-spool D × B (mm)**
speed•pipe® indoor 4 × 0.75	white	4 × 0.75	600 1600	340 × 340 × 340 (box) 600 × 360
speed•pipe® indoor 5 × 0.75	white	5 × 0.75	400 1000	340 × 340 × 340 (box) 600 × 360
speed•pipe® indoor 7 × 1.5	white	7 × 1.5	250 500 / 1250	340 × 340 × 340 (box) 600 × 360 / 700 × 370
speed•pipe® indoor 10 × 1.0	white	10 × 1.0	500 / 2500	700 × 370 / 1200 × 370
speed•pipe® indoor 10 × 2.0	white	10 × 2.0	500 / 2500	700 × 370 / 1200 × 370
speed•pipe® indoor 12 × 2.0	white	12 × 2.0	350 / 2000	700 × 370 / 1200 × 370
speed•pipe® indoor 14 × 2.0	white	14 × 2.0	250 / 1500	700 × 370 / 1200 × 370

* D × s = outer diameter × wall thickness // ** D × B = outer diameter × total width

→ Further dimensions available on request // overview of fittings in the product catalog or at www.gabocom.com







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Experience gabocom live. Our training center.

gabocom is domiciled in the Lower Bavarian community Niederwinkling – 125 km from Munich Airport, at the edge of the Bavarian Forest, but directly next to highway A3.

Along with development, production and distribution also the modern training center is located on the company premises. In the practice room you try out on your own to connect bundles, to branch speed•pipe® off a bundle, to assemble sealing elements and much more.

Gladly we will tailor the course contents to your individual preferences and main topics.

Simply contact us! For your personal contact please refer to www.gabocom.com.



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