

Sales Information PGN-plus-P Situation ZIMMER 5000

Superior Clamping and Gripping

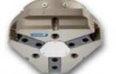
Outline

- 1) Competitor comparison GPP vs. PGN-plus-P
- 2) Market situation ZIMMER 5000
- 3) Basic version GPP5000 (IP64)
- 4) ~~Protector version GPP5000~~
~~SCHUNK concept with seal PGN-plus-P ID (IP64)~~
- 5) Multi-tooth guidance PGN-plus-P
- 6) Technical features of the PGN-plus-P
See benefit arguments presentation
- 7) Solution Competence
- 8) Price situation (suggestion)

Statement	Technical features	Differences Between PGN-plus-P and GPP	
Up to 30% higher gripping force than the benchmark	PGN-plus-P has a 30% higher gripping force than PGN-plus → Enlarged piston surface	Piston surface PGN-plus-P is bigger or the same as GPP5000 + Slightly higher gripping forces compared to GPP5000	5)
10% higher static forces and moments than the benchmark	New multi-tooth guidance enables increased compact performance → Higher forces → Wear → Surface pressure	- Steel guidance GPP very robust → The guidance of the GPP hardly shows any wear + By using several teeth (instead of 1) – reduced pressing on the surface (Ø more than doubled surface) → lower surface pressure → Less wear with PGN + P	5)
10% longer gripper jaws than on the benchmark	Application of a smaller size is possible → Low costs for procurement → More compact systems	+ The multi-tooth guidance has been in use for 16 years → High process safety, reliability	5)
15% higher gripper jaw weight than on the benchmark		Gripper jaw weight PGN-plus-P and GPP 1:1	
Steel on steel is the more robust connection	Steel on aluminum (hard-anodized) proven for years in automation → Lifetime experience	- Steel is the most robust material (modulus of elasticity) + By using several teeth (instead of 1) – reduced pressing on the surface → lower surface pressure	5)
Sealed guidance IP64	Basis PGN-plus-P IP 40 with lubrication pockets → New concept for ID variant, PGN + P variant with seal	- GPP also has a lubrication pocket + additional seals - Grease remains in the gripper, increased service life in spec. applications - GPP basic versions includes IP 64/SD/corrosion protection + With the PGN-plus-P, the variants can be selected for each application case + larger portfolio of complementary products	4)
Protector version IP67 (with air purge)	PGN + P SD variant covers IP 64 <i>Available as of August 01, 2017</i>	If grippers with IP 67 are requested -> use SCHUNK DPG-plus (IP 67) + Price DPG-plus approx. 10% cheaper than GPP protector version + GPP protector version is not a permissible IP 67 solution, as the seal is defective after a short time	4)
Up to 30 million cycles maintenance-free	→ Maintenance-free multi-tooth guidance → Cost savings for maintenance and procuring a replacement	GPP fails more often in the SCHUNK continuous run → Not a long life span + SCHUNK lifelong guarantee → Zimmer does not specify a guarantee duration + SCHUNK guarantee PGN-plus-P 36 months or 30 million cycles	

For internal use only!

2) Market Situation ZIMMER 5000



PGN / PZN-plus	
GPP / GPD5000	



40	5003
50	5004
64	5006
80	5008
100	5010
125	5013
160	5016
200	5025
240	5030
300	5035
380	5045

ZIMMER is becoming increasingly aggressive against SCHUNK.

- Comparative advertising with our PGN-plus → The attempt to replace existing PGN-plus applications with GPP5000.
- Competitive situation particularly prevalent in Germany, but with increasing feedback from Intecs
- Discount battle from ZIMMER: partially up to 70% discount to buy into projects
- Expanding accessories of the 5000 series (jaw quick-change, adjustable jaws)
- Expanding variants: 2-finger/3-finger, pneumatic/electric, IO-Link

We must acknowledge that 5000 series is a successful gripper
(it was, after all, copied from PGN-plus)

2) Market Situation ZIMMER 5000

Bearing load capacity of the GPP5000 - tests at SCHUNK

Findings:

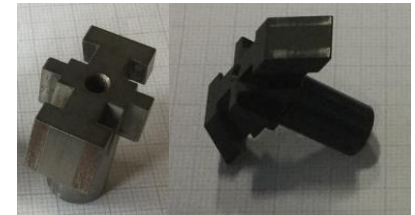
The familiar service life tests at SCHUNK were tested with max. finger length/load.

- known results: partial chipping of the DLC layer, massive wear on wedge hook right up to failure. (ppt from June 2015 with many pictures)
- Even if customers in the meantime say that the grippers in their application are good, maintain uncertainty strategy.

Modification of the first series of the GPP5000: (“teething problems have been eliminated”)

Findings:

1. DLC coating of the wedge hook (pictures old and new)
 - was blank at the beginning, as is DLC (black) since 2015
2. No findings on other modifications, optimizations until now.



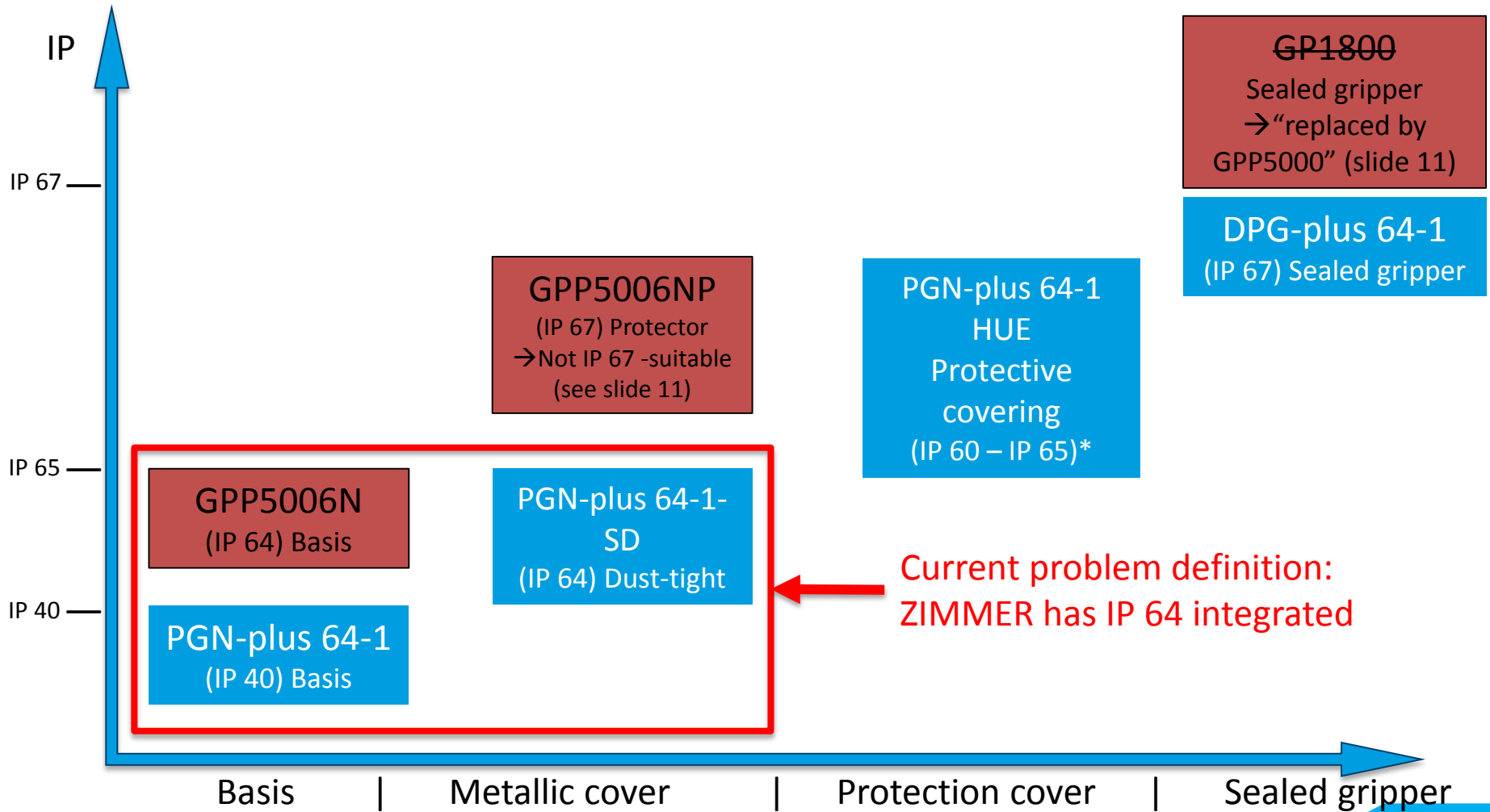
GPP 5000 wedge hook (left old, right new)

Current grippers were procured (Nov. 2016) in order to purposefully look for modifications.

- Findings: No visual differences to the previously tested grippers were established (except housing color is darker + control cam adjustment using Torx instead of Allen key)



2) Market Situation ZIMMER 5000



* See brief introduction in Sales Tool Box

3) Basis Variant GPP (IP64)

Seal in the Test

A significant feature with ZIMMER is the sealed guidance.

In many application cases, this should not be required or can sometimes even be disadvantageous:

Questions like: resistance to media? Resistance to temperature? Abrasion? Smooth running of the guidance?

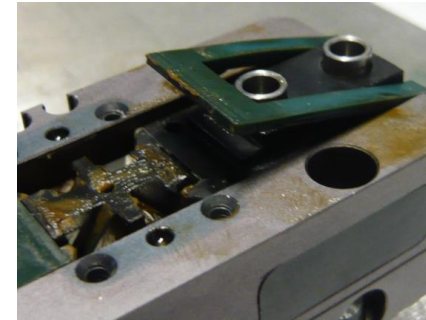
Temperature tests at SCHUNK for instance resulted in

- discoloration,
- odor formation
- dissolving of the adhesive

→ This does not ensure 100% loss of lubrication.

But it is a fact that:

- Seal can be marketed well (as technically explainable)
- In some applications longer life span than with PGN-plus (customer feedback)



Discoloration by
temperature impact

3) Basis Variant GPP (IP64)

Seal in Practice

Example VW Hanover foundry:

Depending on the application, the PGN-plus grippers fail between 1 and 6 months and must be repaired or replaced. (difficult ambient conditions

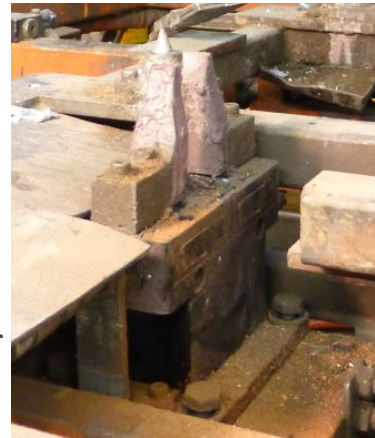
→ inadequate lubrication)

Was tolerated by the customers until now as no better alternatives were available, since GPP5000 though, this has changed. These grippers have been running in the application since then.

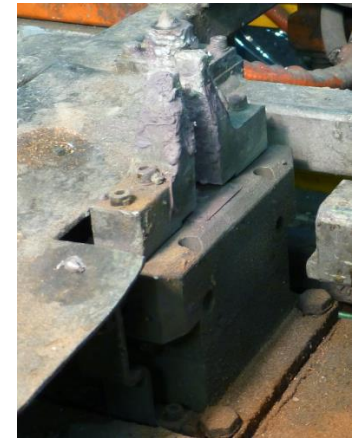
SCHUNK measure: customized solution designed → Consultation

Future standardization: new PGN-plus-P variants with seal being developed.

We welcome your feedback, ideas, and approaches on this by e-mail to the Product Management.



Zimmer Grippers



SCHUNK Grippers

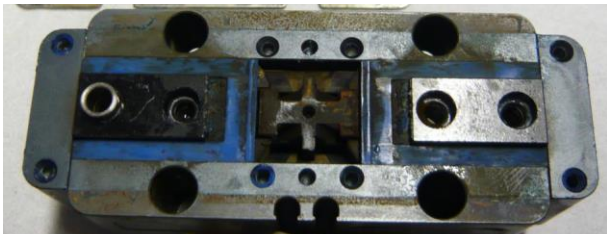
5) Protector Version GPP5000



Protector version from ZIMMER has IP 67 / SD version from SCHUNK (IP 64). ZIMMER has a seal ring on the metallic intermediate jaws. This sealing ring is however defective after a short time (no surprise).

So neither SCHUNK nor ZIMMER have an IP 67 solution for the universal gripper. Difference:

- + SCHUNK has DPG-plus/DPZ-plus
- ZIMMER is discontinuing its GP1800 series (replaced by GPP5000) and GP1200 replaced by GP200 (square guidance) [catalog 08/2015]
- + SCHUNK has a standard product that is also actually IP67. ZIMMER is banking on its protector version, which however is a total system failure.
- + DPG-plus is approx. 10% cheaper than GPP5000 protector version!



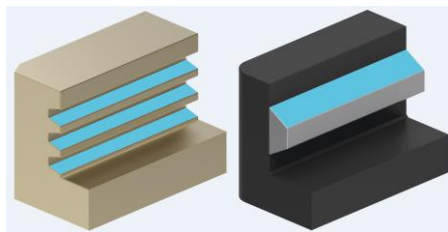
6) Technical Features

Multi-tooth Guidance - Multi-tooth instead of 1 Tooth!

Yes, steel has a higher E-module than aluminum → Steel is more robust

But the SCHUNK multi-tooth guidance distributes the load on several teeth and in so doing achieves a lower surface pressure and increased robustness. This effect is reinforced by the new **even more robust multi-tooth guidance**. On average, with the multi-tooth guidance, **we have more than double as much surface!**

Se only use steel in grippers where this is absolutely necessary (weight advantage aluminum compared to steel). Steel use in the area of clamping technology → Here payload is much higher and cycle count much lower.



Multi-tooth
guidance PGN + P Guidance
GPP5000



For the patented SCHUNK multi-tooth guidance principle, the surface pressure is reduced by distributing the pressure between several parallel prismatic guides.

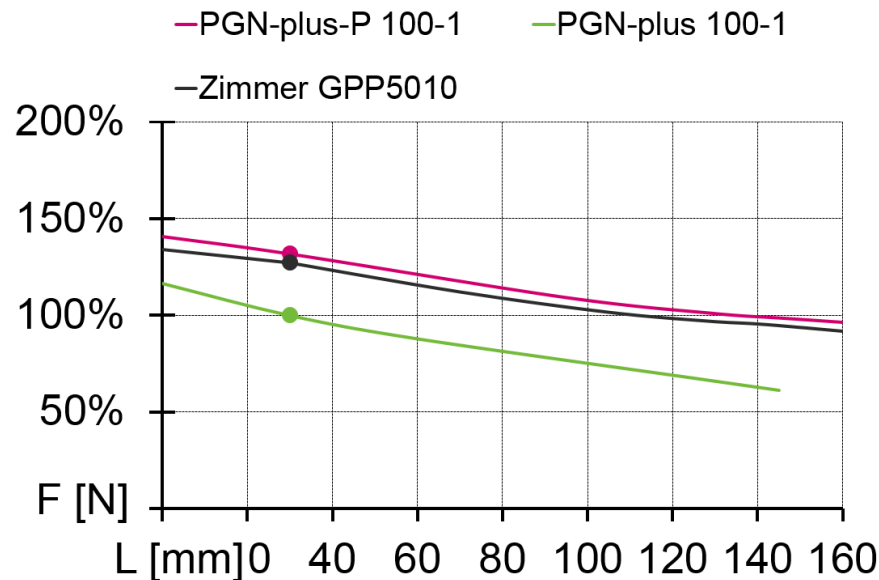
Furthermore, the steel jaws do not slide in the naked aluminum housing, but instead onto an extremely wear-resistant and low-friction hard-anodizing coating (hardness 500 HV). Small pores in the hard-anodizing matrix allow lubricant to be stored and ensure an ideal lubricating film in the entire guidance. → 15 years of multi-tooth guidance experience!

6) Technical Features

Performance Data - Gripping Force

ZIMMER advertises with up to 30% higher gripping force, 10% longer fingers, ...

- It is correct, that GPP5000 has higher catalog specifications than PGN-plus
- But: continue to observe the information height 0 mm (catalog specifications not directly comparable)
- PGN-plus-P is however catching up here and is closing the gap or can even slightly exceed it

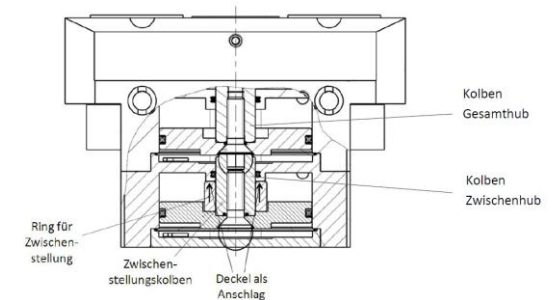
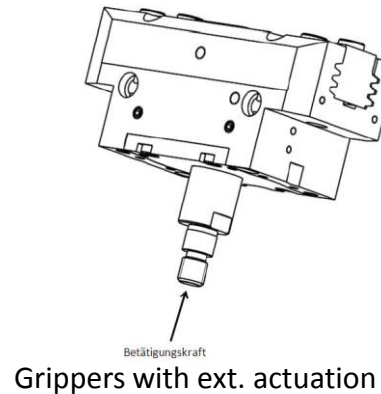


7) Solution Competence

SCHUNK scope of delivery outside the catalog portfolio at a glance:

Engineering team with over 100 employees

- FEM calculations,
- Designs,
- Customizing standard products,
- Special components,
- Private labeling, and much more.



Grippers with center position



Grippers with stroke limitation

- Customized grippers can be designed at any time
- Wherever PGN-plus appears to be outdone by ZIMMER, we need to convey the combined SCHUNK gripping competence to the customer, stretching from modifications right up to special solutions.
- See also “grippers in difficult environments”-PPT by M. Röck

8) Price Situation

2016 prices lowered for the variants K and SD due to ZIMMER GPP5000 basic version.

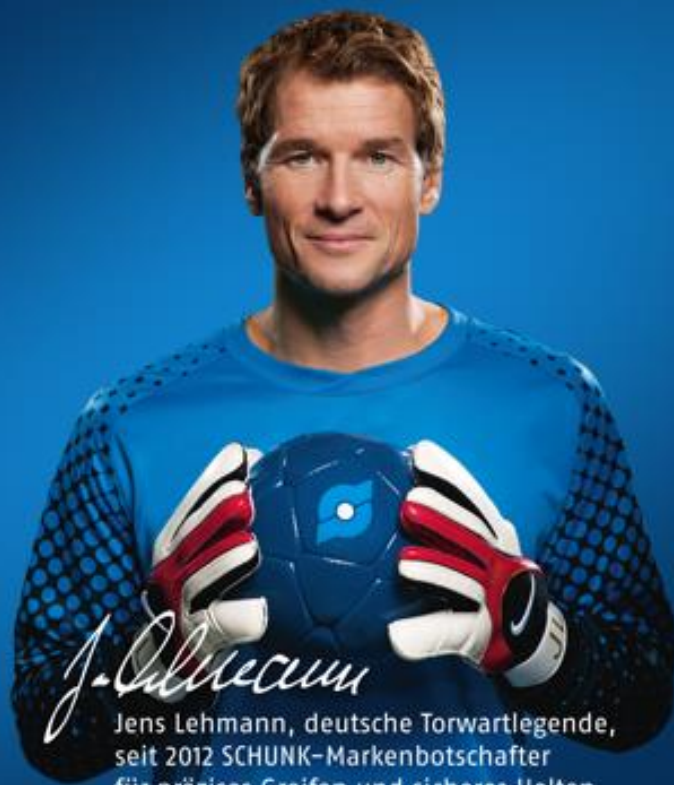
List prices do not differ significantly. ZIMMER is mainly appealing because of the higher discounts.

Currently: Price of Zimmer basic version approx. 3.3% less than PGN-plus-P

In sales therefore, the following statements apply as a reaction in case of confrontation with Zimmer GPP5000:

1. We get every order (as previously described) and are not losing any market shares!
2. We show ourselves to be flexible with respect to pricing – particularly for the dust cover, corrosion protection, precision, and high temperature.
3. We visit our top customers for pneumatic grippers and ensure the sales!
4. We offer customers who already use Zimmer GPP5000 and are having problems with it a free replacement. We need the following information in this case: customer, application, definition of problem. Please send this information to Mr. Michael Röck.
5. New or competitor's customers receive the first PGN-plus-P up to size 125 free of charge.
6. Bonuses in kind are possible by means of preferred sensors MMS22 or IN.

Superior Clamping and Gripping



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