



David Brown Santasalo



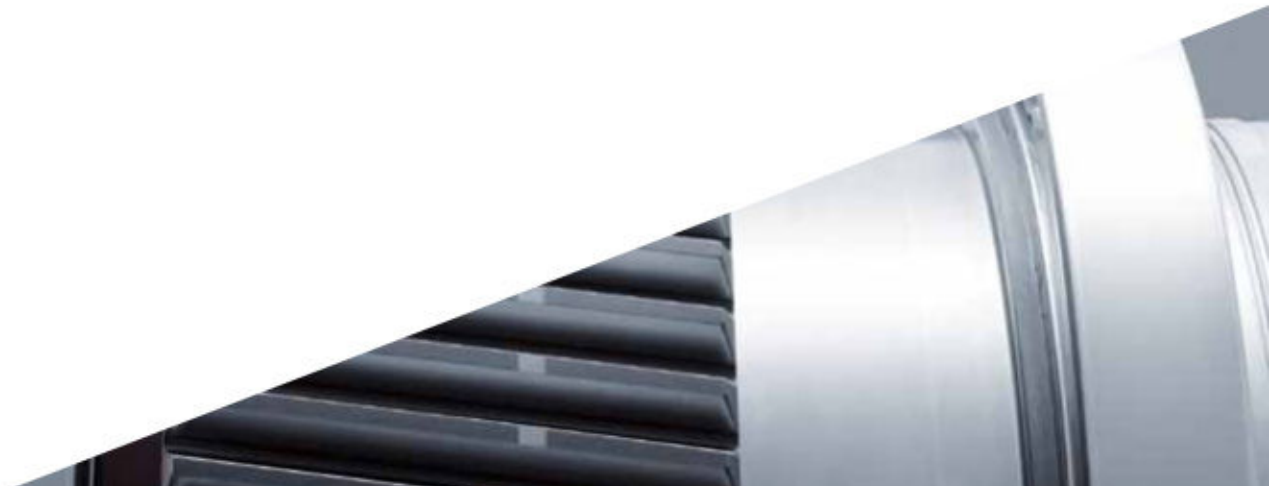
PLANETARY GEAR UNITS

Product Training



AGENDA

- Planetary gear unit lines
- Selection tools
- Dimension drawings
- Pricing
- Requirements for Quotation (RFQ)
- Miscellaneous





PLANETARY GEAR UNITS

Planetary Gear Unit Lines



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- Standard Planetary gear unit lines
 - Quatro for standard applications
 - Quatro+ for standard applications
 - PXXX-Line for Heavy Duty applications and / or high torques (called HPGR-Line)
- Application specific gear unit lines (only for information)
 - High pressure grinding mill gear units (HPGR)
 - Vertical roller mill gear units (VRM)
 - Apron feeder gear units





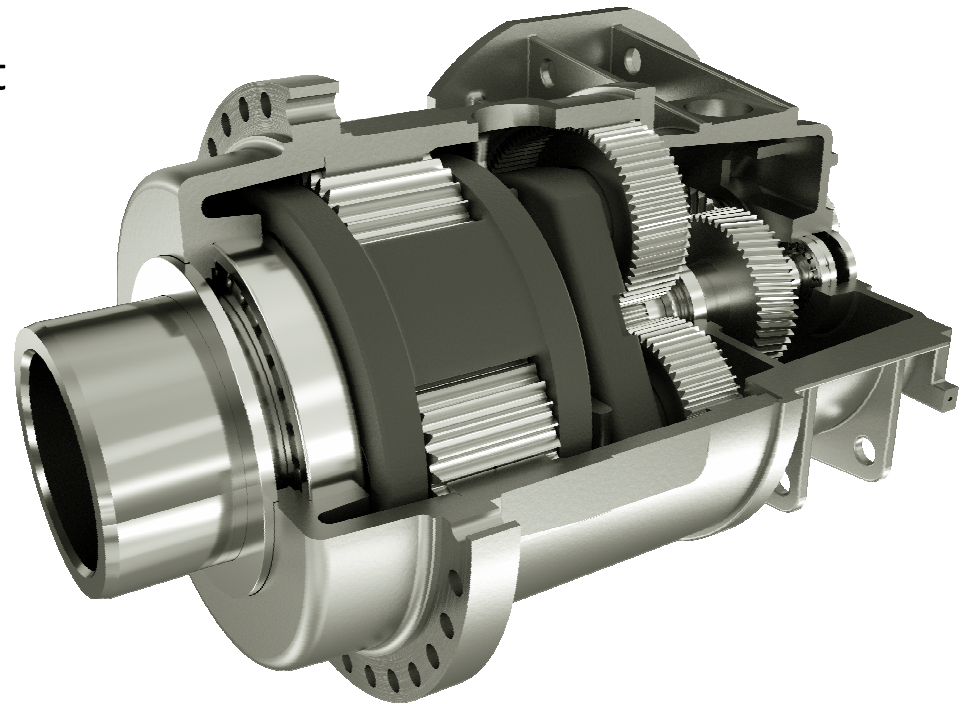
PLANETARY GEAR UNIT LINES

Quattro



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- Types:
 - Planetary gear unit coaxial
 - Helical planetary gear unit
 - Bevel helical planetary gear unit
- Mounting:
 - Flange mounted
 - Foot mounted





PLANETARY GEAR UNITS LINES

Quattro



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- Output shaft types
 - Solid shaft
 - Hollow shaft
- Sizes: 15
 - Torque range: 36 ... 1 180 kNm
 - Standard ratio: 20:1 ... 2 800:1





PLANETARY GEAR UNIT LINES

Quattro



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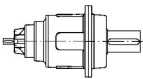
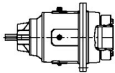
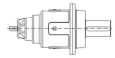
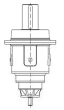
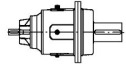
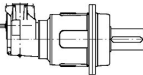
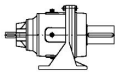
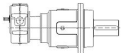
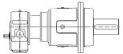
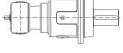
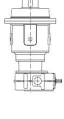
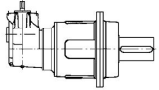
- Available accessories
 - Torque arm
 - Axial fan
 - Motor flange
 - Input coupling
 - Shrink disc
 - Oil supply and cooling system

PLANETARY GEAR UNIT LINES

Quatro



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P	3	O	0061		N	0125	—	010	/	V	H	L							
Series	Number of Stages	Gear Unit Design	Gear Unit Sizes	Nominal Output Torque T ₂₀₀ in kNm	Mounting	Ratio (x : 1)	Shaft Positions				High Speed Shaft (HSS)	Low Speed Shaft (LSS)	Specialities						
							Horizontal Output Shaft (LSS)		Vertical Output Shaft (LSS)										
Quatro	2	O Coaxial Planetary 	0011	36	N Flange 	20 - 40	010		020		040		V Solid Shaft 	N Without Cooling Fan					
	3		0021	51		80 - 360													
	4		0031	69		400 - 2800													
	3	S Helical Planetary 	0041	94		F Foot 	20 - 250	111		121		141							
			0051	120			112												
			0061	185			113												
			0071	245			114												
			0081	359			280 - 2240	211								221		241	
			0091	423			212												
	0101	492	213																
	4	K Bevel-helical Planetary 	0111	606	80 - 800	214													
			0121	791	900 - 2800	213													
			0131	910															
	5		0141	1028															
			0151	1180															



PLANETARY GEAR UNIT LINES

Quatro+

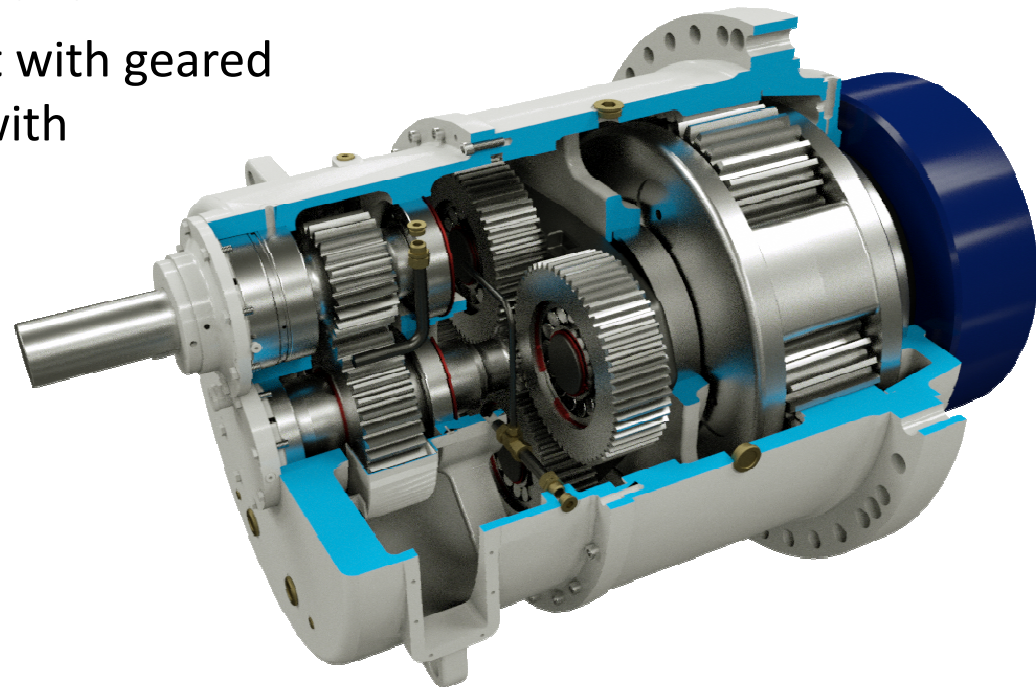
 **Santasalo**

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- **Types:**
 - Planetary gear unit coaxial
 - Helical planetary gear unit
 - Bevel helical planetary gear unit
 - NEW: Planetary gear unit with geared motor (in development with Getriebebau NORD)

- **Mounting:**
 - Flange mounted
 - Foot mounted





PLANETARY GEAR UNIT LINES

Quatro+

 **Santasalo**

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- Output shaft types
 - Solid shaft
 - Hollow shaft
- Sizes: 15
 - Torque range: 43 ... 1 427 kNm
 - Standard ratio: 20:1 ... 2 800:1





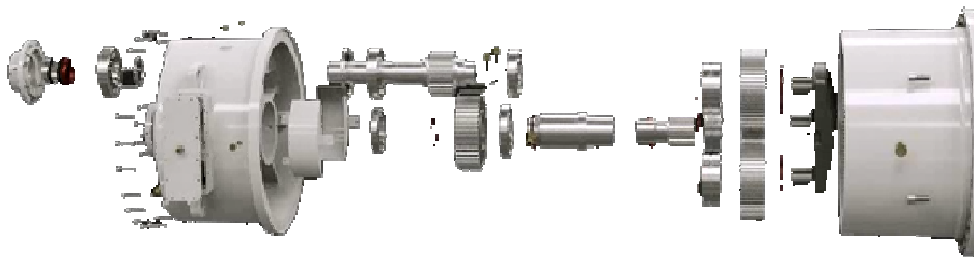
PLANETARY GEAR UNIT LINES

Quatro+



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- Available accessories
 - Torque arm
 - Axial fan
 - Motor flange
 - Input coupling
 - Shrink disc
 - Oil supply and cooling system





PLANETARY GEAR UNIT LINES

Quatro+



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Santasalo Quatro+ - Designation

P4O 0083 N 1250 - 010 / VHL

1 2 3 4 5 6 7 8 9 10



PLANETARY GEAR UNIT LINES

Quatro+



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- 1 – Planetary gear unit
- 2 – Number of stages
- 3 – Type of input stage
 - O – Coaxial planet
 - S – Helical
 - K – Bevel helical
- 4 – Gear unit size
- 5 – Mounting
 - N – Flange
 - F – Foot

- 6 – Ratio
- 7 – Shaft arrangement
- 8 – Type of input shaft
 - V – Solid shaft
- 9 – Type of output shaft
 - V – Solid shaft
 - H – Hollow shaft
- 10 – Specialties
 - N – nothing
 - L – Axial fan



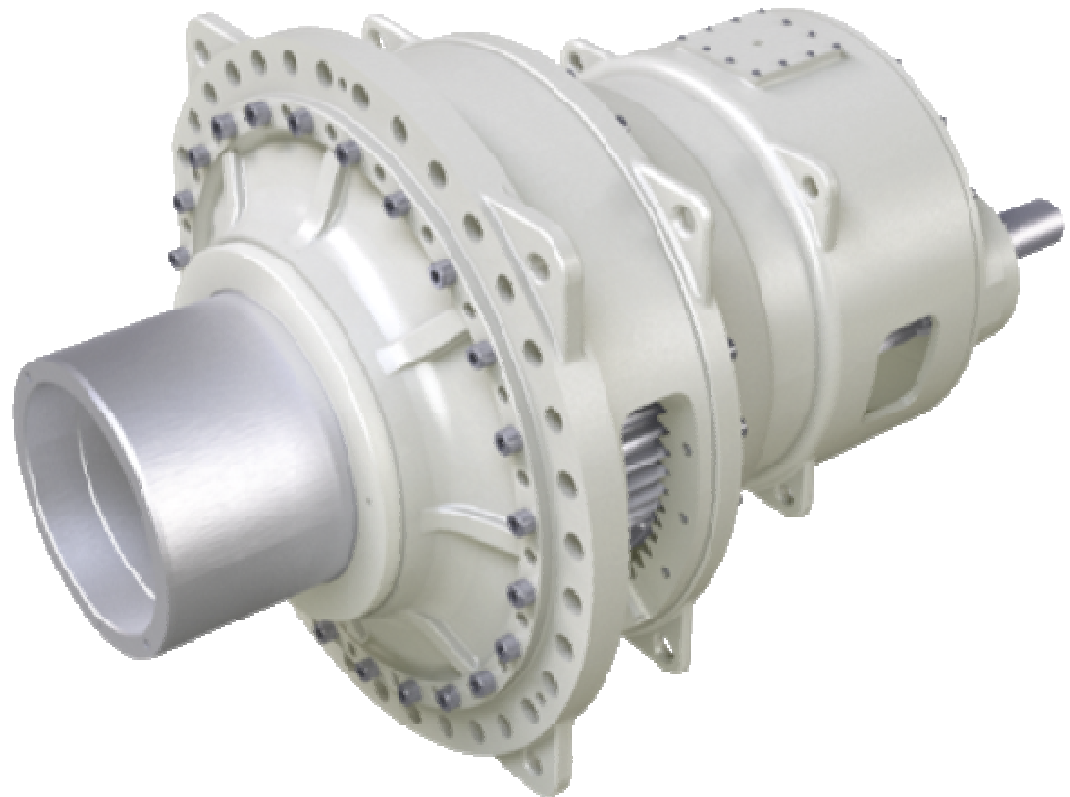
PLANETARY GEAR UNIT LINE

PXXX (HPGR)



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- **Types:**
 - Planetary gear unit coaxial
 - Helical planetary gear unit
 - Bevel planetary gear unit
- **Mounting:**
 - Flange mounted
 - Foot mounted





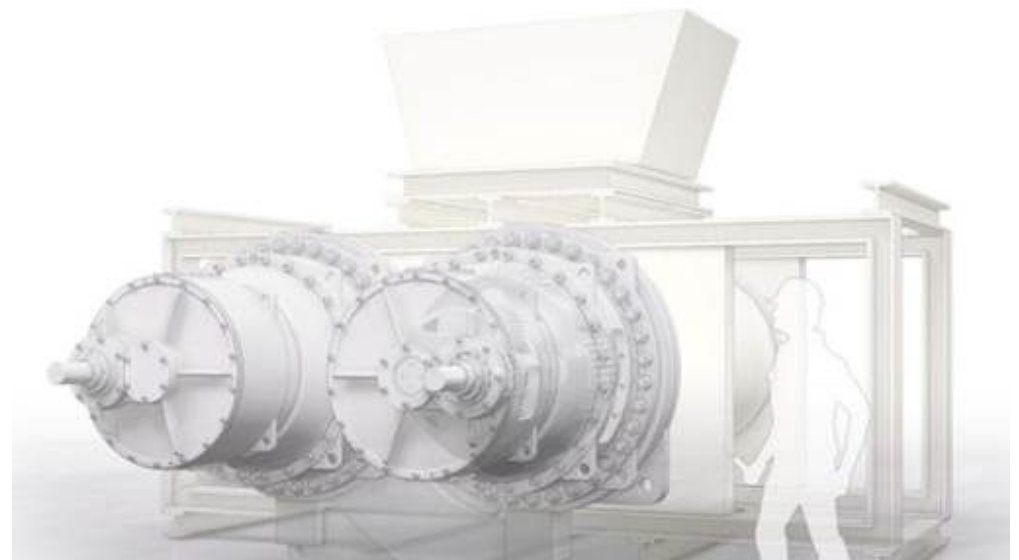
PLANETARY GEAR UNIT LINES

PXXX (HPGR)



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- Output shaft types
 - Solid shaft
 - Hollow shaft
- Sizes: 9
 - Torque range: 790 ... 4 000 kNm
 - Standard ratio: 20:1 ... 2 800:1





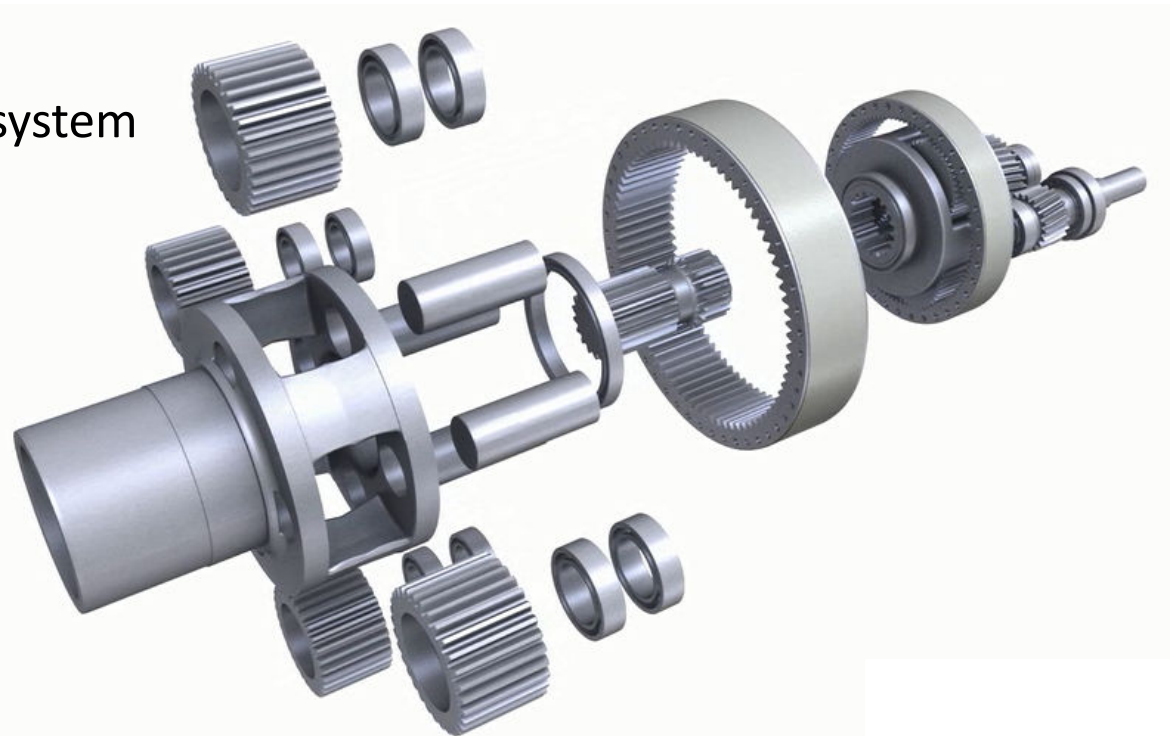
PLANETARY GEAR UNIT LINES

PXXX (HPGR)



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- Available accessories
 - Torque arm
 - Motor flange
 - Input coupling
 - Shrink disc
 - Oil supply and cooling system





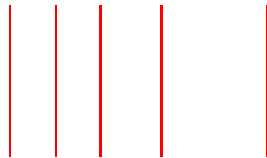
PLANETARY GEAR UNIT LINES

PXXX (HPGR)



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P2HH 0170



1 2 3 4 5

- 1** – Planetary gear unit
- 2** – Number of planetary stages
- 3** – Type of input stage
 - N – Coaxial planet
 - H – Helical
 - B – Bevel
- 4** – Type of output shaft
 - H – Hollow shaft
 - S – Solid shaft
- 5** – Gear unit size



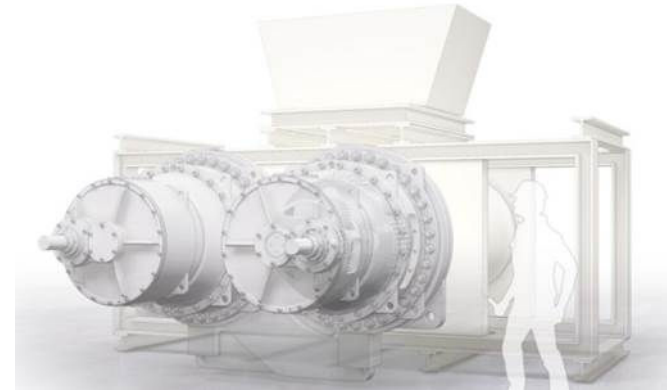
PLANETARY GEAR UNIT LINES

Application Specific

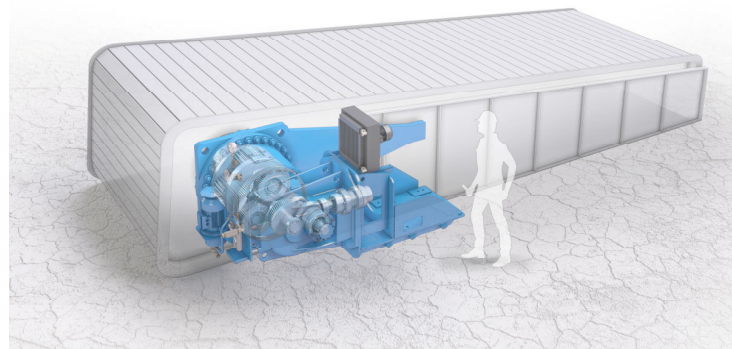


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- High pressure grinding mill gear units
- Vertical roller mill gear units
- Apron feeder gear units



- For quotations please contact Santasalo Wuppertal.





PLANETARY GEAR UNIT LINES

Comparison 1



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	Quatro	Quatro+	PXXX
Types	Coaxial Helical Bevel	Coaxial Helical Bevel	Coaxial Helical Bevel
Sizes	15	15	9
Torque [kNm]	36 ... 1 180	43 ... 1 427	790 ... 4 000
Ratio	20:1 ... 2 800:1	20:1 ... 2 800:1	20:1 ... 2 800:1
Designation (Examples)	PXX XXX ¹ ... (P3O 0081 ...)	PXX XXX ³ ... (P3O 0083 ...)	PXXX XXX ⁰ ... (P2HH 0080)
Applications	Standard	Standard	Heavy Duty



PLANETARY GEAR UNIT LINES

Sales Material in Sharepoint



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	Quatro	Quatro+	PXXX
Selection tool	Original-Quatro-Configurator V1.1	Quatro-Configurator V1.5	HPGR-Configurator V1.1
Dimension drawing	Santasalo - Quatro - 1999 (Quatro catalogue Rev. 1999)	Quatro - P2OVHN P2OVVN P3OVHN P3OVVN P4OVHN P4OVVN	HPGR incl. Torque arm (95260670-10) HPGR excl. Torque arm (95262669-20)
Price list	Quatro (Rev. 2015-07-10)	Quatro+ (Rev. 2015-11-24)	Pricing by Santasalo Wuppertal
References	Applicable	Applicable	Applicable



Data for calculation of

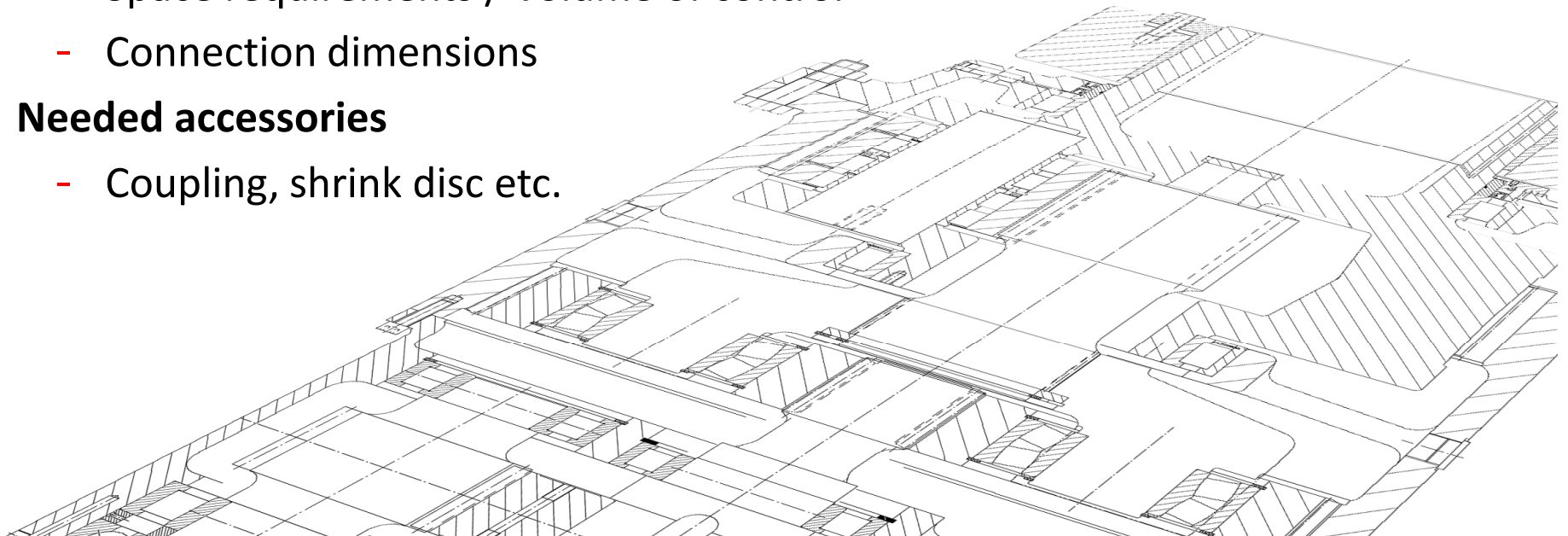
- Transmittable torque T_2
- Bearing life time L_{h10}
- Thermal power rating P_T

Data for checking of

- Space requirements / Volume of control
- Connection dimensions

Needed accessories

- Coupling, shrink disc etc.





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PLANETARY GEAR UNIT LINES

Requirements for Quotation



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Minimum requirements for calculation and selection of gear units

- Installed / consumed motor power
- Input speed
- Output speed
- Running torque
- Peak torque
- Additional forces / moments on the gear unit
- Application factor
- Ambient conditions
- Customer dimension drawing



THANK YOU

 **Santasalo**

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