

Continuum ® for PIM

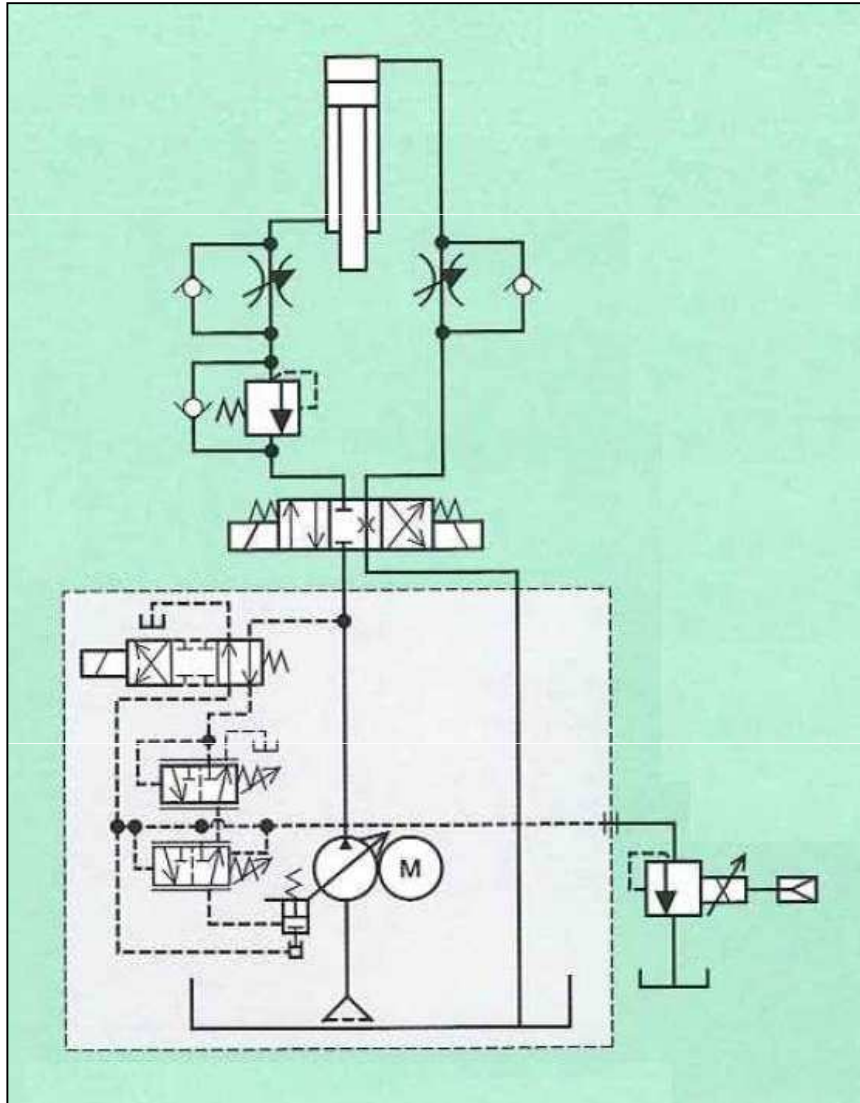


概要 Outline

- PIM 系统
 - 传统 (可变排量)
 - 新型 (固定排量、变速)
- PIMP 伺服驱动系统
 - 为何选择伺服驱动
 - 驱动器
 - 马达
 - 泵
 - 阀
 - 操作/任务
- Settima 泵
 - Settima 符合动力需求
 - 选用原因
 - 性能
 - 易用的系统集成
 - 竞争分析
 - Settima 符合冷却与过滤需求
- Settima 品质
 - Settima 的测试系统
 - 相关问题：测试内容
- 产品的下一阶段
 - 持续改进
- PIM system
 - Conventional (variable displacement)
 - New (fixed displacement, variable speed)
- PIMP servodrive systems
 - Why servodrive
 - Driver
 - Motor
 - Pump
 - Valve
 - Actions / tasks
- Settima pump
 - Settima for power
 - Why?
 - Performances
 - Friendly system integration
 - Competitive analysis
 - Settima for cooling & filtration
- Settima quality
 - Testing system in Settima
 - Issues: what to test
- Product next step
 - Continuous improvement

PIM 系统 System

传统 - 可变排量 Conventional - Variable displacement



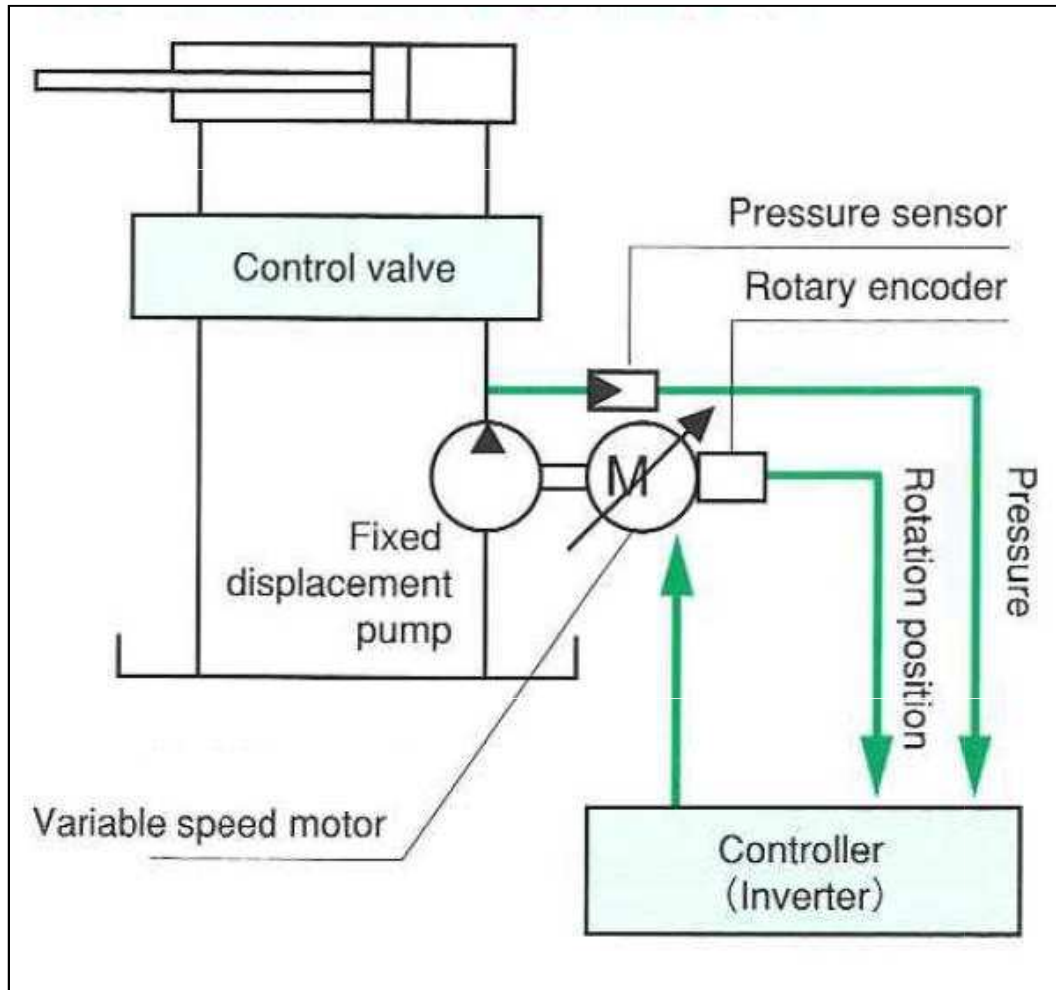
由液压组件控制压力与流量特性

Pressure and flow rate characteristics are managed by hydraulic components

PIM 系统

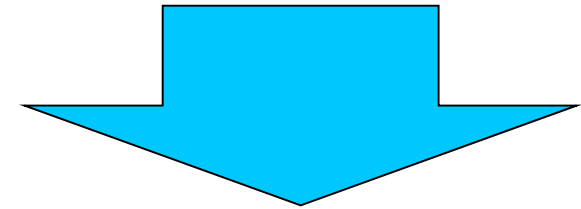
新型 - 固定排量与变速

New - Fixed displacement & Variable speed



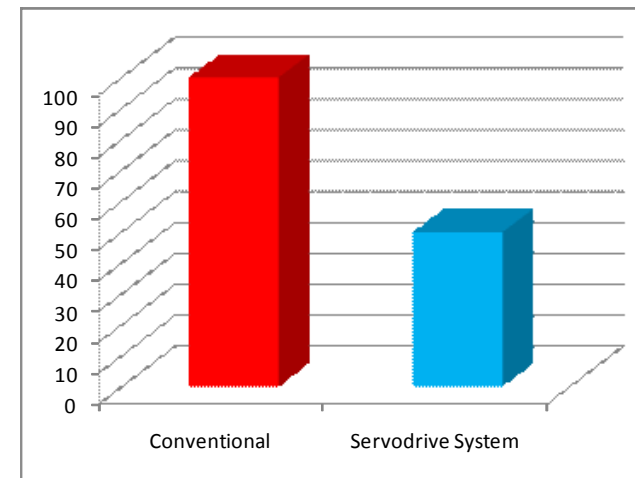
通过控制马达转速来控制压力与流量特性。

Pressure and flow rate characteristics are managed controlling motor speed.



节能理念

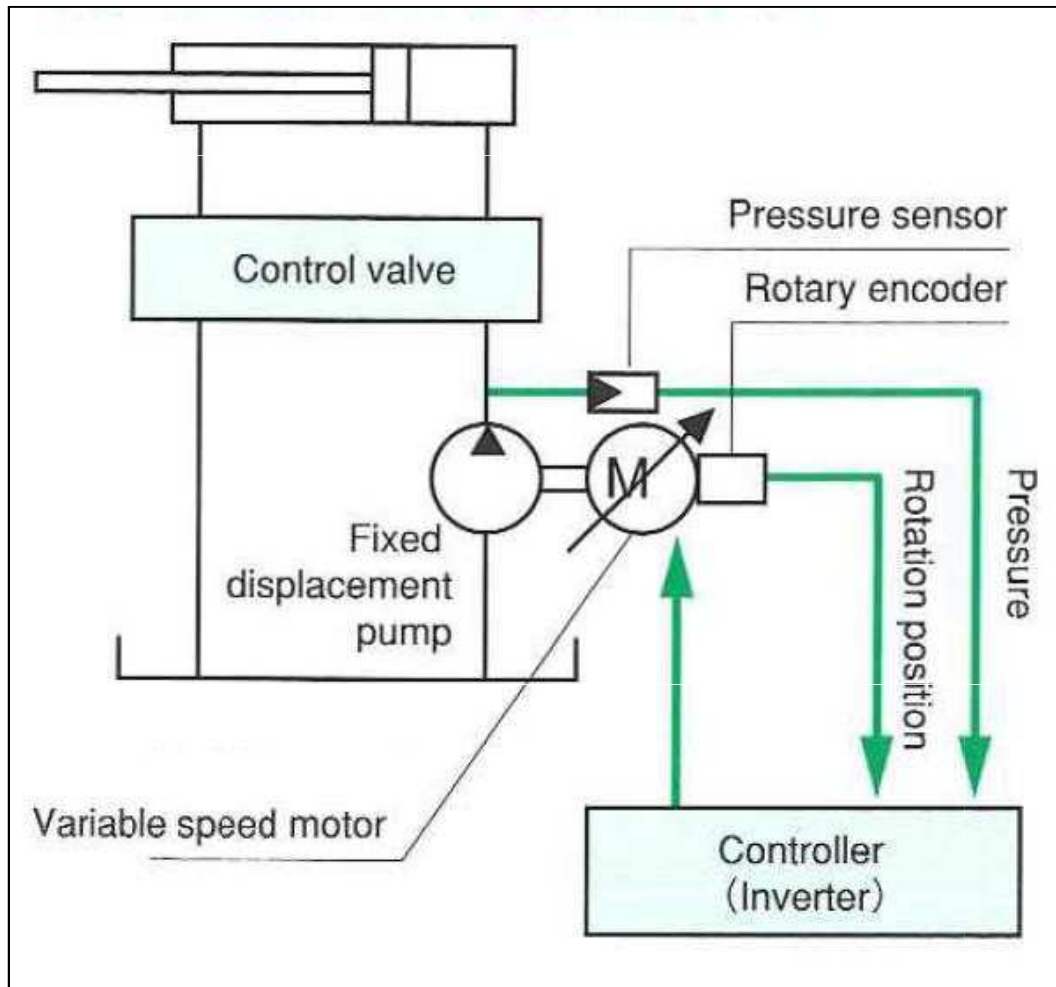
Energy Saving concept



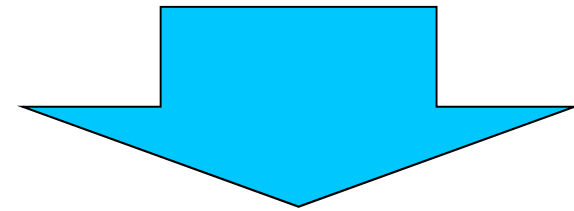
PIM 伺服驱动系统

Servodrive system

为何选择伺服驱动 *Why Servodrive*



- 无需控制阀 *Control valve eliminated*
- 减少液压组件 *Hydraulic components reduced*
- 使用标准组件 *Standard components usage*



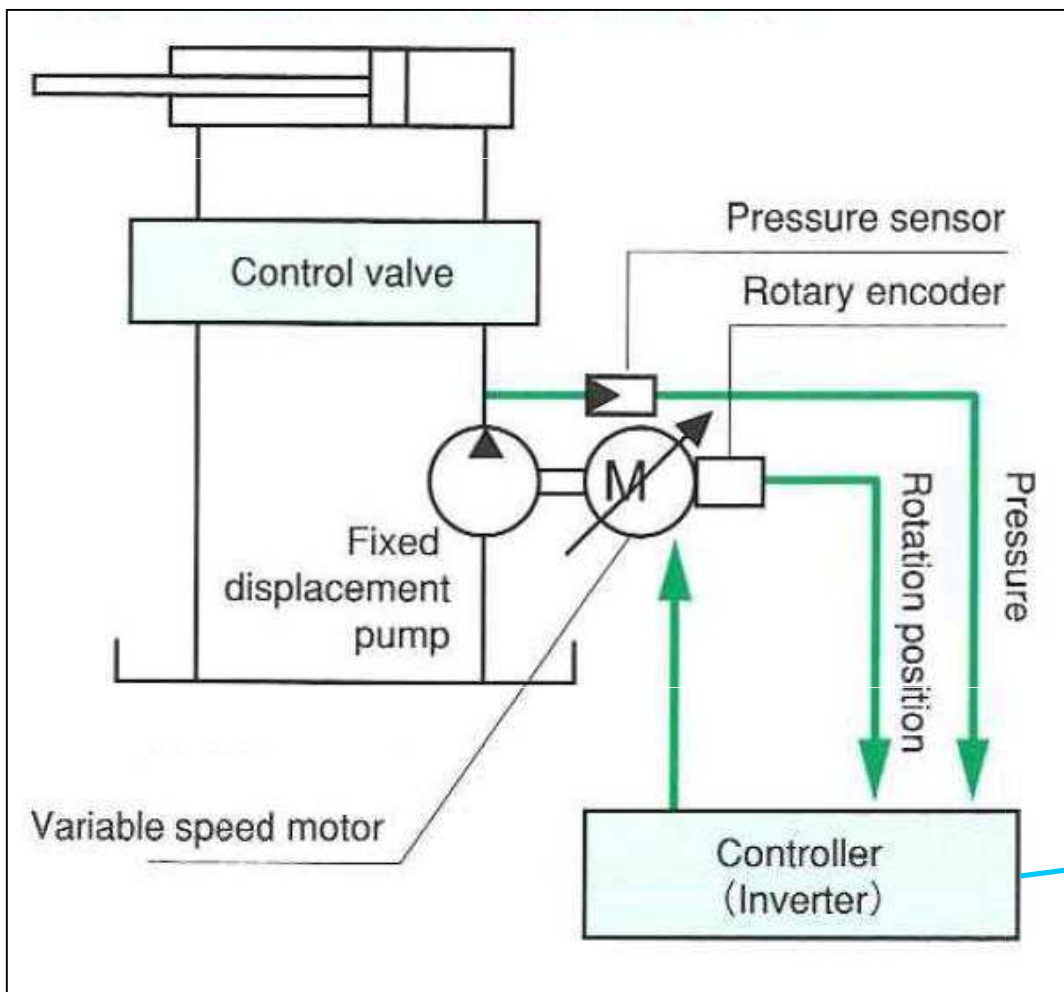
简单易用且成本低廉的系统

Simple and low-cost system

PIM 伺服驱动系统

Servodrive system

驱动器 Controller



适用于专门控制复杂机械的标准产品

A standard product to suit specific controls of complex machineries

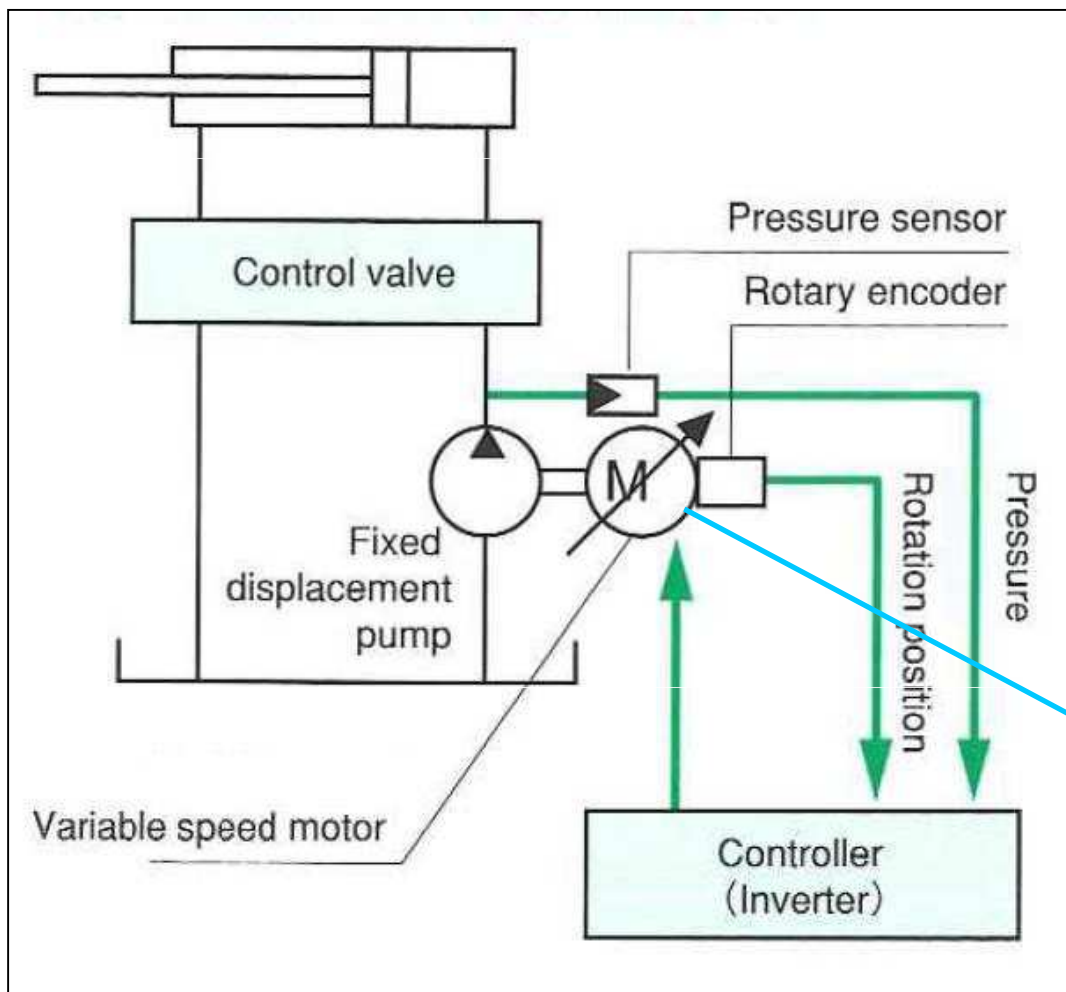
无刷马达的适用范围：

For brushless motor is used for:

- 夹具 Clamp
- 注塑 Injection
- 脱模 Ejection



马达 Servomotor



无刷马达 Brushless motor

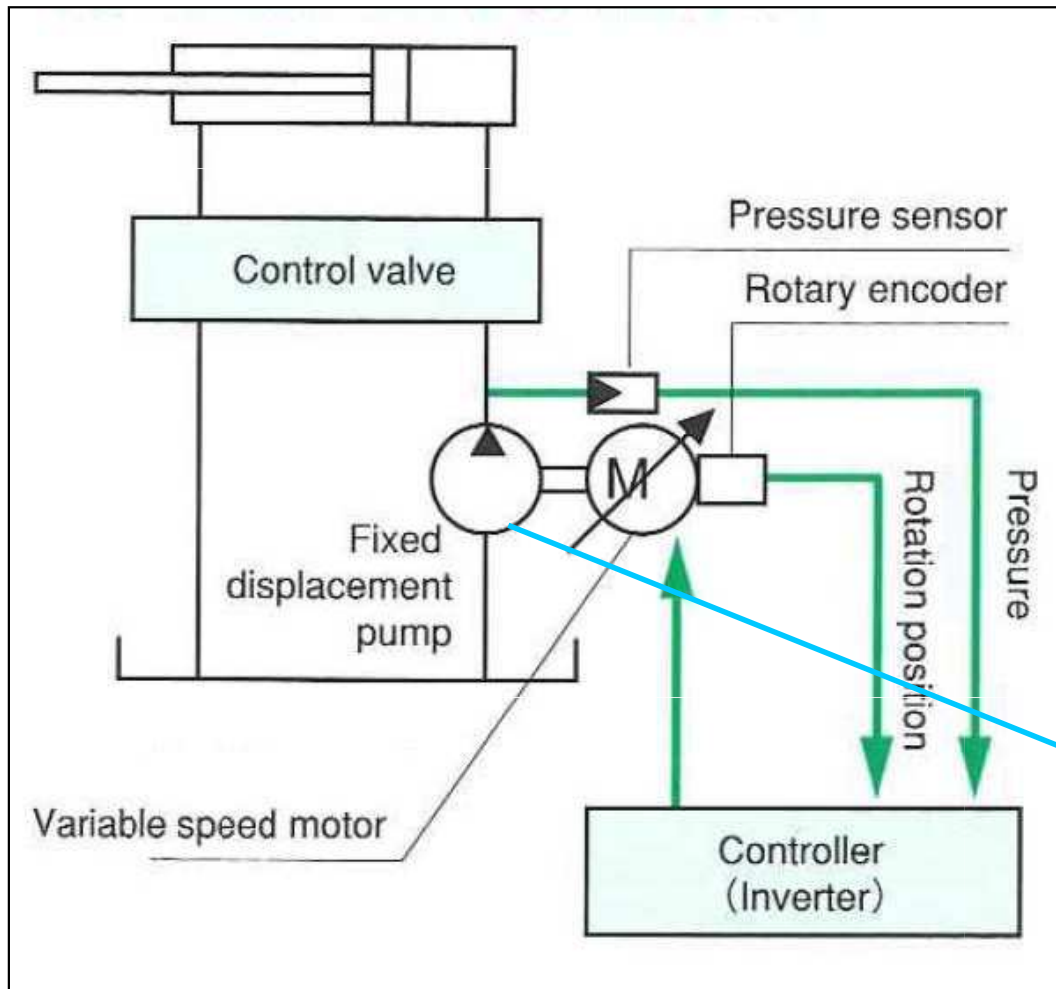
- 高效率
High Efficiency
- 低噪音，且无需强制冷却
Low noise without forced cooling
- 高动力性能
High dynamic performance
- 构造紧凑
Compactness



PIM 伺服驱动系统

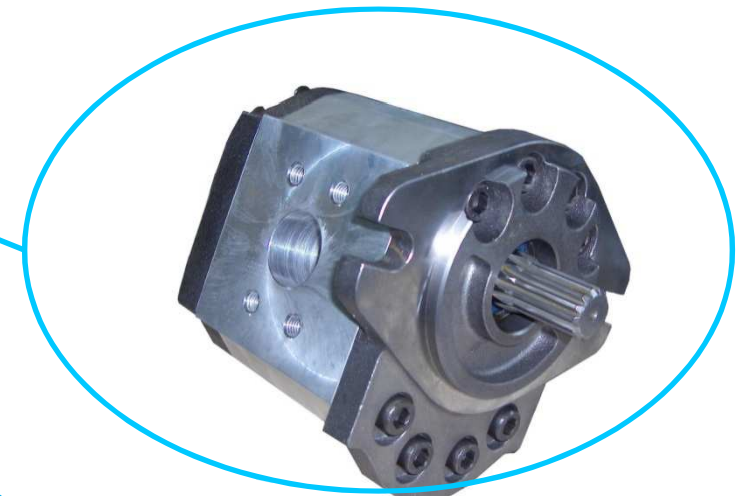
Servodrive system

泵 Pump



Continuum® 泵 Pump

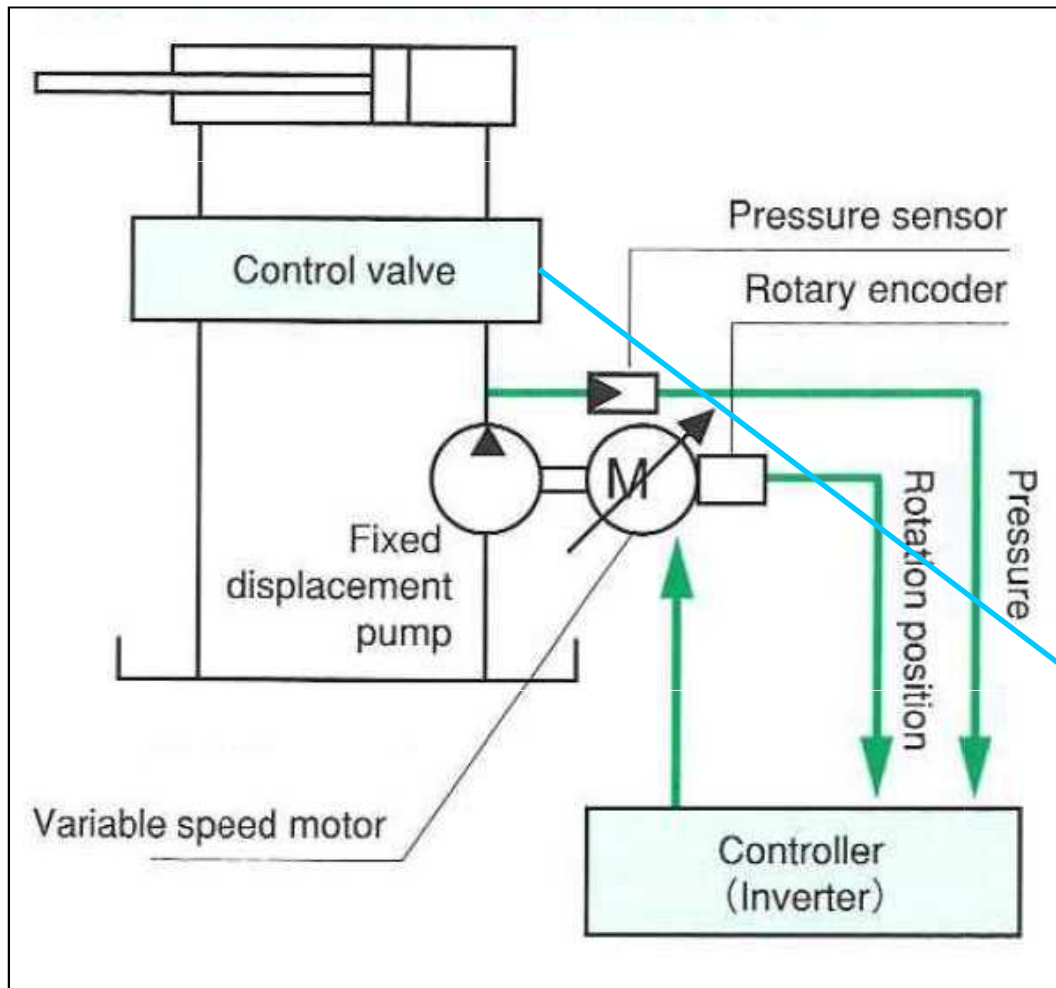
- 低噪音
Low Noise
- 高压力
High Pressure
- 高效率
High Efficiency
- 构造紧凑
Compactness



PIM 伺服驱动系统

Servodrive system

阀 Valve

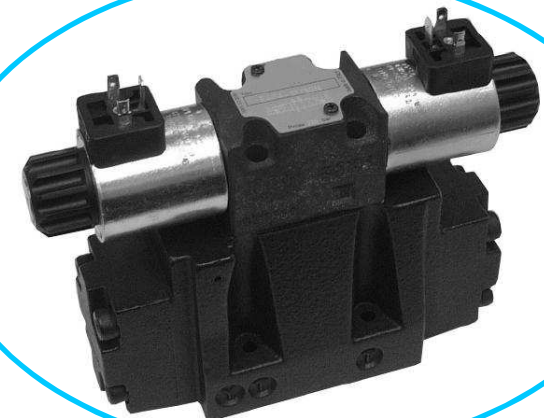


•通用电磁阀

General purpose solenoid valve

•易于采购

Easy sourcing

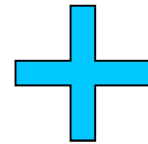
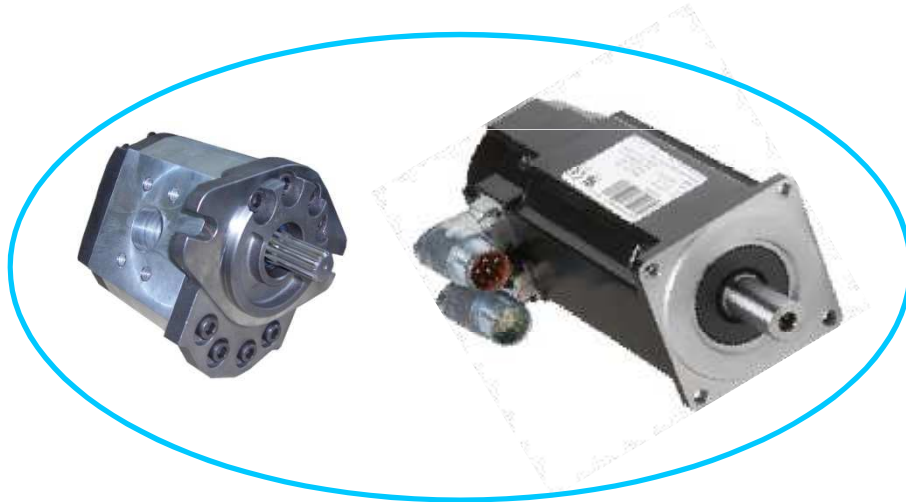


PIM 伺服驱动系统

Servodrive system

操作/任务

Action/Tasks



SETTIMA

GEFRAN

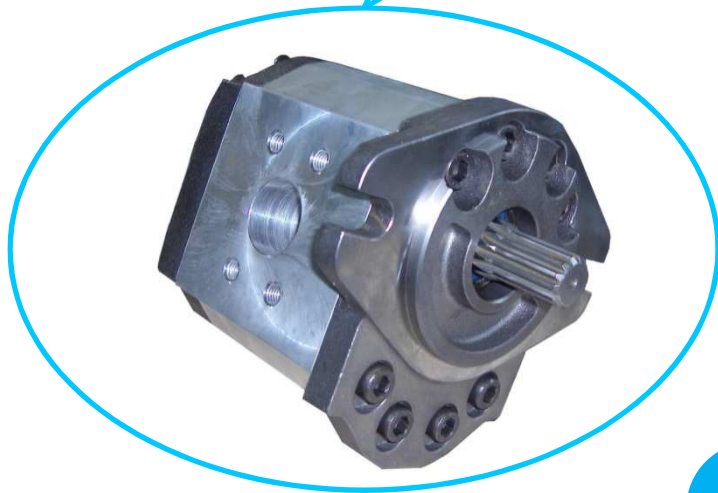
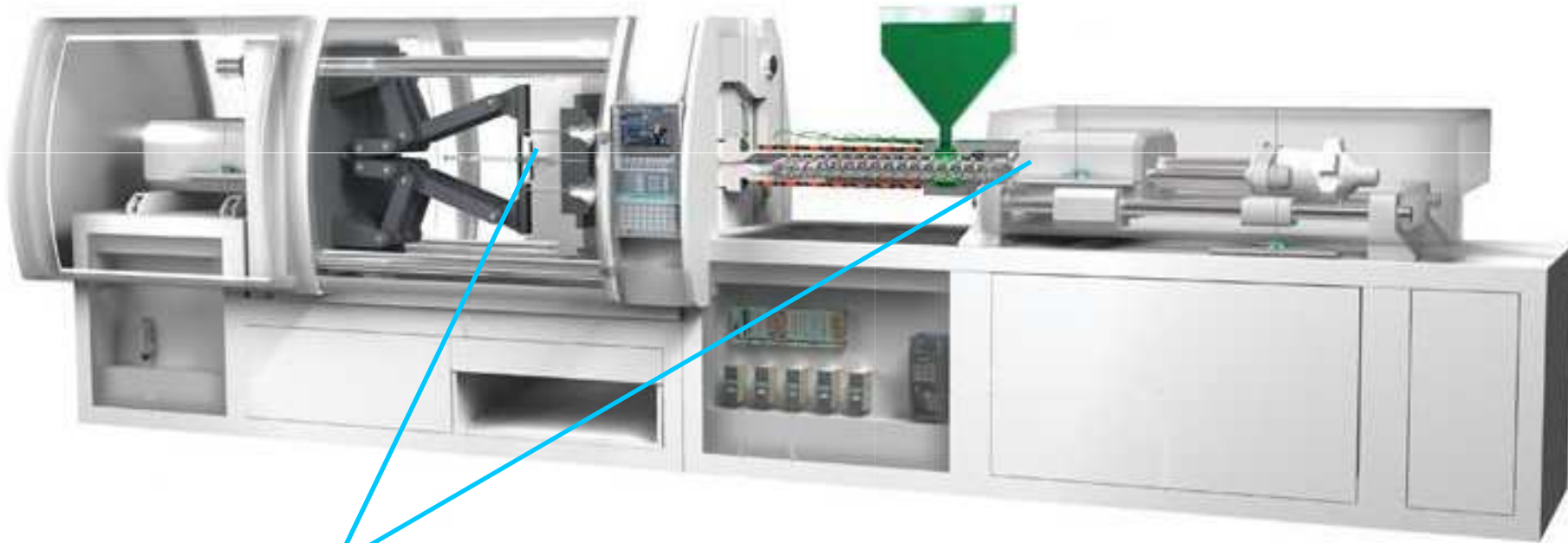
- 我们不断改良 PIM 伺服驱动系统
- 伺服驱动“整体”解决方案
- 意大利制造商合作伙伴关系

PIM Servodrive system development on going
Servodrive “Turn-key” solutions
Italian manufacturers partnership

Continuum® 泵

Settima 符合动力需求

Settima for power



Continuum® 泵

选用原因

Why?



获专利的创新 *Patented innovation*

- 转子外形

Rotor profile

- 螺距

Screw step

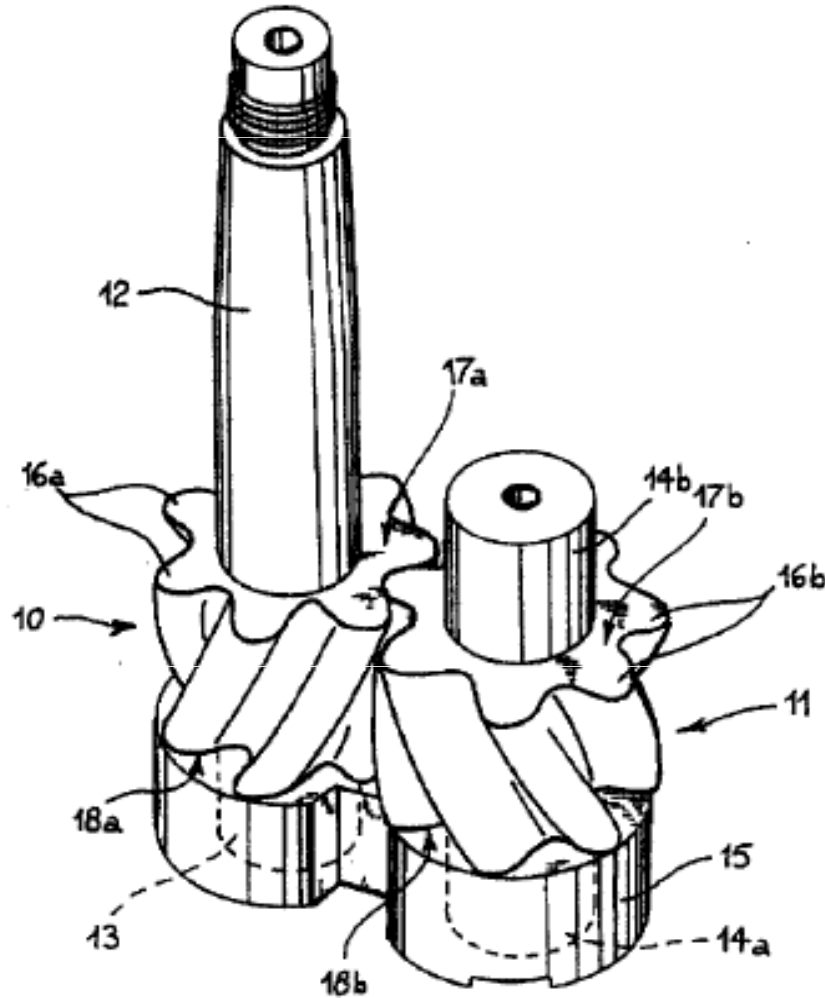
- 内力平衡

Inner force balancing

Continuum® 泵

选用原因

Why?



应对噪音

Face the noise

- 转子间的连续接触

Continuous contact between rotors

- 无密封腔

No encapsulation chambers

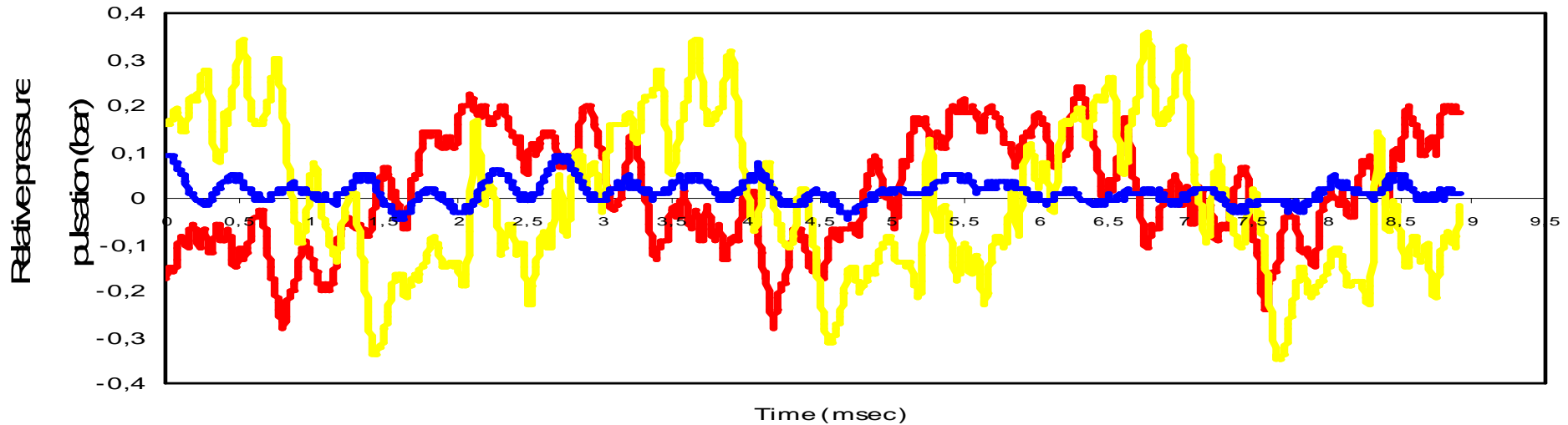
- 滚动接触

Rolling contact

Continuum® 泵

性能 Performances

Environment: 100bar - 40 cSt - 1.500 rpm



— Best External Gear — Best Internal Gear — Continuum

震动 Pulsation

- 几乎无震动
- 减少压降
- 提高总效率
- 延长液压系统使用寿命

Near to zero pulsation

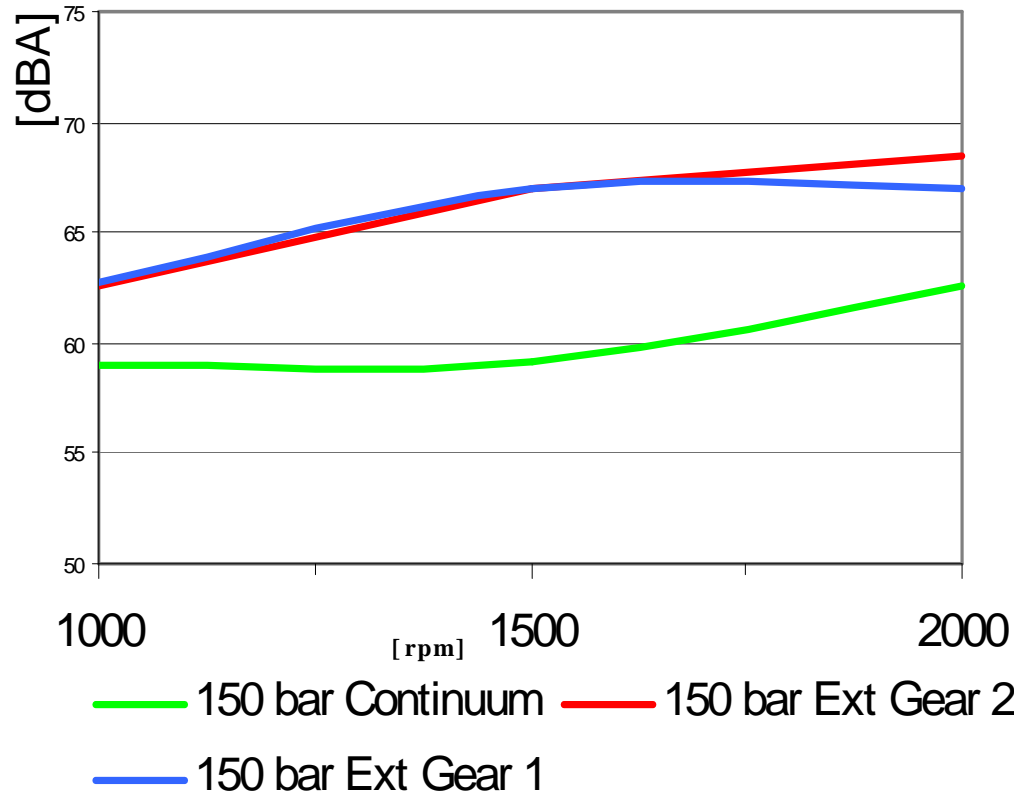
Pressure drop decreased

Overall efficiency increased

Hydraulic system life time increased

Continuum® 泵

性能 Performances



噪音 Noise

- 彻底消除噪音

Noise improved at it's root

- 泵的噪音因震动减少而降低

Pump noise reduced due to pulsation reduction

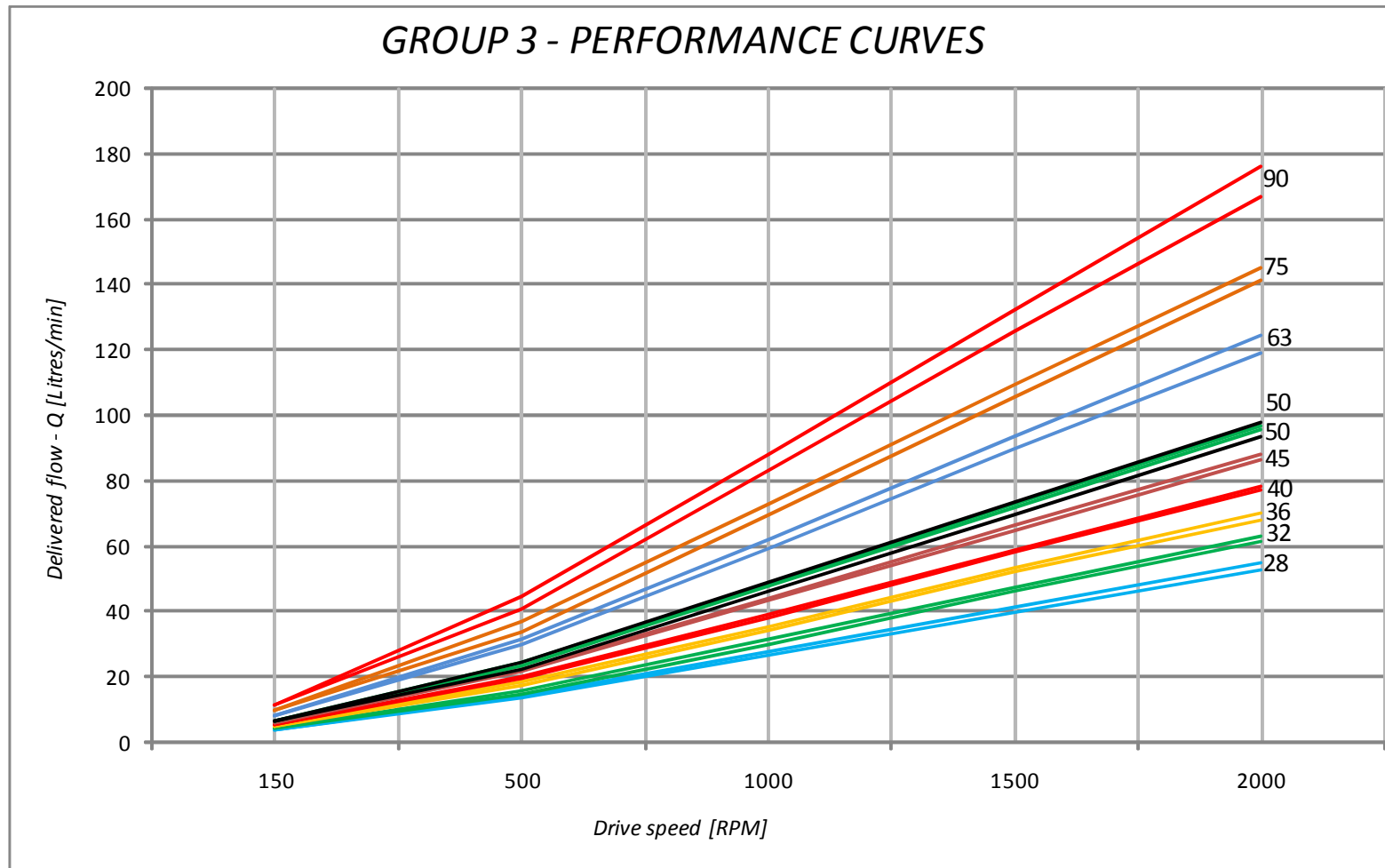
- 由液压系统提高的总噪音降低

Overall noise amplified by hydraulic system reduced

Continuum® 泵

性能 - 输送流量 [升/分]

Performances - Delivered flow [Litres/min]



条件 Conditions

- 温度 : 40°C
Temperature
- 油 : ISO VG 46
Oil
- 粘度 : 46 cSt
Viscosity

• 压力 Pressure

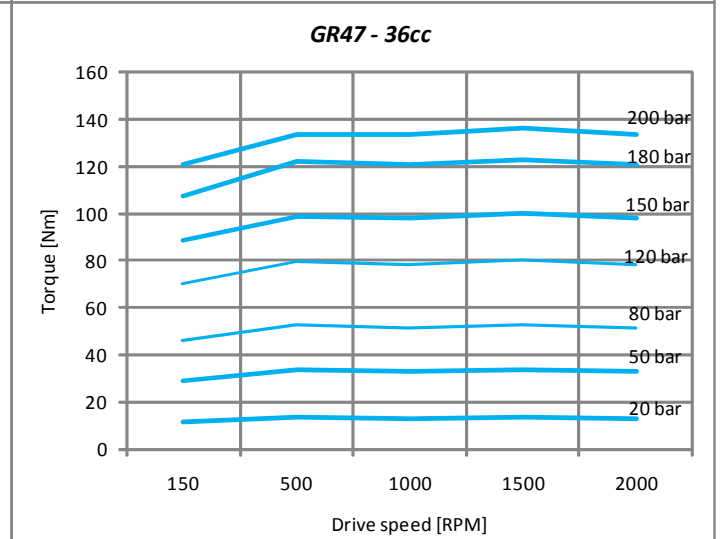
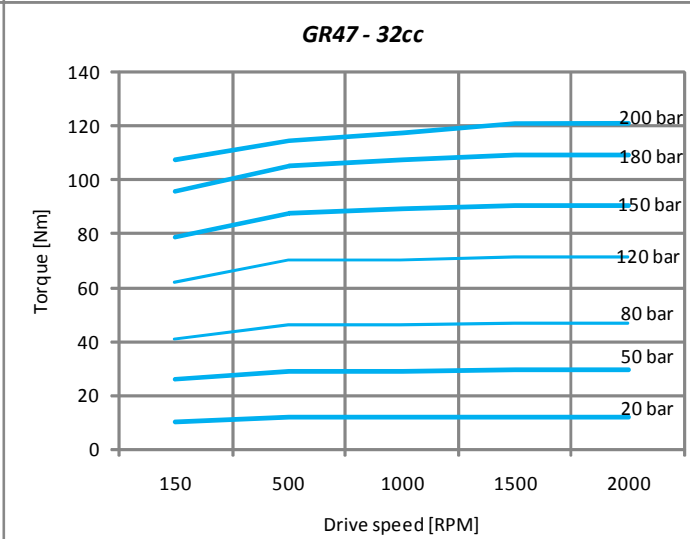
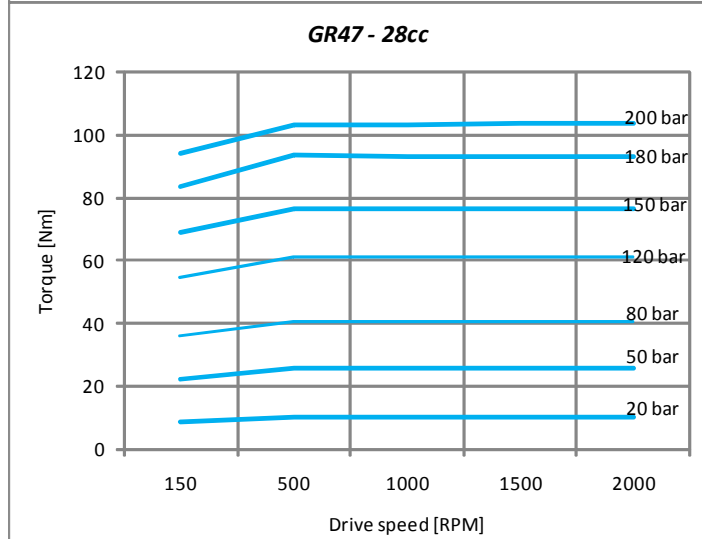
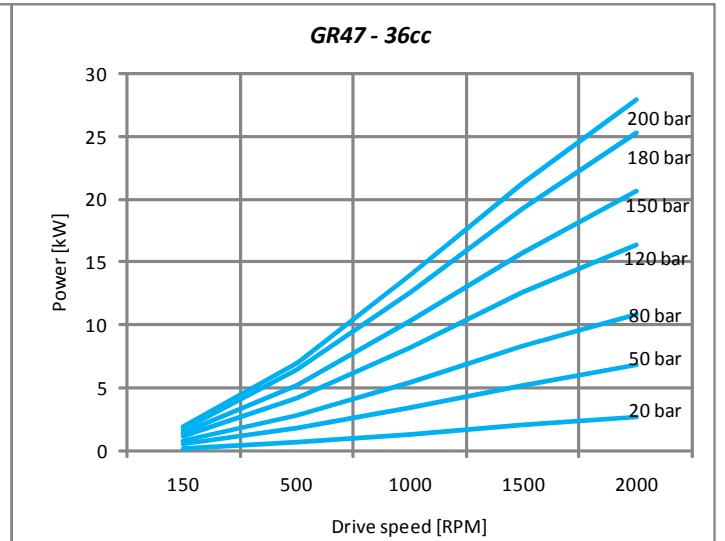
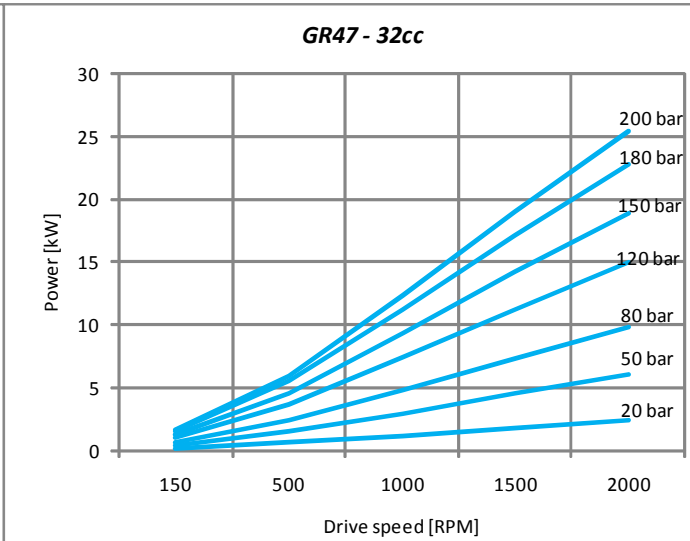
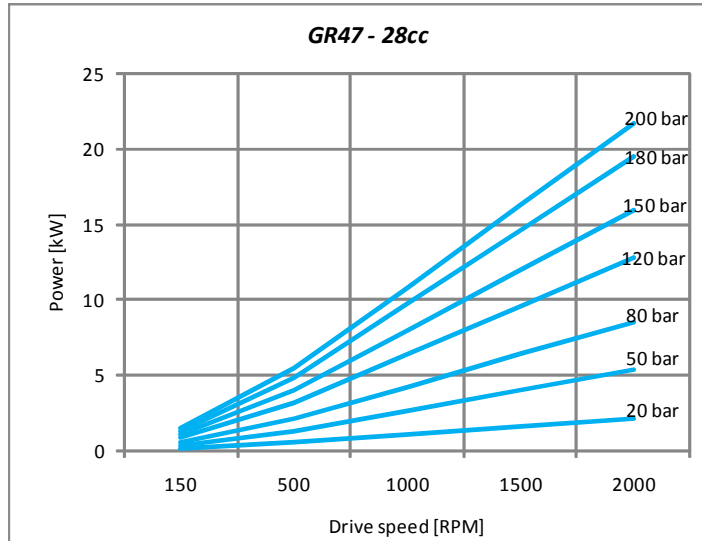
- 28 cc
 - 32 cc
 - 36 cc
 - 40 cc
 - 45 cc
 - 50 cc
 - 50 cc
 - 63 cc
 - 75 cc
- 20 - 200 巴 bar

- 90 cc
- 20 - 180 巴 bar

Continuum® 泵

性能 - 功率 [kW] 与扭矩 [Nm]

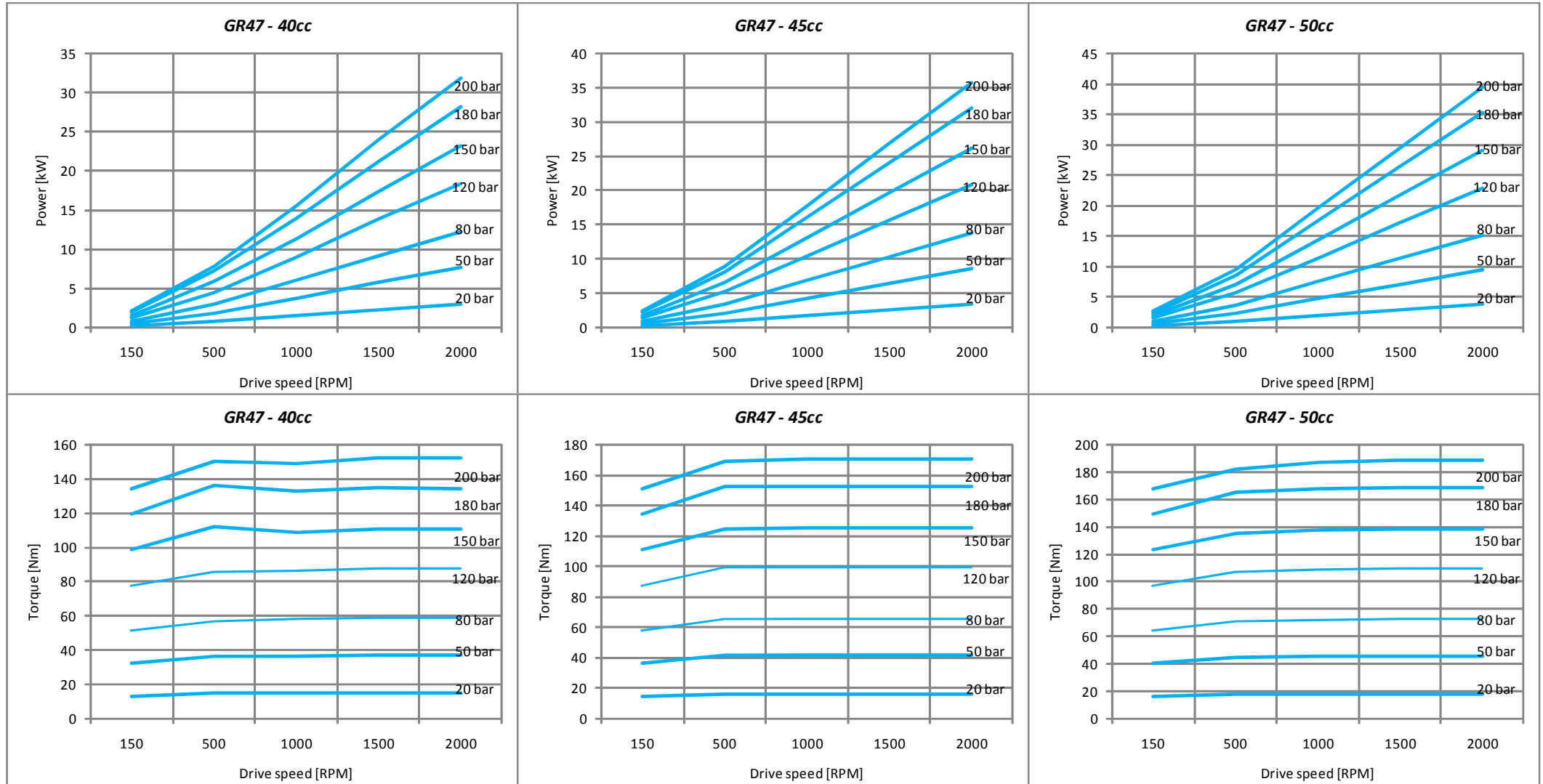
Performances - Power [kW] & Torque [Nm]



Continuum® 泵

性能 - 功率 [kW] 与扭矩 [Nm]

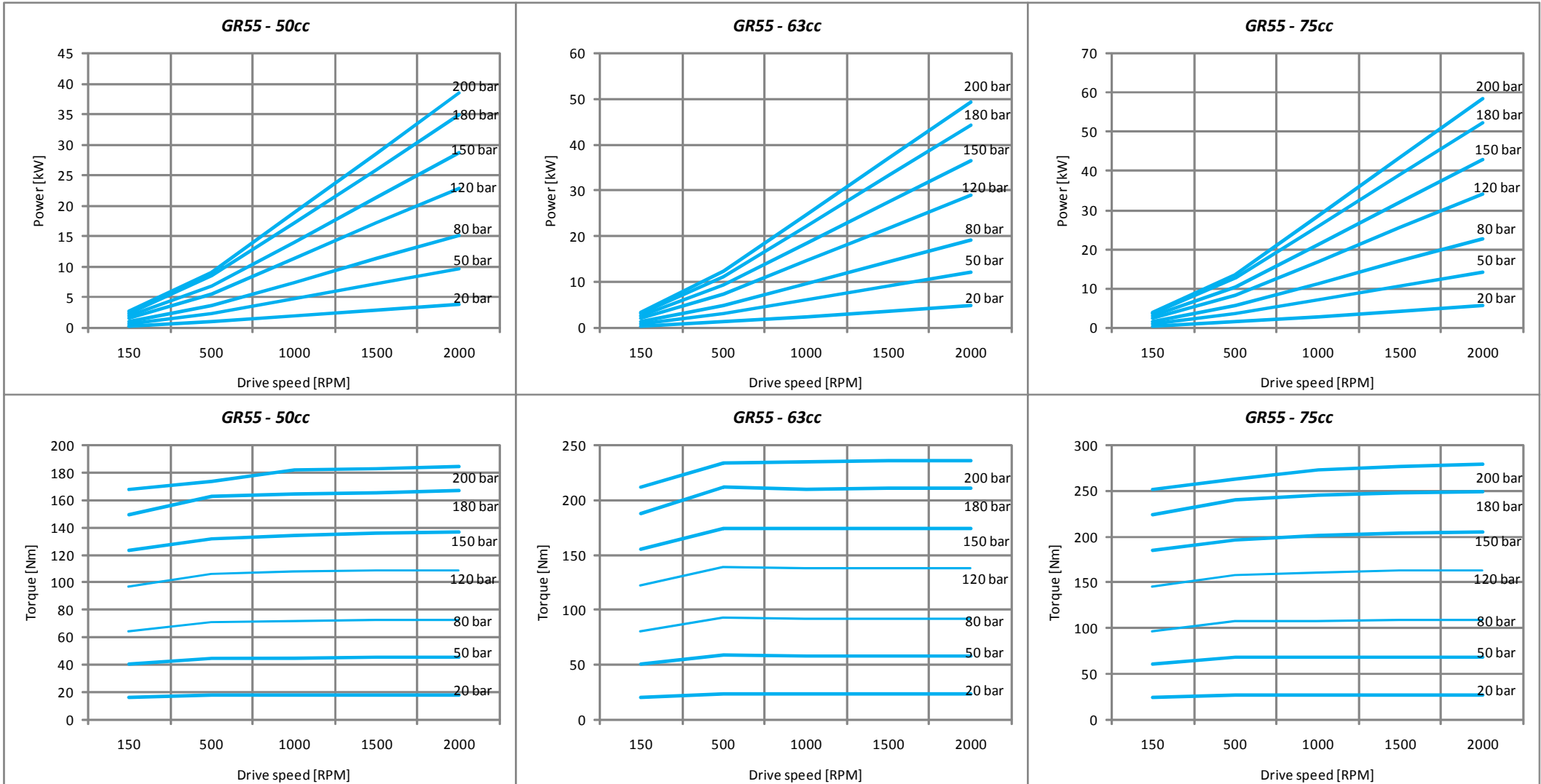
Performances - Power [kW] & Torque [Nm]



Continuum® 泵

性能 - 功率 [kW] 与扭矩 [Nm]

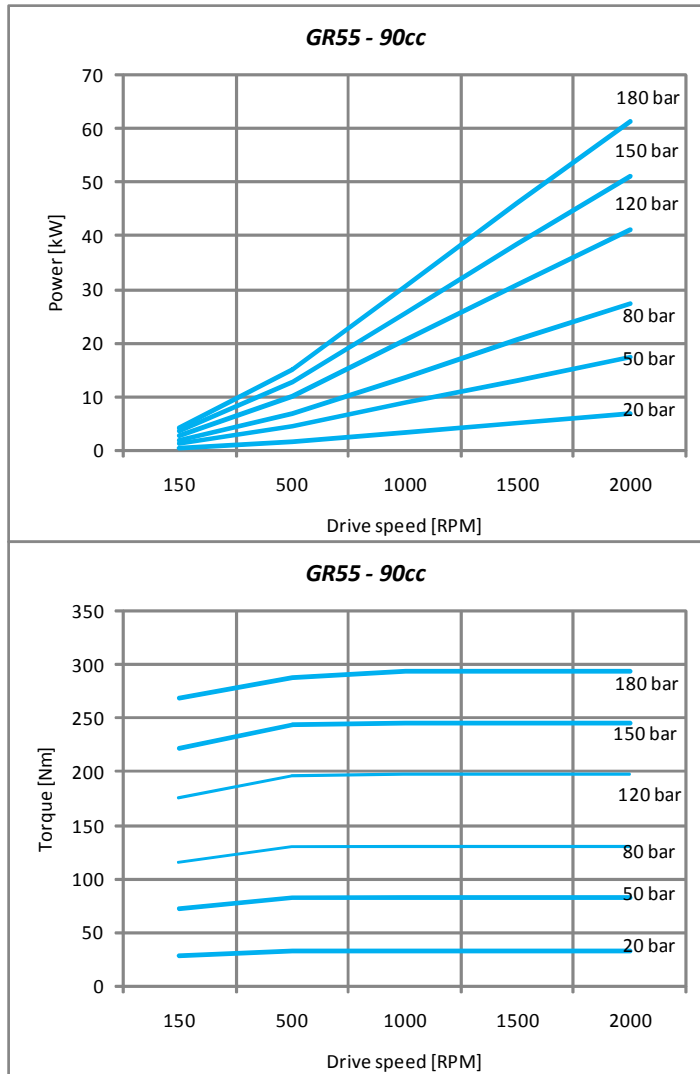
Performances - Power [kW] & Torque [Nm]



Continuum® 泵

性能 - 功率 [kW] 与扭矩 [Nm]

Performances - Power [kW] & Torque [Nm]



功率 [kW]

Power [kW]

- 随输送流量而增加
Increase with delivery flow
- 随压力而增加
Increase with pressure
- 随驱动速度而增加
Increase with drive speed
- 随排量而增加
Increase with displacement

扭矩 [Nm]

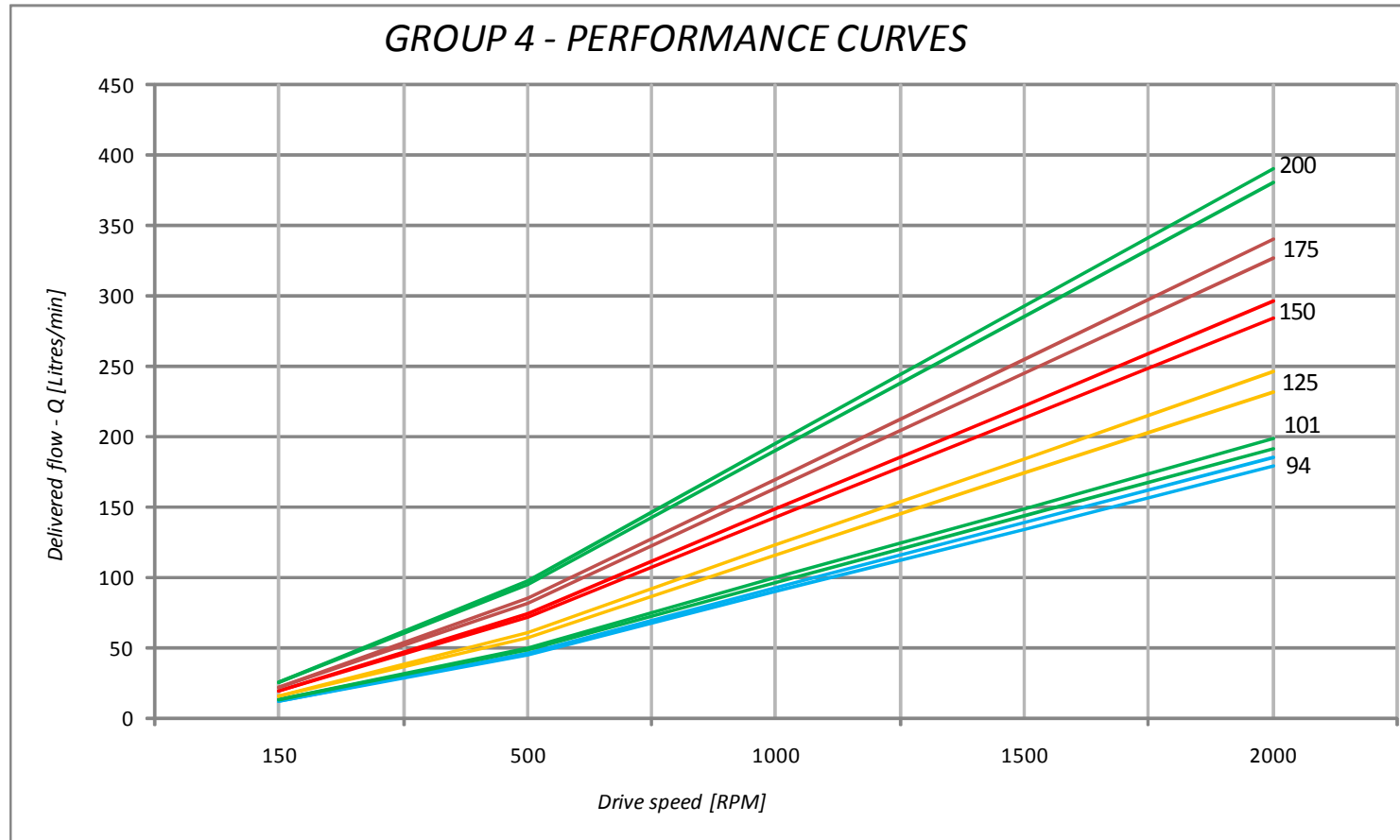
Torque [Nm]

- 随压力而增加
Increase with pressure
- 随排量而增加
Increase with displacement

Continuum® 泵

性能 - 输送流量 [升/分]

Performances - Delivered flow [Litres/min]



条件 Conditions

- 温度 : 40°C
Temperature
- 油 : ISO VG 46
Oil
- 粘度 : 46 cSt
Viscosity

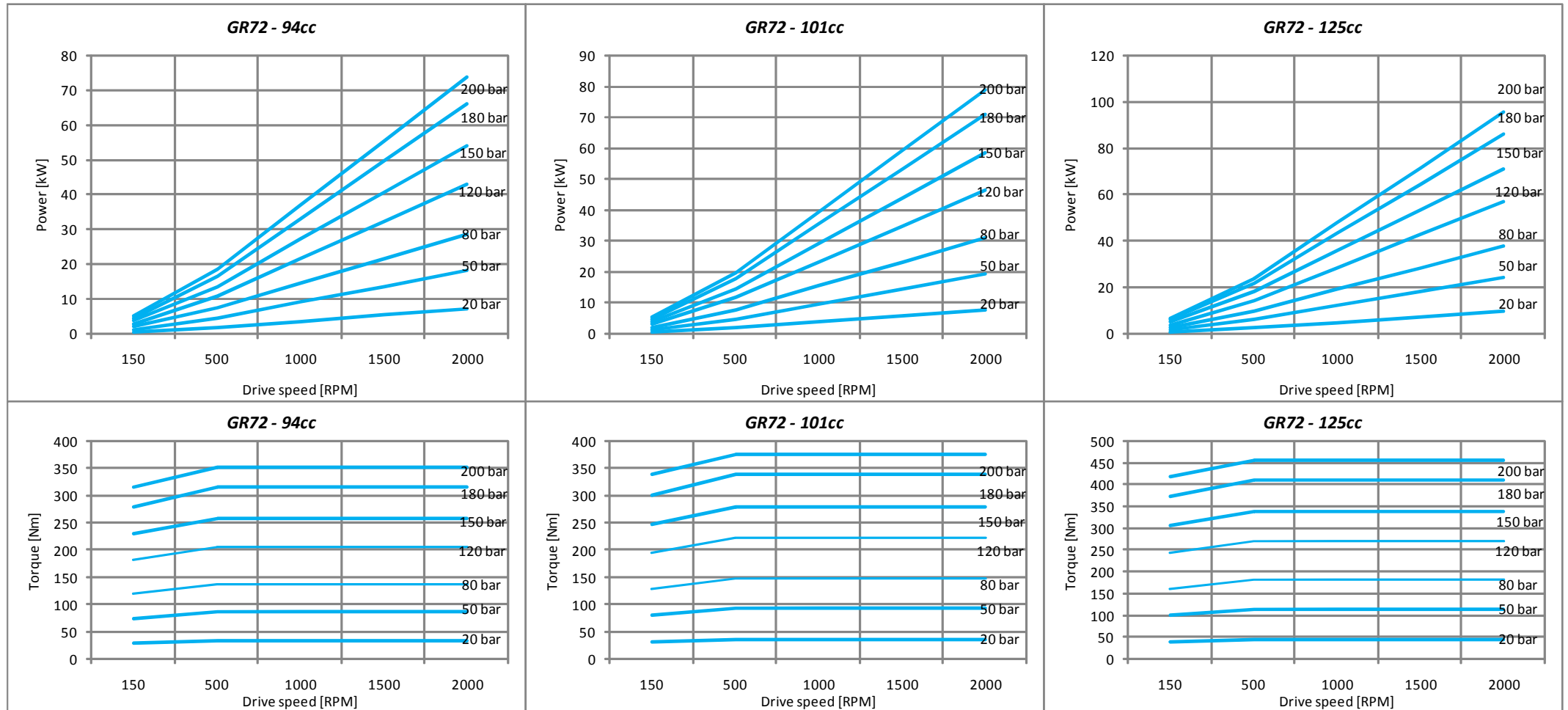
• 压力 Pressure

- 94cc
 - 101cc
 - 125cc
 - 150cc
 - 175cc
 - 200cc
- 20 - 200 巴 bar

Continuum® 泵

性能 - 功率 [kW] 与扭矩 [Nm]

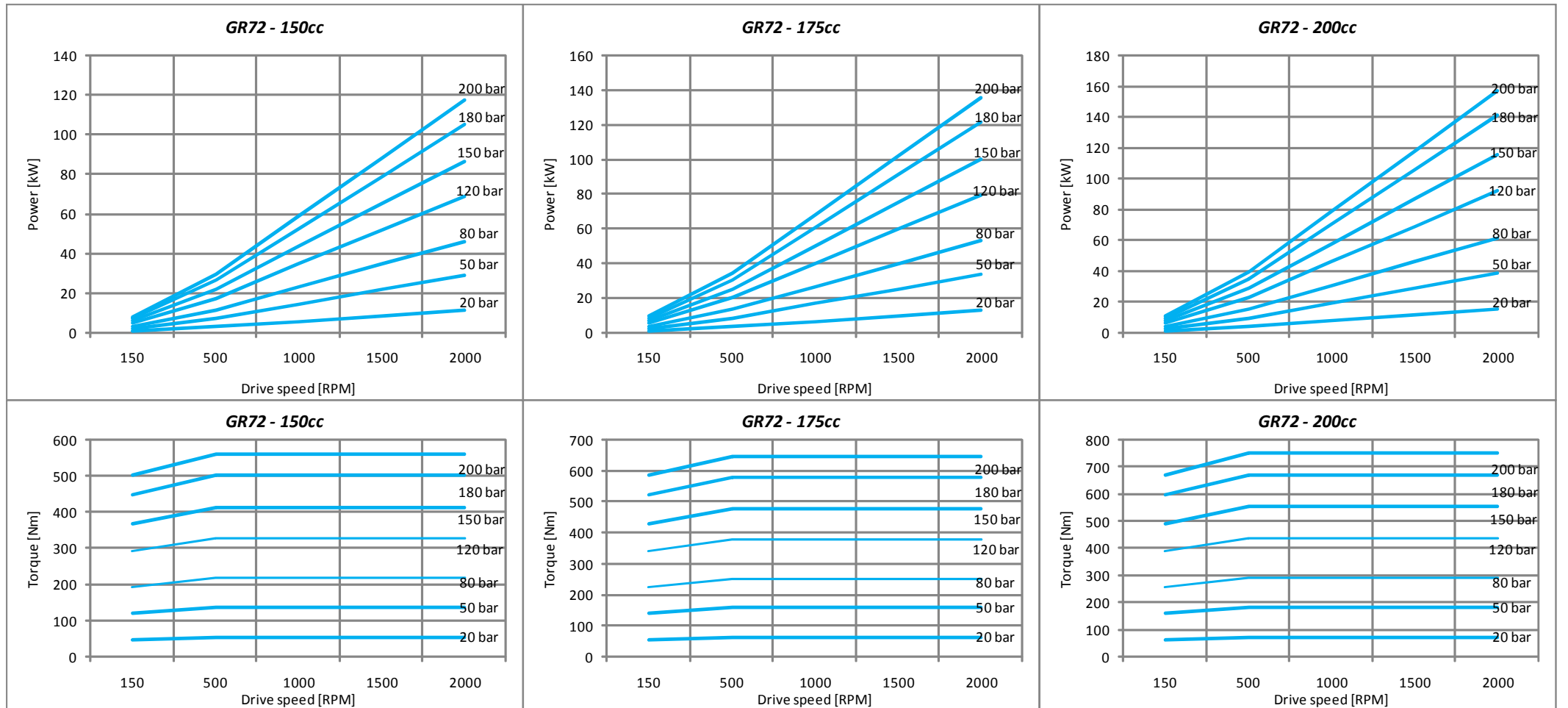
Performances - Power [kW] & Torque [Nm]



Continuum® 泵

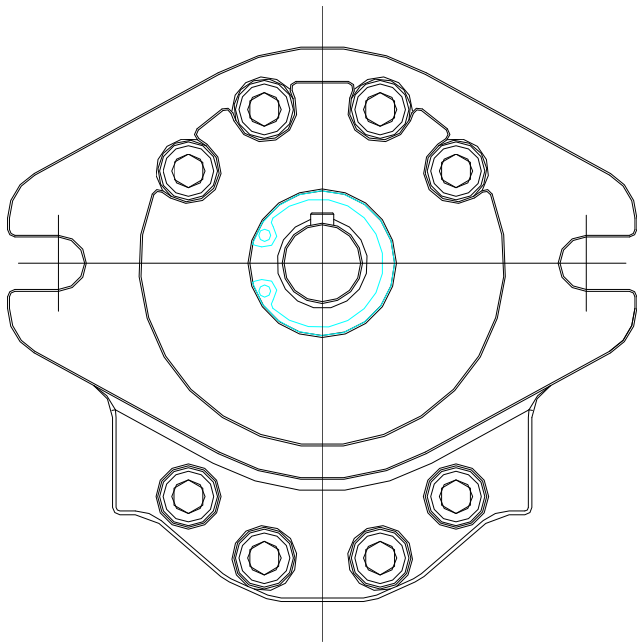
性能 - 功率 [kW] 与扭矩 [Nm]

Performances - Power [kW] & Torque [Nm]



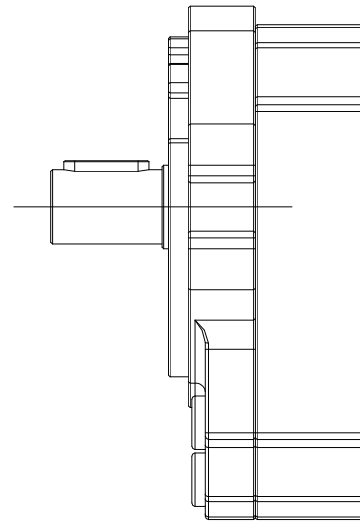
Continuum® 泵

易用的系统集成 – 直接联结解决方案
Friendly system integration – Direct coupling



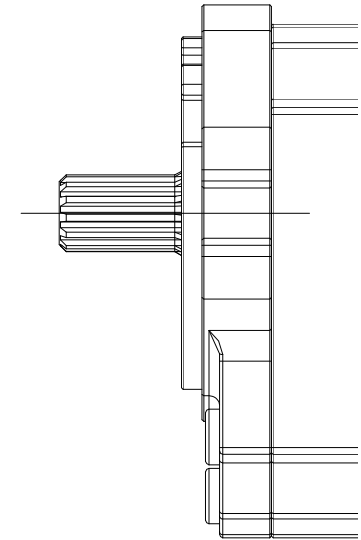
法兰 Flange

- SAE 标准尺寸
SAE standard dimensions
- 易于与伺服马达联结
Easy coupling with servomotor



平键轴 Key shaft

- 中等扭矩应用
Medium torque applications
- 扭矩传递不平衡
Unbalance torque transmission

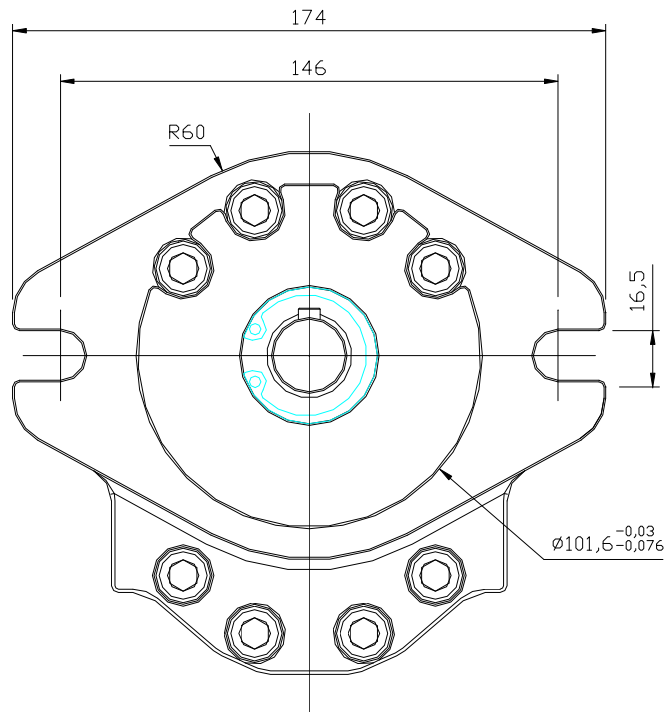


花键轴 Spline shaft

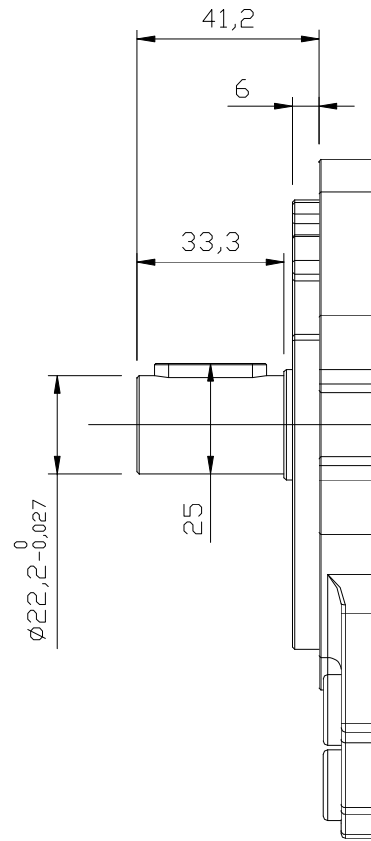
- 高扭矩应用
High torque applications
- 扭矩传递平衡
Balance torque transmission

Continuum® 泵

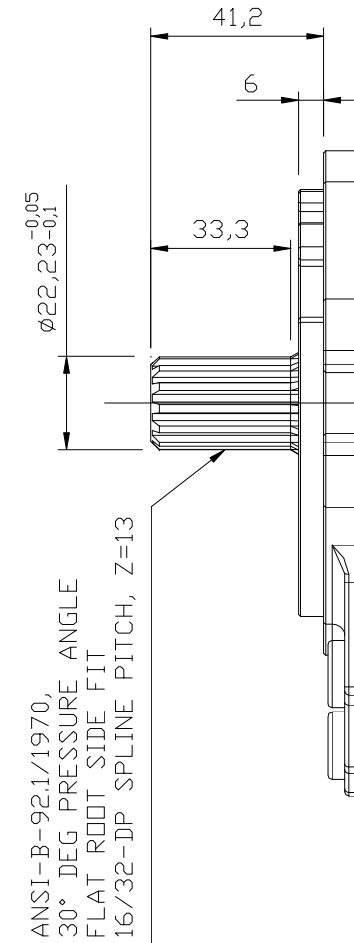
易用的系统集成方式 – 法兰和轴 – GR47 (28 ÷ 50 cc)
 Friendly system integration – Flange & Shaft



SAEB 型 Type



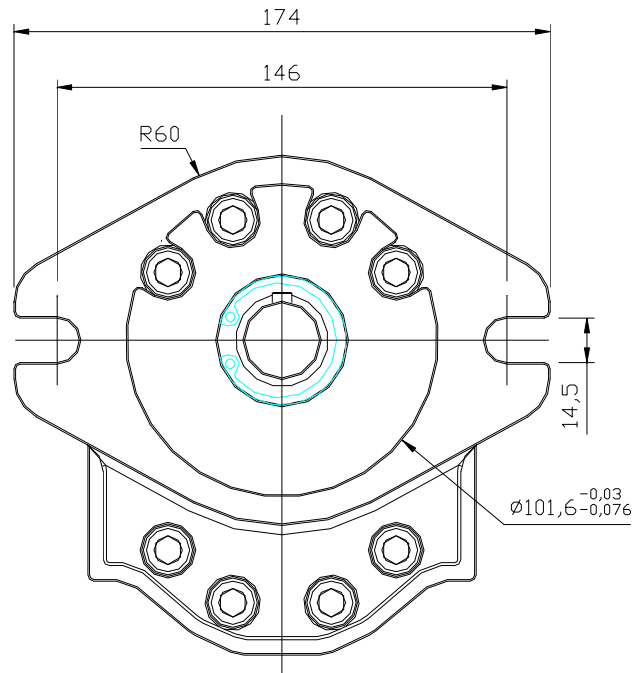
AC 型
 最大扭矩 : 450 Nm
 Max torque



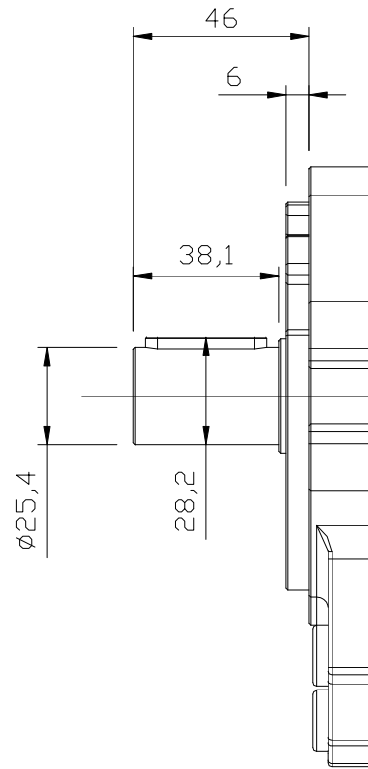
T13 型
 最大扭矩 : 600 Nm
 Max torque

Continuum® 泵

易用的系统集成方式 – 法兰和轴 – GR55 (50 ÷ 90 cc)
 Friendly system integration – Flange & Shaft

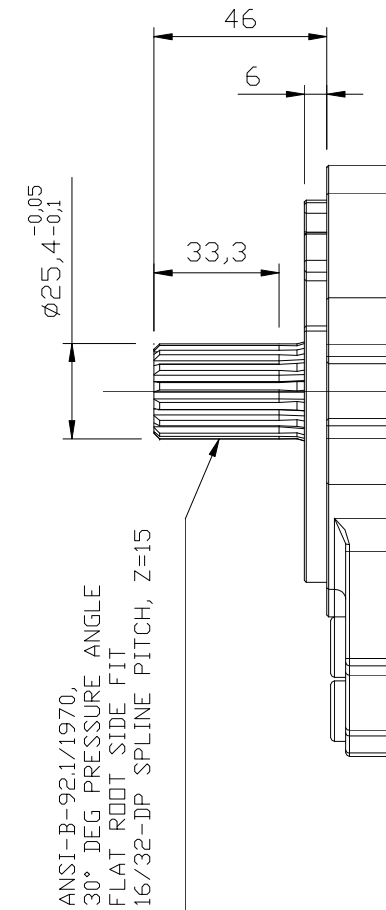


SAEB 型 Type



AC 型

最大扭矩 : 550 Nm
 Max torque

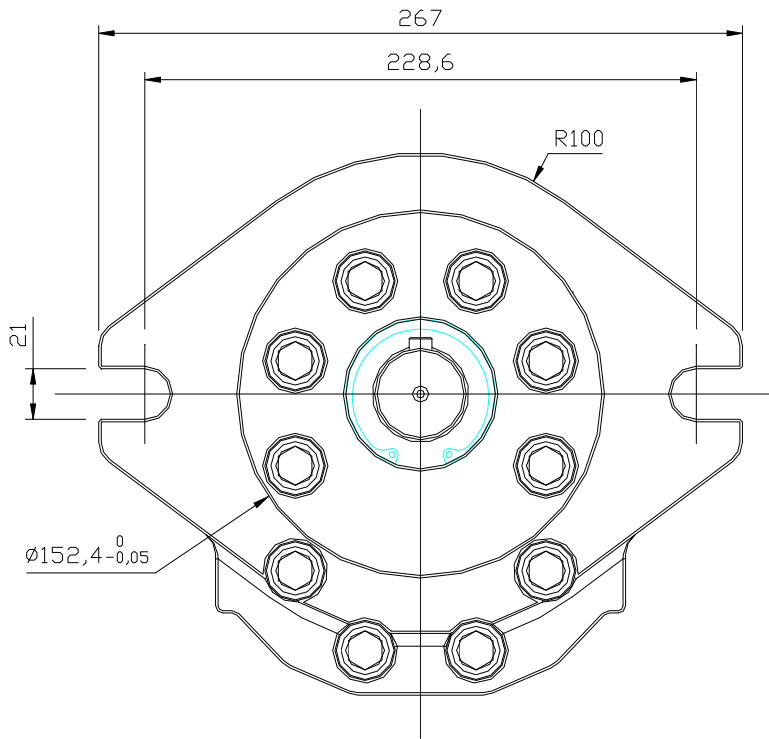


T15 型

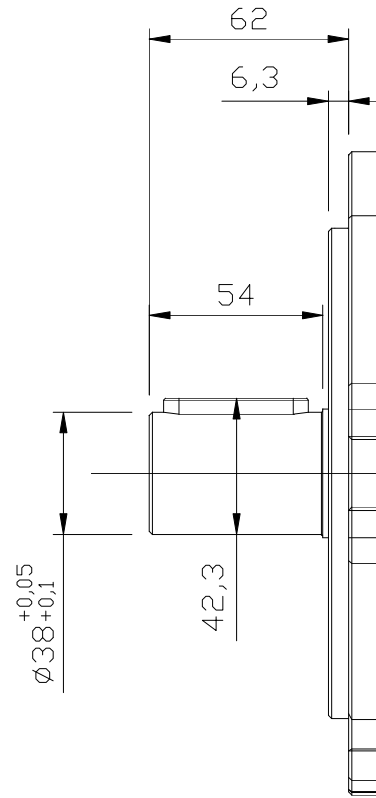
最大扭矩 : 700 Nm
 Max torque

Continuum® 泵

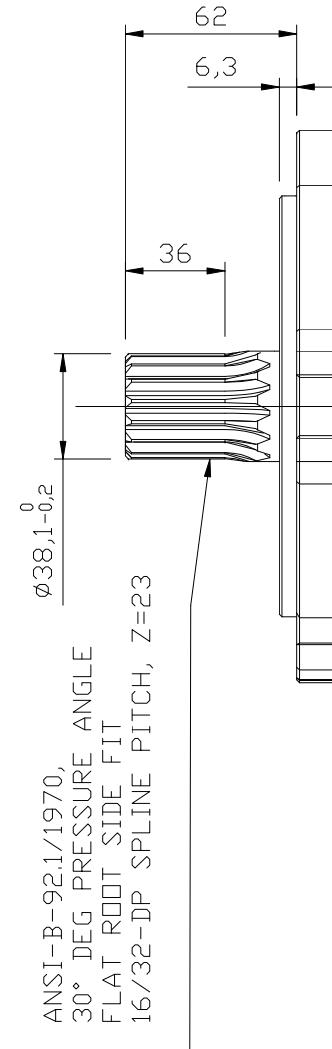
易用的系统集成方式 – 法兰和轴 – GR72 (94 ÷ 200 cc)
 Friendly system integration – Flange & Shaft



SAED 型 Type



AC 型
 最大扭矩：1,000 Nm
 Max torque

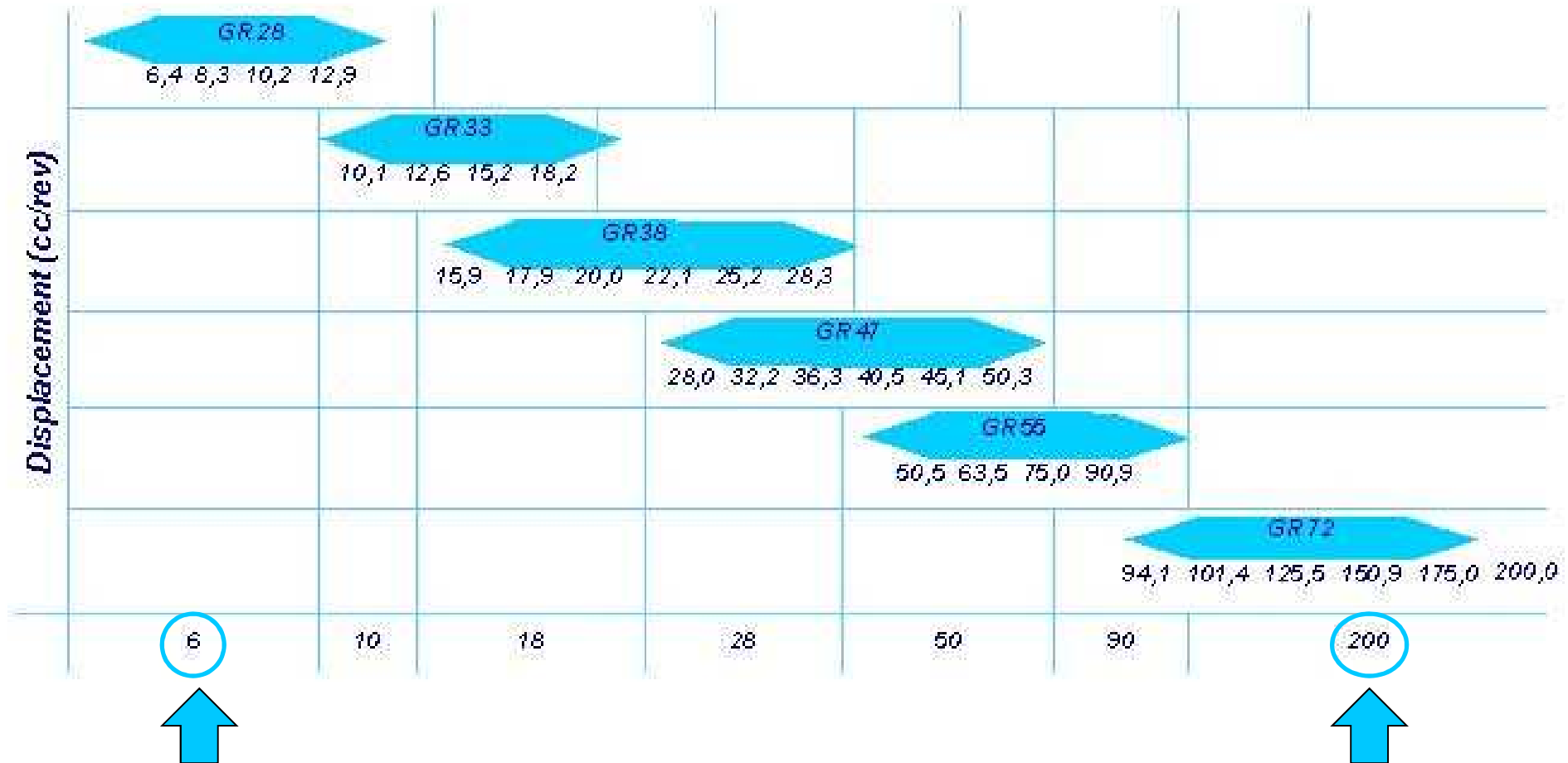


T23 型
 最大扭矩：1,200 Nm
 Max torque

Continuum® 泵

易用的系统集成 - 产品范围

Friendly system integration - Product range



产品范围广泛且全面，可供您轻松选择满足需求的泵

Wide & detailed product range to easily choose pump in line with your requirement

Continuum® 泵

竞争分析 - 对比

Competitive analysis - Overall comparison

Pump type	Flow	Noise	Pressure / Flow pulsation	Pressure	Efficiency	Energy saving	Dirty particles insensitiveness
Screw	1	1	1	3	4	4	1
Continuum	2	1	1	4	2	1	2
External gear	4	5	5	4	2	3	3
Internal gear	4	3	4	5	1	2	4
Vane	2	3	4	3	3	4	5
Piston	3	4	5	1	1	4	5
Vane - variable displacement	2	3	4	3	3	2	5
Piston - variable displacement	3	4	5	1	1	1	5

Continuum®

主要特性

Key characteristic

- 低噪音

Low noise

- 低震动

Low pulsation

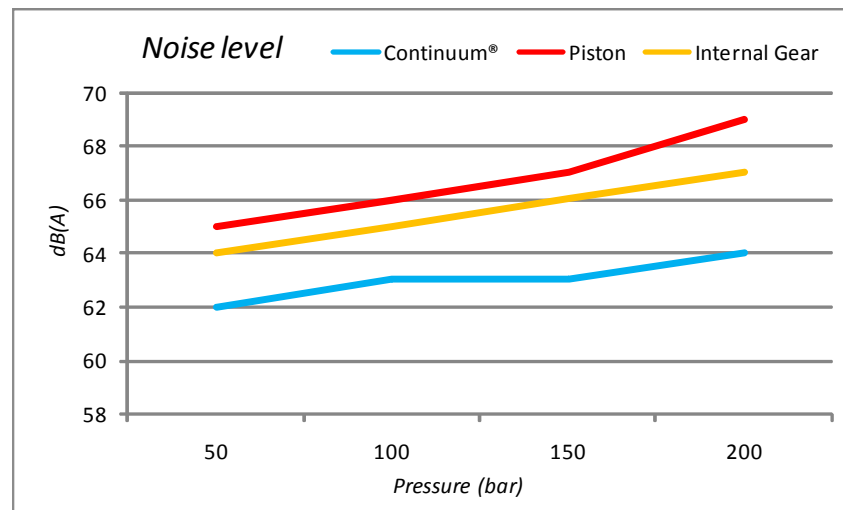
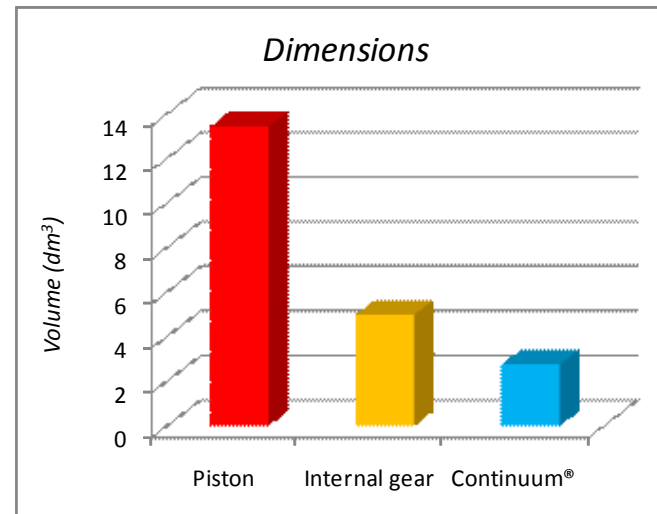
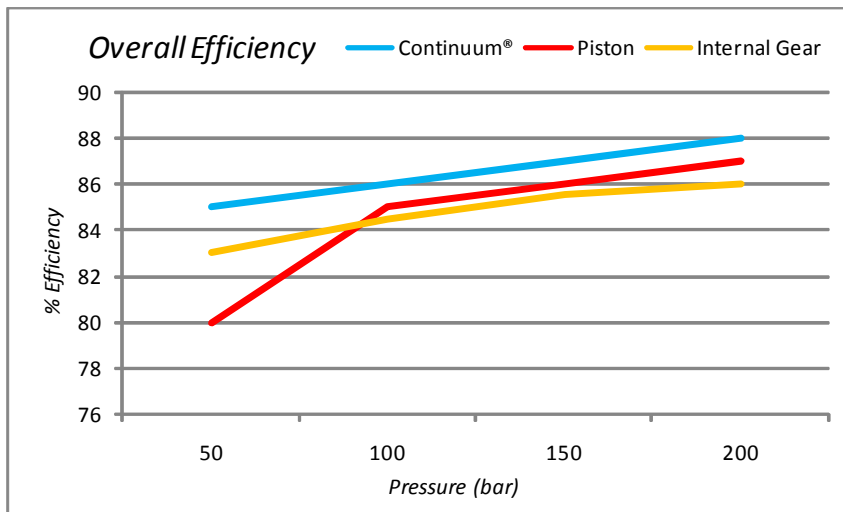
- 节能

Energy saving

Continuum® 泵

竞争分析 – 活塞泵与内齿轮泵

Competitive analysis – Piston & internal gear pump



Continuum® - 主要特性 Key characteristics

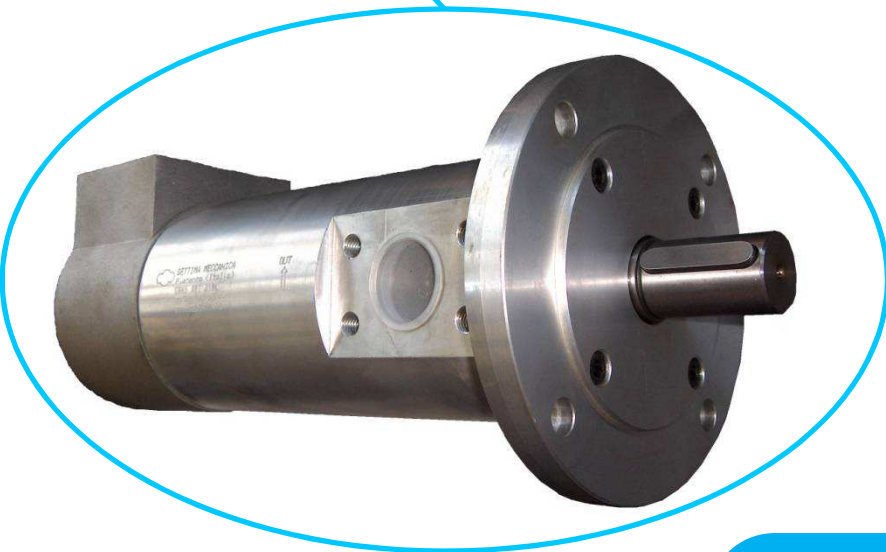
- 噪音水平下降达 15%
Noise level reduced up to 15%
- 尺寸缩小达 75%
Dimensions reduced up to 75%
- 高效率
High efficiency

Settima

冷却与过滤
系统

Cooling &
filtration system

SETTIMA for **PIM**
series

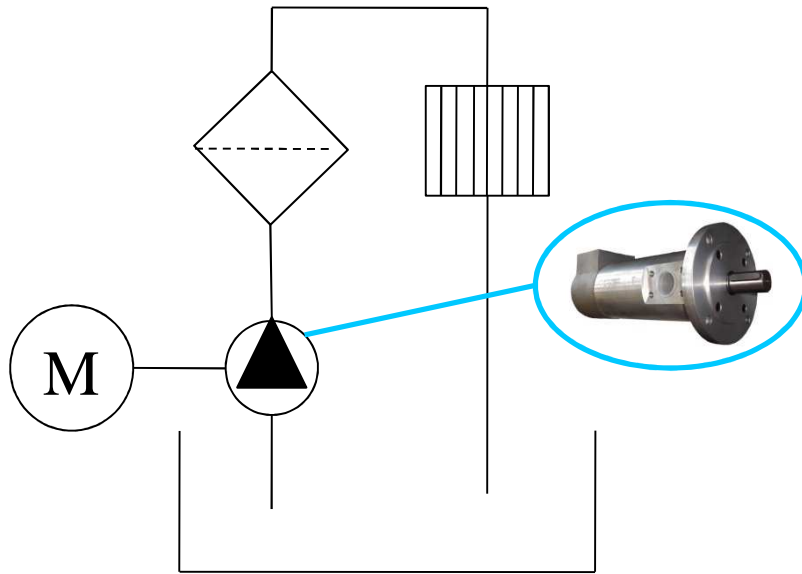


SETTIMA

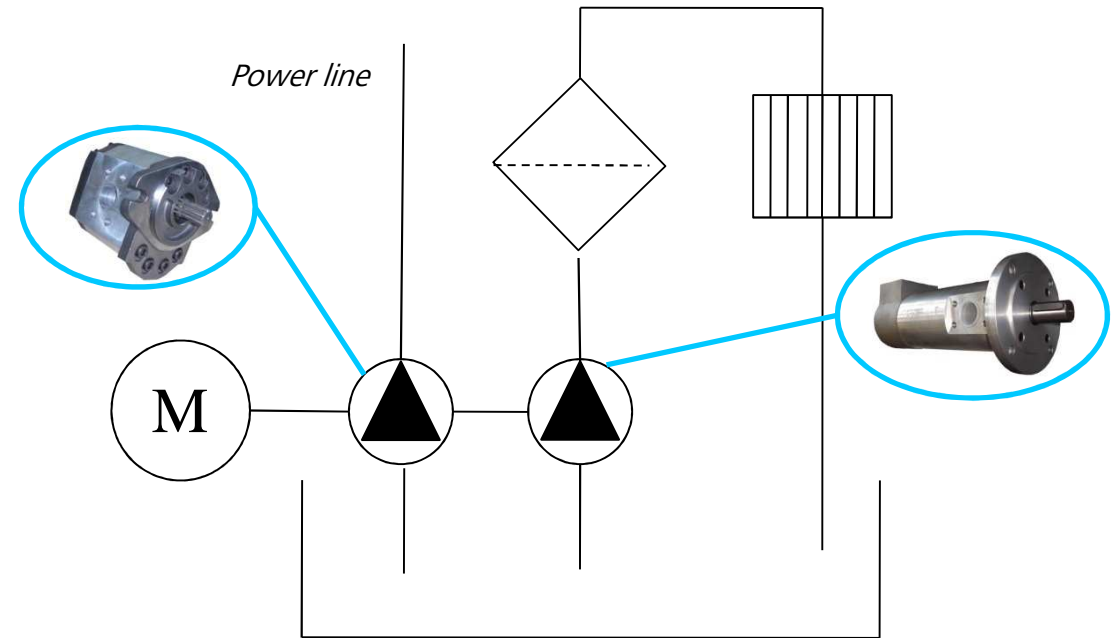
Settima

冷却与过滤系统

Cooling & filtration system



冷却与过滤系统
Cooling & filtration configuration system



动力、冷却与过滤系统
Power, cooling & filtration configuration system

Settima 品质 Quality

Settima 的测试系统

Testing system



测试台系统 Test bench system

- **PIM continuum® 泵的专用测试**
Dedicated test for PIM Continuum® pumps
- **100% “终检”性能测试**
100% “End of line” performance test
- **可模拟客户泵使用条件的可编程系统**
Programmable system to simulate customer pump conditions

Settima 品质

Quality

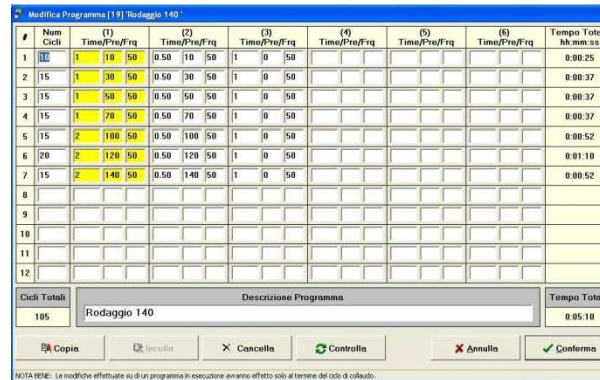
Settima 的测试系统

Testing system



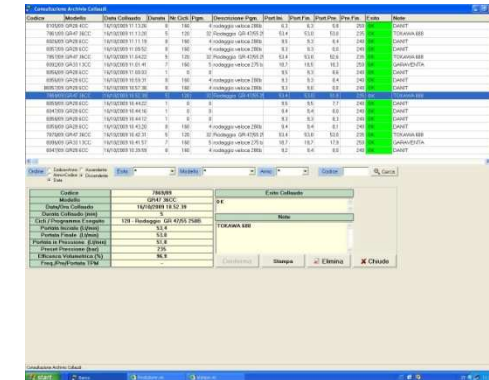
测试台控制面板
Test bench control panel

- 泵的型号
Pump model
- 序列号
Serial number
- 程序选择
Program selection
- 测试目标
Test target
- 测试状
Test status



测试台编程页面
Test bench programming page

- 可设置每个循环的时间、压力、马达频率
Time, pressure, motor frequency settable for each cycle
- 可设置不同循环
Different cycle settable
- 特定泵型号的自定义程序
Customize program for specific pump type



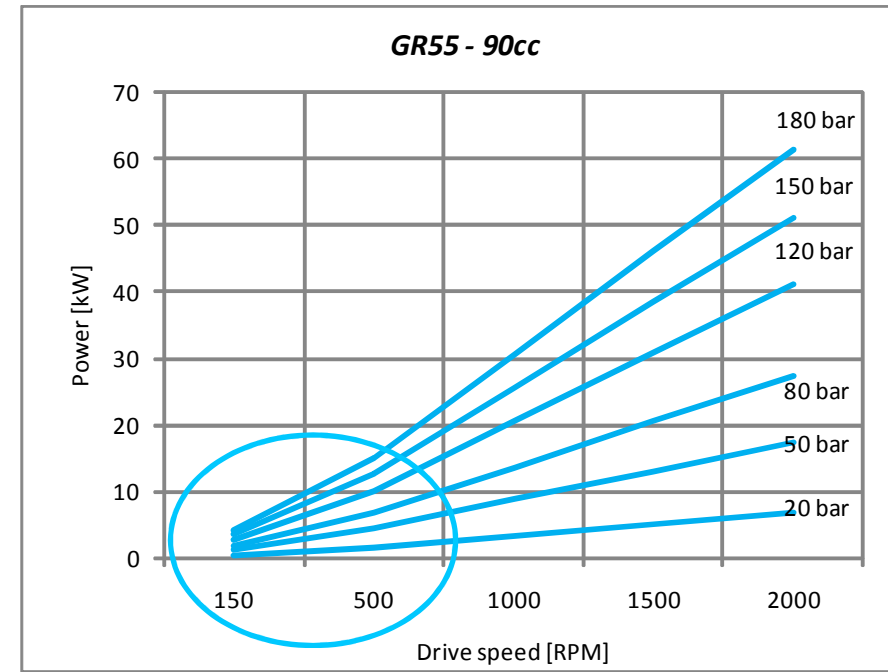
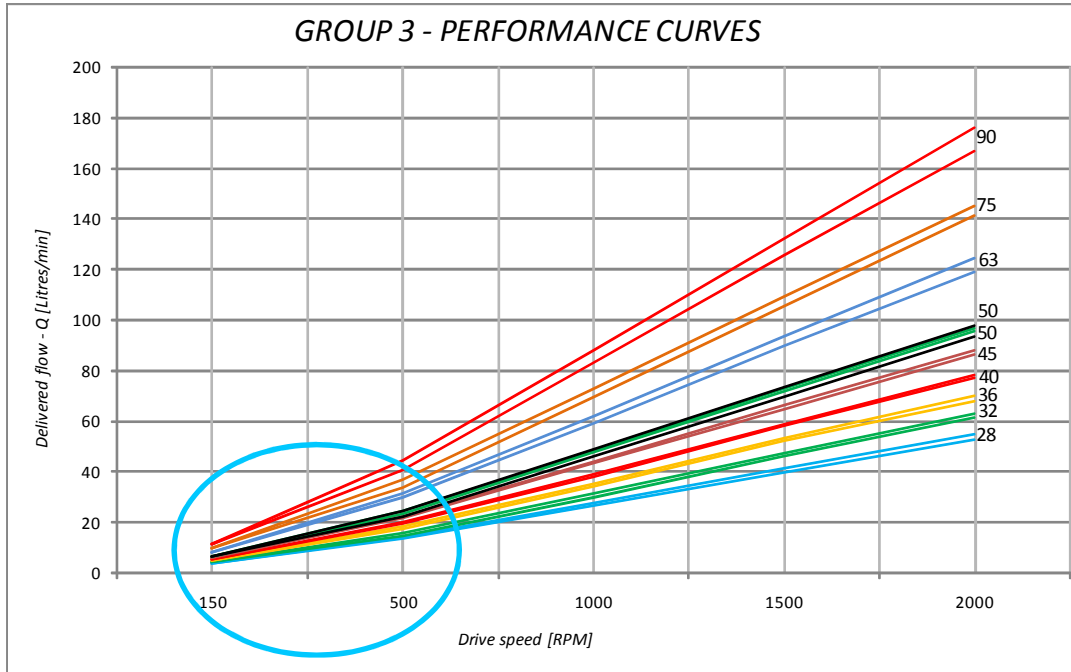
测试台编程页面
Test bench programming page

- 每个泵的数据记录
Data record for each pump
- 通过相关序列号确保可跟踪性
Traceability assure by related serial number

Settima 品质 Quality

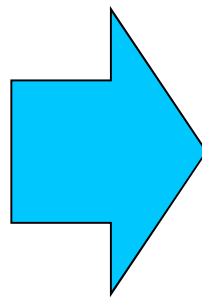
相关问题：测试内容

Issues: what to test



PIM 泵的关键特性 Pump critical characteristic

- 高压与低速 High pressure & low speed
- 高效率 High efficiency
- 低噪音 Low noise



Settima 操作 Actions

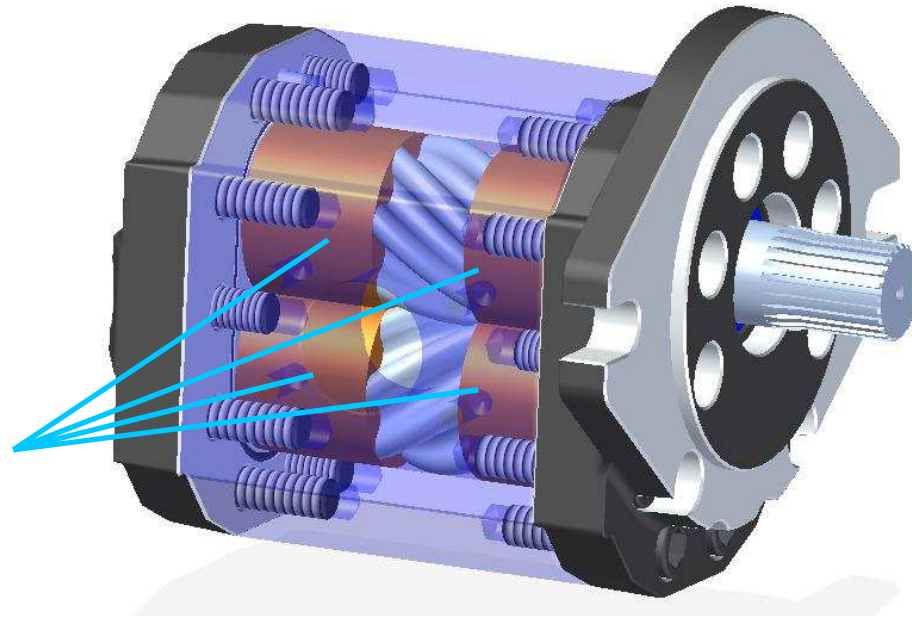
- 专用测试循环 @ 150 ÷ 500 RPM Dedicated test cycle
 - 性能检查 @ 150 ÷ 500 RPM Performance checked
 - 用于提升的专用组件 Dedicated component to improve performances
- 性能 @ 150 ÷ 500 RPM

产品的下一阶段

Product next step

持续改进

Continuous improvement



套管改进

Bushings improvement

- 从 *std* 至 *LWS*

From Std to LWS

- 新材料设计 :

New materials design

- 提高效率

Increase efficiency

- 延长使用寿命

Increase life time

- 降低成本

Decrease costs

泵组件

Pump components

- 制造流程分析

Manufacturing process analysis

- 与容量相关的最佳流程

Optimum process related to volume

- 高效供应链

Efficient supply chain

- 质优价廉

High quality at lowest cost

Continuum ® for PIM



感谢关注

Thanks for listening

-问题 -

- Questions -