

3 Specification Magneta Smedegaard

3.1 Variable Speed Circulator Pumps

Main applications

Heating, ventilation, air-conditioning, refrigerating and circulation systems

- One-pipe and two-pipe systems
- Underfloor heating systems
- Boiler or primary circuits
- Storage tank circuits
- Solar power systems
- Heat pumps

Fluids handled

- Heating water to VDI 2035
- Highly viscous fluids (e.g. 30% glycol content and above) on request
- Pure, thin-bodied, non-aggressive and non-explosive fluids not containing any mineral oil, solids or long fibres
- Fluids with a viscosity of 10 mm²/s max.

Operating data

Operating properties

| Characteristic | Value |
|----------------------|--|
| Flow rate | Q Screw-ended pumps: up to 13 m ³ /u (3,6 l/s) Flanged pumps: up to 57,6 m ³ /u (16,0 l/s) |
| Head | H Screw-ended pumps: up to 12 m Flanged pumps: up to 18 m |
| Fluid temperature | t -10 °C tot +110 °C |
| Ambient temperature | t 0 °C tot +40 °C |
| Operating pressure | p Up to 10 bar |
| Pressure class | PN 6/10 |
| Sound pressure level | < 45 dB[A] |
| Connection | Screwed connection: R 1, R 5/4 Flange: DN 40, DN 50, DN 65, DN 80, DN 100 |

Designation:

Example Magneta Smedegaard 25-60

Key to the designation

| Code | Description |
|--------------------|-------------------------------------|
| Magneta Smedegaard | High-efficiency pump |
| 25 | Nominal diameter of pipe connection |
| | 25 = R 1 |
| | 30 = R 5/4 |
| | 40 ... 100 = DN 40 ... DN 100 |
| 60 | Head in mwk x 10 (example 60 = 6 m) |
| N | Stainless steel |
| D | Twin pump |

Design details

Design

- High-efficiency, maintenance-free, flanged or screw-ended wet rotor pump (glandless) with high-efficiency electric motor and continuously variable differential pressure control

Operating modes

- Constant-pressure and proportional-pressure control
- Eco Mode with dynamic differential pressure setpoint adjustment
- Open-loop control mode with manual input of one of 10 speed levels

Automatic functions

- Continuous output adjustment depending on the mode of operation
- 0 – 10 V with external differential pressure setpoint/speed setting
- Multiple pump operation - DUAL function
- Modbus
- Setback operation
- External start/stop
- Deblocking function
- Self-venting function
- Soft start
- Full motor protection with integrated trip electronics
- General fault message
- System operational message via additional module

Manual functions

- Setting the operating mode
- Setting the differential pressure setpoint
- Setting the speed level



Signalling and display functions

- Alternating display of flow rate and electrical input power
- Error codes indicated on the display

Drive

- Electronically commutated synchronous motor with permanent magnet rotor
- 1~230 VAC, 50/60 Hz
- IP44 enclosure
- Thermal class F
- Temperature class TF 110
- RFI emission EN 61 000-6-3
- Generic immunity standard EN 61 000-6-2

Bearings

- Product-lubricated special plain bearing

Materials

Overview of available materials

| Component | Material |
|-----------------|---|
| Volute casing | Grey cast iron with cathodic electro coating (EN-GJL-200) |
| Shaft | Stainless steel 1.4034 |
| Impeller | PSU |
| Bearing | Ceramics/carbon (metal impregnated) |
| Can | Stainless steel 1.4301 |
| Heat insulation | Polypropylene |

Product benefits

- Maximum savings of operating costs by high-efficiency technology combined with speed control
- Future-proof by maximum energy efficiency, exceeding future energy efficiency regulations such as ErP 2015, and 5-year spare parts availability.
- Simple to set with press & turn dial combined with an integrated display and symbols indicating the operating mode
- High availability by dual pump operation and integrated protective functions
- New Eco Mode enables additional savings compared to proportional-pressure control

Certifications

| Label | Effective in: | Note |
|--|---------------|------------|
|  | Europa | EEI < 0,23 |

Design

Features and functions

| Functions | Feature |
|---|---------|
| Operating modes | |
| Δp -v for variable differential pressure | yes |
| Δp -c for constant differential pressure | yes |
| Eco Mode for dynamically adjusted differential pressure setpoint | yes |
| Open-loop control | yes |
| Manual functions | |
| Setting of operating mode | yes |
| Setting of differential pressure setpoint | yes |
| Setting of speed level | yes |
| Automatic functions | |
| Continuous output adjustment depending on the mode of operation (Δp control) | yes |
| Setback operation | yes |
| Deblocking function (start-up at max. torque) | yes |
| Soft start | yes |
| Interfaces of all-in concept | |
| Integrated 0 - 10 V interface for differential pressure setpoint/speed setting | yes |
| Serial digital Modbus RTU interface for connection to a building management system via RS485 bus system | yes |
| Dual pump management with duty/stand-by operation with two single pumps (automatic changeover in the event of a fault as well as timer-controlled changeover) | yes |
| Integrated start/stop interface (terminal pair RUN) | yes |
| Integrated general fault message relay (volt-free changeover contact) | yes |
| Signalling and display functions | |
| "System operational" message via additional module | yes |
| Alternating display of flow rate and electrical input power | yes |
| Operating mode displayed by symbols | yes |
| Error codes indicated on the display | yes |

Magneta Smedegaard selection table

Technical data

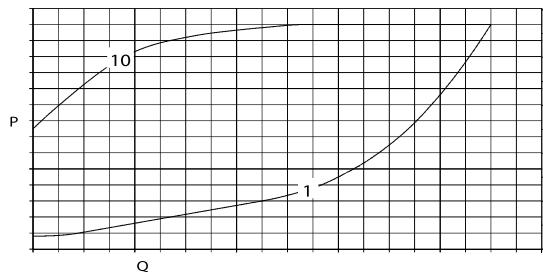
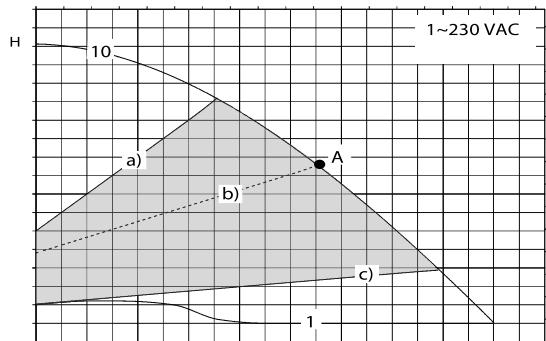
| Magneta Smede- gaard | R - DN | G | PN P1 | P1 | Motor pro- tection | Signalling contacts | Rated cur- rent | Mat. No. | (kg) |
|----------------------------|--------|-------|-------|----------|-----------------------|------------------------|--------------------|----------------|------|
| | | | | | | | W | | |
| 25-40 | R 1 | G 1 ½ | 6/10 | 6- 50 | # | * | 0,10 - 0,80 | SME00225040400 | 4,6 |
| 25-60 | R 1 | G 1 ½ | 6/10 | 8 - 100 | # | * | 0,10 - 0,80 | SME00225060400 | 4,6 |
| 25-80 | R 1 | G 1 ½ | 6/10 | 8 - 140 | # | * | 0,10 - 1,15 | SME00225080400 | 4,6 |
| 25-100 | R 1 | G 1 ½ | 6/10 | 8 - 175 | # | * | 0,10 - 1,40 | SME00225100400 | 4,6 |
| 25-40N | R 1 | G 1 ½ | 6/10 | 6- 50 | # | * | 0,10 - 0,80 | SME00225040800 | 4,6 |
| 25-60N | R 1 | G 1 ½ | 6/10 | 8 - 100 | # | * | 0,10 - 0,80 | SME00225060800 | 4,6 |
| 25-80N | R 1 | G 1 ½ | 6/10 | 8 - 140 | # | * | 0,10 - 1,15 | SME00225080800 | 4,6 |
| 25-100N | R 1 | G 1 ½ | 6/10 | 8 - 175 | # | * | 0,10 - 1,40 | SME00225100800 | 4,6 |
| 30-60 | R 1 ¼ | G 2 | 6/10 | 8 - 100 | # | * | 0,10 - 0,80 | SME00330060400 | 4,8 |
| 30-80 | R 1 ¼ | G 2 | 6/10 | 8 - 140 | # | * | 0,10 - 1,15 | SME00330080400 | 4,8 |
| 30-100 | R 1 ¼ | G 2 | 6/10 | 8 - 175 | # | * | 0,10 - 1,40 | SME00330100400 | 4,8 |
| 30-120 | R 1 ¼ | G 2 | 6/10 | 15-350 | # | * | 0,20 - 1,80 | SME00330120400 | 6,4 |
| 32-120 | DN 32 | - | 6/10 | 15-350 | # | * | 0,20 - 1,80 | SME00332120400 | 9,3 |
| 40-60 | DN 40 | - | 6/10 | 8 - 100 | # | * | 0,10 - 0,90 | SME00440060400 | 8,0 |
| 40-70 | DN 40 | - | 6/10 | 8 - 140 | # | * | 0,10 - 1,20 | SME00440070400 | 8,0 |
| 40-80 | DN 40 | - | 6/10 | 15 - 280 | # | * | 0,20 - 1,90 | SME00440080440 | 11,1 |
| 40-90 | DN 40 | - | 6/10 | 8 - 175 | # | * | 0,10 - 1,40 | SME00440090400 | 8,0 |
| 40-100 | DN 40 | - | 6/10 | 15 - 350 | # | * | 0,20 - 2,20 | SME00440100440 | 11,1 |
| 40-120 | DN 40 | - | 6/10 | 25 - 500 | # | * | 0,30 - 2,90 | SME00440120400 | 20,3 |
| 40-180 | DN 40 | - | 6/10 | 25 - 700 | # | * | 0,30 - 4,00 | SME00440180400 | 20,3 |
| 50-40 | DN 50 | - | 6/10 | 8 - 140 | # | * | 0,10 - 1,40 | SME00550040400 | 9,65 |
| 50-60 | DN 50 | - | 6/10 | 15 - 280 | # | * | 0,20 - 1,90 | SME00550060440 | 12,6 |
| 50-80 | DN 50 | - | 6/10 | 15 - 350 | # | * | 0,20 - 2,20 | SME00550080400 | 12,6 |
| 50-90 | DN 50 | - | 6/10 | 8 - 175 | # | * | 0,10 - 1,40 | SME00550090400 | 9,0 |
| 50-100 | DN 50 | - | 6/10 | 25 - 450 | # | * | 0,30 - 3,00 | SME00550100440 | 21,0 |
| 50-120 | DN 50 | - | 6/10 | 25 - 550 | # | * | 0,30 - 3,00 | SME00550120400 | 21,0 |
| 50-150 | DN 50 | - | 6/10 | 25 - 535 | # | * | 0,30 - 3,50 | SME00550150400 | 21,0 |
| 50-180 | DN 50 | - | 6/10 | 25 - 535 | # | * | 0,30 - 3,50 | SME00550180400 | 21,0 |
| 65-60 | DN 65 | - | 6/10 | 15 - 350 | # | * | 0,20 - 2,20 | SME00665060400 | 16,6 |
| 65-120 | DN 65 | - | 6/10 | 55 - 760 | # | * | 0,24 - 3,3 | SME00665120400 | 31,2 |
| 80-80 | DN 80 | - | 10 | 56 - 664 | # | * | 0,25 - 2,9 | SME00880080400 | 32,2 |
| 80-80 | DN 80 | - | 6 | 56 - 664 | # | * | 0,25 - 2,9 | SME00880080430 | 32,2 |
| 100-60 | DN 100 | - | 10 | 55 - 760 | # | * | 0,33 - 3,2 | SME01010060400 | 41,2 |
| 100-60 | DN 100 | - | 6 | 55 - 760 | # | * | 0,33 - 3,2 | SME01010060430 | 41,2 |

= Integrated motor protection in the terminal box

* = General fault message; in addition, an operational message can be provided as an option



Description of the characteristic curve



Selection example

| | | |
|---------------|---|----------------------------------|
| 1 | Level 1 | Open-loop control, min. speed |
| 10 | Level 10 | Open-loop control |
| Control range | | |
| a) | Control curve, maximum head | |
| b) | Control curve, minimum head | |
| info | The characteristic curve can be adjusted between a) and b) by turning the control dial. | |

Table 5: Fluid temperature specified for the ambient temperature [°C]

| | Fluid temperature (°C) | Ambient tem- perature (°C) |
|-----|---------------------------|----------------------------------|
| All | 110 | 40 |
| | 90 | 30 |

Table 6: Minimum inlet pressure p_{min} [bar] specified for the fluid temperature [°C]

| | Fluid temperature (°C) | Pression min- imum (bar) |
|-----|---------------------------|--------------------------------|
| All | 80 | 0,5 |
| | 81 - 95 | 1,5 |

Minimum pressure

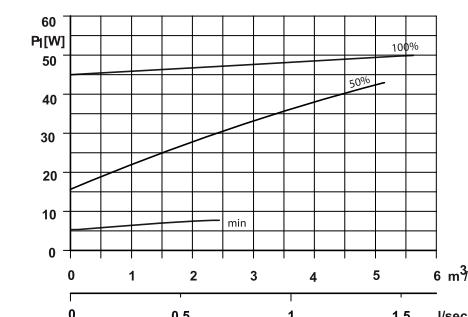
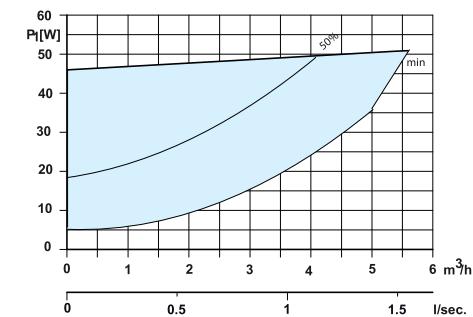
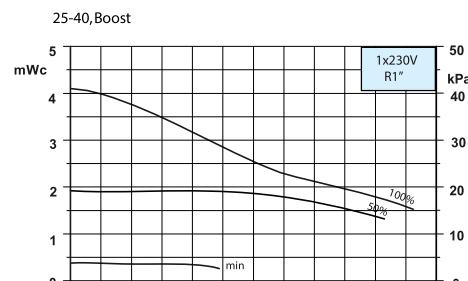
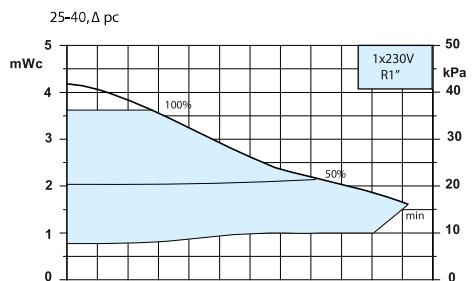
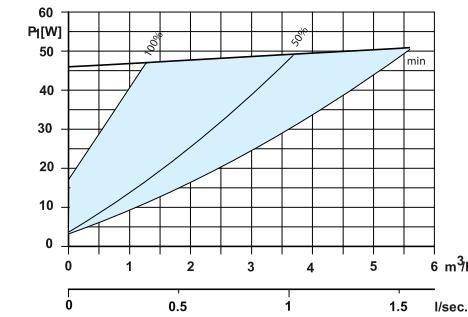
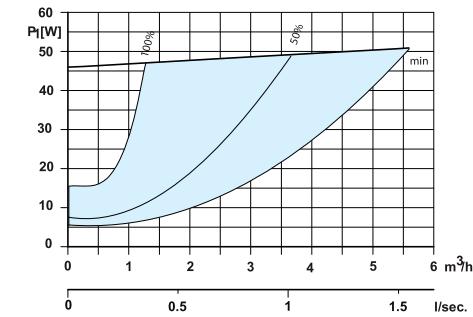
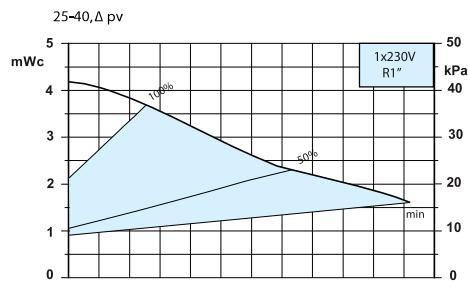
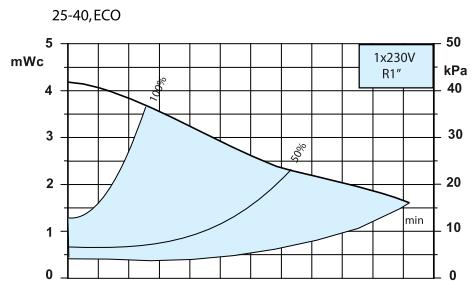
Minimum pressure p_{min} at the pump suction nozzle to avoid cavitation noise at an ambient temperature of +40 °C and a pumped-water temperature of t_{max} .

The values are applicable up to 300 m above sea level. For installation at altitudes > 300 m, an allowance of +0.01 bar/100 m must be added.

3.2 Magneta Smedegaard 25 - 40

25-40

EEI $\leq 0,23$

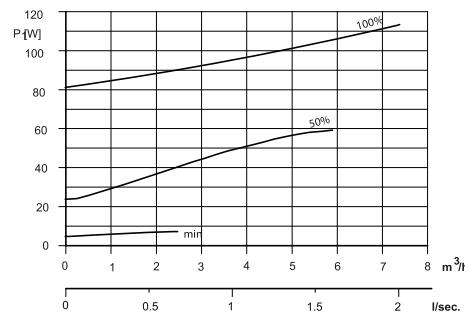
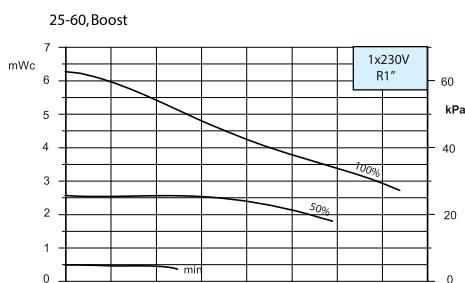
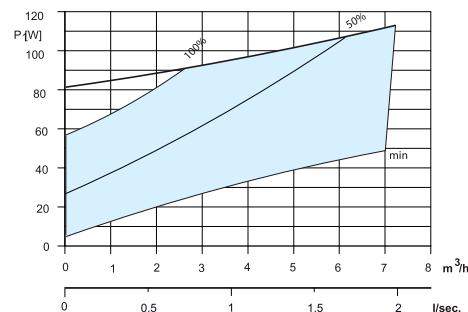
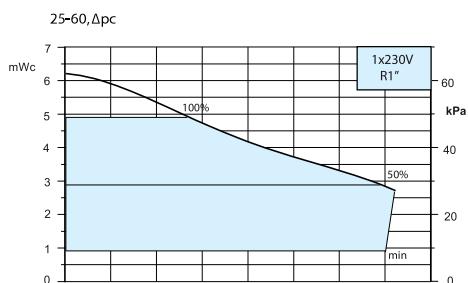
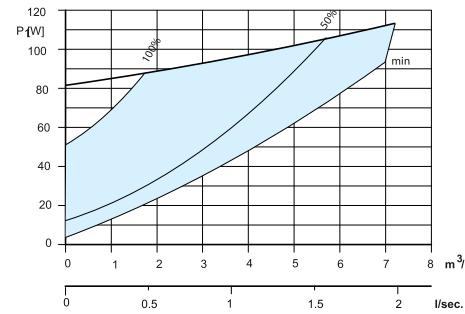
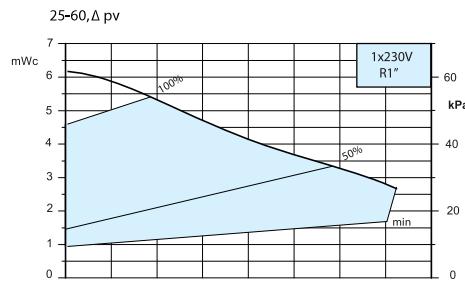
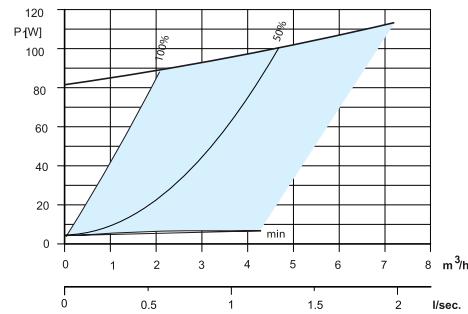
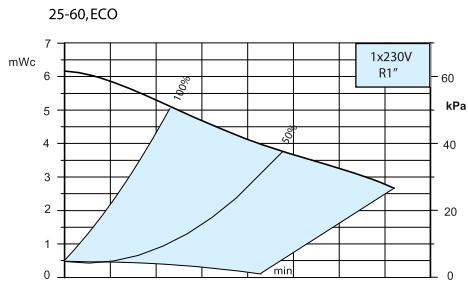


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3.3 Magneta Smedegaard 25-60

25-60

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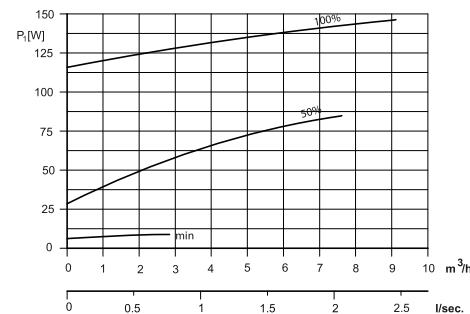
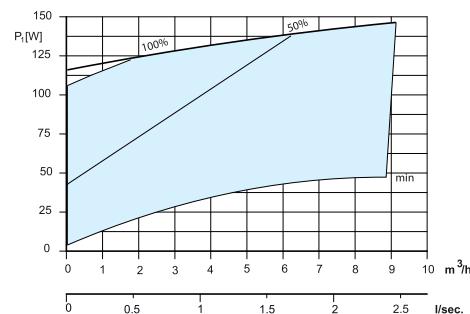
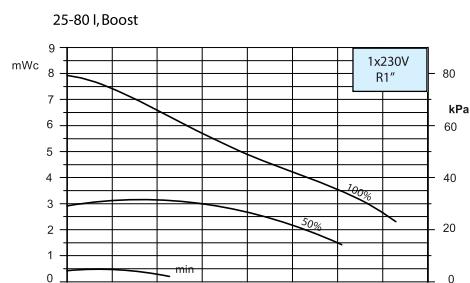
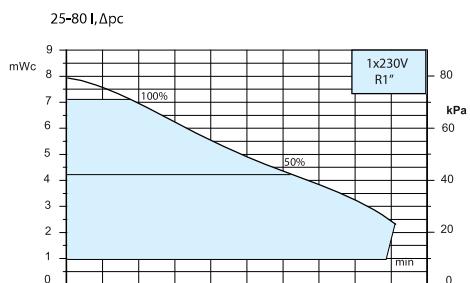
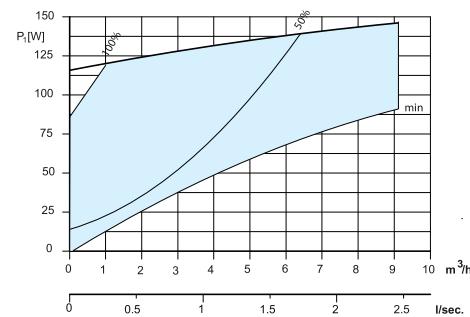
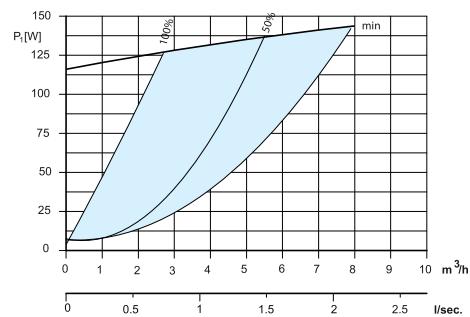
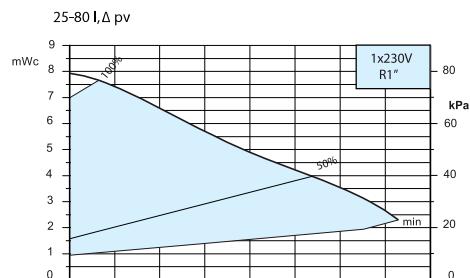
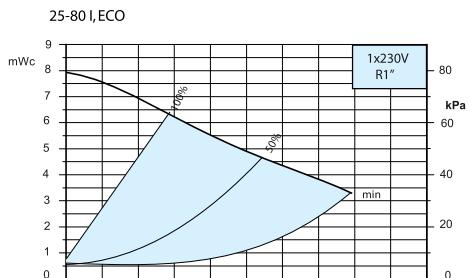


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3.4 Magneta Smedegaard 25-80

25-80

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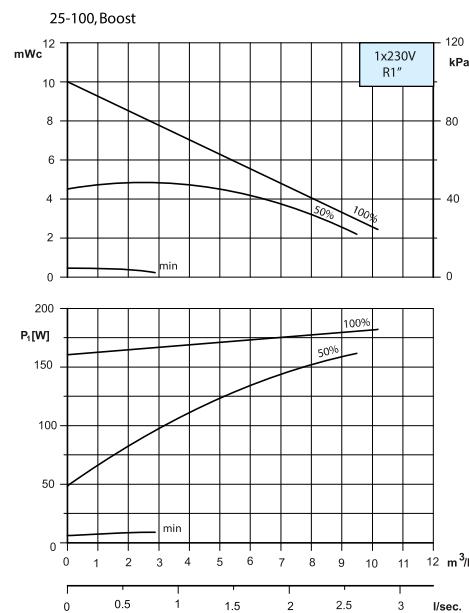
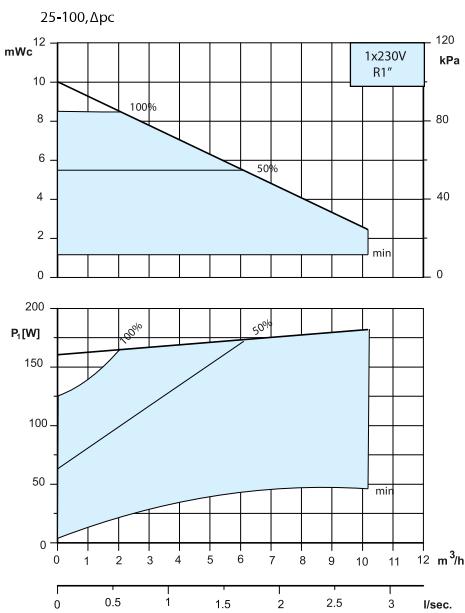
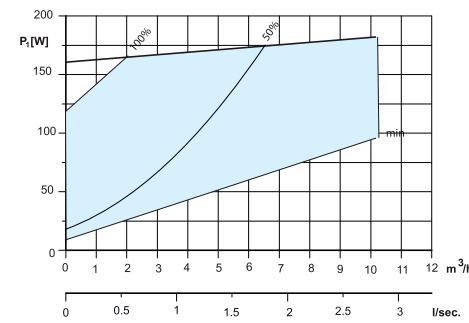
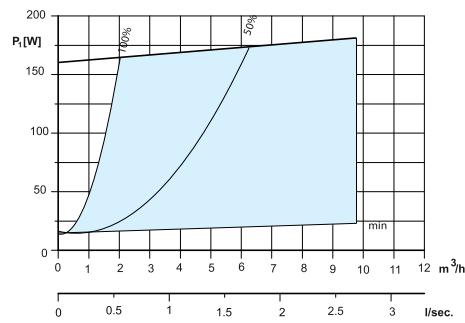
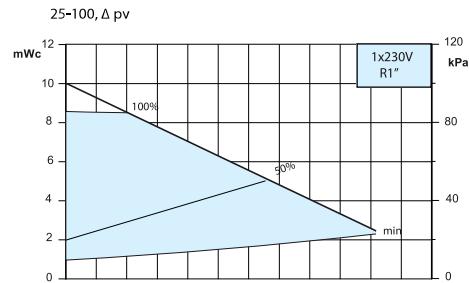
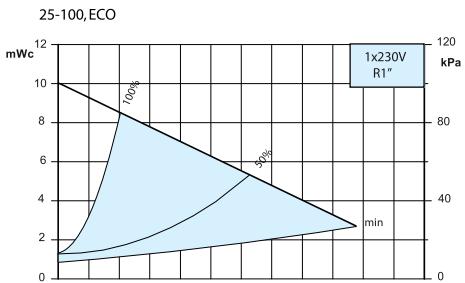


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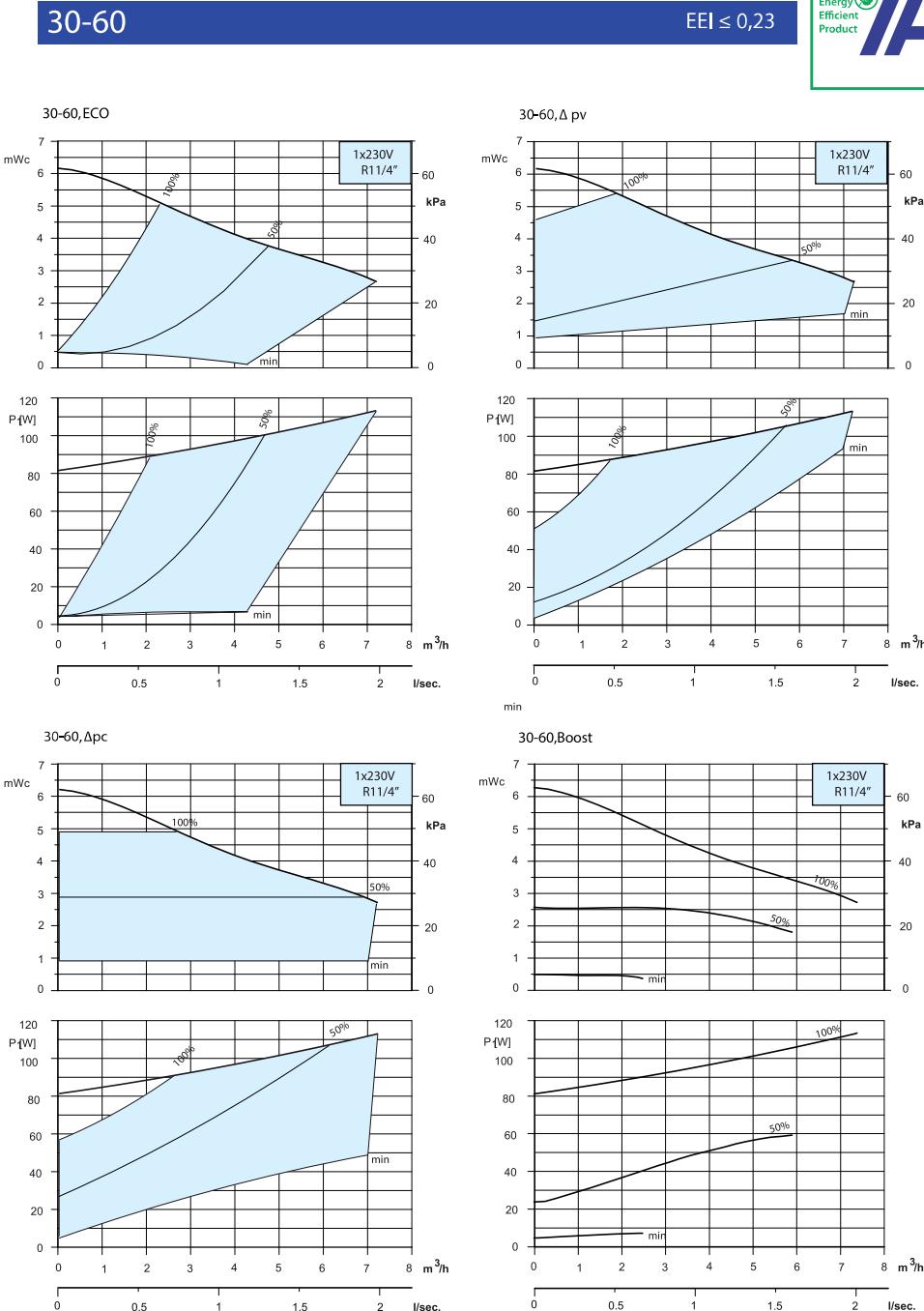
3.5 Magneta Smedegaard 25-100

25-100

EEI $\leq 0,23$

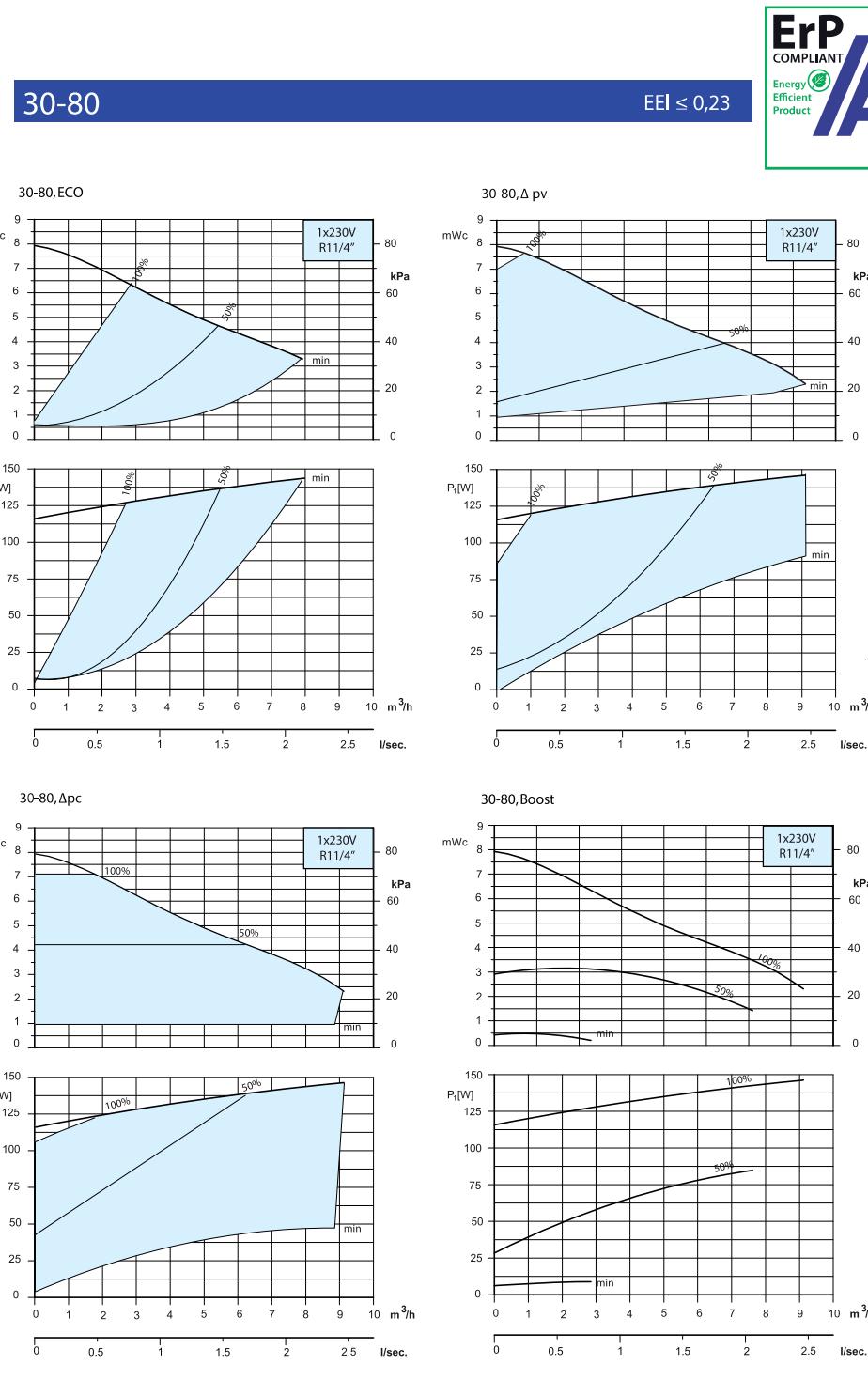


3.6 Magneta Smedegaard 30-60



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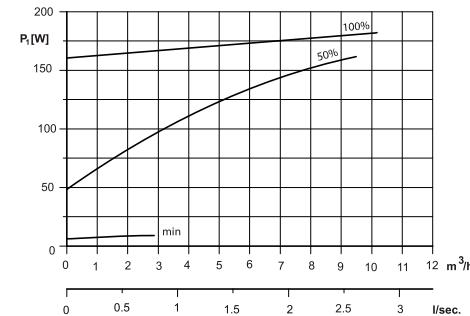
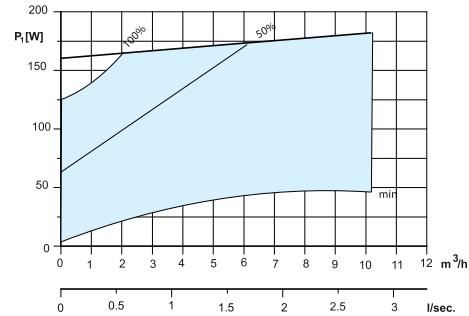
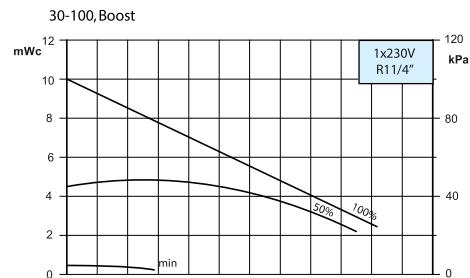
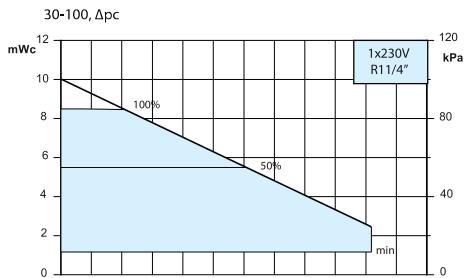
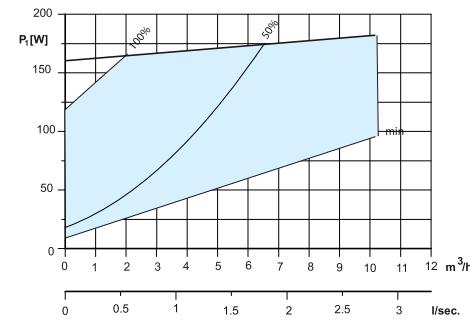
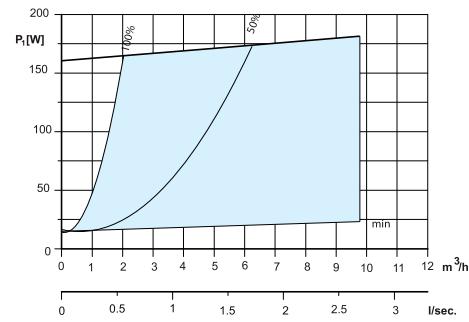
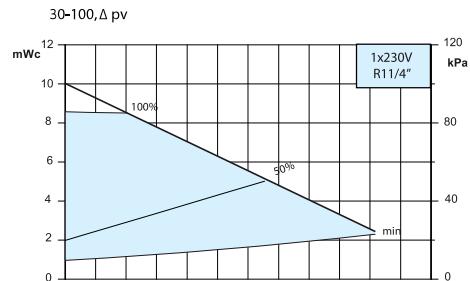
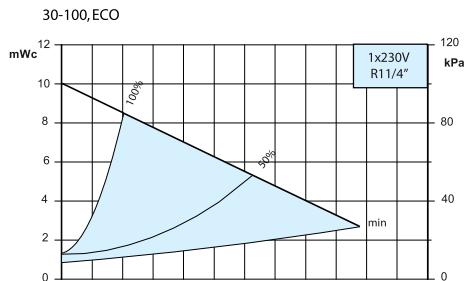
3.7 Magneta Smedegaard 30-80



3.8 Magneta Smedegaard 30-100

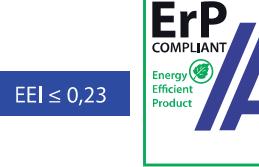
30-100

EEI $\leq 0,23$



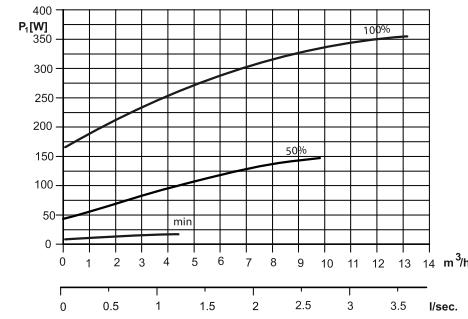
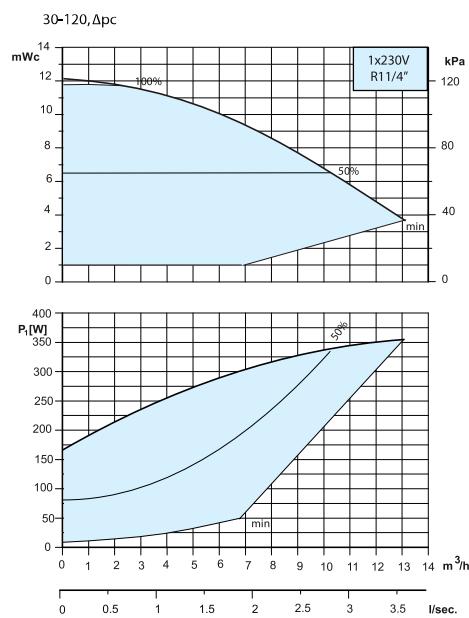
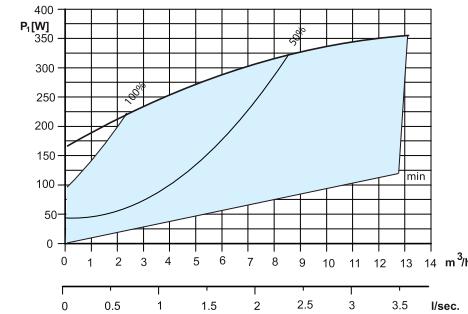
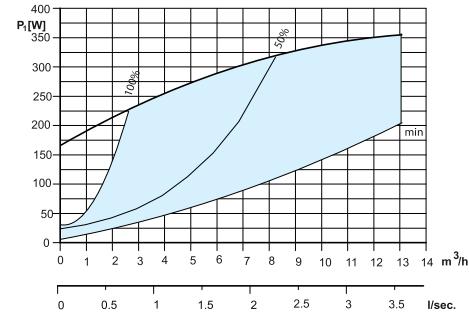
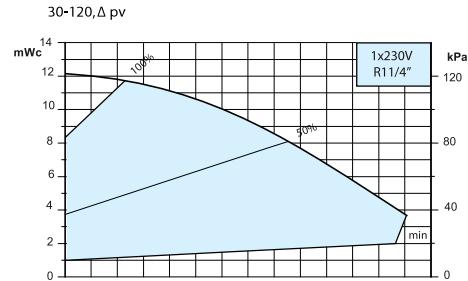
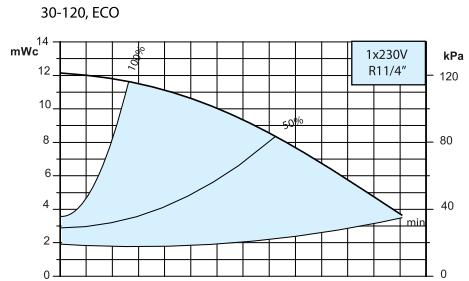
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3.9 Magneta Smedegaard 30-120



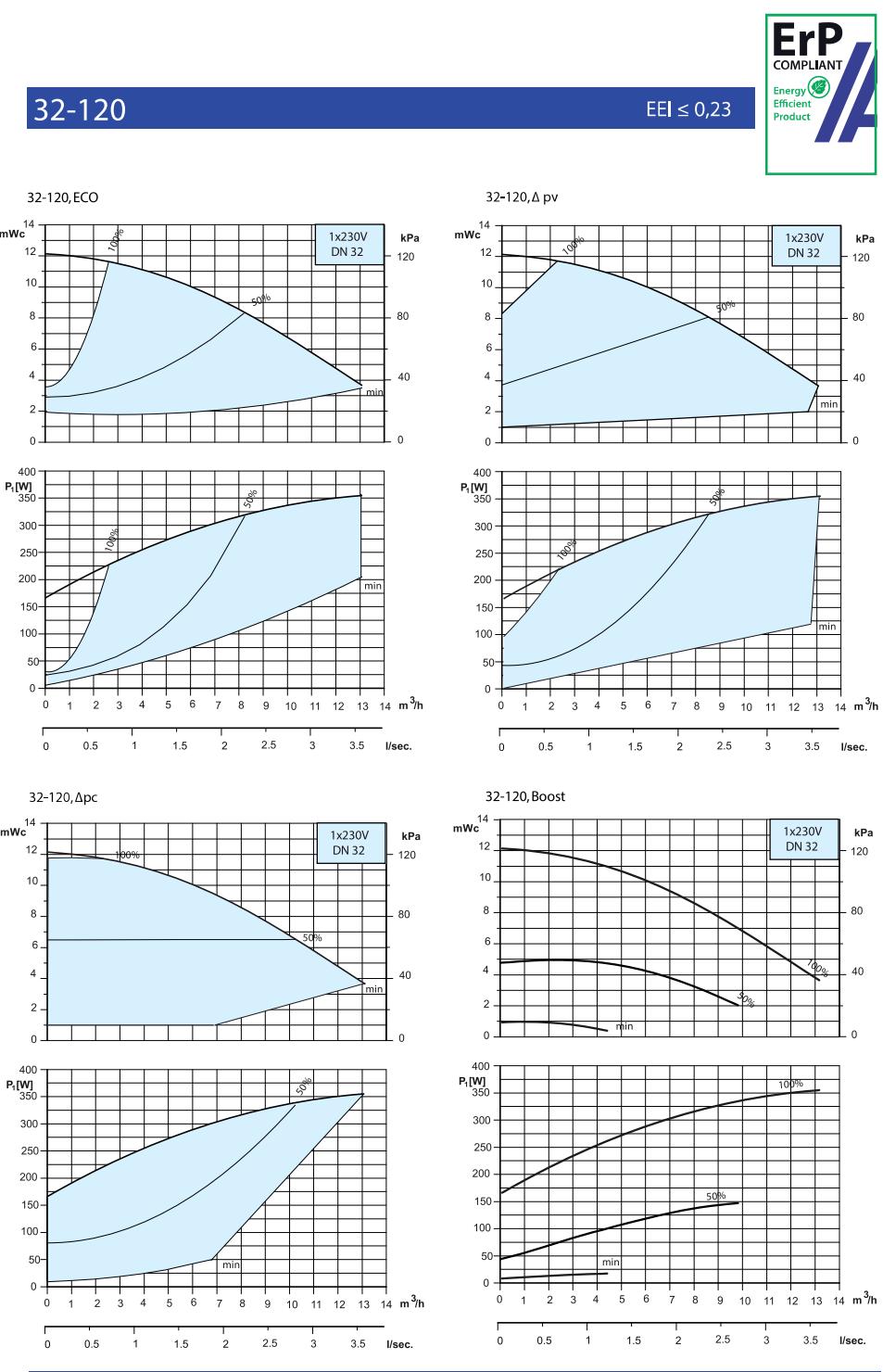
30-120

EEI $\leq 0,23$



We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

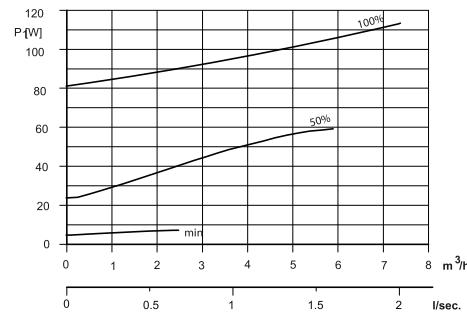
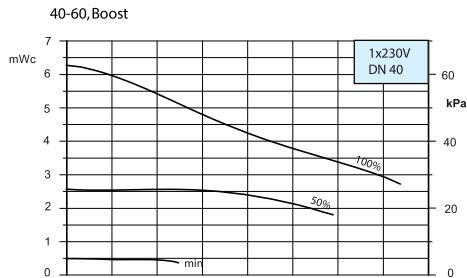
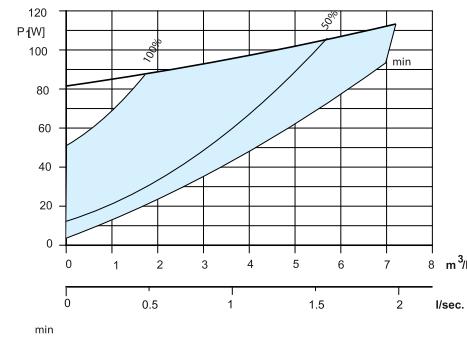
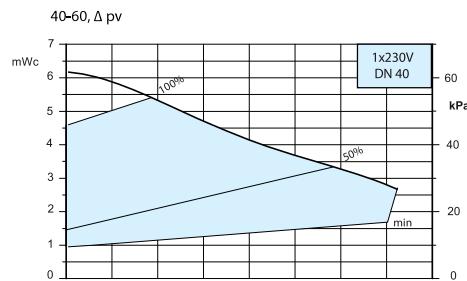
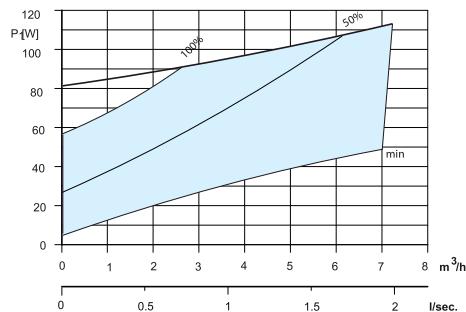
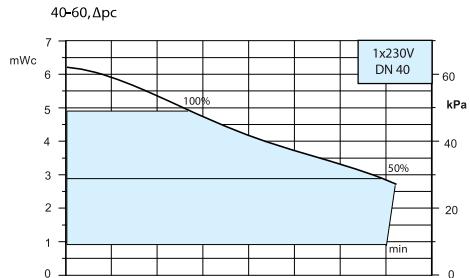
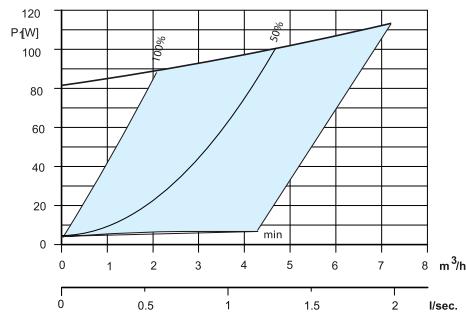
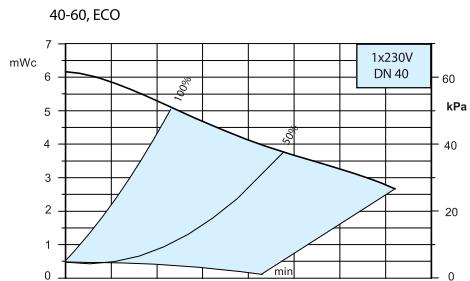
3.10 Magneta Smedegaard 32-120



3.11 Magneta Smedegaard 40-60

40-60

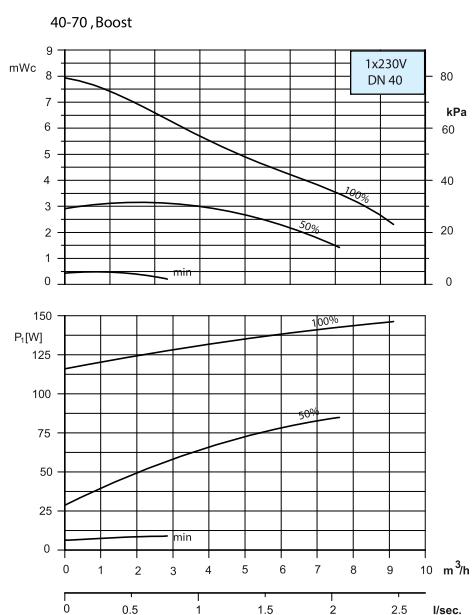
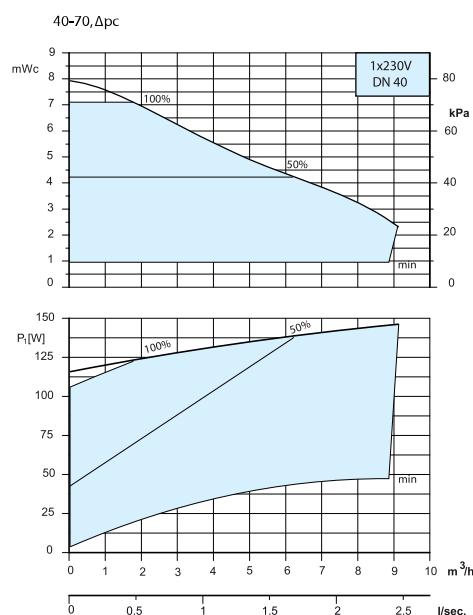
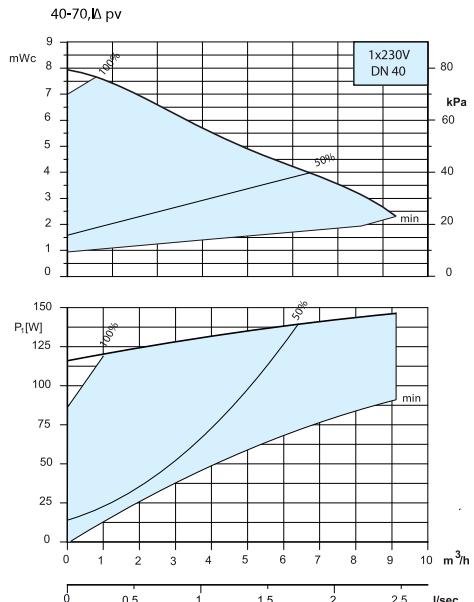
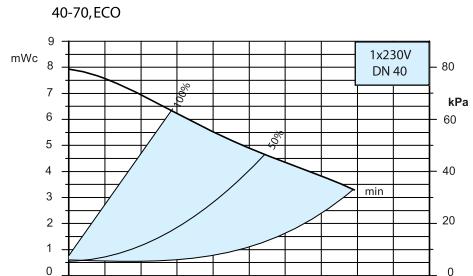
EEI ≤ 0,23



3.12 Magneta Smedegaard 40-70

40-70

EEI ≤ 0,23

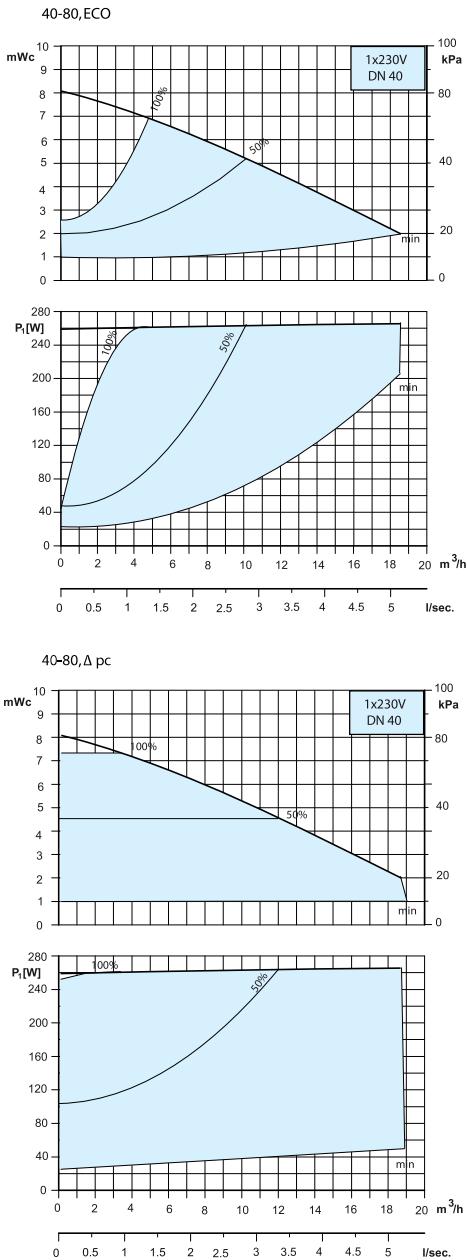


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3.13 Magneta Smedegaard 40-80

40-80

EEI $\leq 0,23$



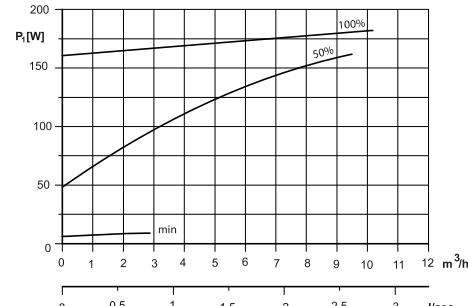
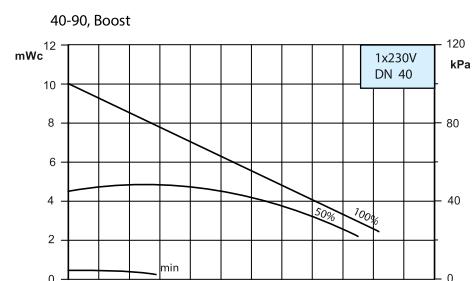
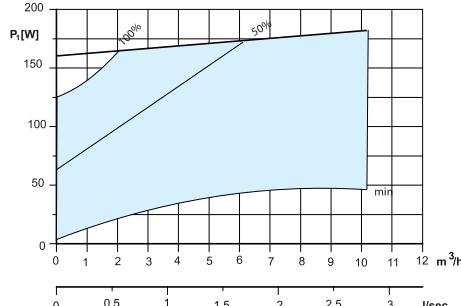
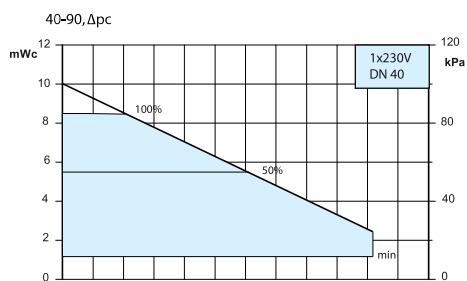
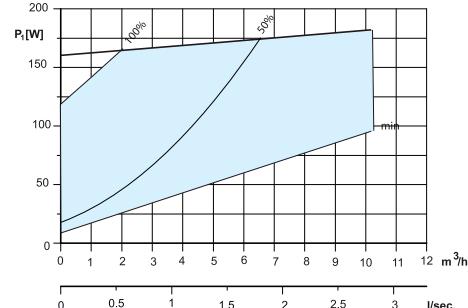
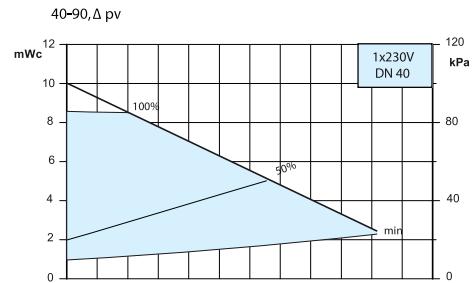
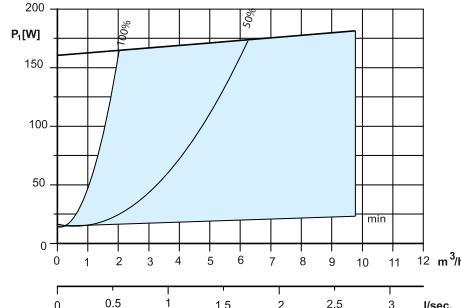
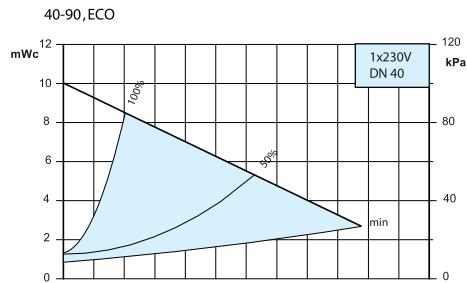
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3.14 Magneta Smedegaard 40-90

EEI ≤ 0,23

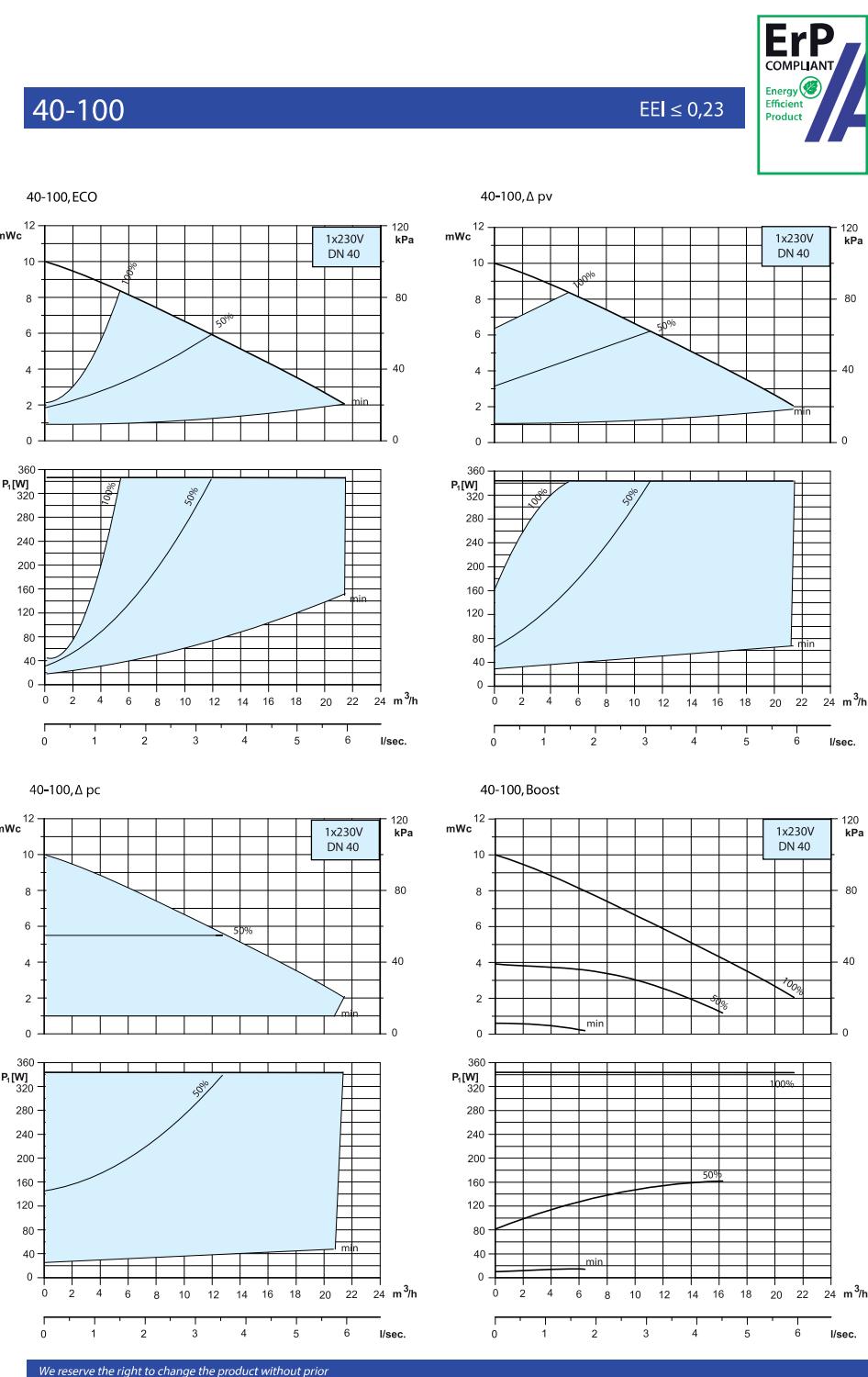


40-90



We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

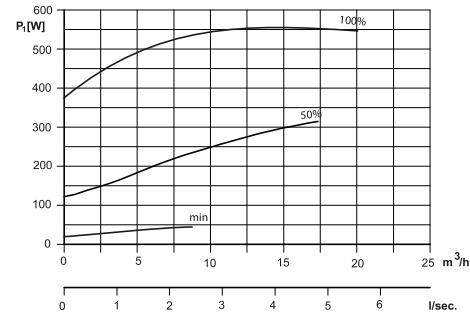
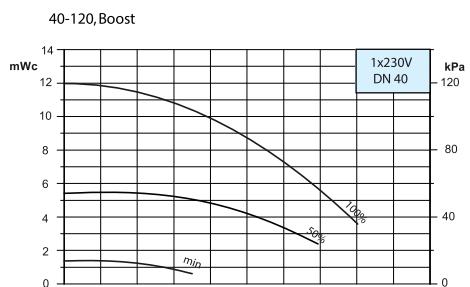
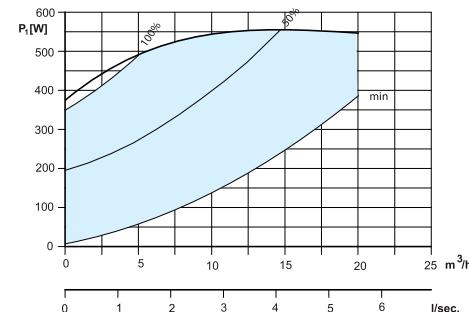
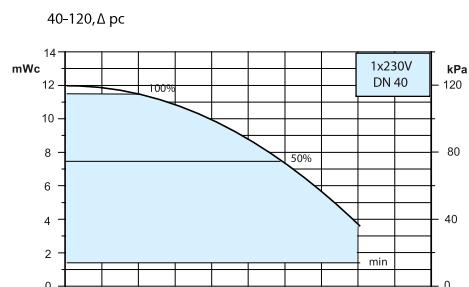
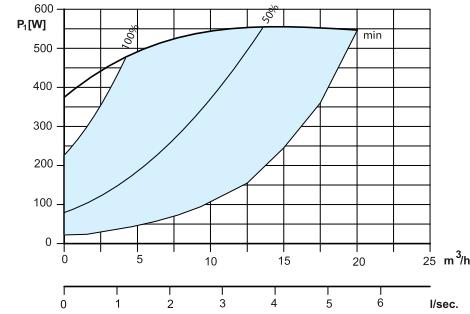
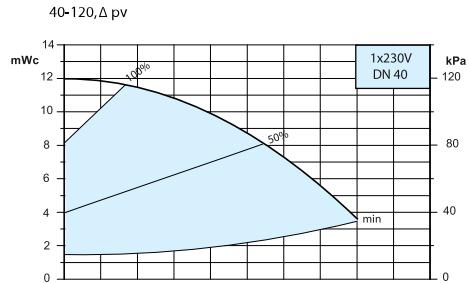
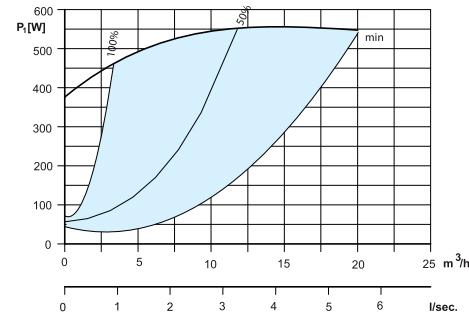
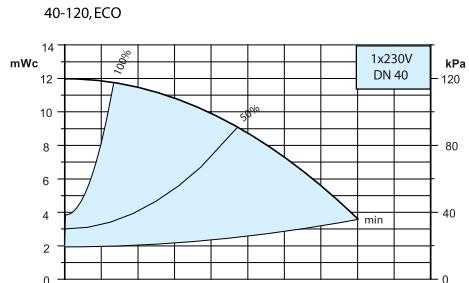
3.15 Magneta Smedegaard 40-100



3.16 Magneta Smedegaard 40-120

40-120

EEI ≤ 0,23

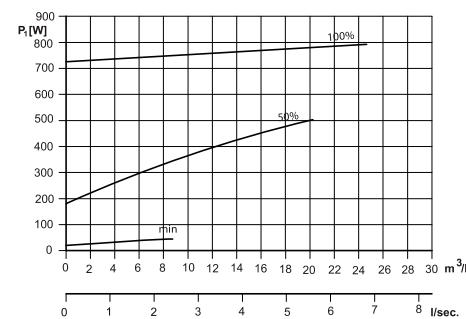
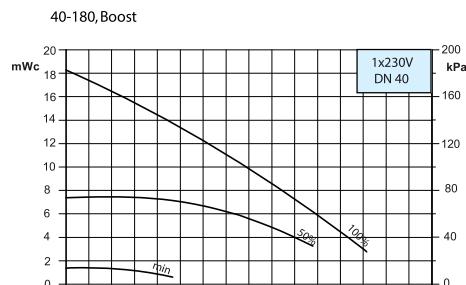
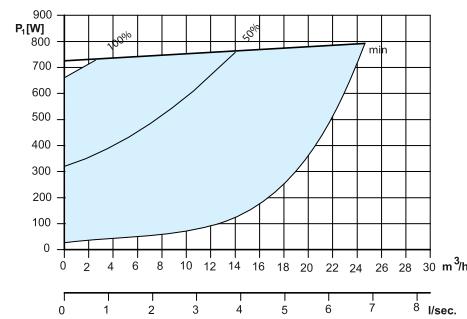
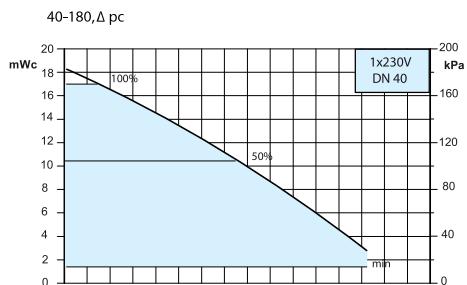
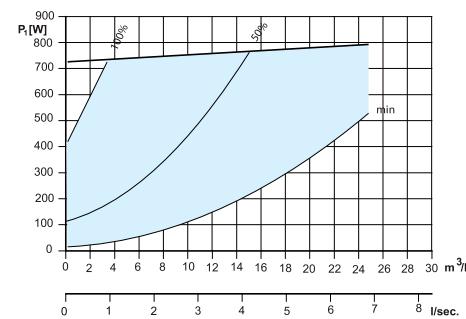
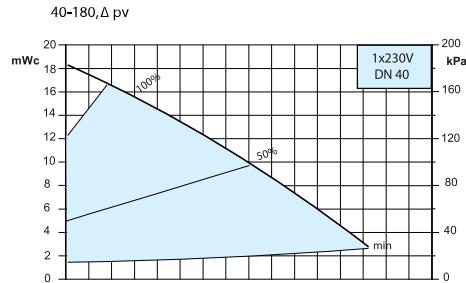
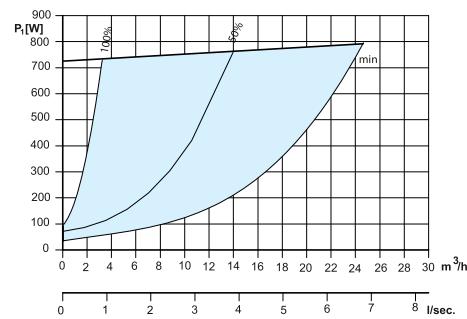
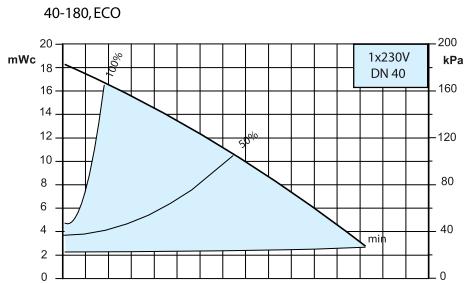


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3.17 Magneta Smedegaard 40-180

40-180

EEI ≤ 0,23

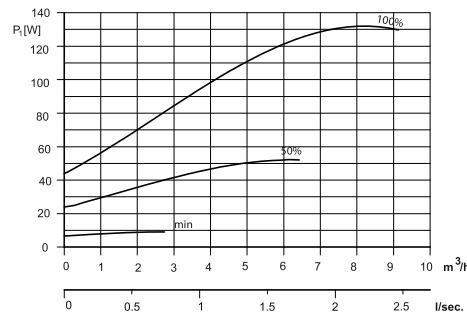
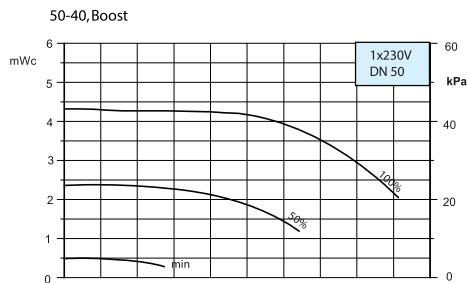
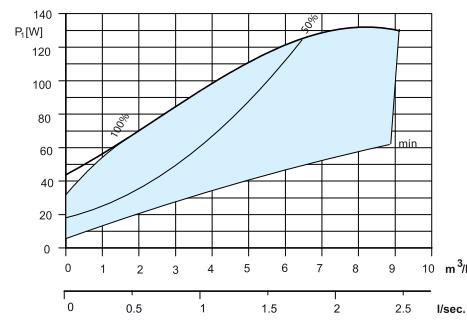
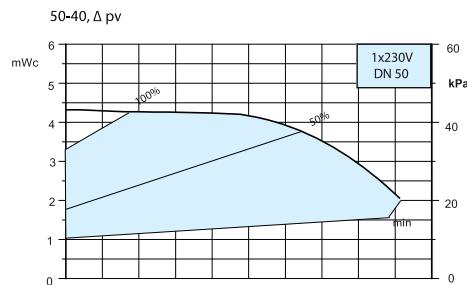
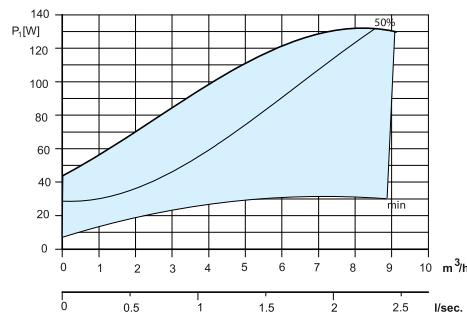
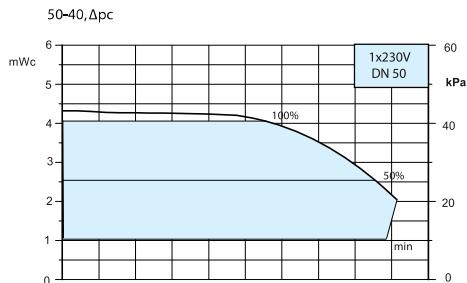
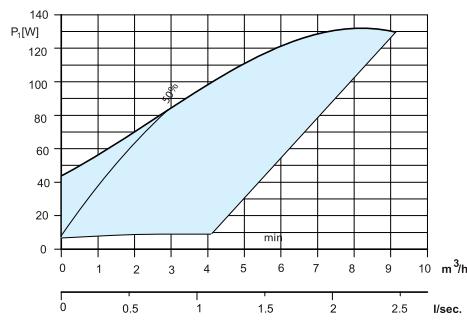
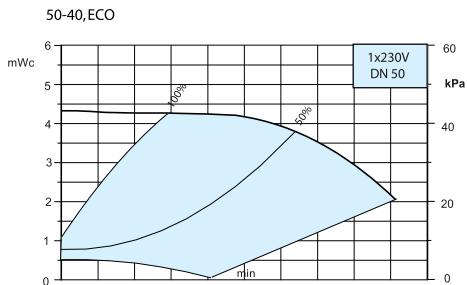


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3.18 Magneta Smedegaard 50-40

50-40

EEI $\leq 0,23$

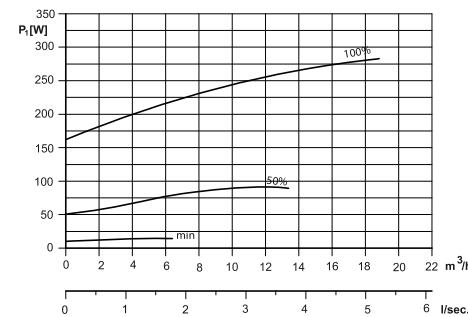
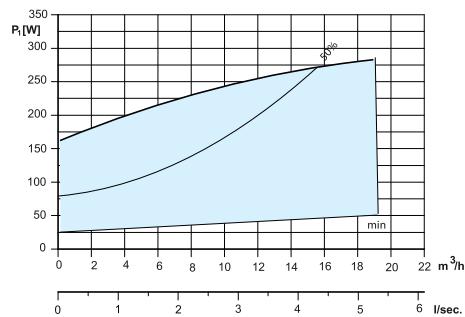
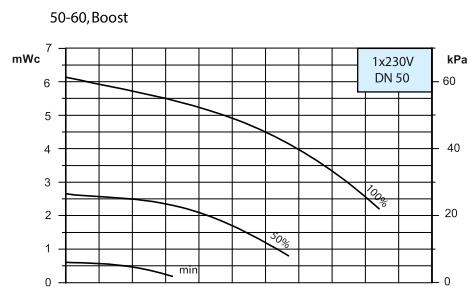
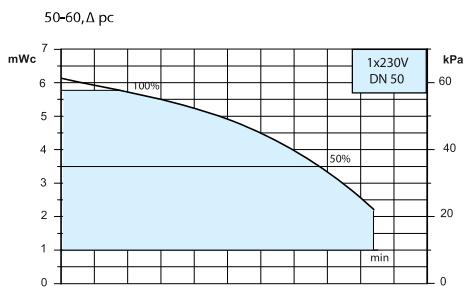
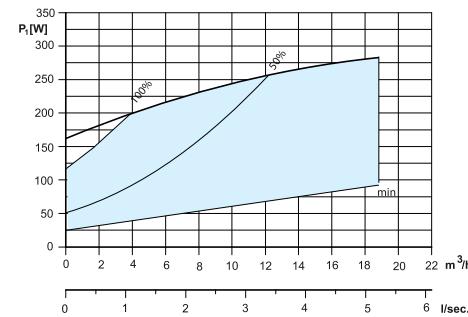
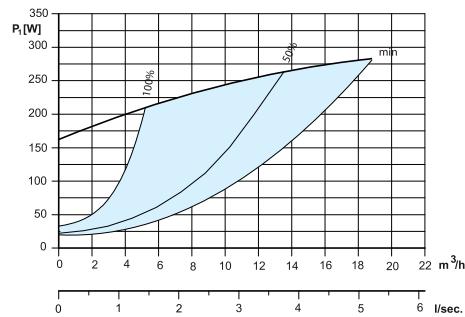
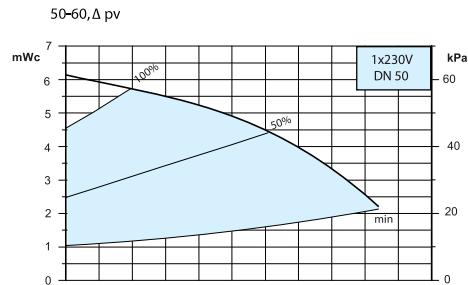
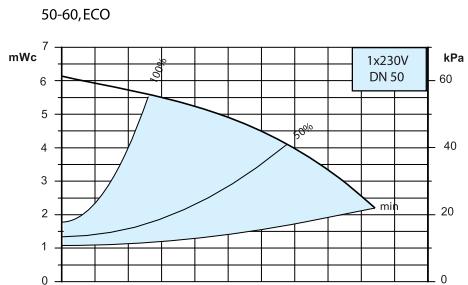


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3.19 Magneta Smedegaard 50-60

50-60

EEI $\leq 0,23$

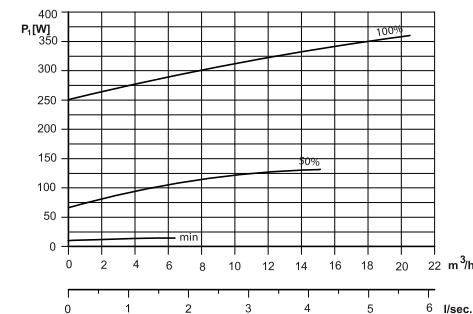
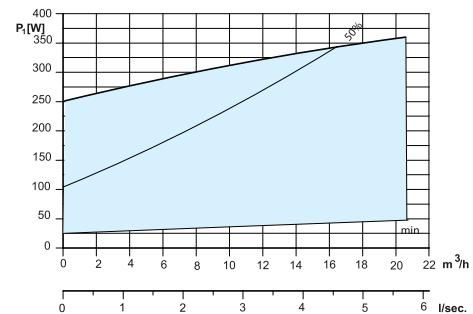
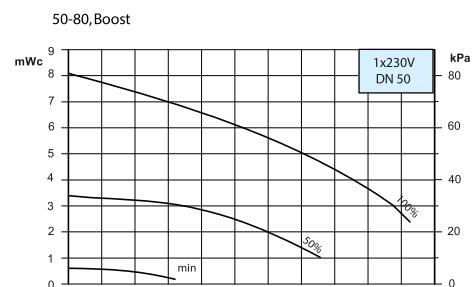
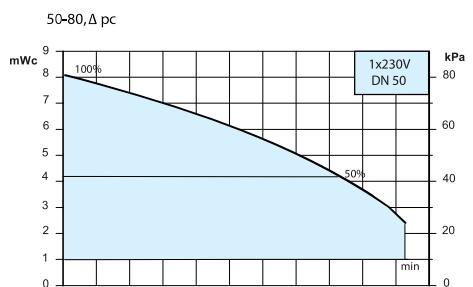
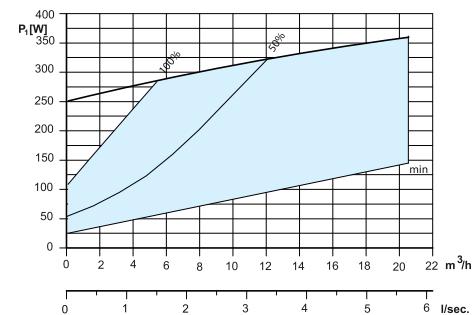
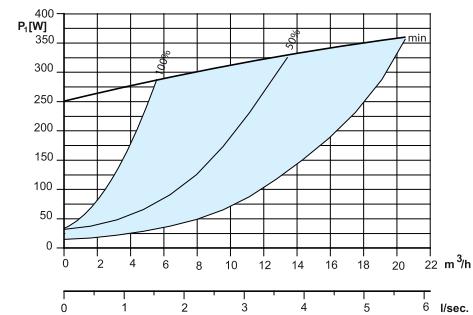
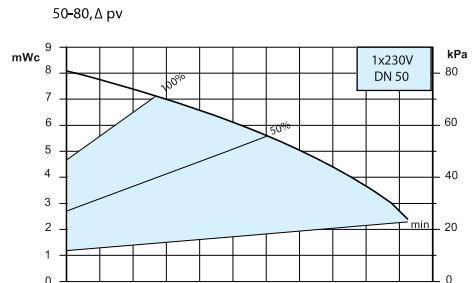
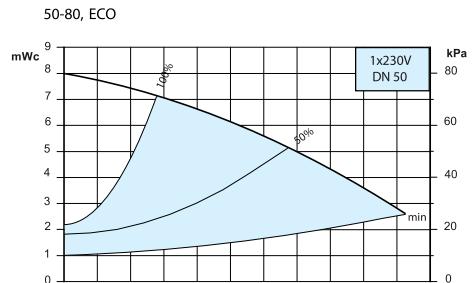


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3.20 Magneta Smedegaard 50-80

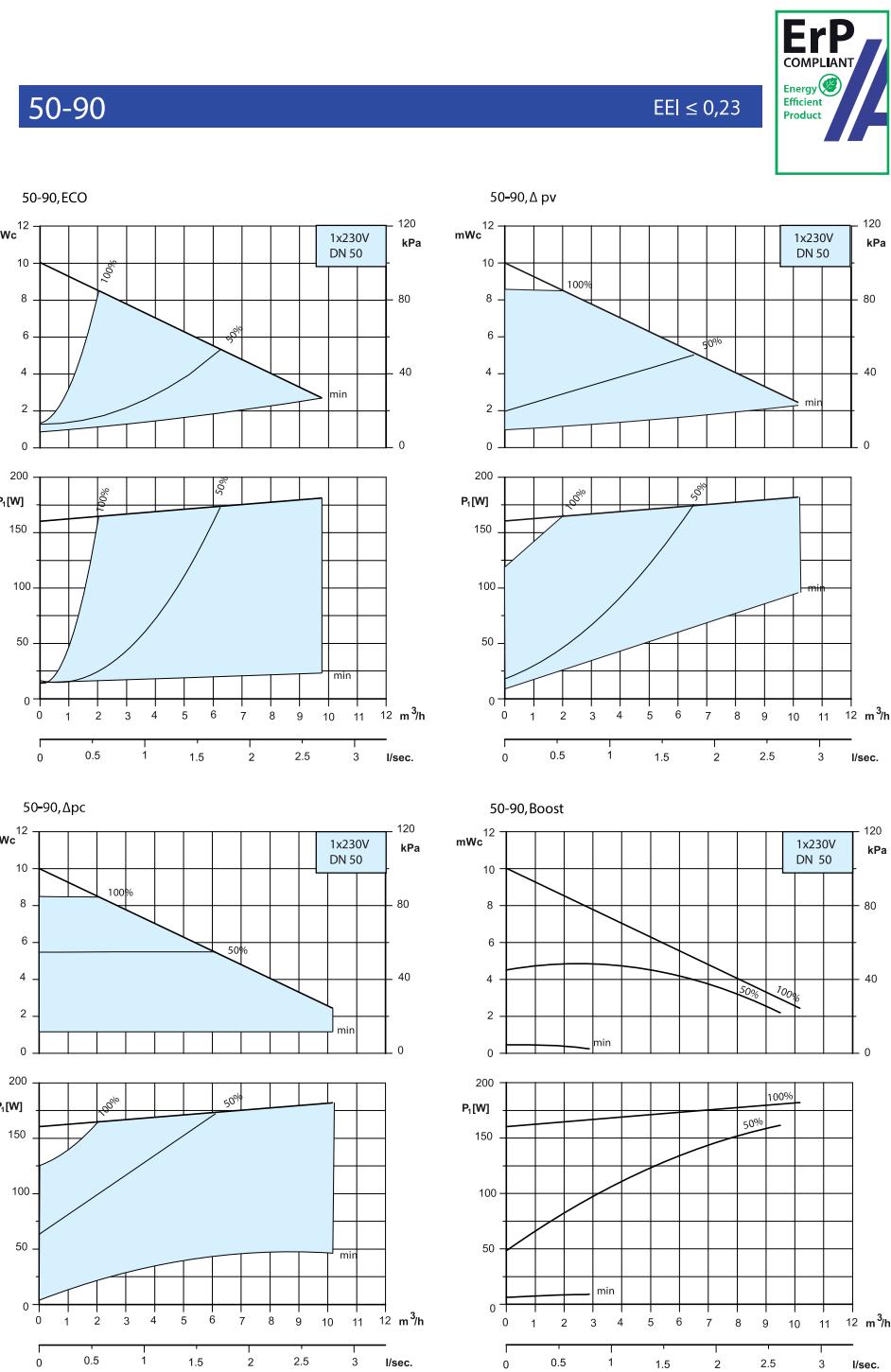
50-80

EEI ≤ 0,23



We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

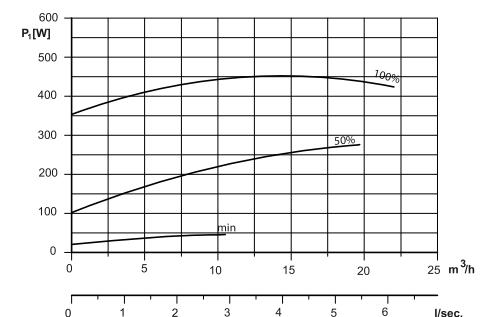
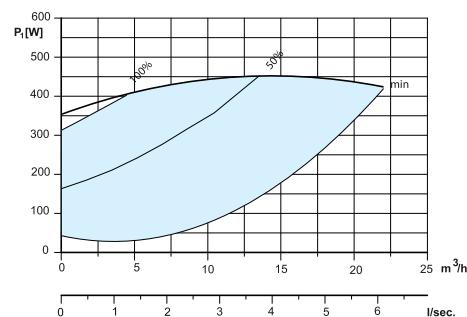
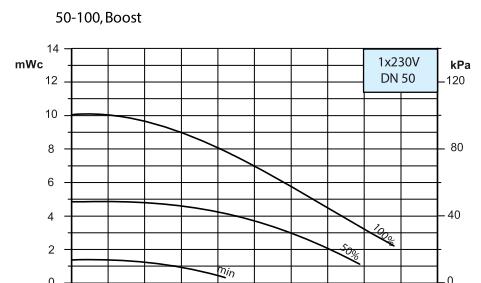
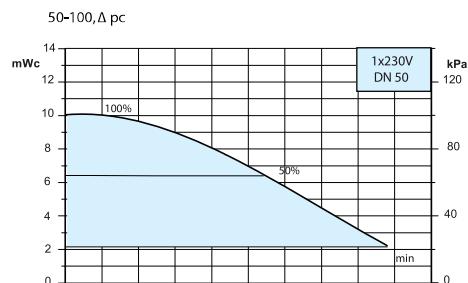
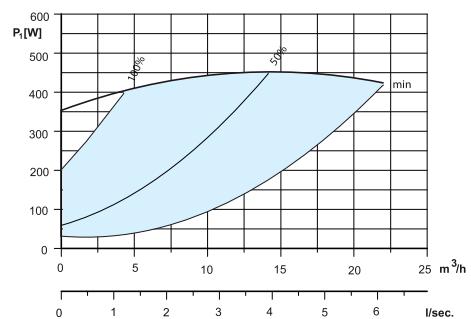
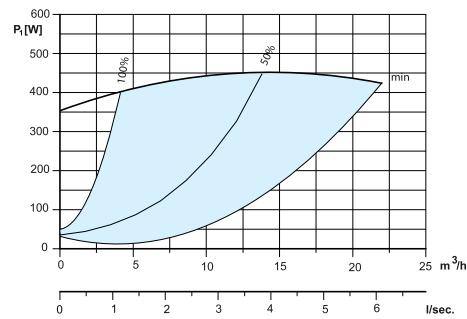
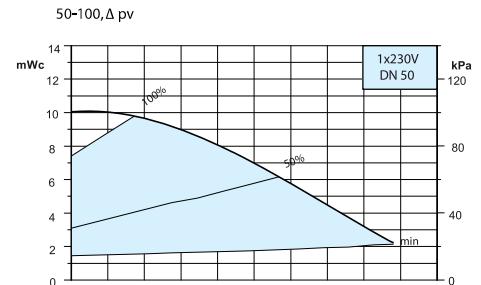
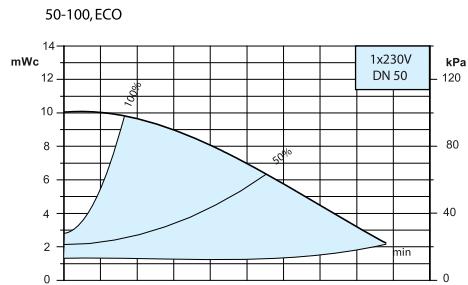
3.21 Magneta Smedegaard 50-90



3.22 Magneta Smedegaard 50-100

50-100

EEI ≤ 0,23



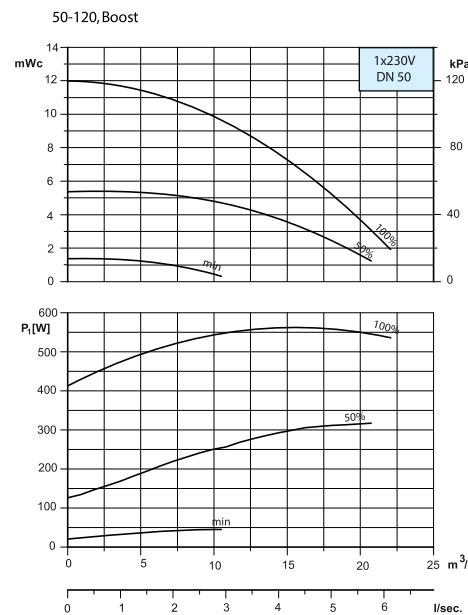
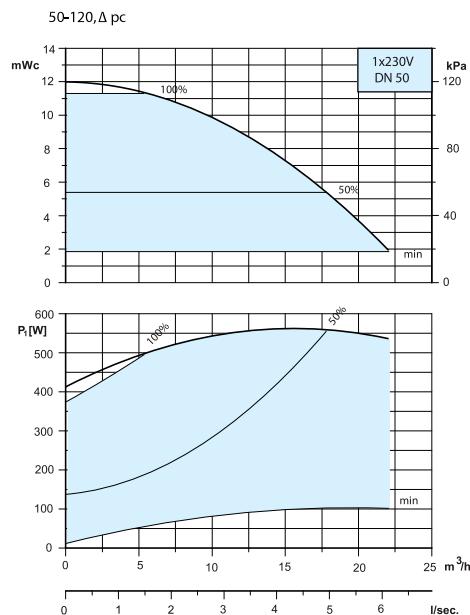
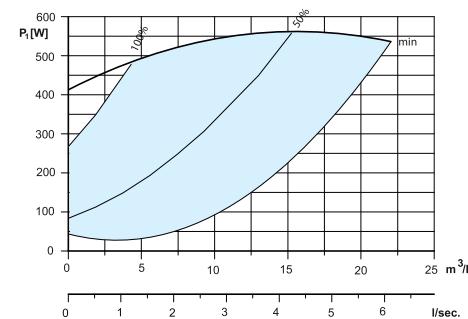
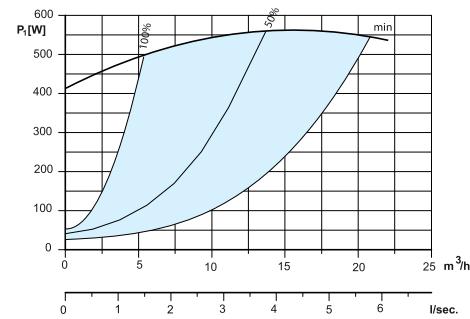
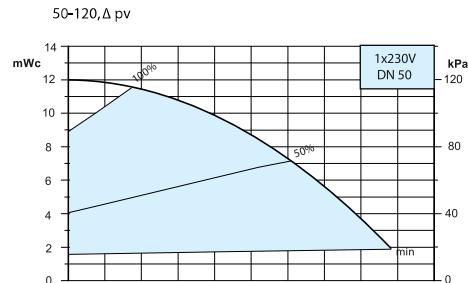
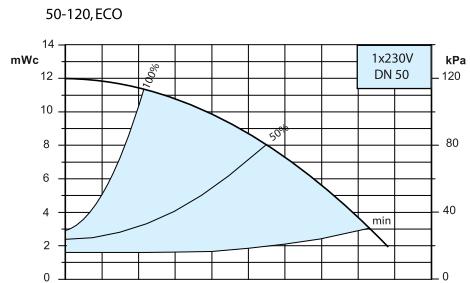
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3.23 Magneta Smedegaard 50-120



50-120

EEI ≤ 0,23

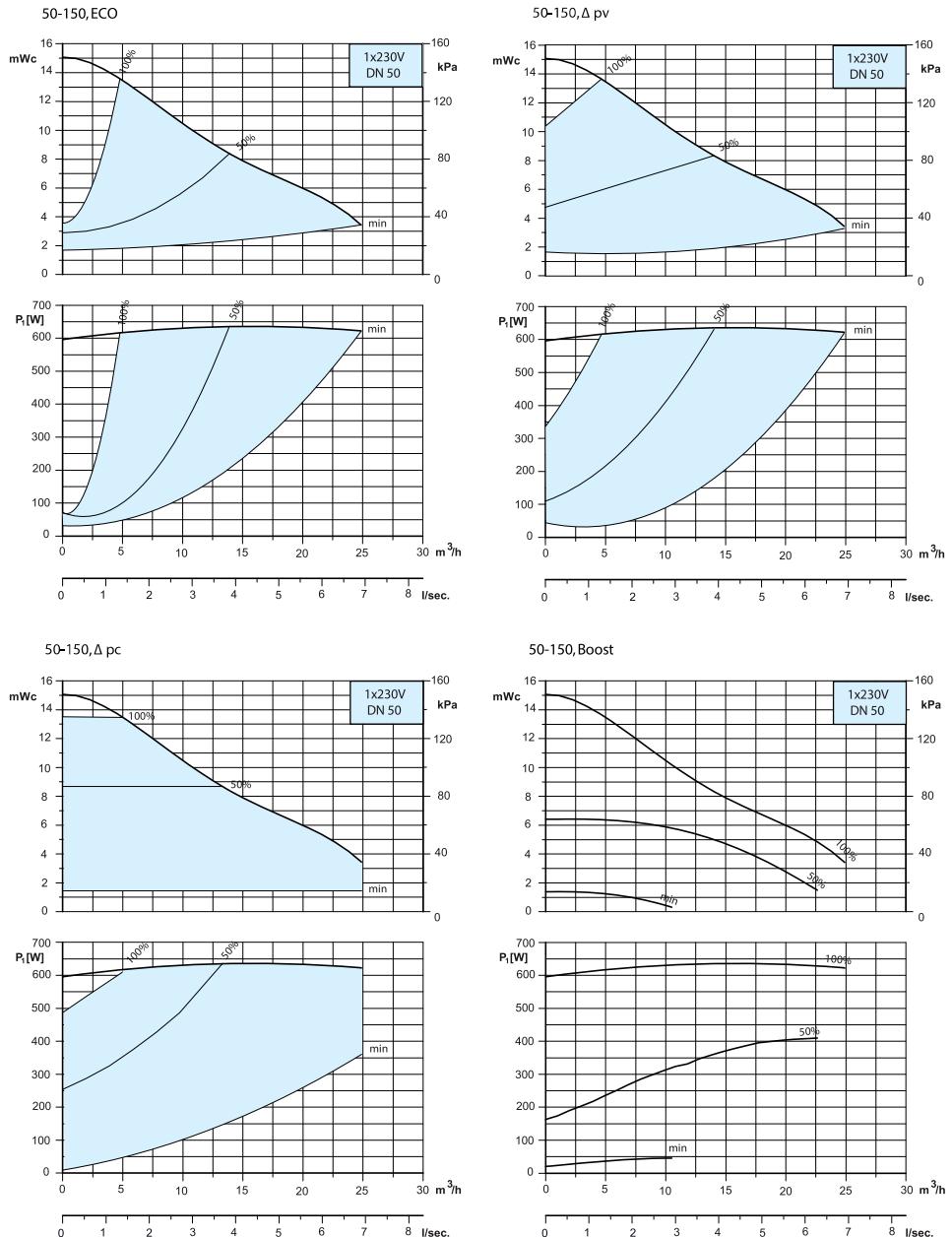


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3.24 Magneta Smedegaard 50-150

50-150

EEI ≤ 0,23

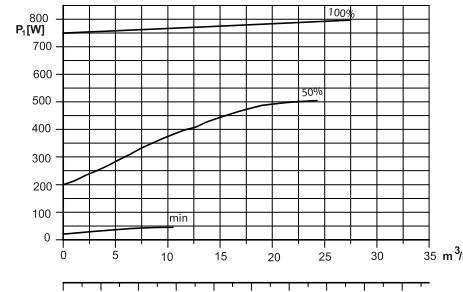
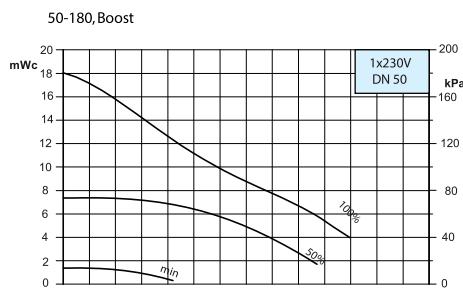
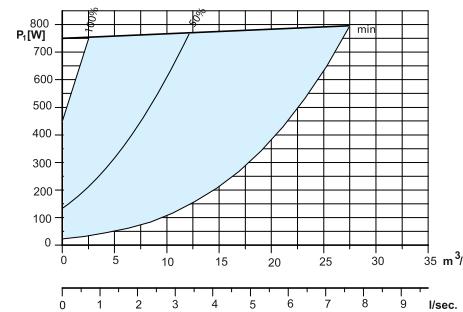
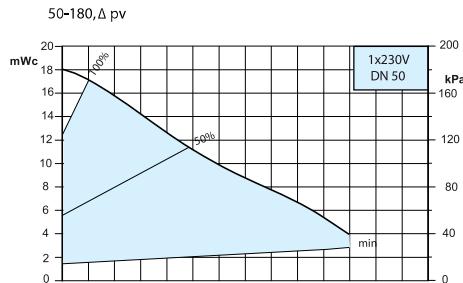
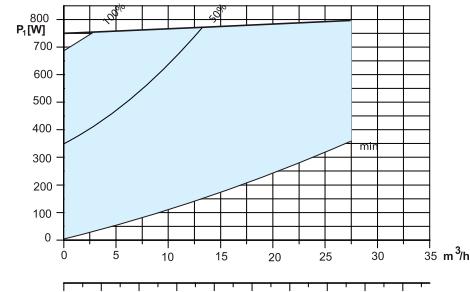
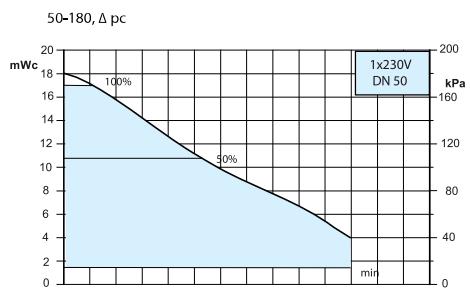
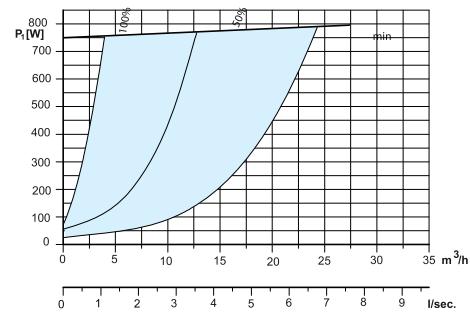
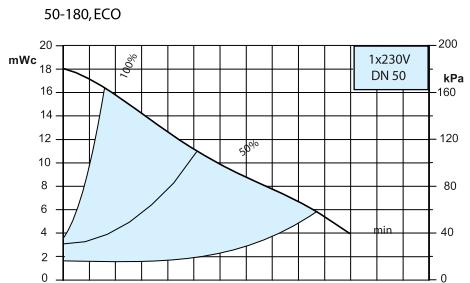


We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

3.25 Magneta Smedegaard 50-180

50-180

EEI $\leq 0,23$

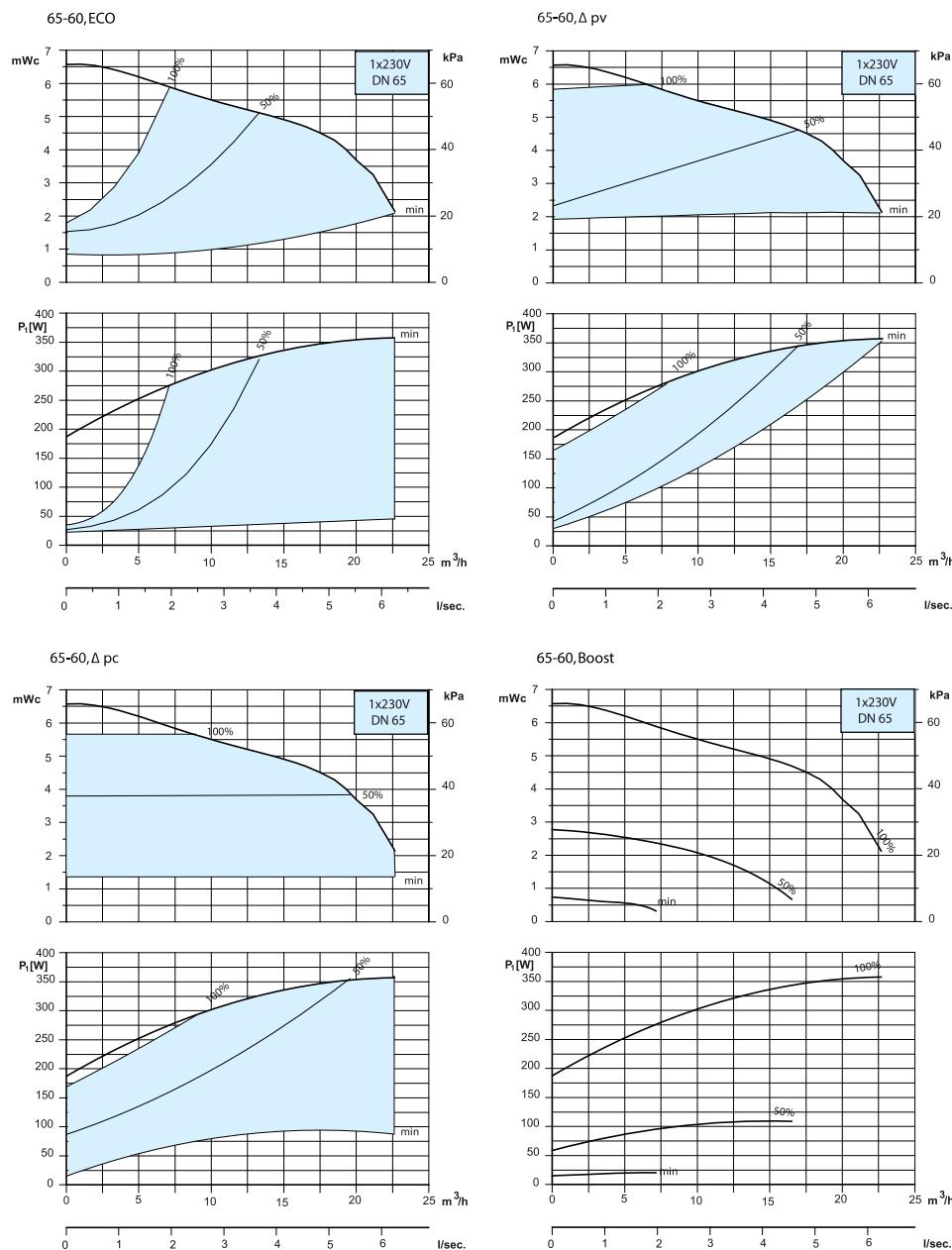


We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

3.26 Magneta Smedegaard 65-60

65-60

EEI ≤ 0,23



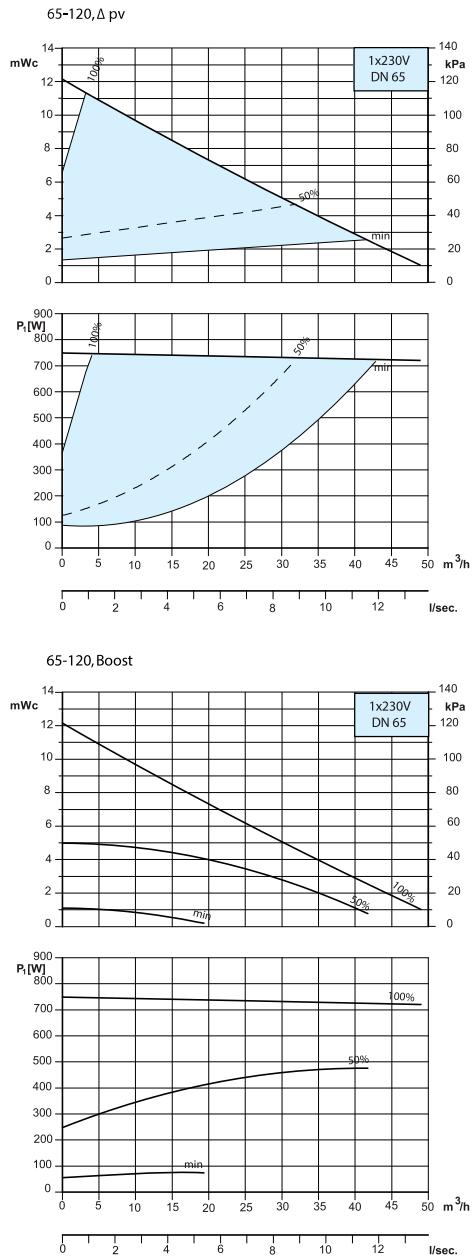
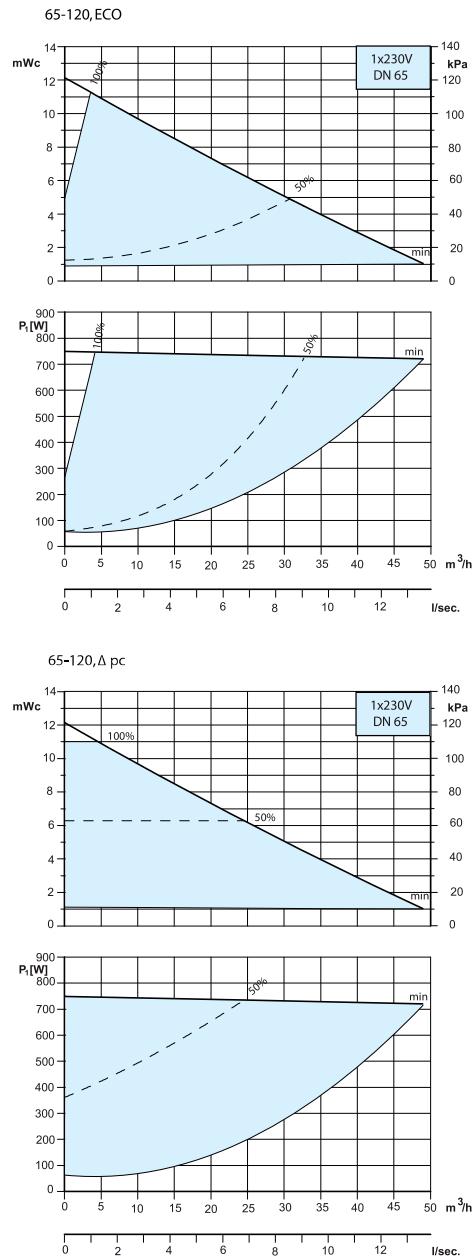
We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

3.27 Magneta Smedegaard 65-120



65-120

EEI ≤ 0,23

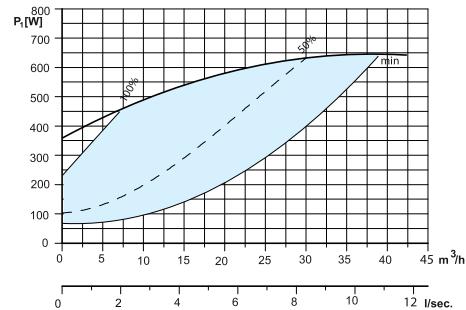
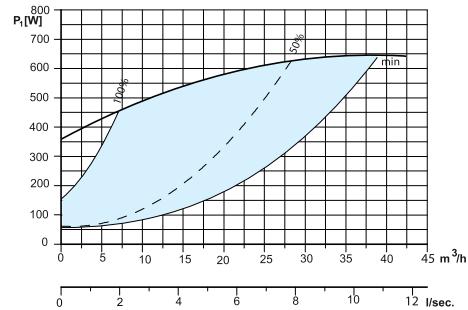
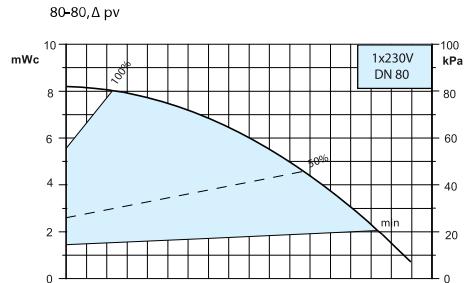
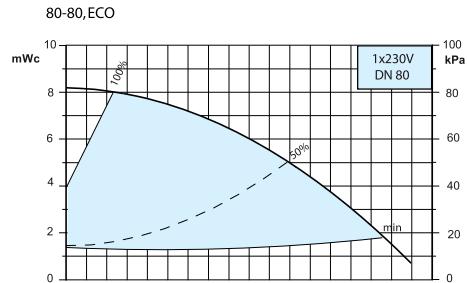


We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

3.28 Magneta Smedegaard 80-80

80-80

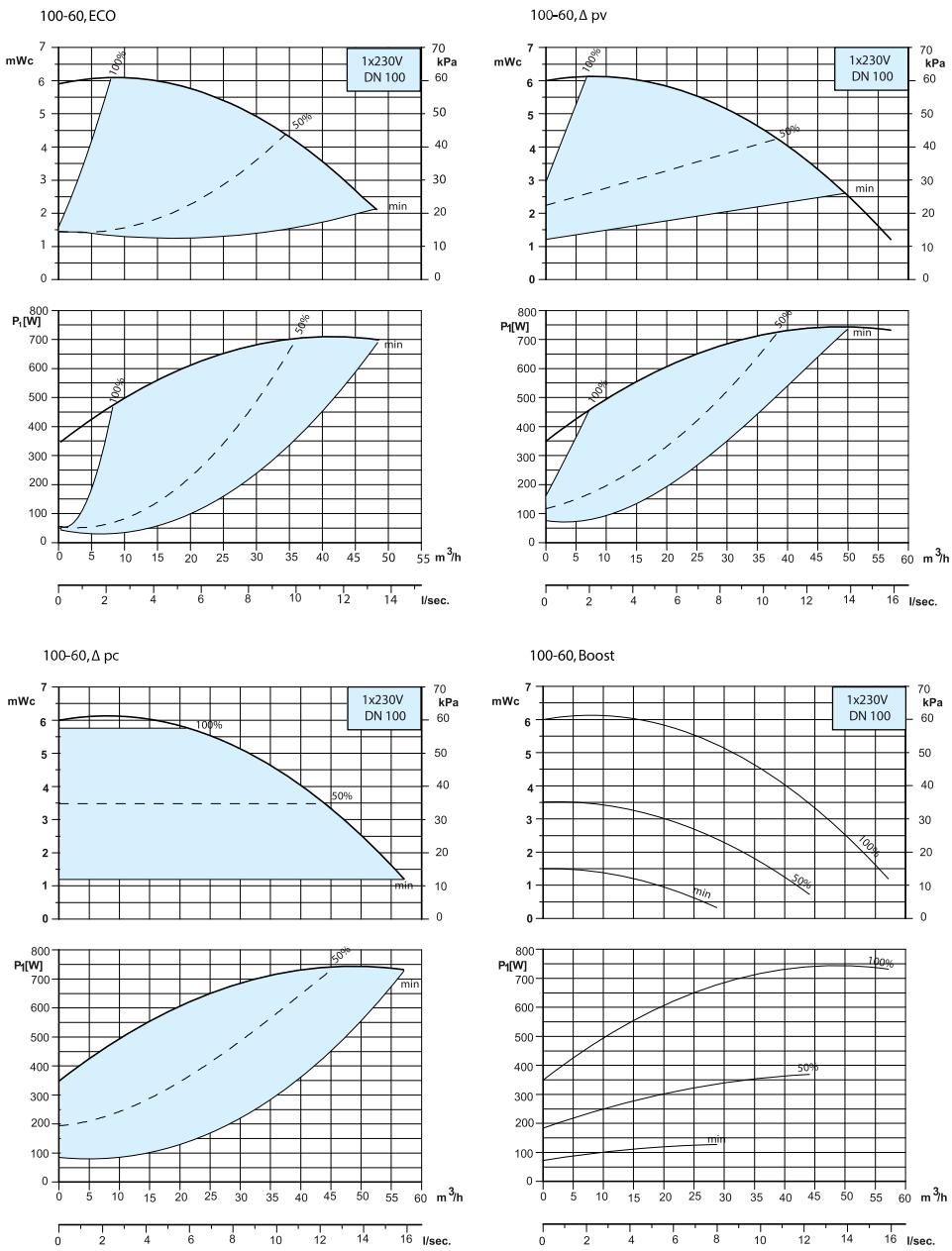
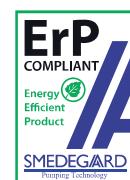
EEI ≤ 0,23



We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

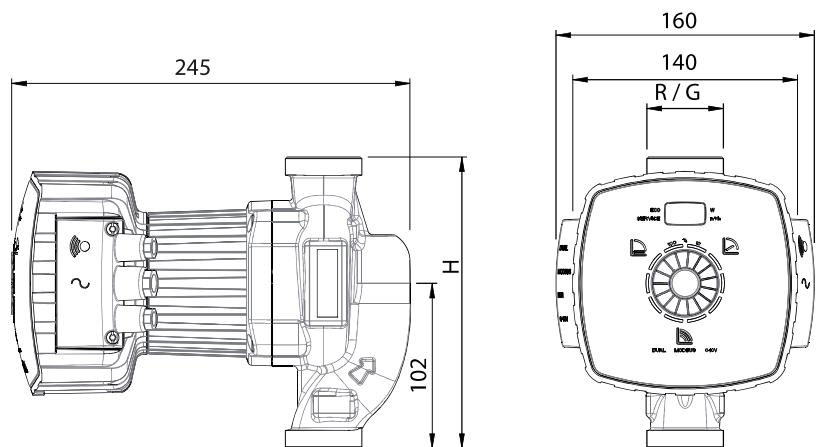
3.29 Magneta Smedegaard 100-60

100-60 EEI $\leq 0,23$



We reserve the right to change the product without prior notice and take no responsibility for inaccuracies or misprints.

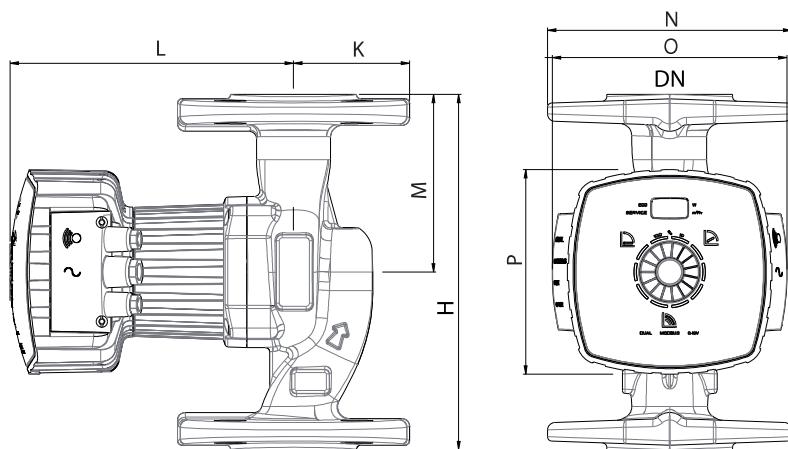
3.30 Dimensions Magneta Smedegaard - screw ended



Dimensions

| Magneta Smedegaard - screw ended | R | G " | H (mm) |
|----------------------------------|-------|-------|--------|
| 25-40 | 1 | G 6/4 | 180 |
| 25-60 | 1 | G 6/4 | 180 |
| 25-80 | 1 | G 6/4 | 180 |
| 25-100 | 1 | G 2 | 180 |
| 30-60 | 1 1/4 | G 2 | 180 |
| 30-80 | 1 1/4 | G 2 | 180 |
| 30-100 | 1 1/4 | G 2 | 180 |
| 30-120 | 1 1/4 | G 2 | 180 |

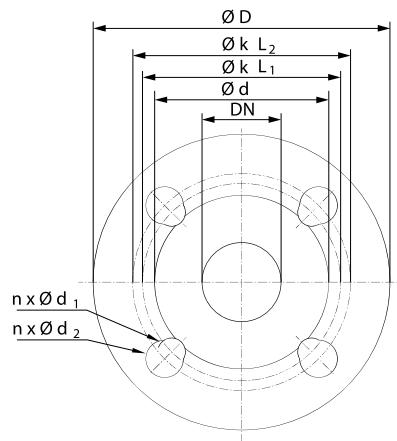
3.31 Dimensions Magneta Smedegaard- flanged



Dimensions (mm)

| Magneta Smedegaard | DN | H | K | L | M | N | O | P |
|-----------------------|-------|-----|-----|-----|-----|-----|-----|-----|
| 32-120 | DN32 | 220 | 65 | 245 | 110 | 140 | 160 | 140 |
| 40-60 | DN40 | 220 | 70 | 192 | 110 | 156 | 150 | 140 |
| 40-70 | DN40 | 220 | 70 | 192 | 110 | 156 | 150 | 140 |
| 40-80 | DN40 | 220 | 70 | 255 | 100 | 160 | 150 | 140 |
| 40-90 | DN40 | 220 | 70 | 192 | 110 | 156 | 150 | 140 |
| 40-100 | DN40 | 220 | 70 | 255 | 100 | 160 | 150 | 140 |
| 40-120 | DN40 | 250 | 70 | 283 | 115 | 240 | 150 | 200 |
| 40-180 | DN40 | 250 | 70 | 283 | 115 | 240 | 150 | 200 |
| 50-40 | DN50 | 240 | 78 | 192 | 120 | 165 | 160 | 140 |
| 50-60 | DN50 | 240 | 78 | 257 | 110 | 165 | 160 | 140 |
| 50-80 | DN50 | 240 | 78 | 257 | 110 | 165 | 160 | 140 |
| 50-90 | DN50 | 240 | 78 | 192 | 120 | 165 | 160 | 140 |
| 50-100 | DN50 | 280 | 77 | 283 | 140 | 240 | 165 | 206 |
| 50-120 | DN50 | 280 | 77 | 283 | 140 | 240 | 165 | 206 |
| 50-150 | DN50 | 280 | 77 | 283 | 140 | 240 | 165 | 206 |
| 50-180 | DN50 | 280 | 77 | 283 | 140 | 240 | 165 | 206 |
| 65-60 | DN65 | 340 | 89 | 257 | 170 | 185 | 160 | 140 |
| 65-120 | DN65 | 340 | 100 | 387 | 170 | 185 | 240 | 206 |
| 80-80 | DN80 | 360 | 103 | 387 | 190 | 200 | 240 | 206 |
| 100-60 | DN100 | 450 | 120 | 387 | 240 | 220 | 240 | 206 |

3.32 Flange dimensions



Dimensions [mm]

| Bride | ØD | Ød - PN6 | Ød - PN10 | PN6 ØkL1 | PN10 ØkL2 | PN6 n x dL1 | PN10 n x dL2 |
|--------|-----|----------|-----------|----------|-----------|-------------|--------------|
| DN 32 | 140 | 70 | 78 | 90 | 100 | 4 x Ø14 | 4 x Ø19 |
| DN 40 | 150 | 80 | 88 | 100 | 110 | 4 x Ø14 | 4 x Ø19 |
| DN 50 | 165 | 90 | 100 | 110 | 125 | 4 x Ø14 | 4 x Ø19 |
| DN 65 | 185 | 110 | 122 | 130 | 145 | 4 x Ø14 | 4 x Ø19 |
| DN 80 | 200 | - | 138 | - | 160 | - | 8 x Ø19 |
| DN 100 | 220 | - | 158 | - | 180 | - | 8 x Ø19 |