

# Worm and wheel gearbox

## P15

## Torque up to 3,75Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- Weight: 0,15 kg

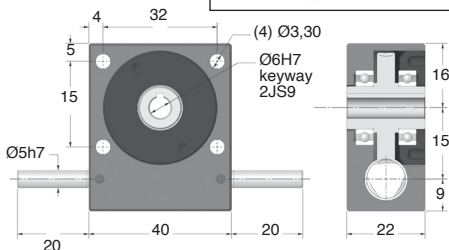
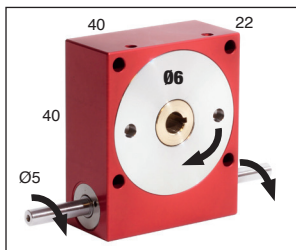
**High reduction ratios**

### Options

- Can be modified to your specifications

### Accessories

- Output shafts  
P20-X et P20-DX  
(tome 2 p.168)



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 6,66:1 | 8:1  | 10:1 | 13,33:1 | 20:1 | 40:1 | 80:1 |
|--------|--------|------|------|---------|------|------|------|
| 3000   | 1,05   | 1,13 | 1,20 | 1,28    | 1,43 | 1,58 | 0,94 |
| 2000   | 1,28   | 1,28 | 1,35 | 1,35    | 1,58 | 1,80 | 1,07 |
| 1000   | 1,58   | 1,73 | 1,73 | 1,88    | 2,03 | 2,18 | 1,28 |
| 500    | 2,03   | 2,03 | 2,10 | 2,18    | 2,40 | 2,63 | 1,46 |
| 200    | 2,55   | 2,63 | 2,63 | 2,78    | 2,93 | 3,08 | 1,70 |
| 100    | 2,93   | 2,93 | 3,08 | 3,15    | 3,23 | 3,38 | 1,91 |
| 50     | 3,30   | 3,38 | 3,38 | 3,45    | 3,53 | 3,60 | 2,04 |
| 10     | 3,60   | 3,60 | 3,68 | 3,68    | 3,75 | 3,75 | 2,04 |

### DISCOUNTS

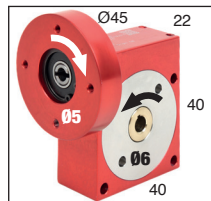
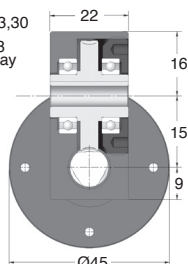
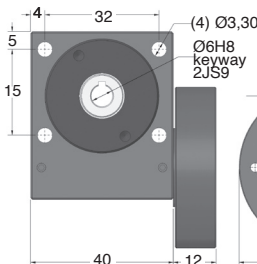
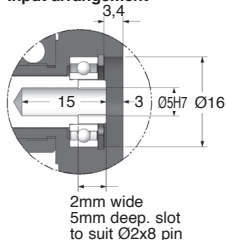
| Qty   | 1+        | 2+   | 4+         | 6+ |
|-------|-----------|------|------------|----|
| Disc. | List -10% | -15% | On request |    |

| Part number | Ratios                                     | Efficiency at 1000 t/min | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Stock* | Price each |
|-------------|--------------------------------------------|--------------------------|-------------------------------------------------|----------------------------|--------|------------|
| P15-6       | 6,66:1                                     | 86%                      | 1,79x10 <sup>-7</sup>                           | NO                         | -      | 369,99 €   |
| P15-8       | 8:1                                        | 85%                      | 1,73x10 <sup>-7</sup>                           | NO                         | -      | 369,99 €   |
| P15-10      | 10:1                                       | 84%                      | 1,68x10 <sup>-7</sup>                           | NO                         | ✓      | 369,99 €   |
| P15-13      | 13,33:1                                    | 78%                      | 1,65x10 <sup>-7</sup>                           | NO                         | -      | 369,99 €   |
| P15-20      | 20:1                                       | 71%                      | 1,62x10 <sup>-7</sup>                           | NO                         | -      | 369,99 €   |
| P15-40      | 40:1                                       | 60%                      | 1,61x10 <sup>-7</sup>                           | NO                         | ✓      | 369,99 €   |
| P15-80      | 80:1                                       | 32%                      | 1,60x10 <sup>-7</sup>                           | NO                         | -      | 369,99 €   |
| P15-A       | Reduced output backlash $\leq 0^{\circ}8'$ |                          |                                                 |                            |        | On request |
| P15-AR      | Reduced output backlash $\leq 0^{\circ}4'$ |                          |                                                 |                            |        | On request |

\* Depending on availability - Dimensions in mm

- Ratios from 6:1 to 80:1
- Output backlash  $\leq 0^{\circ}30'$
- Max input speed: 3000 rpm
- Materials:
  - Casing: Anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- The angle of the input flange is not positioned
- Verify it is suitable for use with your motor
- Weight: 0,21 kg

**High reduction ratios**

**Input arrangement****OUTPUT TORQUE (Nm values given as a guide only)**

| Ratios | 6,66:1 | 8:1  | 10:1 | 13,33:1 | 20:1 | 40:1 | 80:1 |
|--------|--------|------|------|---------|------|------|------|
| 3000   | 1,05   | 1,13 | 1,20 | 1,28    | 1,43 | 1,58 | 0,94 |
| 2000   | 1,28   | 1,28 | 1,35 | 1,35    | 1,58 | 1,80 | 1,07 |
| 1000   | 1,58   | 1,73 | 1,73 | 1,88    | 2,03 | 2,18 | 1,28 |
| 500    | 2,03   | 2,03 | 2,10 | 2,18    | 2,40 | 2,63 | 1,46 |
| 200    | 2,55   | 2,63 | 2,63 | 2,78    | 2,93 | 3,08 | 1,70 |
| 100    | 2,93   | 2,93 | 3,08 | 3,15    | 3,23 | 3,38 | 1,91 |
| 50     | 3,30   | 3,38 | 3,38 | 3,45    | 3,53 | 3,60 | 2,04 |
| 10     | 3,60   | 3,60 | 3,68 | 3,68    | 3,75 | 3,75 | 2,04 |

**DISCOUNTS**

| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratios                                     | Efficiency at 1000 t/min | Reflected Inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Price each |
|-------------|--------------------------------------------|--------------------------|-------------------------------------------------|----------------------------|------------|
| PF15-6      | 6,66:1                                     | 86%                      | 1,79x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-8      | 8:1                                        | 85%                      | 1,73x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-10     | 10:1                                       | 84%                      | 1,68x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-13     | 13,33:1                                    | 78%                      | 1,65x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-20     | 20:1                                       | 71%                      | 1,62x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-40     | 40:1                                       | 60%                      | 1,61x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-80     | 80:1                                       | 32%                      | 1,60x10 <sup>-7</sup>                           | NO                         | 475,59 €   |
| PF15-A      | Reduced output backlash $\leq 0^{\circ}8'$ |                          |                                                 |                            | On request |
| PF15-AR     | Reduced output backlash $\leq 0^{\circ}4'$ |                          |                                                 |                            | On request |

\* Depending on availability - Dimensions in mm

# Worm and wheel gearbox



P20

Torque up to 5Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- Weight: 0,18 kg

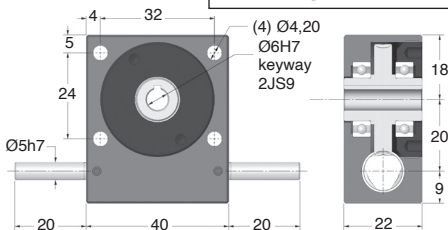
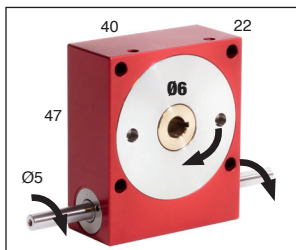
High reduction ratios

## Options

- Can be modified to your specifications

## Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 1,40 | 1,50 | 1,60 | 1,70 | 1,90 | 2,10 | 1,25  |
| 2000   | 1,70 | 1,70 | 1,80 | 1,80 | 2,10 | 2,40 | 1,42  |
| 1000   | 2,10 | 2,30 | 2,30 | 2,50 | 2,70 | 2,90 | 1,70  |
| 500    | 2,70 | 2,70 | 2,80 | 2,90 | 3,20 | 3,50 | 1,94  |
| 200    | 3,40 | 3,50 | 3,50 | 3,70 | 3,90 | 4,10 | 2,27  |
| 100    | 3,90 | 3,90 | 4,10 | 4,20 | 4,30 | 4,50 | 2,55  |
| 50     | 4,40 | 4,50 | 4,50 | 4,60 | 4,70 | 4,80 | 2,72  |
| 10     | 4,80 | 4,80 | 4,90 | 4,90 | 5,00 | 5,00 | 2,72  |

## DISCOUNTS

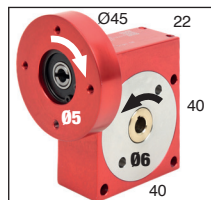
| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|----------------------------|--------|------------|
| P20-10      | 10:1      | 86%                                        | 2,03 x 10 <sup>-7</sup>                         | NO                         | -      | 413,62 €   |
| P20-12      | 12:1      | 85%                                        | 1,93 x 10 <sup>-7</sup>                         | NO                         | -      | 413,62 €   |
| P20-15      | 15:1      | 84%                                        | 1,85 x 10 <sup>-7</sup>                         | NO                         | ✓      | 413,62 €   |
| P20-20      | 20:1      | 78%                                        | 1,78 x 10 <sup>-7</sup>                         | NO                         | -      | 413,62 €   |
| P20-30      | 30:1      | 71%                                        | 1,74 x 10 <sup>-7</sup>                         | NO                         | ✓      | 413,62 €   |
| P20-60      | 60:1      | 60%                                        | 1,71 x 10 <sup>-7</sup>                         | YES                        | ✓      | 413,62 €   |
| P20-120     | 120:1     | 32%                                        | 1,50 x 10 <sup>-7</sup>                         | YES                        | ✓      | 413,62 €   |
| P20-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                            | -      | On request |
| P20-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                            | -      | On request |
| P20-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                            | -      | On request |

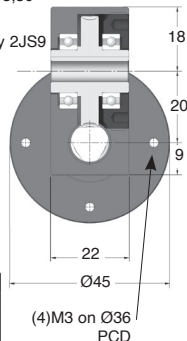
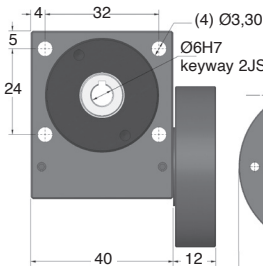
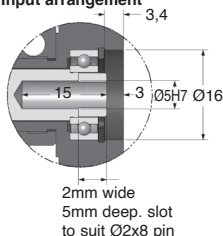
\*Depending on availability - Dimensions in mm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max input speed: 3000 rpm
- Materials:
  - Casing: Anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- The angle of the input flange is not positioned
- Verify it is suitable for use with your motor
- Weight: 0,23 kg

High reduction ratios



### Input arrangement



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 1,40 | 1,50 | 1,60 | 1,70 | 1,90 | 2,10 | 1,25  |
| 2000   | 1,70 | 1,70 | 1,80 | 1,80 | 2,10 | 2,40 | 1,42  |
| 1000   | 2,10 | 2,30 | 2,30 | 2,50 | 2,70 | 2,90 | 1,70  |
| 500    | 2,70 | 2,70 | 2,80 | 2,90 | 3,20 | 3,50 | 1,94  |
| 200    | 3,40 | 3,50 | 3,50 | 3,70 | 3,90 | 4,10 | 2,27  |
| 100    | 3,90 | 3,90 | 4,10 | 4,20 | 4,30 | 4,50 | 2,55  |
| 50     | 4,40 | 4,50 | 4,50 | 4,60 | 4,70 | 4,80 | 2,72  |
| 10     | 4,80 | 4,80 | 4,90 | 4,90 | 5,00 | 5,00 | 2,72  |

### DISCOUNTS

| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratios      | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Price each |
|-------------|-------------|--------------------------------------------|-------------------------------------------------|----------------------------|------------|
| PF20-10     | 10:1        | 86%                                        | 2,53 x 10 <sup>-7</sup>                         | NO                         | 527,38 €   |
| PF20-12     | 12:1        | 85%                                        | 2,43 x 10 <sup>-7</sup>                         | NO                         | 527,38 €   |
| PF20-15     | 15:1        | 84%                                        | 2,35 x 10 <sup>-7</sup>                         | NO                         | 527,38 €   |
| PF20-20     | 20:1        | 78%                                        | 2,28 x 10 <sup>-7</sup>                         | NO                         | 527,38 €   |
| PF20-30     | 30:1        | 71%                                        | 2,24 x 10 <sup>-7</sup>                         | NO                         | 527,38 €   |
| PF20-60     | 60:1        | 60%                                        | 2,21 x 10 <sup>-7</sup>                         | YES                        | 527,38 €   |
| PF20-120    | 120:1       | 32%                                        | 2,00 x 10 <sup>-7</sup>                         | YES                        | 527,38 €   |
| PF20-SP     | 5:1 - 120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                            | On request |
| PF20-A      |             | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                            | On request |
| PF20-AR     |             | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                            | On request |

Dimensions in mm

# Worm and wheel gearbox

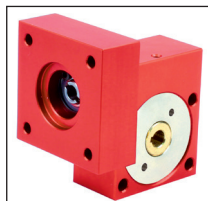


## PF20NM

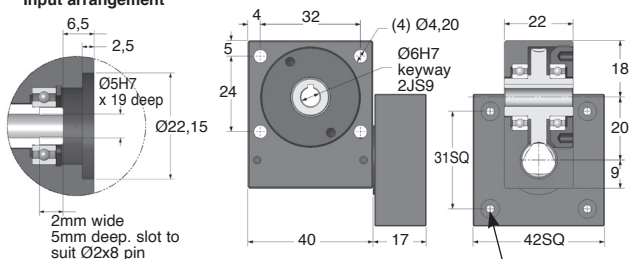
## Torque up to 5Nm

**NEMA 17  
square flange**

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Stainless steel cap
- Weight: 0,23 kg



### Input arrangement



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 1,40 | 1,50 | 1,60 | 1,70 | 1,90 | 2,10 | 1,25  |
| 2000   | 1,70 | 1,70 | 1,80 | 1,80 | 2,10 | 2,40 | 1,42  |
| 1000   | 2,10 | 2,30 | 2,30 | 2,50 | 2,70 | 2,90 | 1,70  |
| 500    | 2,70 | 2,70 | 2,80 | 2,90 | 3,20 | 3,50 | 1,94  |
| 200    | 3,40 | 3,50 | 3,50 | 3,70 | 3,90 | 4,10 | 2,27  |
| 100    | 3,90 | 3,90 | 4,10 | 4,20 | 4,30 | 4,50 | 2,55  |
| 50     | 4,40 | 4,50 | 4,50 | 4,60 | 4,70 | 4,80 | 2,72  |
| 10     | 4,80 | 4,80 | 4,90 | 4,90 | 5,00 | 5,00 | 2,72  |

### DISCOUNTS

| Qty   | 1+   | 3+   | 6+   | 10+        |
|-------|------|------|------|------------|
| Disc. | List | -10% | -15% | On request |

| Part number | Ratio       | Reflected Inertia at Input (kg.m <sup>2</sup> ) | Efficiency at 1000 rpm | Self-locking output | Price each 1 to 2 |
|-------------|-------------|-------------------------------------------------|------------------------|---------------------|-------------------|
| PF20-10NM   | 10:1        | $2,53 \times 10^{-7}$                           | 86%                    | NO                  | 527,38 €          |
| PF20-12NM   | 12:1        | $2,43 \times 10^{-7}$                           | 85%                    | NO                  | 527,38 €          |
| PF20-15NM   | 15:1        | $2,35 \times 10^{-7}$                           | 84%                    | NO                  | 527,38 €          |
| PF20-20NM   | 20:1        | $2,28 \times 10^{-7}$                           | 78%                    | NO                  | 527,38 €          |
| PF20-30NM   | 30:1        | $2,24 \times 10^{-7}$                           | 71%                    | NO                  | 527,38 €          |
| PF20-60NM   | 60:1        | $2,21 \times 10^{-7}$                           | 60%                    | YES                 | 527,38 €          |
| PF20-120NM  | 120:1       | $2,00 \times 10^{-7}$                           | 32%                    | YES                 | 527,38 €          |
| PF20-SPNM   | 5:1 - 120:1 | Special ratios from 5:1 to 120:1 or left handed |                        |                     | On request        |
| PF20-ANM    |             | Reduced output backlash $\leq 0^{\circ}8'$      |                        |                     | On request        |

Dimensions in mm



MINIMUM  
ORDER  
20€\*

FREE  
DELIVERY  
FOR ORDERS  
100€\* OR MORE



VOLUME  
DISCOUNT

1,2,3  
PRODUCTS  
SOLD  
INDIVIDUALLY



FAST  
QUOTES  
& ORDERS



FREE  
CATALOGUES



CAD FILES  
STEP, IGES...



MADE TO  
MEASURE  
AVAILABLE



DELIVERY  
24/48 H\*

\* Certain conditions apply - Deliveries to mainland France only

# Worm and wheel gearbox

Stock

1 2 3

★ ★ ★

P30

Torque up to 8.8Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:  
Casing: anodised aluminium  
Input: non-hardened steel  
Output: Bronze  
Cap: stainless steel
- Weight: 0,48 kg

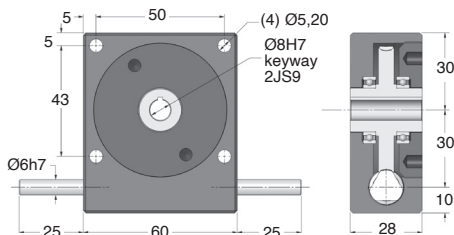
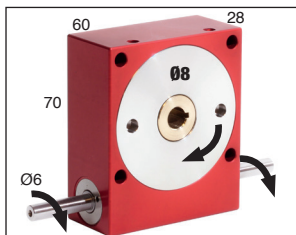
High reduction ratios

## Options

- Can be modified to your specifications

## Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 2,50 | 2,50 | 2,60 | 2,70 | 3,00 | 3,50 | 3,40  |
| 2000   | 2,80 | 2,90 | 3,00 | 3,20 | 3,60 | 4,10 | 3,70  |
| 1000   | 3,50 | 3,70 | 4,00 | 4,20 | 4,50 | 5,00 | 4,60  |
| 500    | 4,60 | 4,70 | 4,90 | 5,10 | 5,30 | 5,80 | 5,40  |
| 200    | 5,40 | 5,60 | 5,70 | 5,90 | 6,20 | 6,60 | 6,40  |
| 100    | 6,00 | 6,00 | 6,50 | 6,50 | 7,00 | 7,50 | 6,70  |
| 50     | 7,50 | 7,80 | 8,00 | 8,30 | 8,30 | 8,60 | 6,70  |
| 10     | 8,00 | 8,00 | 8,30 | 8,50 | 8,50 | 8,80 | 6,70  |

## DISCOUNTS

| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|----------------------------|--------|------------|
| P30-10      | 10:1      | 90%                                        | $8,43 \times 10^{-7}$                           | NO                         | ✓      | 511,59 €   |
| P30-12      | 12:1      | 88%                                        | $7,55 \times 10^{-7}$                           | NO                         | -      | 511,59 €   |
| P30-15      | 15:1      | 86%                                        | $6,92 \times 10^{-7}$                           | NO                         | -      | 511,59 €   |
| P30-20      | 20:1      | 84%                                        | $6,43 \times 10^{-7}$                           | NO                         | -      | 511,59 €   |
| P30-30      | 30:1      | 78%                                        | $6,08 \times 10^{-7}$                           | NO                         | -      | 511,59 €   |
| P30-60      | 60:1      | 70%                                        | $5,87 \times 10^{-7}$                           | YES                        | ✓      | 511,59 €   |
| P30-120     | 120:1     | 40%                                        | $5,72 \times 10^{-7}$                           | YES                        | ✓      | 511,59 €   |
| P30-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                            | -      | On request |
| P30-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                            | -      | On request |
| P30-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                            | -      | On request |

\*Depending on availability - Dimensions in mm



# Worm and wheel gearbox

**Torque up to 8.8Nm**

**PF30**

- Ratios from 5:1 to 120:1

- Output backlash  $\leq 0^{\circ}30'$

- Max input speed: 3000 rpm

- Materials:

Casing: Anodised aluminium

Input: non-hardened steel

Output: Bronze

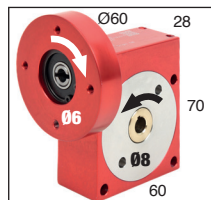
Cap: stainless steel

- The angle of the input flange is not positioned

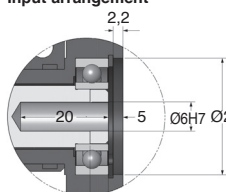
- Verify it is suitable for use with your motor

- Weight: 0,59 kg

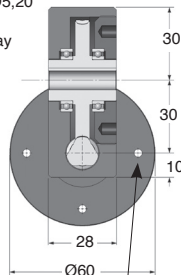
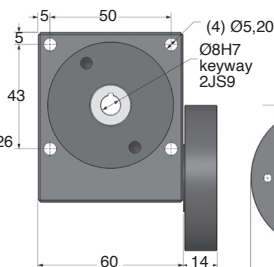
**High reduction ratios**



## Input arrangement



2mm wide 5mm deep.  
slot to suit Ø2x14 pin



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 2,50 | 2,50 | 2,60 | 2,70 | 3,00 | 3,50 | 3,40  |
| 2000   | 2,80 | 2,90 | 3,00 | 3,20 | 3,60 | 4,10 | 3,70  |
| 1000   | 3,50 | 3,70 | 4,00 | 4,20 | 4,50 | 5,00 | 4,60  |
| 500    | 4,60 | 4,70 | 4,90 | 5,10 | 5,30 | 5,80 | 5,40  |
| 200    | 5,40 | 5,60 | 5,70 | 5,90 | 6,20 | 6,60 | 6,40  |
| 100    | 6,00 | 6,00 | 6,50 | 6,50 | 7,00 | 7,50 | 6,70  |
| 50     | 7,50 | 7,80 | 8,00 | 8,30 | 8,30 | 8,60 | 6,70  |
| 10     | 8,00 | 8,00 | 8,30 | 8,50 | 8,50 | 8,80 | 6,70  |

## DISCOUNTS

| Qty   | 1+        | 2+   | 4+         | 6+         |
|-------|-----------|------|------------|------------|
| Disc. | List -10% | -15% | On request | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|----------------------------|------------|
| PF30-10     | 10:1      | 90%                                        | $1,00 \times 10^{-6}$                           | NO                         | 634,35 €   |
| PF30-12     | 12:1      | 88%                                        | $9,25 \times 10^{-7}$                           | NO                         | 634,35 €   |
| PF30-15     | 15:1      | 86%                                        | $8,62 \times 10^{-7}$                           | NO                         | 634,35 €   |
| PF30-20     | 20:1      | 84%                                        | $8,13 \times 10^{-7}$                           | NO                         | 634,35 €   |
| PF30-30     | 30:1      | 78%                                        | $7,88 \times 10^{-7}$                           | NO                         | 634,35 €   |
| PF30-60     | 60:1      | 70%                                        | $7,67 \times 10^{-7}$                           | YES                        | 634,35 €   |
| PF30-120    | 120:1     | 40%                                        | $7,42 \times 10^{-7}$                           | YES                        | 634,35 €   |
| PF30-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                            | On request |
| PF30-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                            | On request |
| PF30-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                            | On request |

Dimensions in mm

# Worm and wheel gearbox

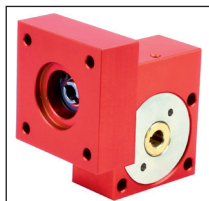


## PF30NM

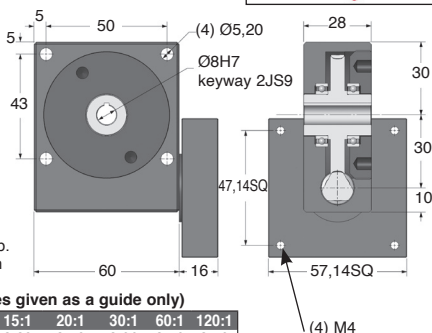
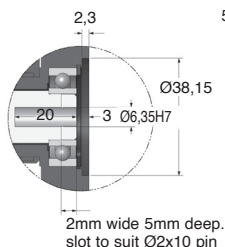
## Torque up to 8.8Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Stainless steel cap
- Weight: 0,59 kg

**NEMA 23  
square flange**



### Input arrangement



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 2,50 | 2,50 | 2,60 | 2,70 | 3,00 | 3,50 | 3,40  |
| 2000   | 2,80 | 2,90 | 3,00 | 3,20 | 3,60 | 4,10 | 3,70  |
| 1000   | 3,50 | 3,70 | 4,00 | 4,20 | 4,50 | 5,00 | 4,60  |
| 500    | 4,60 | 4,70 | 4,90 | 5,10 | 5,30 | 5,80 | 5,40  |
| 200    | 5,40 | 5,60 | 5,70 | 5,90 | 6,20 | 6,60 | 6,40  |
| 100    | 6,00 | 6,00 | 6,50 | 6,50 | 7,00 | 7,50 | 6,70  |
| 50     | 7,50 | 7,80 | 8,00 | 8,30 | 8,30 | 8,60 | 6,70  |
| 10     | 8,00 | 8,00 | 8,30 | 8,50 | 8,50 | 8,80 | 6,70  |

### DISCOUNTS

| Qty   | 1+        | 3+        | 6+         | 10+        |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratio       | Reflected Inertia at Input (kg.m <sup>2</sup> ) | Efficiency at 1000 rpm | Self-locking output | Price each 1 to 2 |
|-------------|-------------|-------------------------------------------------|------------------------|---------------------|-------------------|
| PF30-10NM   | 10:1        | 1,00 x 10 <sup>-6</sup>                         | 90%                    | NO                  | 634,35 €          |
| PF30-12NM   | 12:1        | 9,25 x 10 <sup>-7</sup>                         | 88%                    | NO                  | 634,35 €          |
| PF30-15NM   | 15:1        | 8,62 x 10 <sup>-7</sup>                         | 86%                    | NO                  | 634,35 €          |
| PF30-20NM   | 20:1        | 8,13 x 10 <sup>-7</sup>                         | 84%                    | NO                  | 634,35 €          |
| PF30-30NM   | 30:1        | 7,88 x 10 <sup>-7</sup>                         | 78%                    | NO                  | 634,35 €          |
| PF30-60NM   | 60:1        | 7,67 x 10 <sup>-7</sup>                         | 70%                    | YES                 | 634,35 €          |
| PF30-120NM  | 120:1       | 7,42 x 10 <sup>-7</sup>                         | 40%                    | YES                 | 634,35 €          |
| PF30-SPNM   | 5:1 - 120:1 | Special ratios from 5:1 to 120:1 or left handed |                        |                     | On request        |
| PF30-ANM    |             | Reduced output backlash $\leq 0^{\circ}8'$      |                        |                     | On request        |

Dimensions in mm



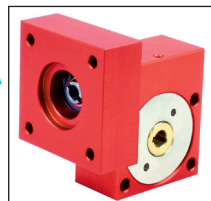
# Worm and wheel gearbox

**Torque up to 18Nm**

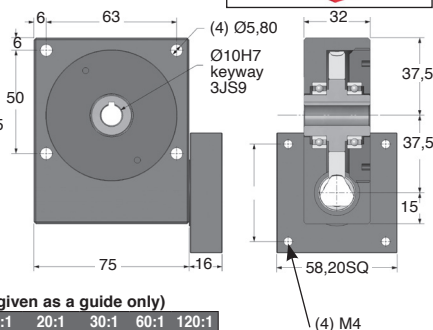
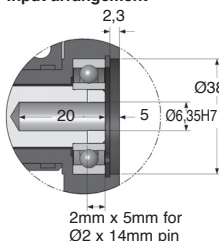
**PF40NM**

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Stainless steel cap
- Weight: 1,15 kg

**NEMA 23 square flange**



## Input arrangement



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 5,00  | 5,20  | 5,40  | 5,60  | 6,40  | 7,20  | 6,50  |
| 2000   | 5,50  | 5,80  | 6,20  | 6,60  | 7,30  | 8,00  | 7,20  |
| 1000   | 7,10  | 7,50  | 8,00  | 8,20  | 9,00  | 10,00 | 8,70  |
| 500    | 8,90  | 9,10  | 9,60  | 10,00 | 10,50 | 11,40 | 10,20 |
| 200    | 11,60 | 11,90 | 12,30 | 12,50 | 13,50 | 14,20 | 11,70 |
| 100    | 13,40 | 13,60 | 14,10 | 14,60 | 15,30 | 16,00 | 12,30 |
| 50     | 15,10 | 15,50 | 16,20 | 16,40 | 17,30 | 17,60 | 12,30 |
| 10     | 17,60 | 17,60 | 17,60 | 17,70 | 17,80 | 18,00 | 12,30 |

## DISCOUNTS

| Qty   | 1+        | 3+   | 6+         | 10+ |
|-------|-----------|------|------------|-----|
| Disc. | List -10% | -15% | On request |     |

| Part number | Ratio       | Reflected Inertia at Input (kg.m <sup>2</sup> ) | Efficiency at 1000 rpm | Self-locking output | Price each 1 to 2 |
|-------------|-------------|-------------------------------------------------|------------------------|---------------------|-------------------|
| PF40-10NM   | 10:1        | $3,78 \times 10^{-6}$                           | 89%                    | NO                  | 861,27 €          |
| PF40-12NM   | 12:1        | $3,62 \times 10^{-6}$                           | 87%                    | NO                  | 861,27 €          |
| PF40-15NM   | 15:1        | $3,49 \times 10^{-6}$                           | 85%                    | NO                  | 861,27 €          |
| PF40-20NM   | 20:1        | $3,39 \times 10^{-6}$                           | 83%                    | NO                  | 861,27 €          |
| PF40-30NM   | 30:1        | $3,32 \times 10^{-6}$                           | 76%                    | NO                  | 861,27 €          |
| PF40-60NM   | 60:1        | $3,27 \times 10^{-6}$                           | 65%                    | YES                 | 861,27 €          |
| PF40-120NM  | 120:1       | $3,26 \times 10^{-6}$                           | 41%                    | YES                 | 861,27 €          |
| PF40-SPNM   | 5:1 - 120:1 | Special ratios from 5:1 to 120:1 or left handed |                        |                     | On request        |
| PF40-ANM    |             | Reduced output backlash $\leq 0^{\circ}8'$      |                        |                     | On request        |

Dimensions in mm

# Worm and wheel gearbox



## P40

## Torque up to 18Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3,000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened
  - Output: Bronze
  - Cap: stainless steel
- Weight: 0,92 kg

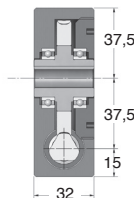
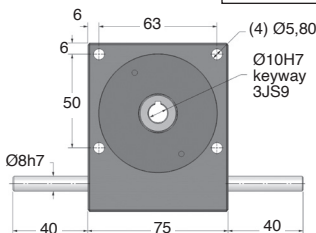
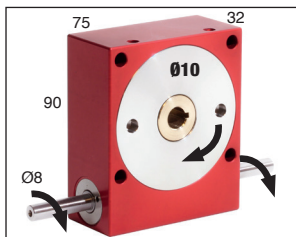
High reduction ratios

### Options

- Can be modified to your specifications

### Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 5,00  | 5,20  | 5,40  | 5,60  | 6,40  | 7,20  | 6,50  |
| 2000   | 5,50  | 5,80  | 6,20  | 6,60  | 7,30  | 8,00  | 7,20  |
| 1000   | 7,10  | 7,50  | 8,00  | 8,20  | 9,00  | 10,00 | 8,70  |
| 500    | 8,90  | 9,10  | 9,60  | 10,00 | 10,50 | 11,40 | 10,20 |
| 200    | 11,60 | 11,90 | 12,30 | 12,50 | 13,50 | 14,20 | 11,70 |
| 100    | 13,40 | 13,60 | 14,10 | 14,60 | 15,30 | 16,00 | 12,30 |
| 50     | 15,10 | 15,50 | 16,20 | 16,40 | 17,30 | 17,60 | 12,30 |
| 10     | 17,60 | 17,60 | 17,60 | 17,70 | 17,80 | 18,00 | 12,30 |

### DISCOUNTS

| Qty   | 1+   | 2+   | 4+         | 6+         |
|-------|------|------|------------|------------|
| Disc. | -10% | -15% | On request | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Static self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|----------------------------|--------|------------|
| P40-10      | 10:1      | 89%                                        | 2,94 x 10 <sup>-6</sup>                         | NO                         | ✓      | 693,42 €   |
| P40-12      | 12:1      | 87%                                        | 2,69 x 10 <sup>-6</sup>                         | NO                         | -      | 693,42 €   |
| P40-15      | 15:1      | 85%                                        | 2,49 x 10 <sup>-6</sup>                         | NO                         | -      | 693,42 €   |
| P40-20      | 20:1      | 83%                                        | 2,33 x 10 <sup>-6</sup>                         | NO                         | ✓      | 693,42 €   |
| P40-30      | 30:1      | 76%                                        | 2,22 x 10 <sup>-6</sup>                         | NO                         | -      | 693,42 €   |
| P40-60      | 60:1      | 65%                                        | 2,15 x 10 <sup>-6</sup>                         | YES                        | ✓      | 693,42 €   |
| P40-120     | 120:1     | 41%                                        | 2,10 x 10 <sup>-6</sup>                         | YES                        | -      | 693,42 €   |
| P40-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                            | -      | On request |
| P40-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                            | -      | On request |
| P40-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                            | -      | On request |

\*Depending on availability - Dimensions in mm



# Worm and wheel gearbox

**Torque up to 18Nm**

**PF40**

- Ratios from 5:1 to 120:1

- Output backlash  $\leq 0^{\circ}30'$

- Max input speed: 3,000 rpm

- Materials:

Casing: Anodised aluminium

Input: non-hardened steel

Output: Bronze

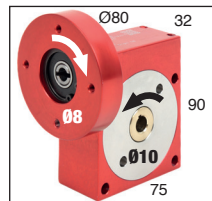
Cap: stainless steel

- The angle of the input flange is not positioned

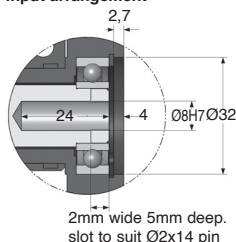
- Verify it is suitable for use with your motor

- Weight: 1,15 kg

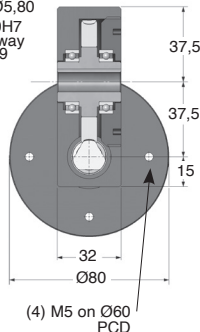
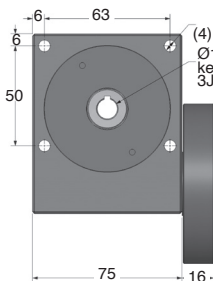
**High reduction ratios**



## Input arrangement



2mm wide 5mm deep.  
slot to suit Ø2x14 pin



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 5,00  | 5,20  | 5,40  | 5,60  | 6,40  | 7,20  | 6,50  |
| 2000   | 5,50  | 5,80  | 6,20  | 6,60  | 7,30  | 8,00  | 7,20  |
| 1000   | 7,10  | 7,50  | 8,00  | 8,20  | 9,00  | 10,00 | 8,70  |
| 500    | 8,90  | 9,10  | 9,60  | 10,00 | 10,50 | 11,40 | 10,20 |
| 200    | 11,60 | 11,90 | 12,30 | 12,50 | 13,50 | 14,20 | 11,70 |
| 100    | 13,40 | 13,60 | 14,10 | 14,60 | 15,30 | 16,00 | 12,30 |
| 50     | 15,10 | 15,50 | 16,20 | 16,40 | 17,30 | 17,60 | 12,30 |
| 10     | 17,60 | 17,60 | 17,60 | 17,70 | 17,80 | 18,00 | 12,30 |

## DISCOUNTS

| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Anti-back drive | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|-----------------|------------|
| PF40-10     | 10:1      | 89%                                        | 3,78 x 10 <sup>-6</sup>                         | NO              | 861,27 €   |
| PF40-12     | 12:1      | 87%                                        | 3,62 x 10 <sup>-6</sup>                         | NO              | 861,27 €   |
| PF40-15     | 15:1      | 85%                                        | 3,49 x 10 <sup>-6</sup>                         | NO              | 861,27 €   |
| PF40-20     | 20:1      | 83%                                        | 3,39 x 10 <sup>-6</sup>                         | NO              | 861,27 €   |
| PF40-30     | 30:1      | 76%                                        | 3,32 x 10 <sup>-6</sup>                         | NO              | 861,27 €   |
| PF40-60     | 60:1      | 65%                                        | 3,27 x 10 <sup>-6</sup>                         | YES             | 861,27 €   |
| PF40-120    | 120:1     | 41%                                        | 3,26 x 10 <sup>-6</sup>                         | YES             | 861,27 €   |
| PF40-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                 | On request |
| PF40-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                 | On request |
| PF40-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                 | On request |

Dimensions in mm

# Worm and wheel gearbox



P45

Torque up to 40Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:
  - Casing: anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- Weight: 1,70 kg

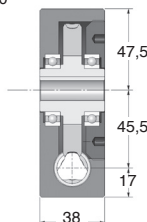
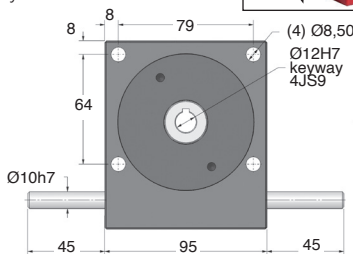
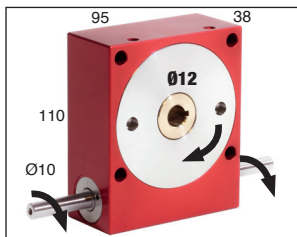
High reduction ratios

## Options

- Can be modified to your specifications

## Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)



OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 10,30 | 10,80 | 11,30 | 12,20 | 13,20 | 14,70 | 10,80 |
| 2000   | 11,70 | 12,20 | 12,70 | 13,20 | 14,70 | 17,10 | 12,70 |
| 1000   | 14,70 | 15,20 | 16,20 | 17,10 | 18,10 | 20,60 | 14,30 |
| 500    | 19,10 | 19,60 | 20,60 | 21,60 | 22,50 | 24,50 | 17,50 |
| 200    | 24,40 | 25,50 | 26,40 | 27,00 | 28,90 | 30,00 | 20,60 |
| 100    | 28,30 | 28,90 | 29,40 | 30,30 | 31,80 | 33,80 | 22,80 |
| 50     | 32,30 | 32,80 | 33,80 | 34,30 | 34,50 | 35,20 | 23,00 |
| 10     | 39,90 | 39,90 | 39,90 | 40,00 | 40,00 | 40,00 | 23,00 |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|--------|------------|
| P45-10      | 10:1      | 90%                                        | 6,15 x 10 <sup>-6</sup>                         | NO                  | ✓      | 835,69 €   |
| P45-12      | 12:1      | 89%                                        | 5,32 x 10 <sup>-6</sup>                         | NO                  | -      | 835,69 €   |
| P45-15      | 15:1      | 86%                                        | 4,64 x 10 <sup>-6</sup>                         | NO                  | -      | 835,69 €   |
| P45-20      | 20:1      | 85%                                        | 4,11 x 10 <sup>-6</sup>                         | NO                  | ✓      | 835,69 €   |
| P45-30      | 30:1      | 78%                                        | 3,73 x 10 <sup>-6</sup>                         | NO                  | ✓      | 835,69 €   |
| P45-60      | 60:1      | 67%                                        | 3,51 x 10 <sup>-6</sup>                         | YES                 | ✓      | 835,69 €   |
| P45-120     | 120:1     | 47%                                        | 2,88 x 10 <sup>-6</sup>                         | YES                 | ✓      | 835,69 €   |
| P45-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | -      | On request |
| P45-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | -      | On request |
| P45-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | -      | On request |

\*Depending on availability - Dimensions in mm



# Worm and wheel gearbox

**Torque up to 40Nm**

**PF45**

- Ratios from 5:1 to 120:1

- Output backlash  $\leq 0^{\circ}30'$

- Max input speed: 3000 rpm

- Materials:

Casing: Anodised aluminium

Input: non-hardened steel

Output: Bronze

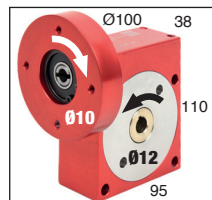
Cap: stainless steel

- The angle of the input flange is not positioned

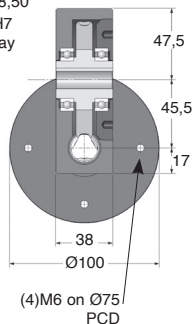
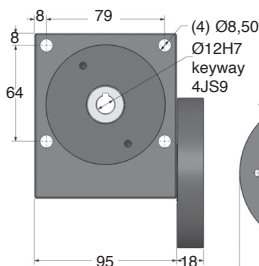
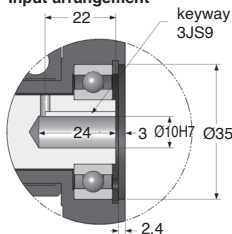
- Verify it is suitable for use with your motor

- Weight: 2,10 kg

**High reduction ratios**



## Input arrangement



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 10,30 | 10,80 | 11,30 | 12,20 | 13,20 | 14,70 | 10,80 |
| 2000   | 11,70 | 12,20 | 12,70 | 13,20 | 14,70 | 17,10 | 12,70 |
| 1000   | 14,70 | 15,20 | 16,20 | 17,10 | 18,10 | 20,60 | 14,30 |
| 500    | 19,10 | 19,60 | 20,60 | 21,60 | 22,50 | 24,50 | 17,50 |
| 200    | 24,40 | 25,50 | 26,40 | 27,00 | 28,90 | 30,00 | 20,60 |
| 100    | 28,30 | 28,90 | 29,40 | 30,30 | 31,80 | 33,80 | 22,80 |
| 50     | 32,30 | 32,80 | 33,80 | 34,30 | 34,50 | 35,20 | 23,00 |
| 10     | 39,90 | 39,90 | 39,90 | 40,00 | 40,00 | 40,00 | 23,00 |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|------------|
| PF45-10     | 10:1      | 90%                                        | $7,34 \times 10^{-6}$                           | NO                  | 1 037,94 € |
| PF45-12     | 12:1      | 89%                                        | $6,84 \times 10^{-6}$                           | NO                  | 1 037,94 € |
| PF45-15     | 15:1      | 86%                                        | $6,43 \times 10^{-6}$                           | NO                  | 1 037,94 € |
| PF45-20     | 20:1      | 85%                                        | $6,09 \times 10^{-6}$                           | NO                  | 1 037,94 € |
| PF45-30     | 30:1      | 78%                                        | $5,86 \times 10^{-6}$                           | NO                  | 1 037,94 € |
| PF45-60     | 60:1      | 67%                                        | $5,70 \times 10^{-6}$                           | YES                 | 1 037,94 € |
| PF45-120    | 120:1     | 47%                                        | $5,66 \times 10^{-6}$                           | YES                 | 1 037,94 € |
| PF45-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | On request |
| PF45-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | On request |
| PF45-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | On request |

Dimensions in mm

# Worm and wheel gearbox

Stock

1 2 3

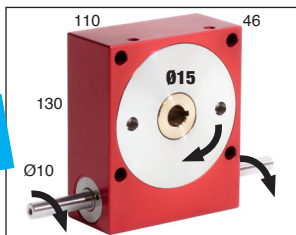
★ ★ ★

P55

Torque up to 57Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:  
Casing: anodised aluminium  
Input: non-hardened steel  
Output: Bronze  
Cap: stainless steel
- Weight: 2,40 kg

High reduction ratios

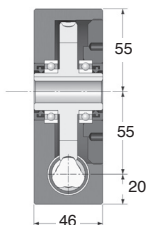
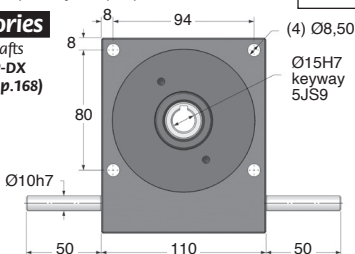


## Options

- Can be modified to your specifications

## Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)



OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 13,40 | 14,00 | 14,80 | 16,20 | 17,60 | 20,40 | 18,00 |
| 2000   | 16,20 | 16,90 | 18,30 | 19,10 | 20,40 | 23,90 | 20,00 |
| 1000   | 21,10 | 22,50 | 23,20 | 24,60 | 25,30 | 28,80 | 25,00 |
| 500    | 27,40 | 28,10 | 28,80 | 30,20 | 31,60 | 35,10 | 30,00 |
| 200    | 34,40 | 35,10 | 36,50 | 37,90 | 39,30 | 42,10 | 36,00 |
| 100    | 40,00 | 41,40 | 42,10 | 42,80 | 44,90 | 46,30 | 38,00 |
| 50     | 45,60 | 46,30 | 47,70 | 48,40 | 49,80 | 50,50 | 38,00 |
| 10     | 56,80 | 56,80 | 56,80 | 57,00 | 57,00 | 57,00 | 38,00 |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|--------|------------|
| P55-10      | 10:1      | 89%                                        | 1,35 x 10 <sup>-5</sup>                         | NO                  | ✓      | 990,35 €   |
| P55-12      | 12:1      | 88%                                        | 1,13 x 10 <sup>-5</sup>                         | NO                  | ✓      | 990,35 €   |
| P55-15      | 15:1      | 86%                                        | 9,81 x 10 <sup>-6</sup>                         | NO                  | ✓      | 990,35 €   |
| P55-20      | 20:1      | 84%                                        | 8,63 x 10 <sup>-6</sup>                         | NO                  | -      | 990,35 €   |
| P55-30      | 30:1      | 78%                                        | 7,79 x 10 <sup>-6</sup>                         | NO                  | -      | 990,35 €   |
| P55-60      | 60:1      | 69%                                        | 7,23 x 10 <sup>-6</sup>                         | YES                 | ✓      | 990,48 €   |
| P55-120     | 120:1     | 47%                                        | 7,04 x 10 <sup>-6</sup>                         | YES                 | -      | 990,35 €   |
| P55-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | -      | On request |
| P55-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | -      | On request |
| P55-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | -      | On request |

\*Depending on availability - Dimensions in mm



# Worm and wheel gearbox

**Torque up to 57Nm**

**PF55**

- Ratios from 5:1 to 120:1

- Output backlash  $\leq 0^{\circ}30'$

- Max input speed: 3000 rpm

- Materials:

Casing: Anodised aluminium

Input: non-hardened steel

Output: Bronze

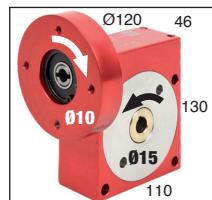
Cap: stainless steel

- The angle of the input flange is not aligned

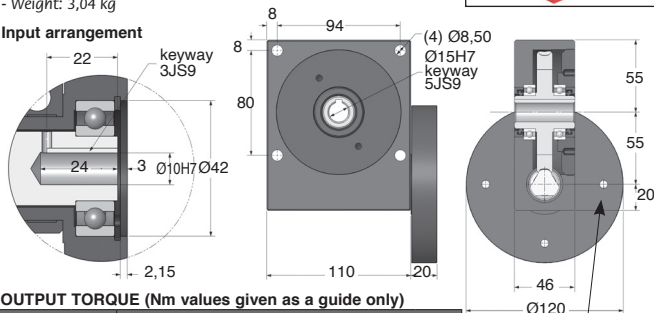
- Verify it is suitable for use with your motor

- Weight: 3,04 kg

**High reduction ratios**



## Input arrangement



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1  | 12:1  | 15:1  | 20:1  | 30:1  | 60:1  | 120:1 |
|--------|-------|-------|-------|-------|-------|-------|-------|
| 3000   | 13,40 | 14,00 | 14,80 | 16,20 | 17,60 | 20,40 | 18,00 |
| 2000   | 16,20 | 16,90 | 18,30 | 19,10 | 20,40 | 23,90 | 20,00 |
| 1000   | 21,10 | 22,50 | 23,20 | 24,60 | 25,30 | 28,80 | 25,00 |
| 500    | 27,40 | 28,10 | 28,80 | 30,20 | 31,60 | 35,10 | 30,00 |
| 200    | 34,40 | 35,10 | 36,50 | 37,90 | 39,30 | 42,10 | 36,00 |
| 100    | 40,00 | 41,40 | 42,10 | 42,80 | 44,90 | 46,30 | 38,00 |
| 50     | 45,60 | 46,30 | 47,70 | 48,40 | 49,80 | 50,50 | 38,00 |
| 10     | 56,80 | 56,80 | 56,80 | 57,00 | 57,00 | 57,00 | 38,00 |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|------------|
| PF55-10     | 10:1      | 89%                                        | $1,96 \times 10^{-5}$                           | NO                  | 1 230,16 € |
| PF55-12     | 12:1      | 88%                                        | $1,84 \times 10^{-5}$                           | NO                  | 1 230,16 € |
| PF55-15     | 15:1      | 86%                                        | $1,74 \times 10^{-5}$                           | NO                  | 1 230,16 € |
| PF55-20     | 20:1      | 84%                                        | $1,67 \times 10^{-5}$                           | NO                  | 1 230,16 € |
| PF55-30     | 30:1      | 78%                                        | $1,62 \times 10^{-5}$                           | NO                  | 1 230,16 € |
| PF55-60     | 60:1      | 69%                                        | $1,58 \times 10^{-5}$                           | YES                 | 1 230,16 € |
| PF55-120    | 120:1     | 47%                                        | $1,57 \times 10^{-5}$                           | YES                 | 1 230,16 € |
| PF55-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | On request |
| PF55-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | On request |
| PF55-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | On request |

Dimensions in mm

# Worm and wheel gearbox



P60

Torque up to 118Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:  
Casing: anodised aluminium  
Input: non-hardened steel  
Output: Bronze  
Cap: stainless steel
- Weight: 4,10 kg

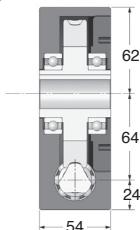
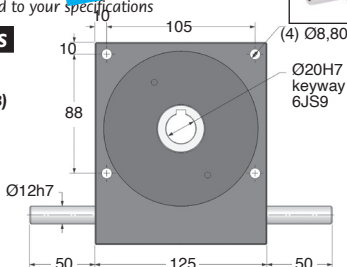
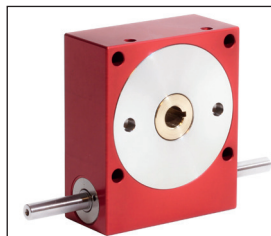
## Options

- Can be modified to your specifications

## Accessories

- Output shafts  
P-X and P-DX  
(tome 2 p.168)

High reduction ratios



OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 30   | 31   | 33   | 35   | 38   | 44   | 27    |
| 2000   | 33   | 36   | 39   | 41   | 44   | 50   | 32    |
| 1000   | 45   | 47   | 50   | 54   | 58   | 64   | 39    |
| 500    | 58   | 60   | 62   | 65   | 69   | 73   | 47    |
| 200    | 77   | 78   | 80   | 84   | 88   | 94   | 55    |
| 100    | 88   | 89   | 91   | 94   | 97   | 105  | 61    |
| 50     | 100  | 102  | 104  | 105  | 107  | 110  | 66    |
| 10     | 113  | 114  | 115  | 116  | 116  | 118  | 66    |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|--------|------------|
| P60-10      | 10:1      | 90%                                        | 2,93 x 10 <sup>-5</sup>                         | NO                  | ✓      | 1 251,95 € |
| P60-12      | 12:1      | 89%                                        | 2,46 x 10 <sup>-5</sup>                         | NO                  | -      | 1 251,95 € |
| P60-15      | 15:1      | 85%                                        | 2,08 x 10 <sup>-5</sup>                         | NO                  | -      | 1 251,95 € |
| P60-20      | 20:1      | 85%                                        | 1,78 x 10 <sup>-5</sup>                         | NO                  | -      | 1 251,95 € |
| P60-30      | 30:1      | 78%                                        | 1,57 x 10 <sup>-5</sup>                         | NO                  | ✓      | 1 251,95 € |
| P60-60      | 60:1      | 68%                                        | 1,44 x 10 <sup>-5</sup>                         | YES                 | ✓      | 1 251,95 € |
| P60-120     | 120:1     | 45%                                        | 9,54 x 10 <sup>-6</sup>                         | YES                 | -      | 1 251,95 € |
| P60-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | -      | On request |
| P60-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | -      | On request |
| P60-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | -      | On request |

\*Depending on availability - Dimensions in mm



# Worm and wheel gearbox

**Torque up to 118Nm**

**PF60**

**- Ratios from 5:1 to 120:1**

- Output backlash  $\leq 0^{\circ}30'$

- Max input speed: 3000 rpm

- Materials:

Casing: Anodised aluminium

Input: non-hardened steel

Output: Bronze

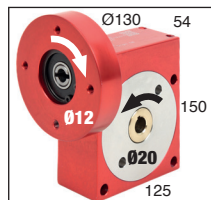
Cap: stainless steel

- The angle of the input flange is not positioned

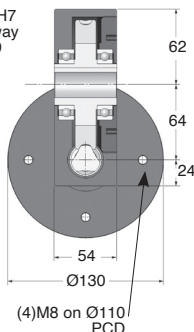
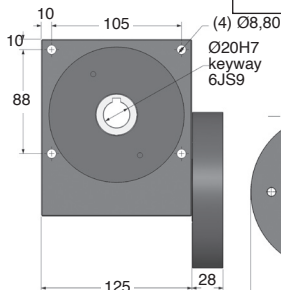
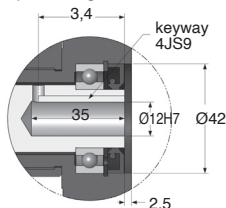
- Verify it is suitable for use with your motor

- Weight: 5,10 kg

**High reduction ratios**



**Input arrangement**



**OUTPUT TORQUE (Nm values given as a guide only)**

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 30   | 31   | 33   | 35   | 38   | 44   | 27    |
| 2000   | 33   | 36   | 39   | 41   | 44   | 50   | 32    |
| 1000   | 45   | 47   | 50   | 54   | 58   | 64   | 39    |
| 500    | 58   | 60   | 62   | 65   | 69   | 73   | 47    |
| 200    | 77   | 78   | 80   | 84   | 88   | 94   | 55    |
| 100    | 88   | 89   | 91   | 94   | 97   | 105  | 61    |
| 50     | 100  | 102  | 104  | 105  | 107  | 110  | 66    |
| 10     | 113  | 114  | 115  | 116  | 116  | 118  | 66    |

**DISCOUNTS**

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|------------|
| PF60-10     | 10:1      | 90%                                        | $3,80 \times 10^{-5}$                           | NO                  | 1 387,79 € |
| PF60-12     | 12:1      | 89%                                        | $3,68 \times 10^{-5}$                           | NO                  | 1 387,79 € |
| PF60-15     | 15:1      | 85%                                        | $3,14 \times 10^{-5}$                           | NO                  | 1 387,79 € |
| PF60-20     | 20:1      | 85%                                        | $3,10 \times 10^{-5}$                           | NO                  | 1 387,79 € |
| PF60-30     | 30:1      | 78%                                        | $2,88 \times 10^{-5}$                           | NO                  | 1 387,79 € |
| PF60-60     | 60:1      | 68%                                        | $2,82 \times 10^{-5}$                           | YES                 | 1 387,79 € |
| PF60-120    | 120:1     | 45%                                        | $2,79 \times 10^{-5}$                           | YES                 | 1 387,79 € |
| PF60-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | On request |
| PF60-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | On request |
| PF60-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | On request |

Dimensions in mm

# Worm and wheel gearbox

Stock

1 2 3

★ ★ ★

P70

Torque up to 164Nm

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max. input speed: 3000 rpm
- Materials:

Casing: anodised aluminium

Input: non-hardened steel

Output: Bronze

Cap: stainless steel

- Weight: 6,40 kg

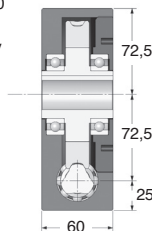
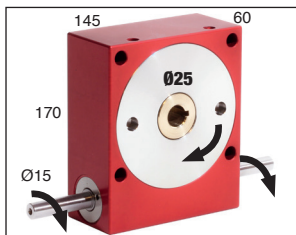
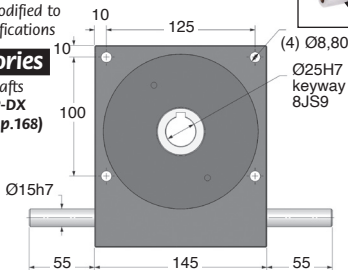
High reduction ratios

## Options

- Can be modified to your specifications

## Accessories

- Output shafts P-X and P-DX (tome 2 p.168)



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 38   | 40   | 42   | 45   | 50   | 56   | 38    |
| 2000   | 47   | 49   | 53   | 55   | 61   | 69   | 46    |
| 1000   | 61   | 65   | 67   | 71   | 73   | 83   | 55    |
| 500    | 77   | 81   | 83   | 87   | 91   | 100  | 66    |
| 200    | 99   | 101  | 105  | 107  | 113  | 121  | 77    |
| 100    | 115  | 119  | 121  | 123  | 129  | 133  | 86    |
| 50     | 129  | 133  | 137  | 139  | 144  | 146  | 90    |
| 10     | 160  | 160  | 160  | 164  | 164  | 164  | 90    |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Stock* | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|--------|------------|
| P70-10      | 10:1      | 90%                                        | 6,04 x 10 <sup>-5</sup>                         | NO                  | -      | 1 390,23 € |
| P70-12      | 12:1      | 89%                                        | 5,03 x 10 <sup>-5</sup>                         | NO                  | -      | 1 390,23 € |
| P70-15      | 15:1      | 86%                                        | 4,21 x 10 <sup>-5</sup>                         | NO                  | -      | 1 390,23 € |
| P70-20      | 20:1      | 85%                                        | 3,57 x 10 <sup>-5</sup>                         | NO                  | ✓      | 1 390,23 € |
| P70-30      | 30:1      | 78%                                        | 3,11 x 10 <sup>-5</sup>                         | NO                  | ✓      | 1 390,23 € |
| P70-60      | 60:1      | 67%                                        | 2,84 x 10 <sup>-5</sup>                         | YES                 | ✓      | 1 390,23 € |
| P70-120     | 120:1     | 50%                                        | 2,48 x 10 <sup>-5</sup>                         | YES                 | -      | 1 390,23 € |
| P70-SP      | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | -      | On request |
| P70-A       |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | -      | On request |
| P70-AR      |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | -      | On request |

\*Depending on availability - Dimensions in mm



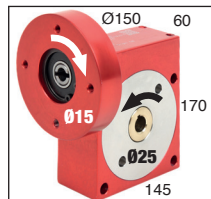
# Worm and wheel gearbox

**Torque up to 164Nm**

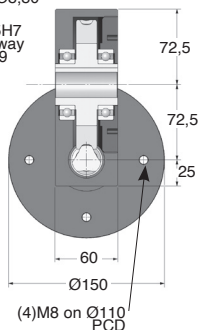
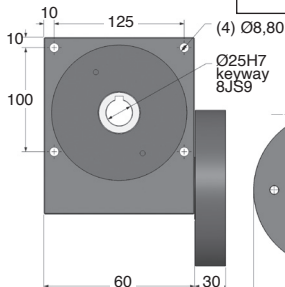
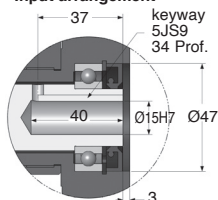
**PF70**

- Ratios from 5:1 to 120:1
- Output backlash  $\leq 0^{\circ}30'$
- Max input speed: 3000 rpm
- Materials:
  - Casing: Anodised aluminium
  - Input: non-hardened steel
  - Output: Bronze
  - Cap: stainless steel
- The angle of the input flange is not positioned
- Verify it is suitable for use with your motor
- Weight: 7,90 kg

**High reduction ratios**



## Input arrangement



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 10:1 | 12:1 | 15:1 | 20:1 | 30:1 | 60:1 | 120:1 |
|--------|------|------|------|------|------|------|-------|
| 3000   | 38   | 40   | 42   | 45   | 50   | 56   | 38    |
| 2000   | 47   | 49   | 53   | 55   | 61   | 69   | 46    |
| 1000   | 61   | 65   | 67   | 71   | 73   | 83   | 55    |
| 500    | 77   | 81   | 83   | 87   | 91   | 100  | 66    |
| 200    | 99   | 101  | 105  | 107  | 113  | 121  | 77    |
| 100    | 115  | 119  | 121  | 123  | 129  | 133  | 86    |
| 50     | 129  | 133  | 137  | 139  | 144  | 146  | 90    |
| 10     | 160  | 160  | 160  | 164  | 164  | 164  | 90    |

## DISCOUNTS

| Qty   | 1+   | 2+  | 4+         |
|-------|------|-----|------------|
| Disc. | List | -5% | On request |

| Part number | Ratios    | Efficiency at 1000 rpm                     | Reflected inertia at input (kg.m <sup>2</sup> ) | Self-locking output | Price each |
|-------------|-----------|--------------------------------------------|-------------------------------------------------|---------------------|------------|
| PF70-10     | 10:1      | 90%                                        | $4,81 \times 10^{-5}$                           | NO                  | 1 565,02 € |
| PF70-12     | 12:1      | 89%                                        | $4,19 \times 10^{-5}$                           | NO                  | 1 565,02 € |
| PF70-15     | 15:1      | 86%                                        | $3,70 \times 10^{-5}$                           | NO                  | 1 565,02 € |
| PF70-20     | 20:1      | 85%                                        | $3,28 \times 10^{-5}$                           | NO                  | 1 565,02 € |
| PF70-30     | 30:1      | 78%                                        | $3,00 \times 10^{-5}$                           | NO                  | 1 565,02 € |
| PF70-60     | 60:1      | 67%                                        | $2,89 \times 10^{-5}$                           | YES                 | 1 565,02 € |
| PF70-120    | 120:1     | 50%                                        | $2,76 \times 10^{-5}$                           | YES                 | 1 565,02 € |
| PF70-SP     | 5:1-120:1 | Ratios from 5:1 to 120:1 or left handed    |                                                 |                     | On request |
| PF70-A      |           | Reduced output backlash $\leq 0^{\circ}8'$ |                                                 |                     | On request |
| PF70-AR     |           | Reduced output backlash $\leq 0^{\circ}4'$ |                                                 |                     | On request |

Dimensions in mm

# Output shaft **stainless steel**

Stock

Px  
PDX

For P and PF gearboxes

- **Optional accessory for adding outputs shafts**  
to P and PF gearboxes

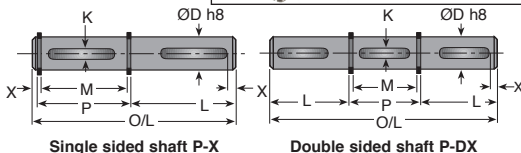
## Composition

- Single sided shaft kit P-X: Stainless steel 303 shaft, 2 steel keys and 2 steel circlips
- Double sided shaft kit P-DX: Stainless steel 303 shaft, 3 steel keys and 2 steel circlips



## Accessories

- Gearbox P  
(tome 2 p.150 to 167)

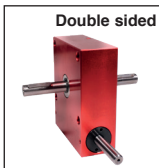


Single sided shaft P-X

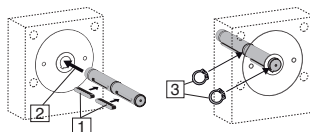
Double sided shaft P-DX



Single sided



Double sided



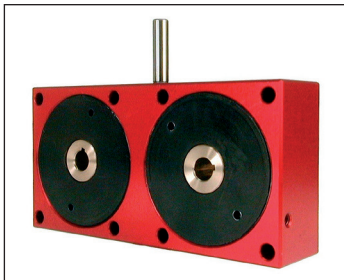
Typical applications

## DISCOUNTS

| Qty   | 1+   | 2+   | 4+   | 6+         |
|-------|------|------|------|------------|
| Disc. | List | -10% | -15% | On request |

| For                 |          | ØD | O/L    | M  | P     | X    | L  | K       | Stock* | Price each |
|---------------------|----------|----|--------|----|-------|------|----|---------|--------|------------|
| Part number         | gearbox  |    |        |    |       |      |    |         |        |            |
| <b>Single sided</b> |          |    |        |    |       |      |    |         |        |            |
| P20-X               | P20-PF20 | 6  | 50,80  | 22 | 23,60 | 3,00 | 25 | K2 x 22 | ✓      | 51,72 €    |
| P30-X               | P30-PF30 | 8  | 63,90  | 28 | 29,80 | 3,00 | 32 | K2 x 22 | ✓      | 60,79 €    |
| P40-X               | P40-PF40 | 10 | 76,60  | 32 | 34,20 | 3,50 | 40 | K3 x 20 | ✓      | 68,33 €    |
| P45-X               | P45-PF45 | 12 | 88,10  | 38 | 40,20 | 4,00 | 45 | K4 x 25 | -      | 73,40 €    |
| P55-X               | P55-PF55 | 15 | 101,10 | 46 | 48,20 | 4,00 | 50 | K5 x 30 | -      | 81,29 €    |
| P60-X               | P60-PF60 | 20 | 119,80 | 54 | 56,60 | 4,50 | 60 | K6 x 32 | -      | 95,57 €    |
| P70-X               | P70-PF70 | 25 | 135,80 | 60 | 62,60 | 4,50 | 70 | K8 x 40 | -      | 109,82 €   |
| <b>Double sided</b> |          |    |        |    |       |      |    |         |        |            |
| P20-DX              | P20-PF20 | 6  | 73,60  | 22 | 23,60 | 1,50 | 25 | K2 x 22 | -      | 68,12 €    |
| P30-DX              | P30-PF30 | 8  | 93,80  | 28 | 29,80 | 5,45 | 32 | K2 x 22 | -      | 74,05 €    |
| P40-DX              | P40-PF40 | 10 | 114,20 | 32 | 34,20 | 9,90 | 40 | K3 x 20 | -      | 84,79 €    |
| P45-DX              | P45-PF45 | 12 | 130,20 | 38 | 40,20 | 4,00 | 45 | K4 x 25 | -      | 92,66 €    |
| P55-DX              | P55-PF55 | 15 | 148,20 | 46 | 48,20 | 9,90 | 50 | K5 x 30 | -      | 100,96 €   |
| P60-DX              | P60-PF60 | 20 | 176,60 | 54 | 56,60 | 4,50 | 60 | K6 x 32 | -      | 117,40 €   |
| P70-DX              | P70-PF70 | 25 | 202,50 | 60 | 62,60 | 4,50 | 70 | K8 x 40 | -      | 133,83 €   |

\*Depending on availability - Dimensions in mm

**Standard gearboxes**

**We can easily adapt our standard gearboxes to meet your specific requirements.**

On request and with no minimum order, we can manufacture :

- different shaft lengths and diameters
  - other bore diameters (metric or imperial)
  - flat plates, keyways, circlip grooves...
  - addition of channelled or threaded rings
  - custom-made parts from a drawing, specification or sample.
- To find out more, contact our technical team.

**Custom made gearboxes built to order**

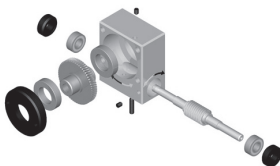
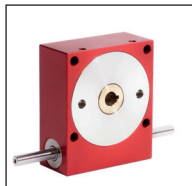
- Please send your request for a custom made gearbox to our technical department : [cial2@hpceurope.com](mailto:cial2@hpceurope.com)

# Worm and wheel gearboxes

P, P-A  
P-AR

## Technical information

- **Ratios: From 5:1 to 120:1**
- **Materials :**
  - Housing - anodised aluminium
  - Worm - Steel
  - Wheel - Aluminium bronze
  - Stainless steel cap
- **Max input speed: 3,000 rpm**
- **Backlash(output):**  $\leq 0^{\circ}30'$  (P),  $\leq 0^{\circ}08'$  (P-A),  
 $\leq 0^{\circ}04'$  (P-AR)
- **Lubrication: greased for life**  
(Shell Gadus S5 V42P 2.5 grease)
- **Guarantee: 13 months**
- **Lubrication temperature :**  
max operating 60°C
- **Cooling may be needed dependent**  
on application

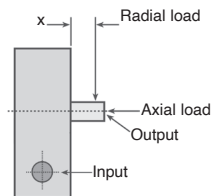


Standard P  
P-A and P-AR range

## ADMISSIBLE LOADS

| Part number | Distance 'X' (mm) | Input radial load (N) | Output Radial load (N) | Axial load (N) |
|-------------|-------------------|-----------------------|------------------------|----------------|
| P15         | 10                | 10                    | 80                     | 30             |
| P20         | 10                | 20                    | 120                    | 50             |
| P30         | 12                | 30                    | 200                    | 120            |
| P40         | 15                | 50                    | 300                    | 200            |
| P45         | 20                | 60                    | 450                    | 300            |
| P55         | 20                | 140                   | 600                    | 400            |
| P60         | 25                | 160                   | 700                    | 500            |
| P70         | 30                | 200                   | 800                    | 600            |

Data given based on input speed of 1,000 rpm.  
values given as an indication only.

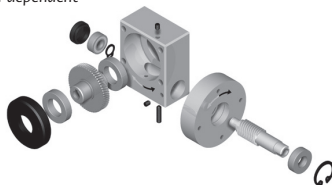
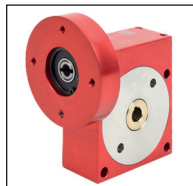


# Worm and wheel gearboxes with input flange

## Technical information

PF, PF-A  
PF-AR

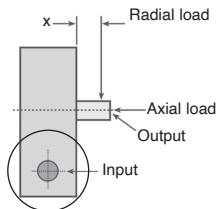
- **Ratios: From 5:1 to 120:1**
- **Materials :**
  - Housing - anodised aluminium
  - Worm - Steel
  - Wheel - Aluminium bronze
  - Stainless steel cap
- Max input speed: 3,000 rpm
- Backlash(output):  $\leq 0^{\circ}30'$  (PF),  
 $\leq 0^{\circ}08'$  (PF-A),  $\leq 0^{\circ}04'$  (PF-AR)
- Lubrication: greased for life  
(Shell Gadus S5 V42P 2.5)
- Guarantee: 13 months
- Lubrication temperature :  
max operating 60°C
- Cooling may be needed dependent  
on application



Standard PF  
PF-A and PF-AR range

## ADMISSIBLE LOADS

| Part number | Distance<br>'X'<br>(mm) | Input<br>Radial<br>load<br>(N) | Output<br>Radial<br>load<br>(N) | Axial<br>load<br>(N) |
|-------------|-------------------------|--------------------------------|---------------------------------|----------------------|
| PF15        | 10                      | 10                             | 80                              | 30                   |
| PF20        | 10                      | 20                             | 120                             | 50                   |
| PF30        | 12                      | 30                             | 200                             | 120                  |
| PF40        | 15                      | 50                             | 300                             | 200                  |
| PF45        | 20                      | 60                             | 450                             | 300                  |
| PF55        | 20                      | 140                            | 600                             | 400                  |
| PF60        | 25                      | 160                            | 700                             | 500                  |
| PF70        | 30                      | 200                            | 800                             | 600                  |



Data given based on input speed of 1,000 rpm.  
Values given as an indication only.

# Double reduction worm gearboxes



## PP35

## Torque up to 4.10Nm

- Ratios from 25:1 to 900:1
- 2-stage reduction
- Output backlash  $\leq 55'$  (0,92°)
- Max. input speed: 3000 rpm
- Materials:

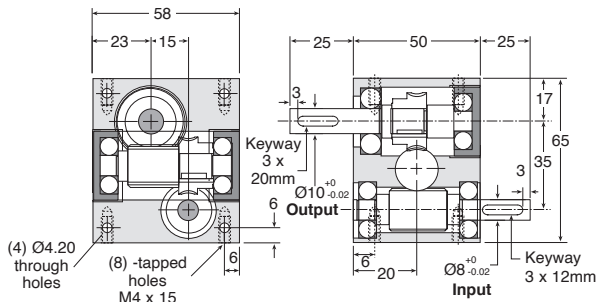
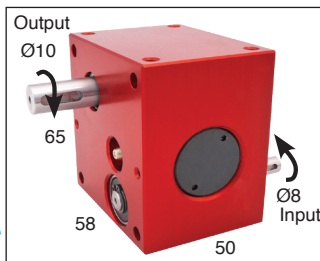
Casing: anodised aluminium  
input: non-hardened steel  
output: bronze

- Weight: 0.70 kg

### Options

- Can be modified to your specifications

**Very high  
reduction  
ratios**



### OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 100:1 | 200:1 | 400:1 |
|--------|-------|-------|-------|
| 3000   | 2,20  | 2,30  | 2,50  |
| 2000   | 2,50  | 2,70  | 2,80  |
| 1000   | 2,80  | 3,00  | 3,10  |
| 500    | 3,10  | 3,50  | 3,60  |
| 200    | 3,80  | 3,90  | 4,00  |
| 100    | 3,90  | 4,00  | 4,00  |
| 50     | 4,00  | 4,10  | 4,10  |

### DISCOUNTS

| Qty   | 1+        | 2+        | 4+         | 6+         |
|-------|-----------|-----------|------------|------------|
| Disc. | List -10% | List -15% | On request | On request |

| Part number | Ratio        | Max. input speed (rpm)            | Max. output speed (rpm) | Efficiency at 1000 rpm | Static self-locking output | Price each |
|-------------|--------------|-----------------------------------|-------------------------|------------------------|----------------------------|------------|
| PP35-100    | 100:1        | 3000                              | 30,00                   | 52%                    | NO                         | 929,52 €   |
| PP35-200    | 200:1        | 3000                              | 15,00                   | 45%                    | NO                         | 929,52 €   |
| PP35-400    | 400:1        | 3000                              | 7,50                    | 34%                    | YES                        | 929,52 €   |
| PP35-SP     | 25:1 - 900:1 | Special ratios from 25:1 to 900:1 |                         |                        |                            | On request |

Dimensions in mm



# Double reduction worm gearboxes

**Torque up to 12.8Nm**

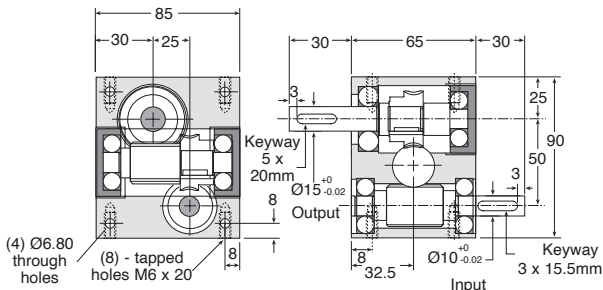
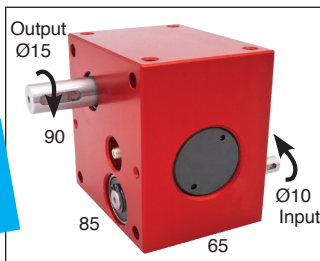
**PP50**

- Ratios from 25:1 to 900:1
- 2-stage reduction
- Output backlash  $\leq 55'$  ( $0,92^\circ$ )
- Max. input speed: 3000 rpm
- Materials:
  - casing: anodised aluminium
  - input: non-hardened steel
  - output: bronze
- Weight: 1.80 kg

## Options

- Can be modified to your specifications

**Very high  
reduction  
ratios**



## OUTPUT TORQUE (Nm values given as a guide only)

| Ratios | 100:1 | 200:1 | 400:1 |
|--------|-------|-------|-------|
| 3000   | 6,50  | 7,10  | 8,20  |
| 2000   | 7,20  | 7,80  | 8,90  |
| 1000   | 8,20  | 9,00  | 9,80  |
| 500    | 9,50  | 10,20 | 11,50 |
| 200    | 11,00 | 11,60 | 12,20 |
| 100    | 12,00 | 12,30 | 12,60 |
| 50     | 12,70 | 12,80 | 12,80 |

## DISCOUNTS

| Qty   | 1+       | 2+       | 4+         |
|-------|----------|----------|------------|
| Disc. | List -5% | List -5% | On request |

| Part number | Ratio        | Max. input speed (rpm)            | Max. output speed (rpm) | Efficiency at 1000 rpm | Static self-locking output | Price each |
|-------------|--------------|-----------------------------------|-------------------------|------------------------|----------------------------|------------|
| PP50-100    | 100:1        | 3000                              | 30,00                   | 54%                    | NO                         | 966,48 €   |
| PP50-200    | 200:1        | 3000                              | 15,00                   | 48%                    | NO                         | 966,48 €   |
| PP50-400    | 400:1        | 3000                              | 7,50                    | 36%                    | YES                        | 966,48 €   |
| PP50-SP     | 25:1 - 900:1 | Special ratios from 25:1 to 900:1 |                         |                        |                            | On request |

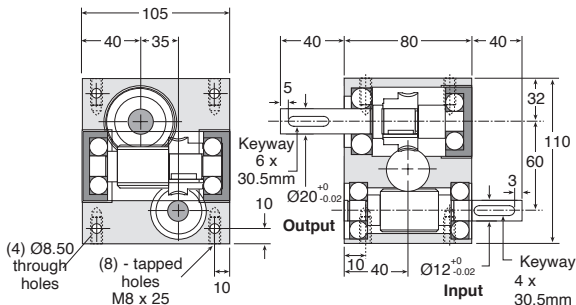
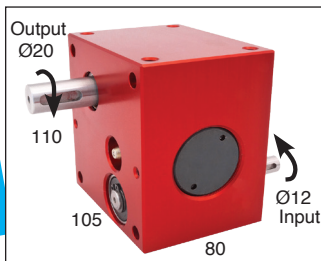
Dimensions in mm



**Torque up to 34Nm**

- Can be modified to your specifications

**Very high  
reduction  
ratios**



| Ratios                  |      | 100:1 | 200:1 | 400:1 |
|-------------------------|------|-------|-------|-------|
| INPUT<br>SPEED<br>(rpm) | 3000 | 17,80 | 19,40 | 22,50 |
|                         | 2000 | 20,00 | 21,60 | 24,80 |
|                         | 1000 | 22,50 | 25,00 | 26,80 |
|                         | 500  | 26,10 | 28,00 | 31,60 |
|                         | 200  | 30,50 | 32,00 | 34,00 |
|                         | 100  | 33,00 | 34,00 | 34,00 |
|                         | 50   | 34,00 | 34,00 | 34,00 |

|       |      |     |            |
|-------|------|-----|------------|
| Qty   | 1+   | 2+  | 4+         |
| Disc. | List | -5% | On request |

| Part number | Ratio        | Max. input speed (rpm)            | Max. output speed (rpm) | Efficiency at 1000 rpm | Static self-locking output | Price each |
|-------------|--------------|-----------------------------------|-------------------------|------------------------|----------------------------|------------|
| PP60-100    | 100:1        | 3000                              | 30,00                   | 55%                    | NO                         | 1 221,25 € |
| PP60-200    | 200:1        | 3000                              | 15,00                   | 50%                    | NO                         | 1 221,25 € |
| PP60-400    | 400:1        | 3000                              | 7,50                    | 37%                    | YES                        | 1 221,25 € |
| PP60-SP     | 25:1 - 900:1 | Special ratios from 25:1 to 900:1 |                         |                        |                            | On request |

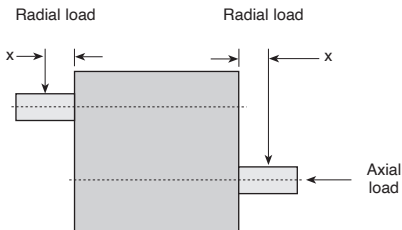
Dimensions in mm

# Double reduction gearboxes

## Technical information

PP

- **Speed ratio: from 25:1 to 900:1**
- **Materials :**
  - casing anodised aluminium
  - worm steel
  - wheel aluminium bronze
- **Max. speed: 3000 rpm on input depending on model**
- **Backlash:  $\leq 55'$  ( $0,92^\circ$ ) on output**
- **Lubrication: greased for life**  
(Shell Gadus S5 V42P 2,5 grease)
- **Guarantee: 13 months**
- **Lubrication temperature :**  
max operating  $60^\circ\text{C}$
- **Cooling may be needed dependent on application**



### ADMISSIBLE LOADS

| Part number | Distance 'X' (mm) | Input Radial load (N) | Output Radial load (N) | Axial load (N) |
|-------------|-------------------|-----------------------|------------------------|----------------|
| PP35        | 12                | 60                    | 120                    | 100            |
| PP50        | 20                | 100                   | 300                    | 200            |
| PP60        | 25                | 150                   | 450                    | 300            |

Data given based on input speed of 1,000 rpm.  
values given as an indication only.