SEAWIDE

# Type 310

The planetary gearbox stands out as a highly capable solution for industrial systems that demand durability, efficiency, and precise torque delivery. Designed for medium to heavy-duty applications, it is available in four configurations–L1, L2, L3, and L4–making it adaptable to a variety of operational requirements. The single-stage L1 model provides gear ratios between 3.40 and 7.00, delivering torque from 1210 to 3550 Nm. When more significant speed reduction is required, the two-stage L2 version increases the ratio range from 10.88 to 50.40. For applications needing even higher reduction, the L3 setup offers ratios between 64.82 and 259.33, while the four-stage L4 configuration goes further, reaching ratios from 312.98 to as high as 1943.63. This gearbox supports input power levels of 7, 8, 12, or 20 kW, and can operate reliably at speeds of up to 2000 rpm. Whether used in continuous-duty environments or under fluctuating loads, the Type 310 ensures robust performance and long-term reliability.

The Type 310 planetary gearbox, with its wide gear ratio range of up to 1943.63 and high torque output reaching 3550 Nm, is well-suited for demanding industrial applications. Thanks to its ability to handle input powers up to 20 kW, it is commonly used in various sectors. In the mining and drilling industry, it is used in crushers, conveyors, hoisting systems, and ore handling machinery. In the cement and bulk material sectors, it powers rotary kilns, industrial mixers, and large material feeders. The steel and heavy metal industries rely on it for rolling mill drives, rotary mechanisms, and heavy-duty positioning equipment. It is also a reliable choice for recycling and waste management systems, especially for shredders and compactors that deal with hard or bulky materials. In marine and offshore environments, this gearbox is used in winch drives, anchor handling systems, and rotary units on offshore platforms. Additionally, it serves well in material handling and automation, including pallet lifts, cranes, and any application that requires consistent torque at reduced speeds.

| i | | T2 [Nm] | | | | | | n1 max | T2 max | pt |
|---|---|---|---|---|---|---|---|---|---|---|
| L | 1/… | n2*h | | | | | | [min] | [Nm] | [Kw] |
| | | 10000 (10)4 | 25000 (2.5*10)4 | 50000 (5*10)4 | 100000 (10)5 | 500000 (5*10)5 | 1000000 (10)6 | | | |
| L1 | 3.40 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | 2000 | 5500 | 20 |
| | 4.00 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 5.00 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 5.80 | 2600 | 2150 | 1870 | 1760 | 1590 | 1520 | | | |
| | 7.00 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| L2 | 10.88 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | 2000 | 5500 | 12 |
| | 12.80 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 13.94 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 15.10 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 16.40 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 17.76 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 18.43 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 21.68 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 24.48 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 27.10 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 28.80 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 31.44 | 2600 | 2150 | 1870 | 1760 | 1590 | 1520 | | | |
| | 36.00 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 41.76 | 2600 | 2150 | 1870 | 1760 | 1590 | 1520 | | | |
| | 50.40 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| L3 | 64.82 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | 2000 | 5500 | 8 |
| | 67.56 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 70.20 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 79.49 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 86.57 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 93.75 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 99.36 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 100.81 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 101.84 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 110.29 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 114.44 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 126.02 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 127.31 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |

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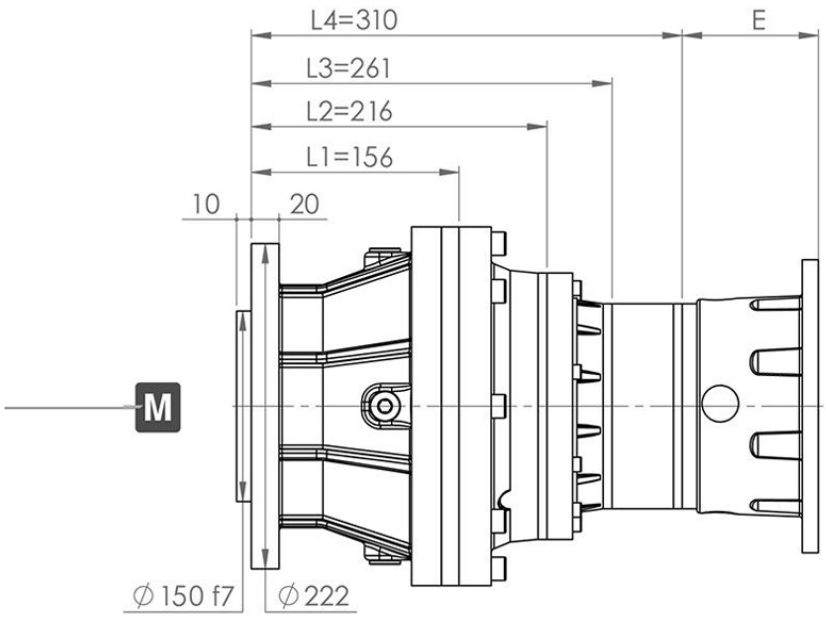
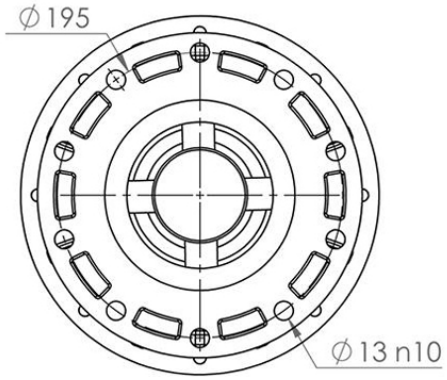
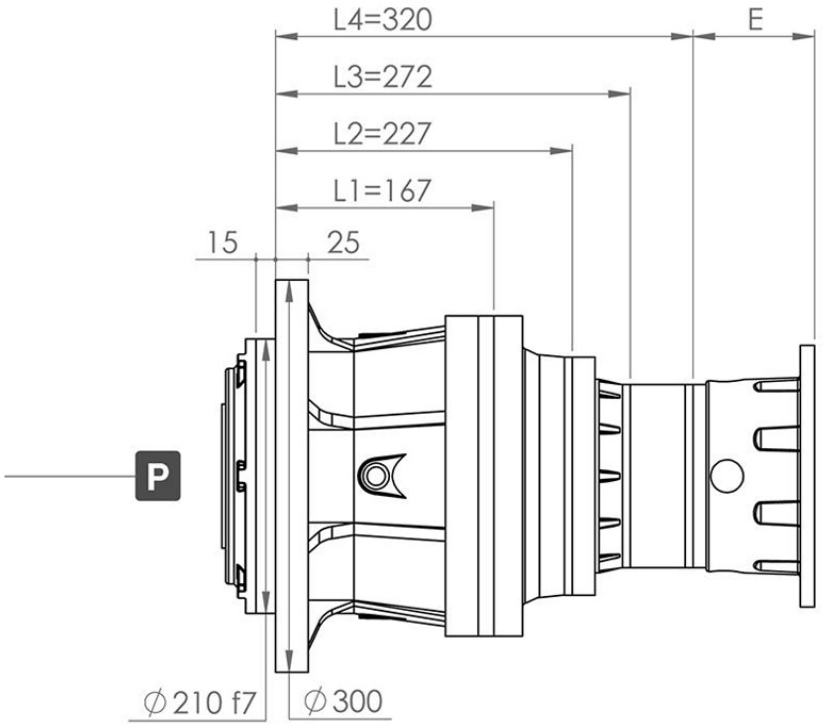
| i | | T2 [Nm] | | | | | | n1 max | T2 max | pt |
|---|---|---|---|---|---|---|---|---|---|---|
| L | 1/… | n2*h | | | | | | [min] | [Nm] | [Kw] |
| | | 10000 (10)4 | 25000 (2.5*10)4 | 50000 (5*10)4 | 100000 (10)5 | 500000 (5*10)5 | 1000000 (10)6 | | | |
| L3 | 134.63 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | 2000 | 5500 | 8 |
| | 137.86 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 152.02 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 168.29 | 2930 | 2420 | 2110 | 1910 | 1730 | 1660 | | | |
| | 259.33 | 2600 | 2150 | 1870 | 1760 | 1590 | 1520 | | | |
| L4 | 312.98 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| | 303.85 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | 2000 | 5500 | 7 |
| | 314.18 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 329.05 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 402.54 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 435.92 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 532.14 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 582.16 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 632.45 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 684.90 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 863.84 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| | 944.05 | 3550 | 3340 | 3300 | 2910 | 2420 | 2010 | | | |
| | 1110.65 | 3450 | 3190 | 2900 | 2550 | 2310 | 2010 | | | |
| | 1198.57 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| | 1463.12 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |
| | 1943.63 | 2000 | 1660 | 1450 | 1390 | 1260 | 1210 | | | |

## SH 310

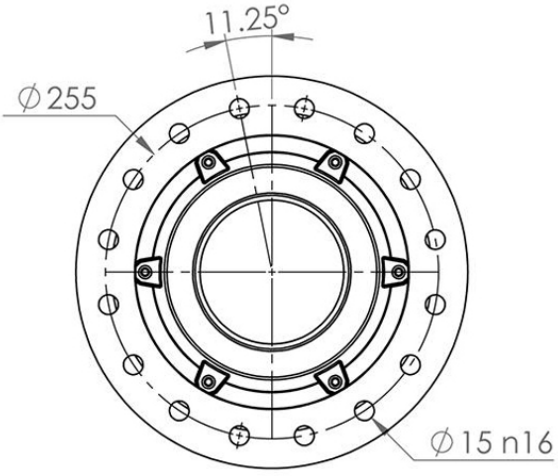



***Output Flange Dimensions***



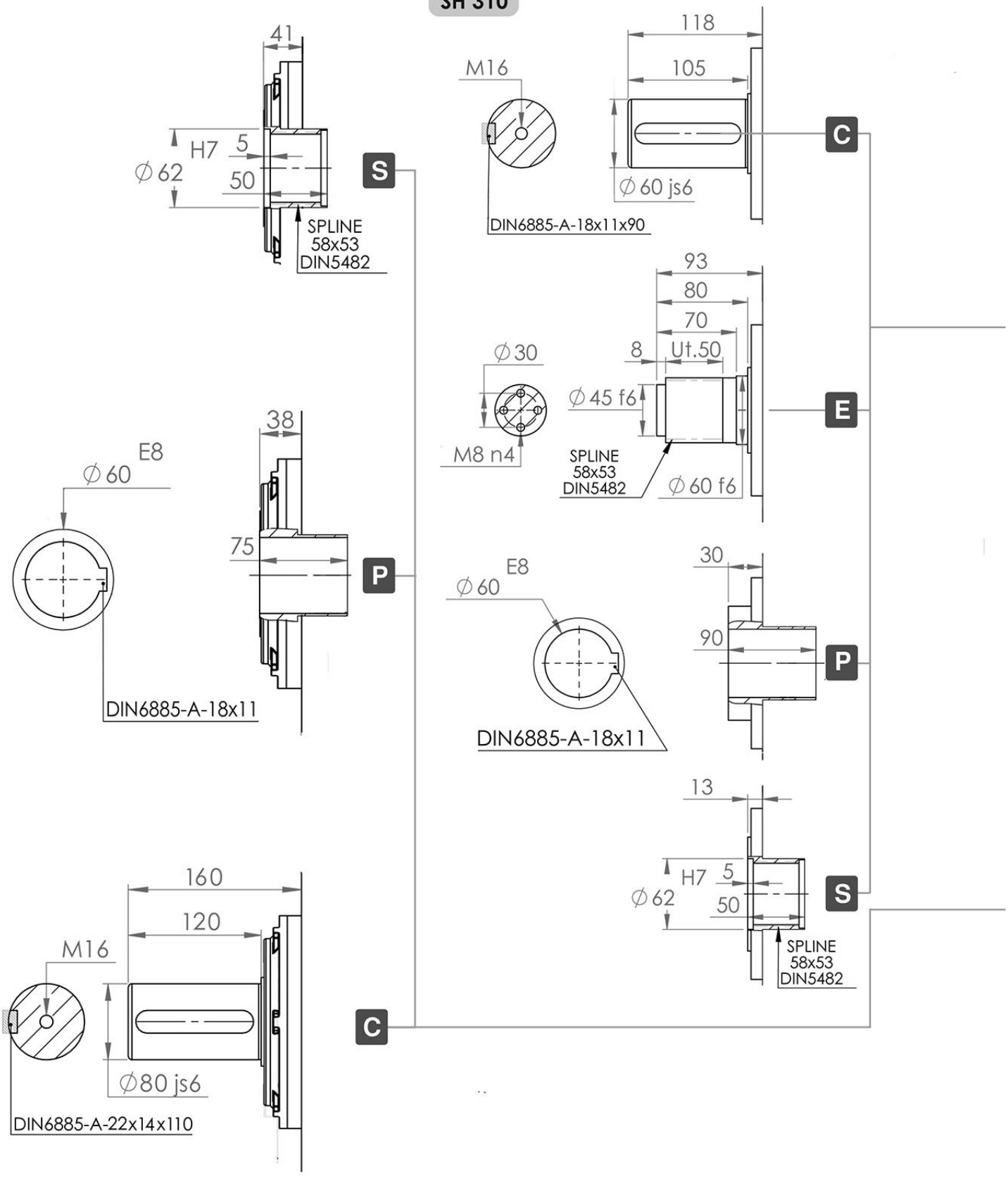




***Output Flange Dimensions***



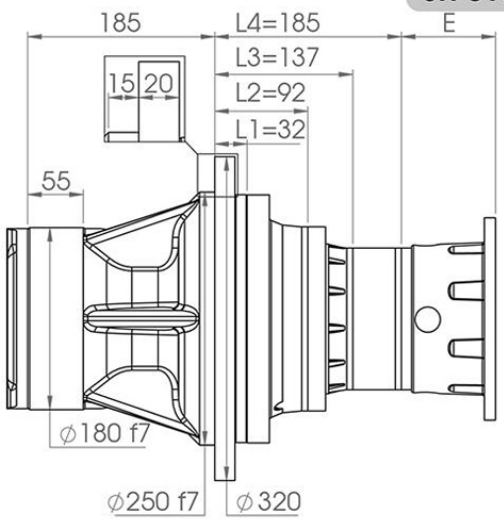

| MOTOR FRAME | | 80-4A | 90LA | 90LB | 100LA | 100LB | 112M | 132MA | 132MB | 160LA | 160LB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | L1 | - | - | - | - | - | - | - | - | 177 | 177 |
| | L2 | - | - | - | - | 117 | 117 | 144 | 144 | - | - |
| | L3 | 93 | 93 | 93 | 103 | 103 | 103 | - | - | - | - |
| | L4 | 93 | - | - | - | - | - | - | - | - | - |

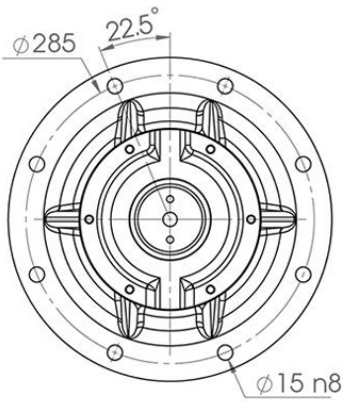
**SH 310**


41
H7
5
∅62
50
S
SPLINE
58x53
DIN5482
M16
118
105
C
∅60 js6
DIN6885-A-18x11x90
93
80
70
8
Ut.50
∅30
∅45 f6
E
M8 n4
SPLINE
58x53
DIN5482
∅60 f6
38
E8
∅60
75
P
DIN6885-A-18x11
30
E8
∅60
90
P
DIN6885-A-18x11
13
H7
5
∅62
50
S
SPLINE
58x53
DIN5482
160
120
M16
C
∅80 js6
DIN6885-A-22x14x110

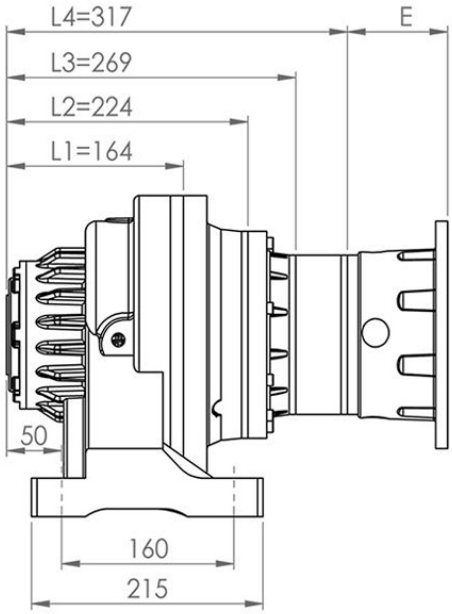
**SH 310**

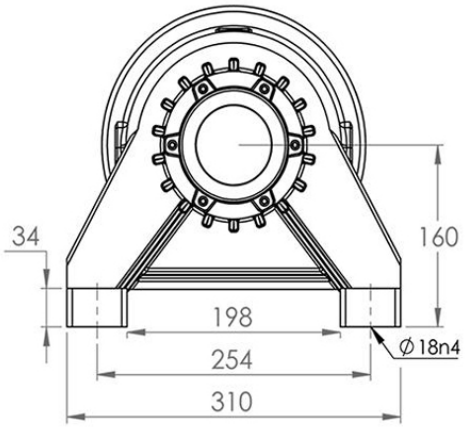
**V**


185
L4=185
E
L3=137
L2=92
L1=32
15
20
55
⌀180 f7
⌀250 f7
⌀320

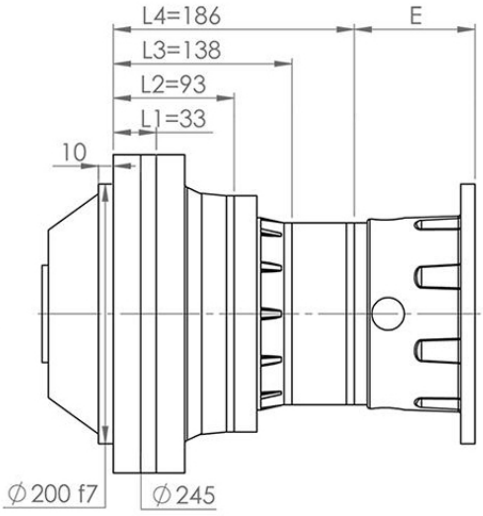

⌀285
22.5°
⌀15 n8

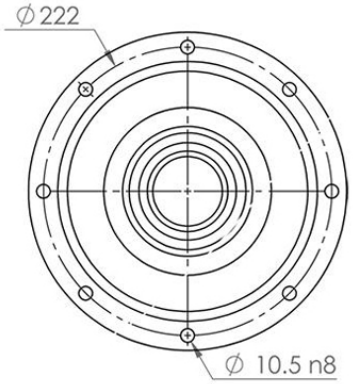
**U**


L4=317
E
L3=269
L2=224
L1=164
50
160
215

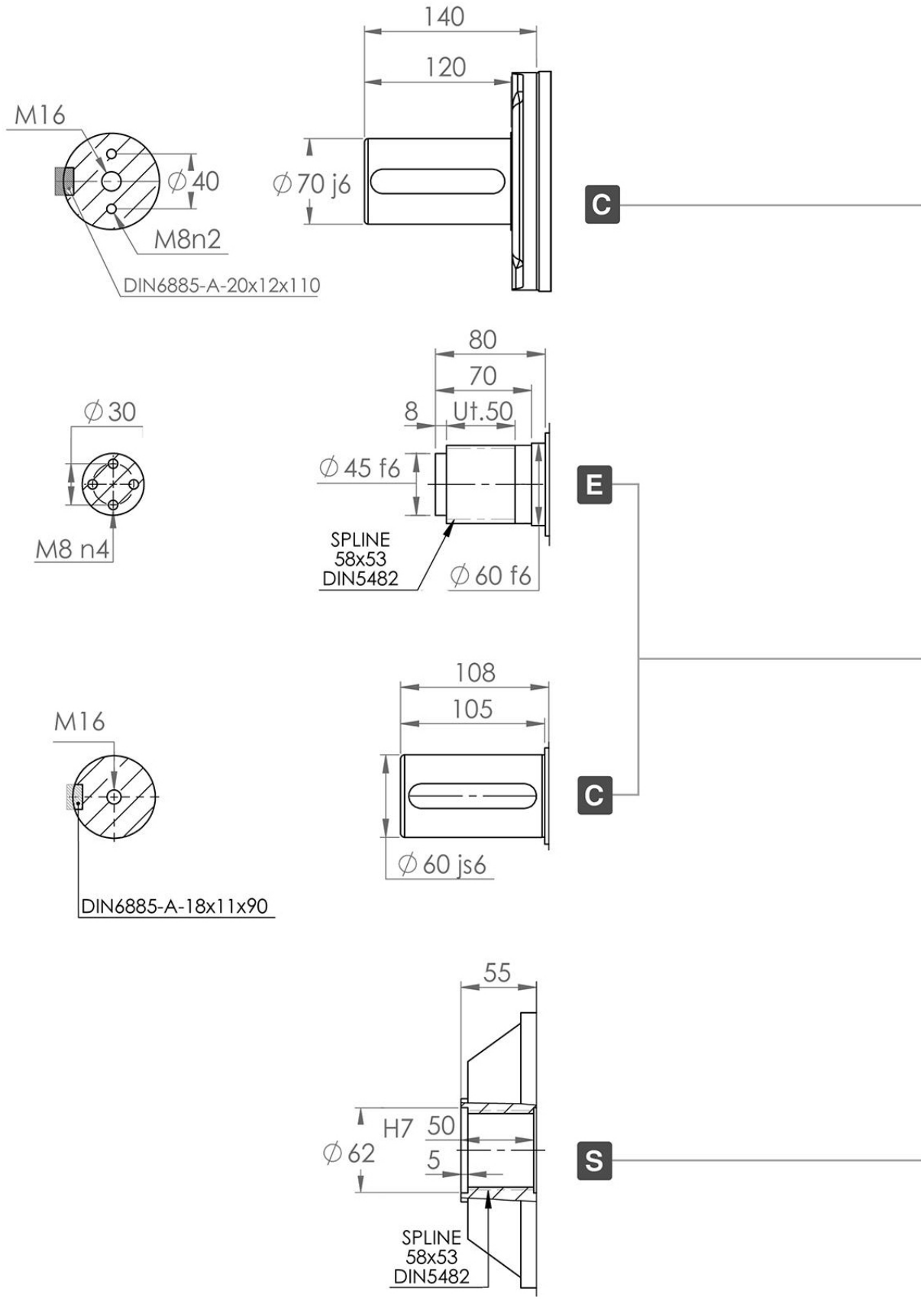

34
160
198
254
310
⌀18n4

**F**

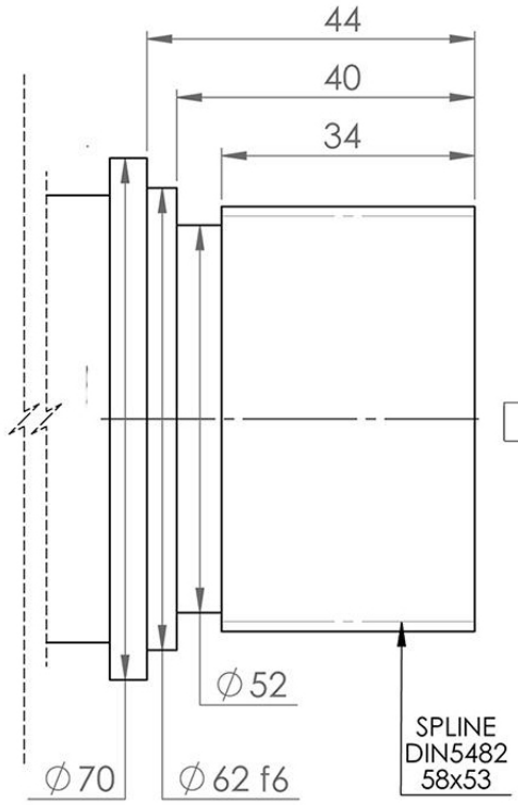

L4=186
E
L3=138
L2=93
L1=33
10
⌀200 f7
⌀245


⌀222
⌀ 10.5 n8

**SH 310**

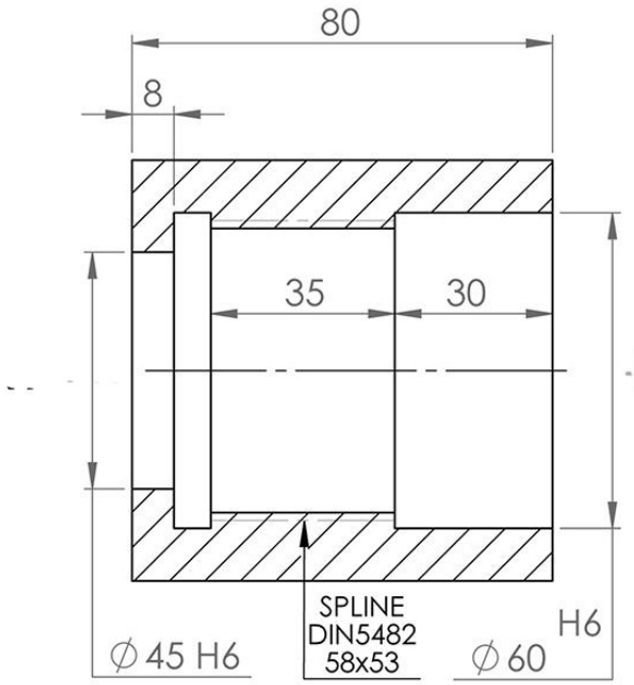

140
120
M16
∅40
M8n2
DIN6885-A-20x12x110
∅70 j6
C
80
70
8
Ut.50
∅30
∅45 f6
E
M8 n4
SPLINE
58x53
DIN5482
∅60 f6
108
105
M16
C
∅60 js6
DIN6885-A-18x11x90
55
H7
50
∅62
5
S
SPLINE
58x53
DIN5482

## SH 310




Saft S(E)310

- SH 310 ... PS
- SH 310 ... FS
- SH 310 ... MS

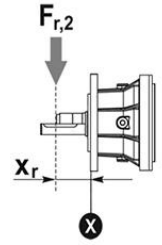


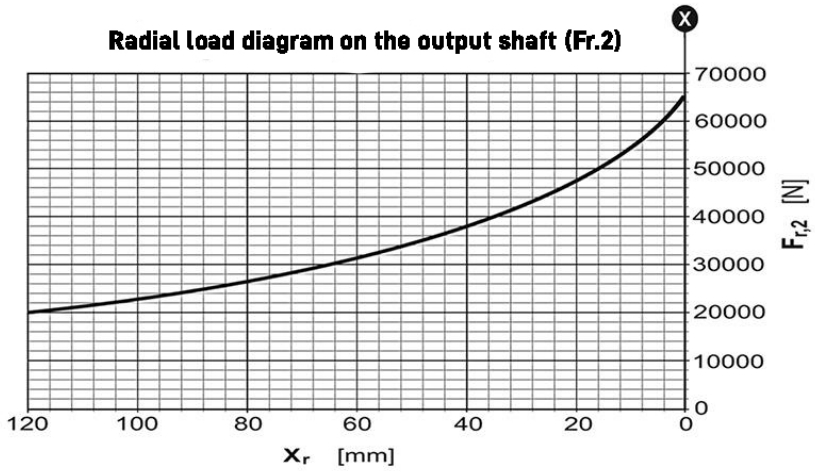

Bush S(I)310

- SH 310 ... ME
- SH 310 ... UE

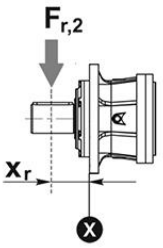
## SH 310

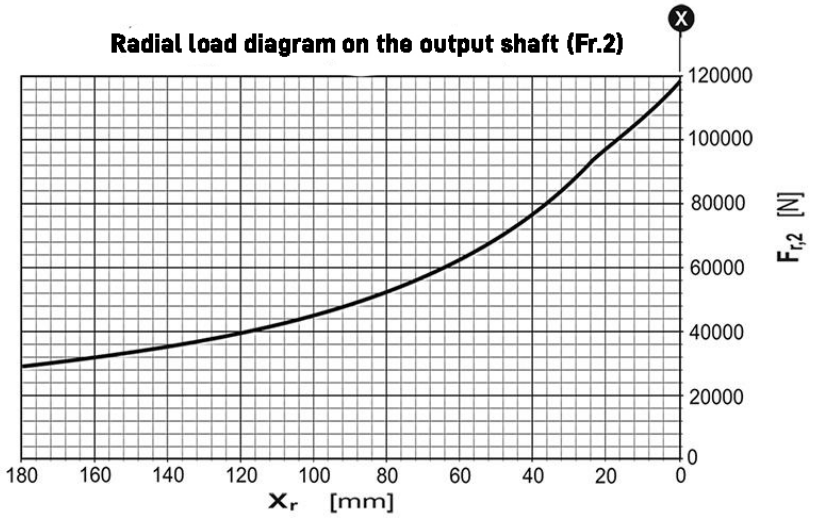
| SH | 310 | .. | MC ME |
|---|---|---|---|



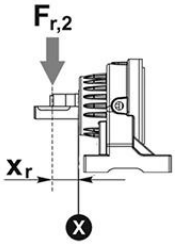



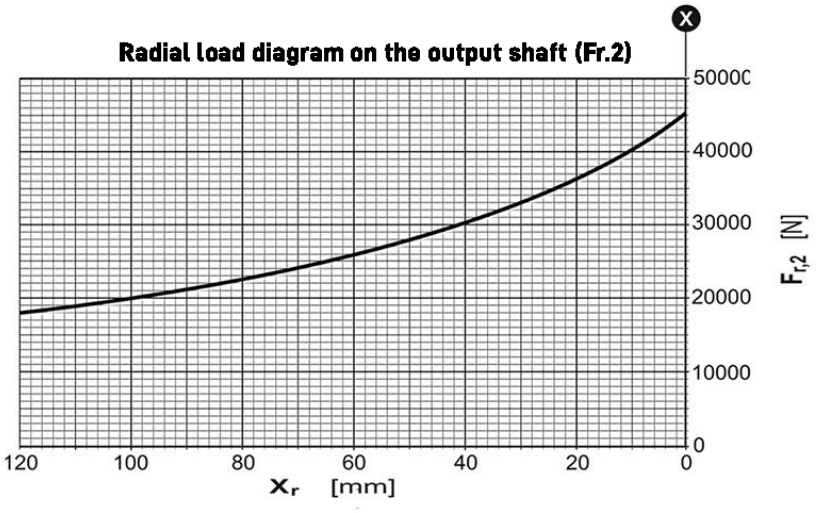

| SH | 310 | .. | PC |
|---|---|---|---|



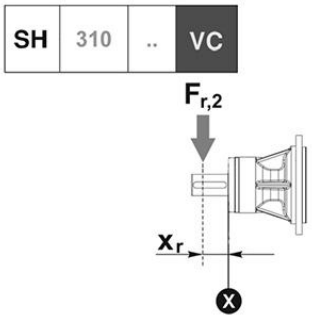




| SH | 310 | .. | UE UC |
|---|---|---|---|

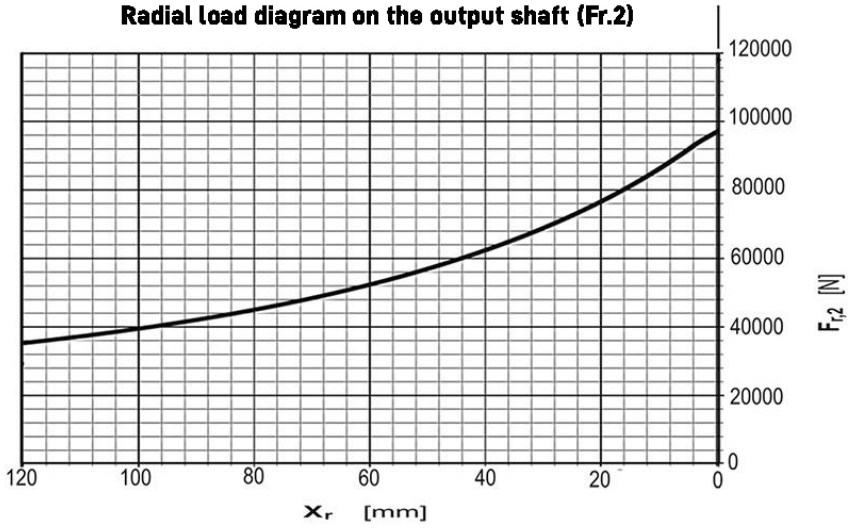


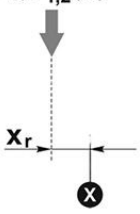
## SH 310



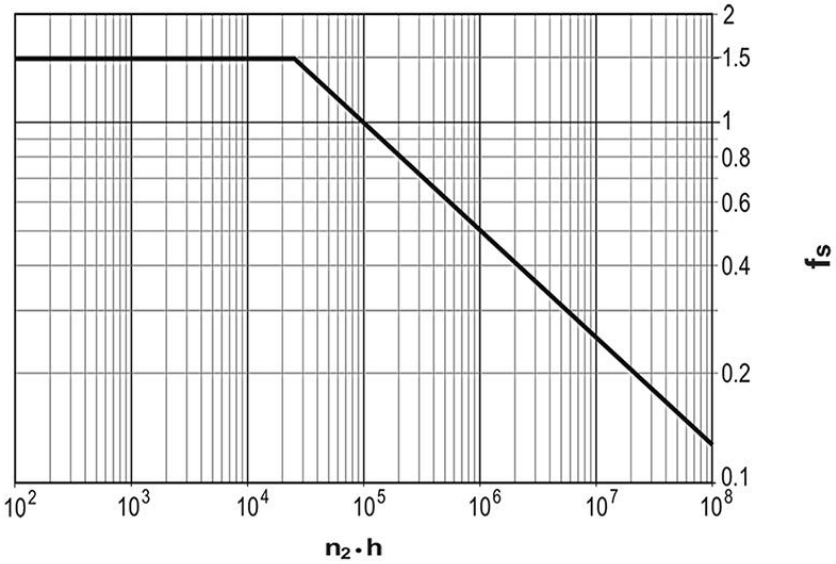

**Radial load diagram on the output shaft (Fr.2)**




**Modified radial load $F_{r,2(fs)}$**




**Radial load safety factor diagram on the output shaft**




**Modified radial load $F_{r.2(fs)} = F_{r.2} \times f_s$**