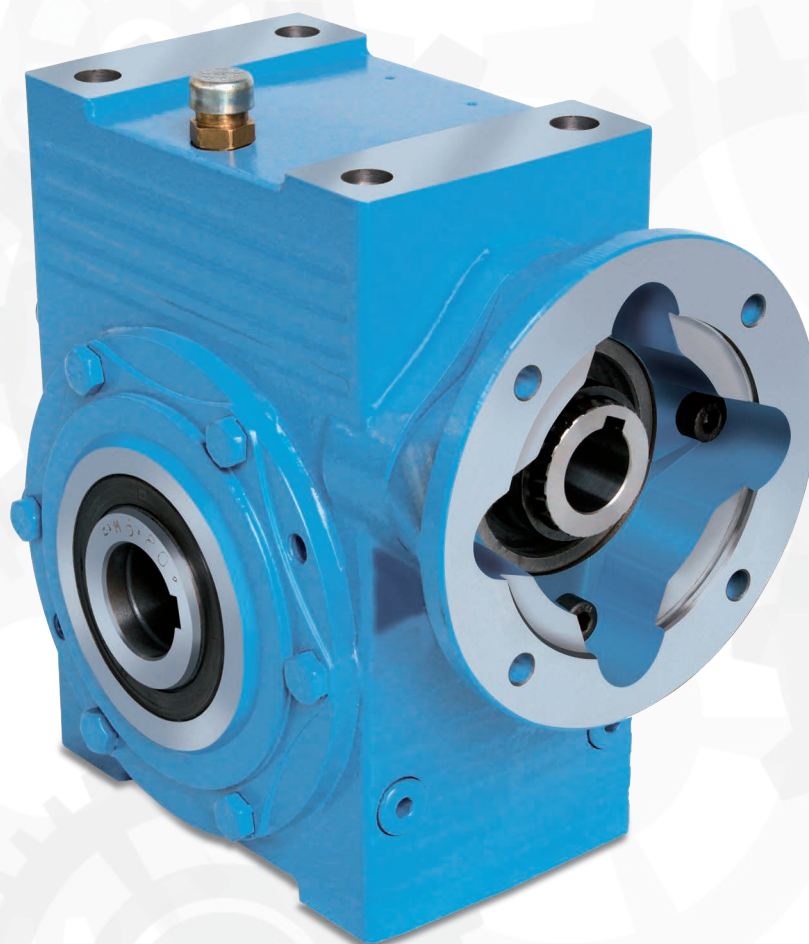
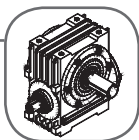


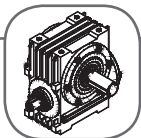
MAGMA M

Redutores de Coroa e Rosca Sem-fim





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Os redutores Magma “M” são do tipo “coroa e rosca sem fim”, projetados para acionamento de toda classe de máquinas e equipamentos de baixa velocidade. Uma seleção completa de tamanhos, com reduções de 1:10 até 1:4000, e formas construtivas que permitem sua instalação em diferentes posições, ocupando um espaço mínimo devido ao seu tamanho reduzido.

São fabricados com a mais avançada tecnologia, empregando-se materiais, máquinas e ferramentas de primeira linha, e submetidos a um rigoroso controle de qualidade.

Rosca sem fim

Os eixos rosca sem fim são executados em aço cromo-níquel para cementação, que após tratamento térmico atingem uma dureza superficial de 55 a 59 HRc.

O perfil evolvente é retificado com a máxima precisão, proporcionando ao redutor um alto rendimento e um funcionamento suave.

Coroas

As coroas são executadas em bronze centrifugado liga especial, com propriedades mecânicas que garantem um ótimo funcionamento e durabilidade.

São de forma globoidal e dentes helicoidais, geradas em máquinas de grande precisão com ferramentas especiais (Classe de precisão “A”, conforme DIN 3968).

Carcaças

As carcaças são fabricadas em ferro fundido cinzento de alta qualidade e distinguem-se por sua estética, rigidez e versatilidade. A superfície externa é aletada, proporcionando uma melhora considerável na dissipação de calor.

São usinadas com precisão e dotadas na entrada e saída, de retentores de borracha sintética de dupla ação, assegurando uma completa vedação e evitando a entrada de corpos estranhos no interior da caixa bem como vazamento do lubrificante.

Eixos de saída

Os eixos de saída são dimensionados para suportarem as cargas indicadas. Todos os assentos, pontas de saída e furos (no caso de eixos vazados), são retificados e obedecem as tolerâncias indicadas neste catálogo.

Mancais

As rosca sem fim são apoiadas em mancais de rolamentos cônicos e os eixos de saída são apoiados em rolamentos de esferas. A seleção desses rolamentos é feita para garantir uma longa vida dos mesmos.

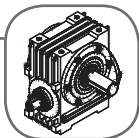
Lubrificação

A lubrificação do conjunto coroa e sem fim é feita por imersão em banho de óleo, garantindo uma perfeita lubrificação.

Os rolamentos de entrada e de saída têm lubrificação por graxa.

Refrigeração

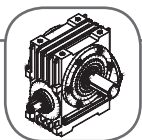
A refrigeração é feita através do próprio lubrificante e através das aletas da carcaça.



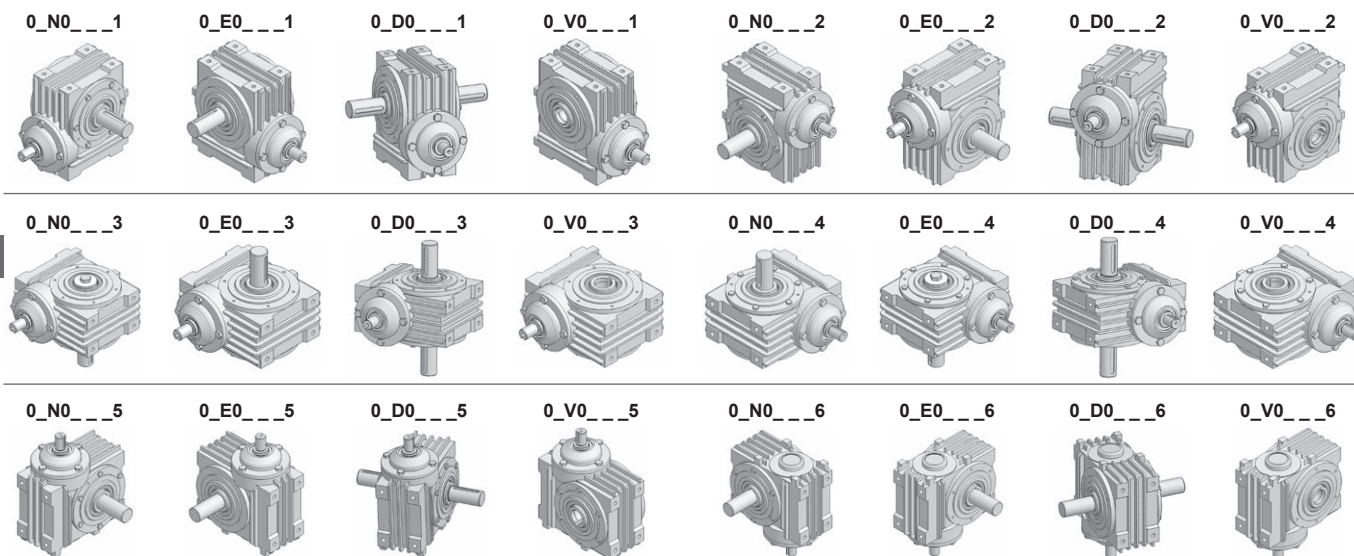
Redutor básico				Execução				Motor			PT																																																																																							
M	04	1	30	0	4	N	0	D	N	W	1																																																																																							
Modelo 				Identifica posição de entrada duplex em relação ao 2º redutor 0 Para simples redução 1 Eixos paralelos entrada sup. dir. 2 Eixos paralelos entrada sup. esq. 3 Eixos paralelos entrada inf. dir. 4 Eixos paralelos entrada inf. esq. 5 Eixos ortogonais entrada sup. dir. 6 Eixos ortogonais entrada sup. esq. 7 Eixos ortogonais entrada inf. dir. 8 Eixos ortogonais entrada inf. esq.				Carcaça do motor B 63 C 71 D 80 E 90S F 90L G 100 H 112 J 132S K 132M			2																																																																																							
Tamanho 04 05 06 07 08 10 12				Identifica tipo de entrada 1 Entrada simples eixo integral 2 Entrada simples flange tipo FF 3 Entrada simples flange tipo C-DIN 4 Básico (sem entrada) 5 *Entrada dupla eixo/eixo integral 7 *Entrada dupla eixo/flange tipo FF 8 *Entrada dupla eixo/flange tipo C-DIN				Tipo de motor 0 Sem motor 1 Motor do cliente A Motor alto rendimento plus E Motor especial P Motor alto rendimento premium																																																																																										
Nº de estágios 1 Simple estágio 2 Duplo estágio				Tipo do eixo de saída (considerando-se posição de trabalho 1, visto pelo eixo de entrada) N Normal direito E Normal esquerdo D Duplo V Vazado				Fabricante do motor 0 Sem motor C Motor do cliente W Weg																																																																																										
Redução <table border="1"> <thead> <tr> <th colspan="2">Simples</th> <th colspan="2">Dupla</th> </tr> <tr> <th>Red.</th> <th>Cód.</th> <th>Red.</th> <th>Cód.</th> </tr> </thead> <tbody> <tr><td>10</td><td>20</td><td>100</td><td>40</td></tr> <tr><td>15</td><td>24</td><td>150</td><td>44</td></tr> <tr><td>20</td><td>26</td><td>200</td><td>46</td></tr> <tr><td>25</td><td>28</td><td>250</td><td>48</td></tr> <tr><td>30</td><td>30</td><td>300</td><td>50</td></tr> <tr><td>40</td><td>32</td><td>400</td><td>52</td></tr> <tr><td>50</td><td>34</td><td>450</td><td>53</td></tr> <tr><td>60</td><td>36</td><td>500</td><td>54</td></tr> <tr><td>80</td><td>38</td><td>600</td><td>56</td></tr> <tr><td></td><td></td><td>750</td><td>57</td></tr> <tr><td></td><td></td><td>900</td><td>59</td></tr> <tr><td></td><td></td><td>1000</td><td>60</td></tr> <tr><td></td><td></td><td>1200</td><td>62</td></tr> <tr><td></td><td></td><td>1500</td><td>64</td></tr> <tr><td></td><td></td><td>1800</td><td>65</td></tr> <tr><td></td><td></td><td>2000</td><td>66</td></tr> <tr><td></td><td></td><td>2400</td><td>68</td></tr> <tr><td></td><td></td><td>3000</td><td>70</td></tr> <tr><td></td><td></td><td>3600</td><td>71</td></tr> <tr><td></td><td></td><td>4000</td><td>72</td></tr> </tbody> </table>				Simples		Dupla		Red.	Cód.	Red.	Cód.	10	20	100	40	15	24	150	44	20	26	200	46	25	28	250	48	30	30	300	50	40	32	400	52	50	34	450	53	60	36	500	54	80	38	600	56			750	57			900	59			1000	60			1200	62			1500	64			1800	65			2000	66			2400	68			3000	70			3600	71			4000	72	Tipo e posição do acessório (considerando-se posição de trabalho 1, visto pelo eixo de entrada) 0 Sem acessório 1 Pé normal lado do eixo de entrada 2 Pé normal lado do eixo de saída 3 Flange lado direito 4 Flange lado esquerdo 5 Pé lateral 7 Braço torção lado direito 8 Braço torção lado esquerdo				Posição de trabalho (PT)** 1 4 2 5 3 6		
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* Fornecimento sob consulta

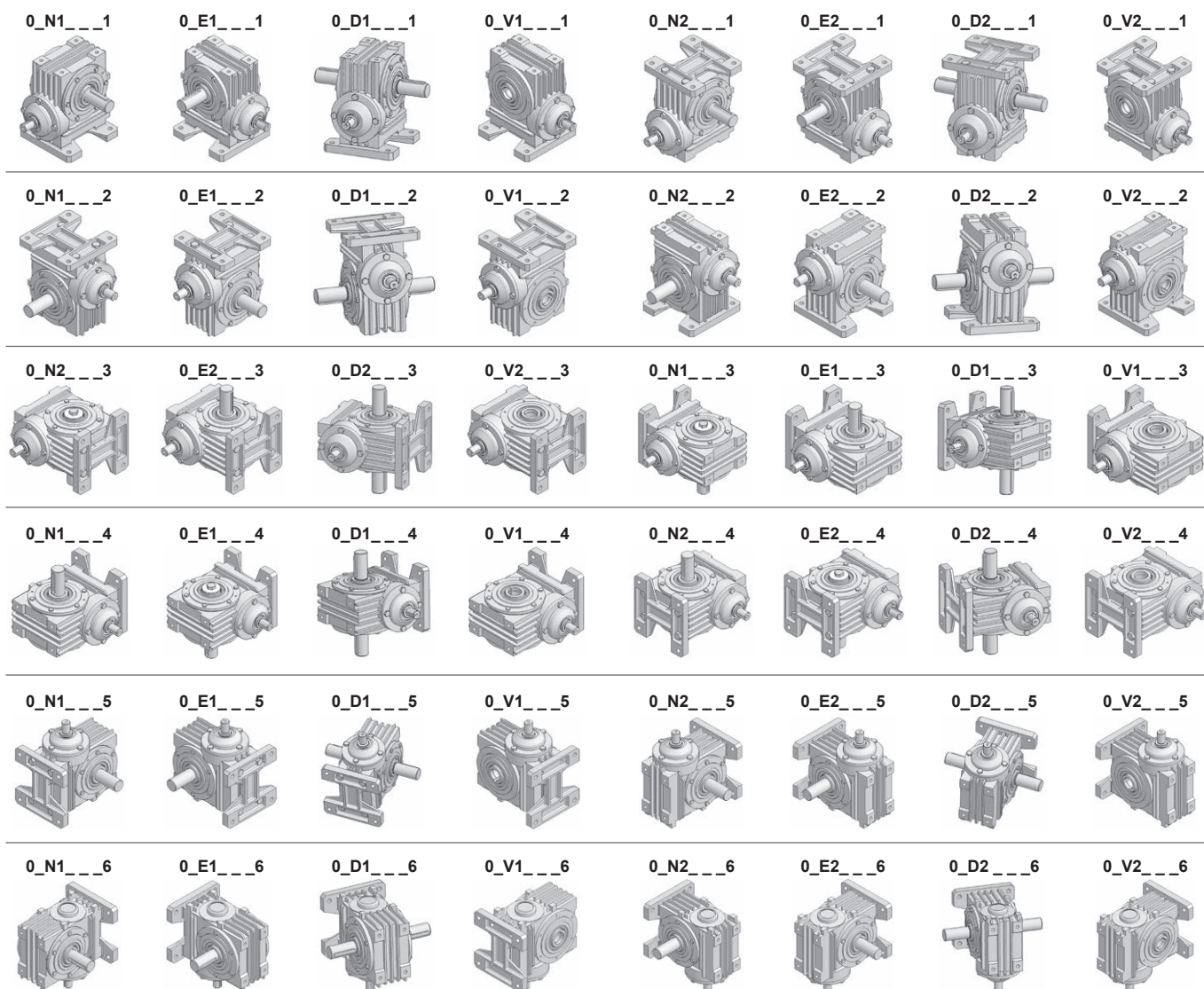
**Para motorreductores fornecidos com motor na posição vertical (V1), recomendamos o uso de calota de proteção no motor – posição de trabalho do redutor PT-5.



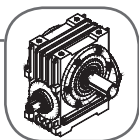
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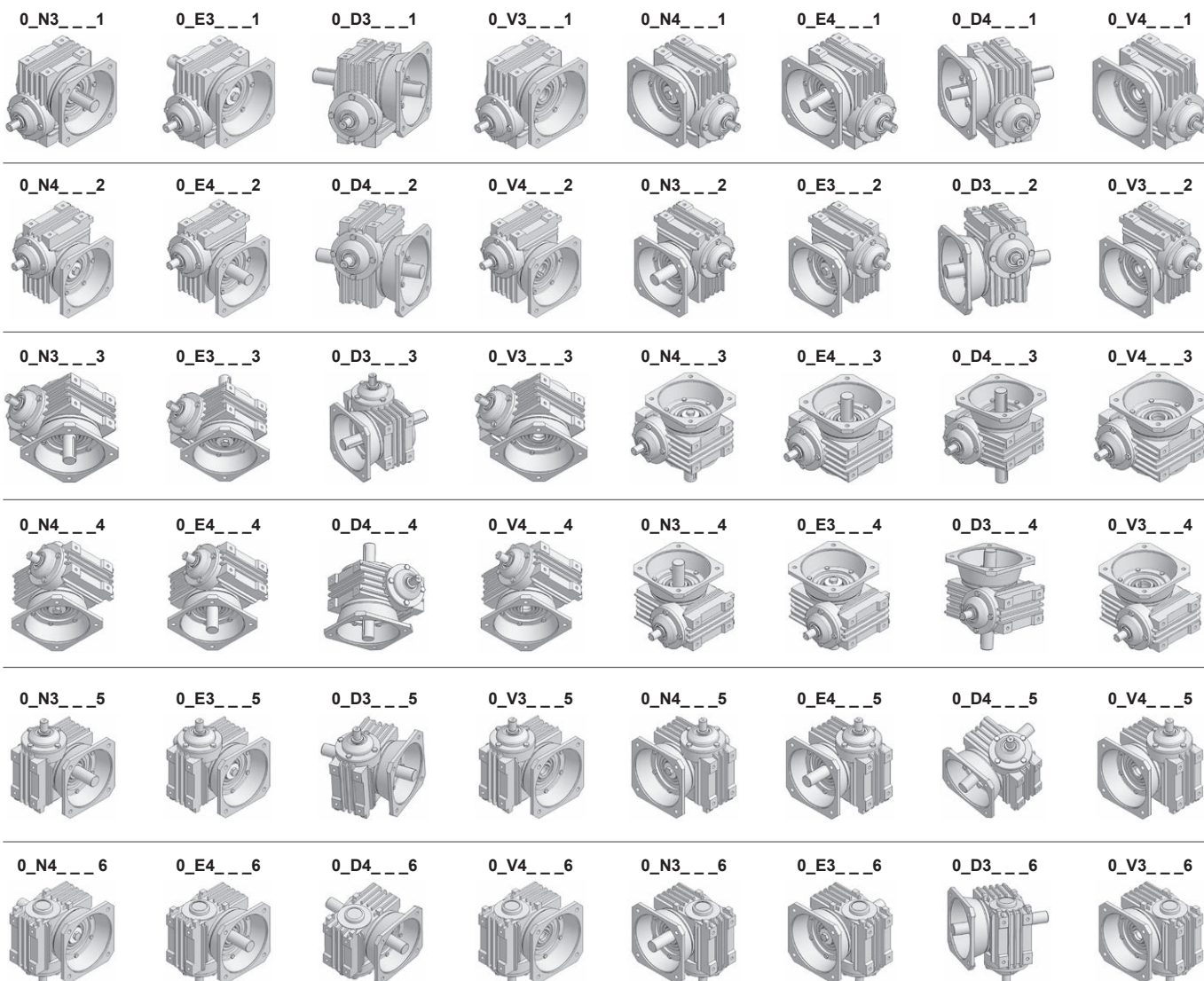
Fixação por pé normal



As figuras são ilustrativas

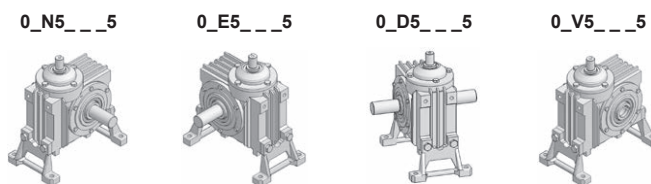


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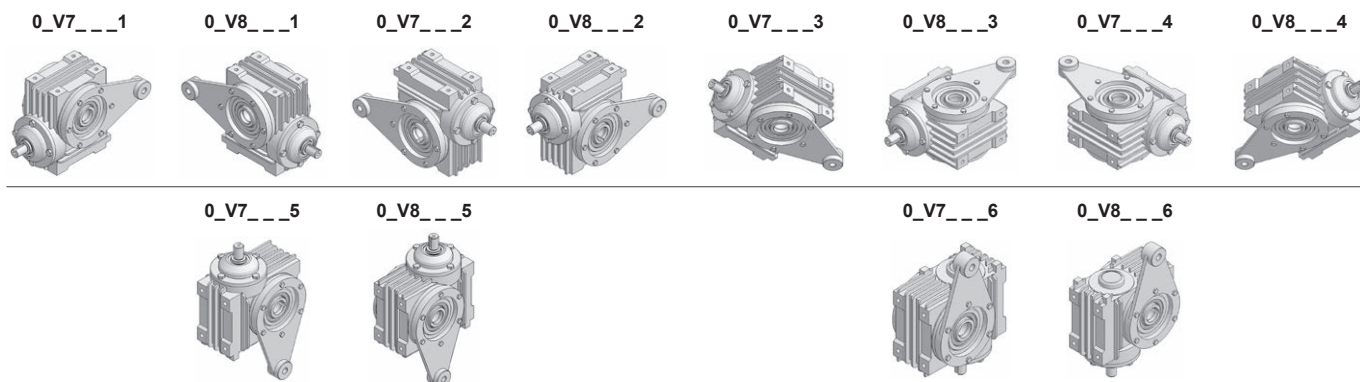


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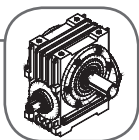
Fixação por pé lateral



Fixação por braço de torção



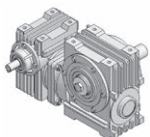
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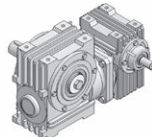
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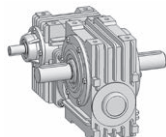
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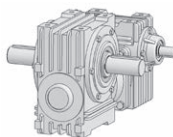
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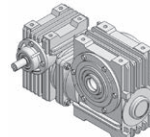
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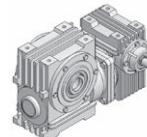
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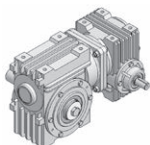
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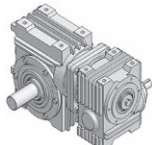
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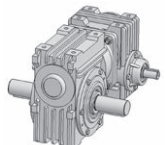
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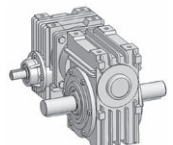
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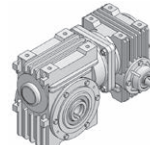
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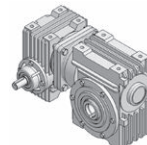
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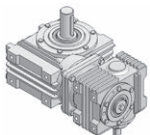
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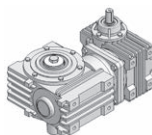
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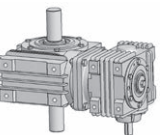
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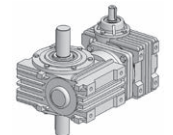
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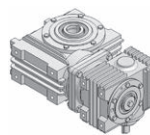
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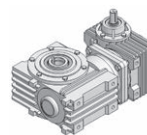
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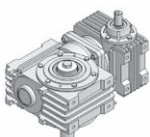
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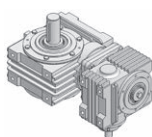
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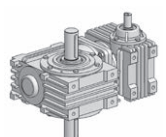
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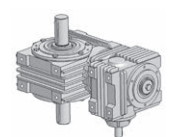
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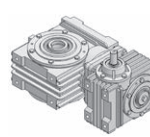
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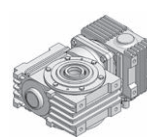
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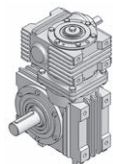
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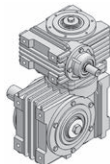
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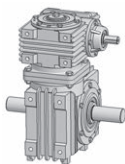
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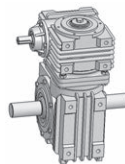
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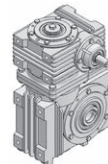
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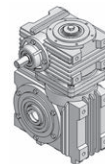
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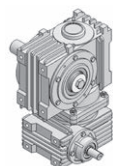
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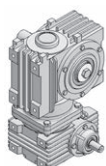
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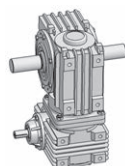
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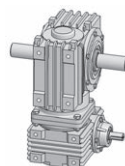
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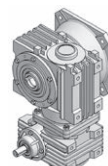
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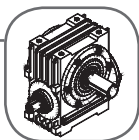
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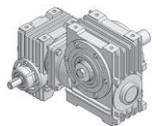


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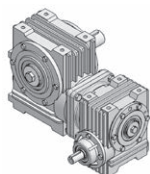


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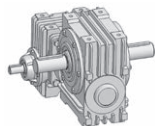
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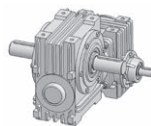
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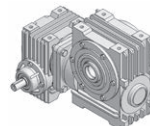
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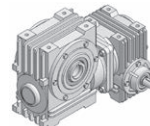
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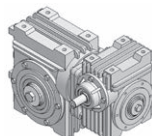


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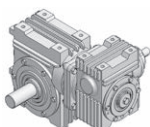


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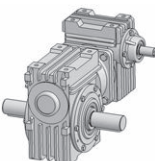
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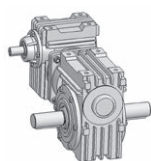
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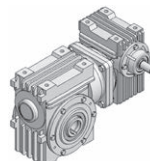
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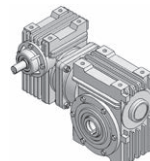
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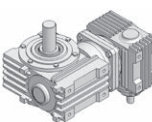
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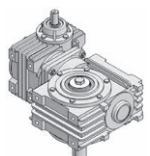
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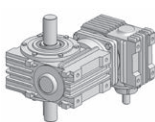
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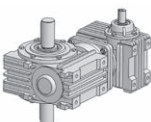
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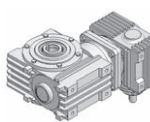
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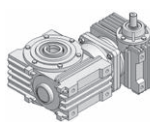
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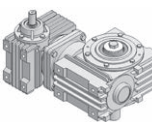
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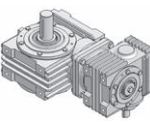
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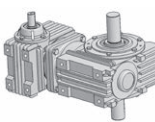
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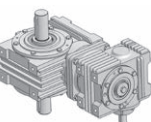
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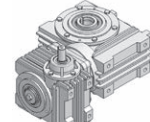
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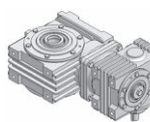
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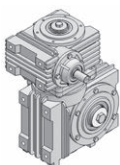
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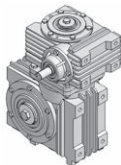
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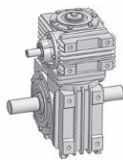
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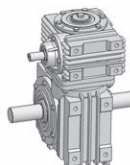
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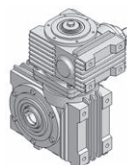
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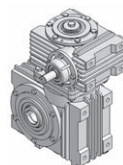
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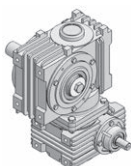
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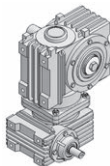
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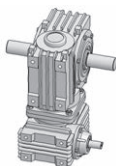
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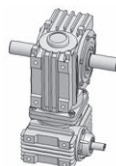
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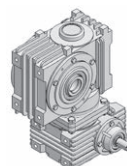
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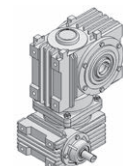
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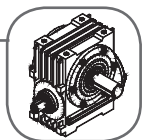
3_V0___6



4_V0___6



As figuras são ilustrativas



Fixação pela carcaça

3

5_E0__1

5_N0__1

6_E0__1

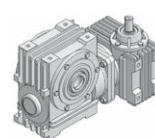
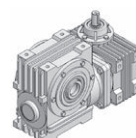
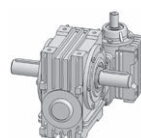
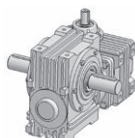
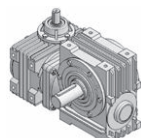
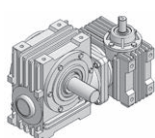
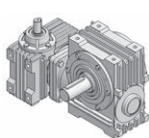
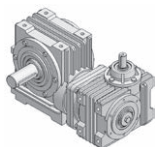
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6_D0__1

5_V0__1

6_V0__1



5_E0__2

5_N0__2

6_E0__2

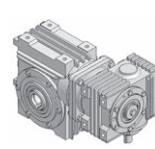
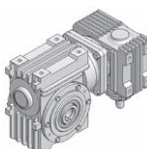
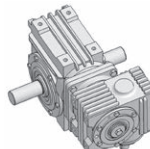
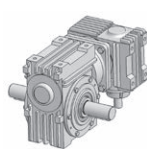
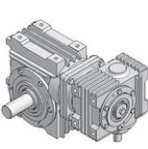
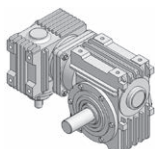
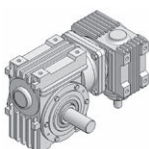
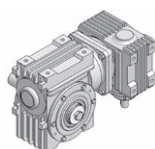
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6_D0__2

5_V0__2

6_V0__2



5_E0__3

5_N0__3

6_E0__3

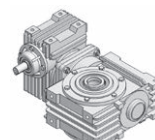
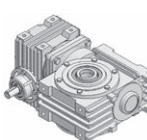
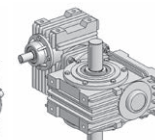
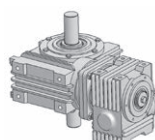
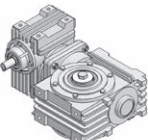
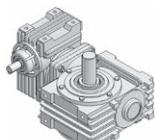
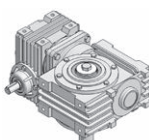
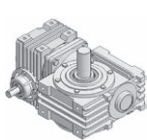
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5_D0__3

6_D0__3

5_V0__3

6_V0__3



5_E0__4

5_N0__4

6_E0__4

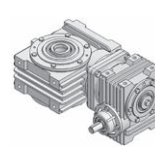
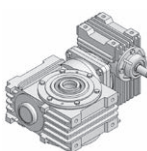
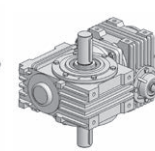
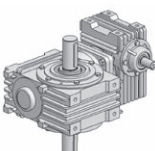
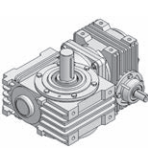
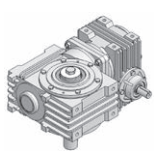
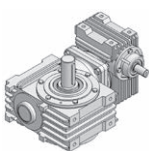
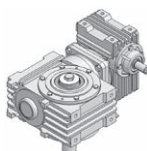
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6_D0__4

5_V0__4

6_V0__4



5_E0__5

5_N0__5

6_E0__5

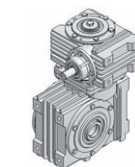
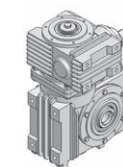
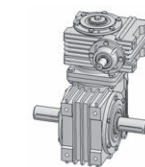
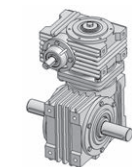
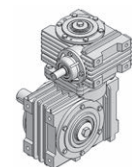
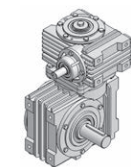
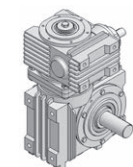
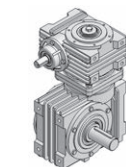
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6_D0__5

5_V0__5

6_V0__5



5_E0__6

5_N0__6

6_E0__6

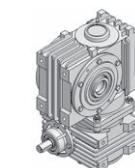
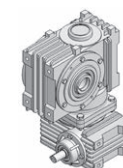
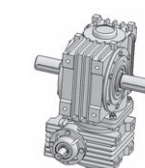
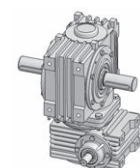
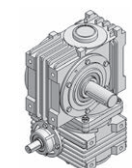
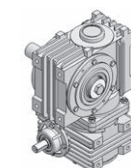
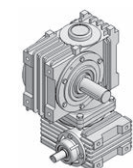
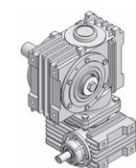
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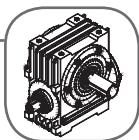
6_D0__6

5_V0__6

6_V0__6



As figuras são ilustrativas



Fixação pela carcaça

3

7_E0__1

7_N0__1

8_E0__1

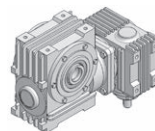
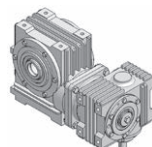
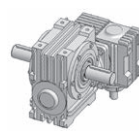
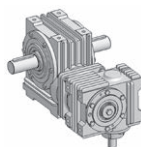
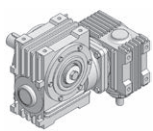
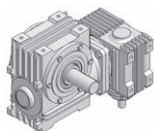
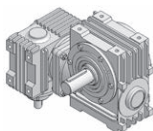
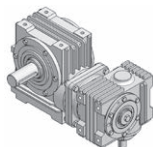
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7_D0__1

8_D0__1

7_V0__1

8_V0__1



7_E0__2

7_N0__2

8_E0__2

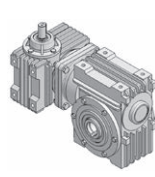
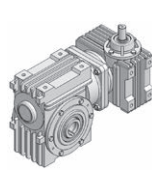
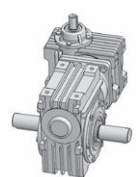
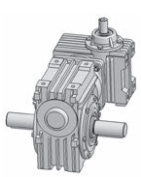
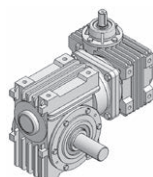
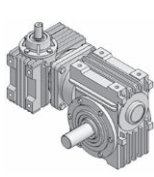
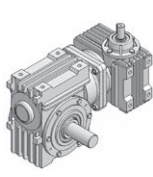
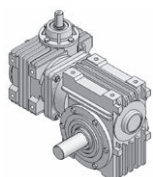
8_N0__2

7_D0__2

8_D0__2

7_V0__2

8_V0__2



7_E0__3

7_N0__3

8_E0__3

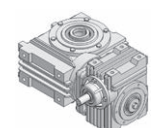
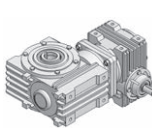
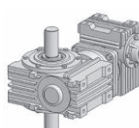
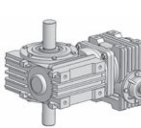
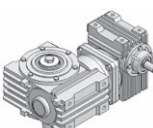
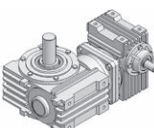
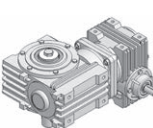
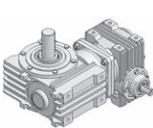
8_N0__3

7_D0__3

8_D0__3

7_V0__3

8_V0__3



7_E0__4

7_N0__4

8_E0__4

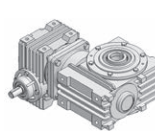
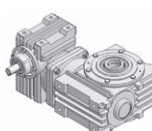
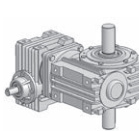
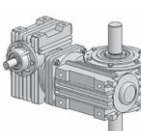
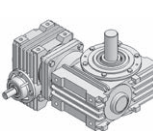
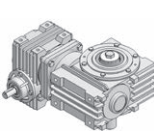
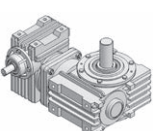
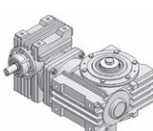
8_N0__4

7_D0__4

8_D0__4

7_V0__4

8_V0__4



7_E0__5

7_N0__5

8_E0__5

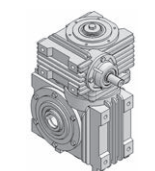
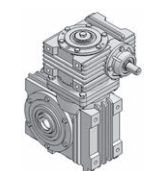
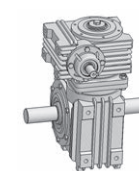
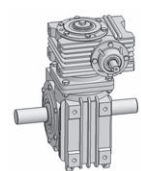
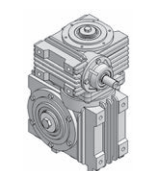
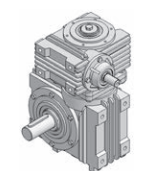
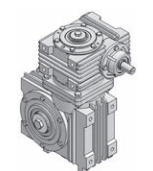
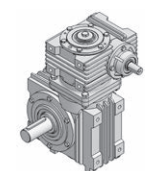
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7_D0__5

8_D0__5

7_V0__5

8_V0__5



7_E0__6

7_N0__6

8_E0__6

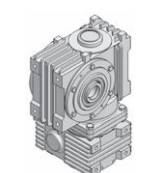
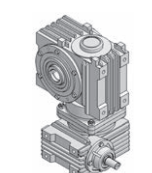
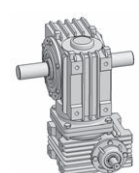
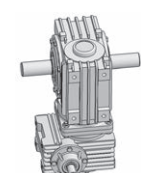
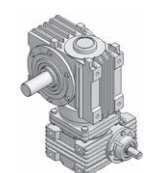
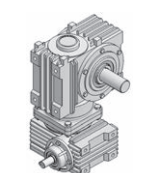
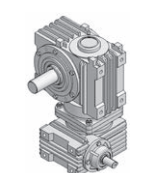
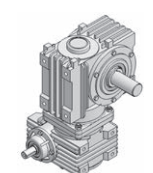
8_N0__6

7_D0__6

8_D0__6

7_V0__6

8_V0__6



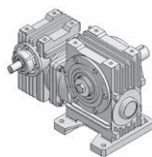
As figuras são ilustrativas



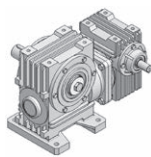
Fixação por pé normal

3

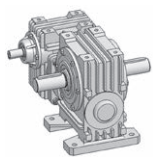
1_E1__1



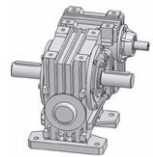
2_N1__1



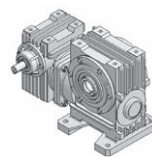
1_D1__1



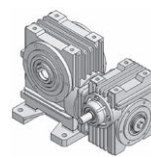
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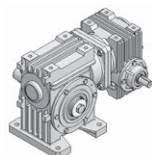
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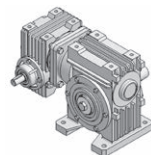
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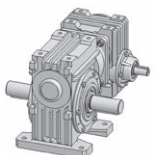
1_E2__2



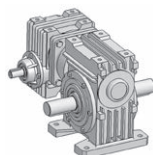
2_N2__2



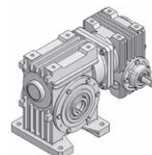
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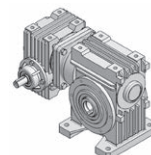
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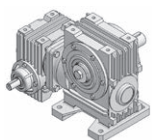
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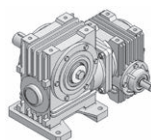
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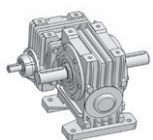
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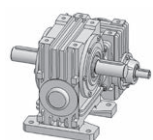
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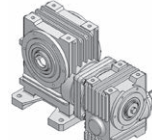
3_D1__1



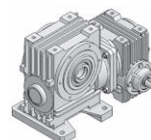
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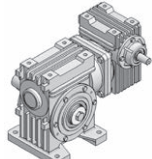
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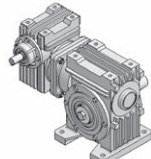
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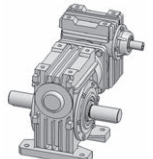
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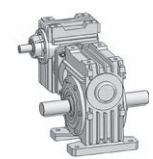
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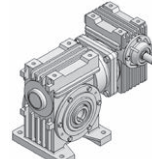
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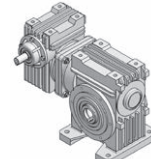
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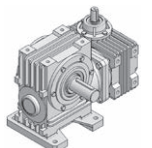
3_V2__2



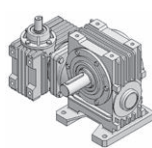
4_V2__2



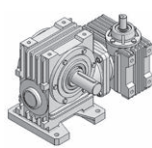
5_E1__1



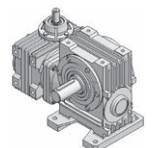
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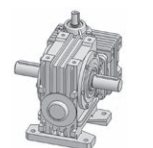
6_E1__1



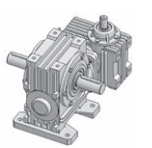
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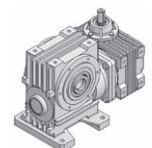
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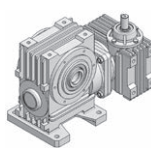
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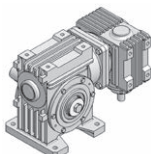
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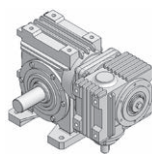
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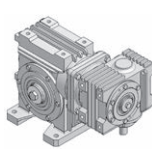
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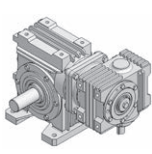
5_N2__2



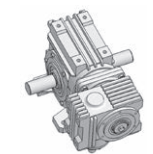
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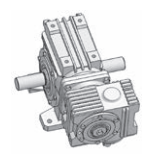
6_N2__2



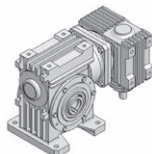
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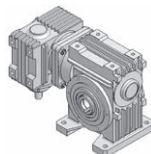
6_D2__2



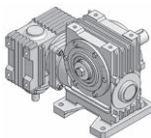
5_V2__2



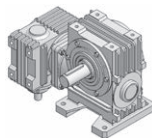
6_V2__2



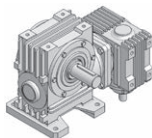
7_E1__1



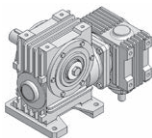
7_N1__1



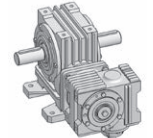
8_E1__1



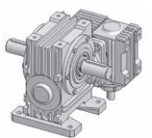
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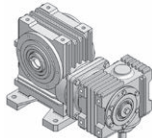
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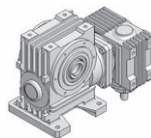
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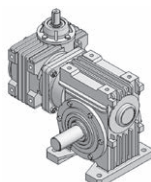
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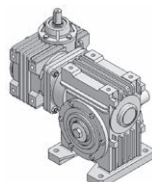
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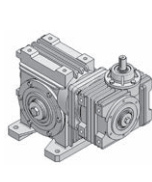
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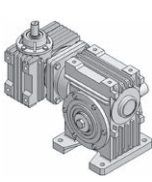
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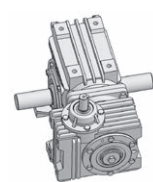
8_E2__2



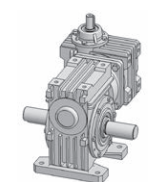
8_N2__2



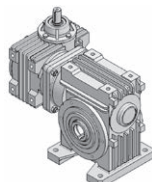
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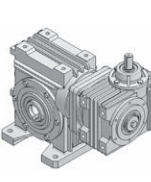
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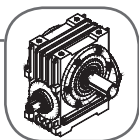
7_V2__2



8_V2__2

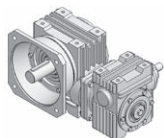


As figuras são ilustrativas

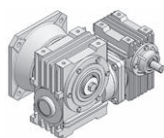


Fixação por flange

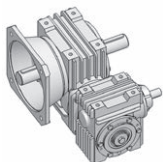
1_E4__1



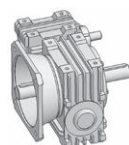
2_N3__1



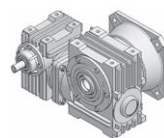
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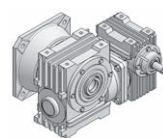
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1_V4__1

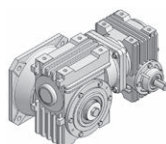


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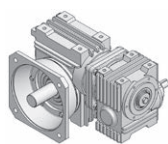


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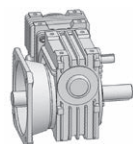
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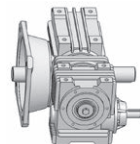
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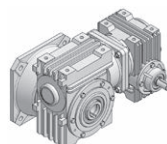
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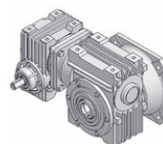
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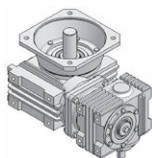
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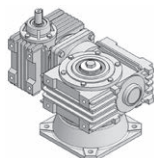
2_V3__2



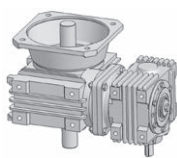
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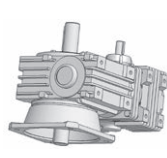
2_N3__3



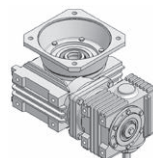
1_D4__3



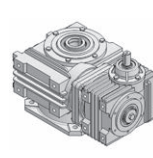
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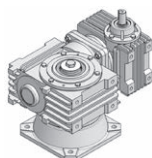
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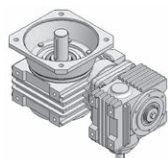
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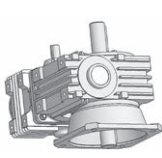
1_E4__4



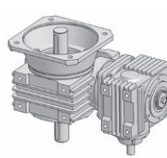
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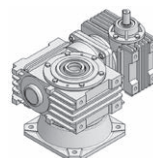
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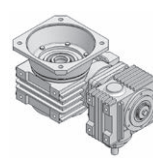
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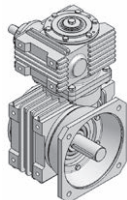
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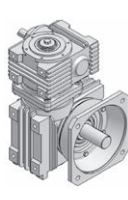
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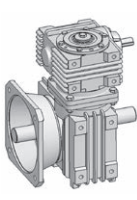
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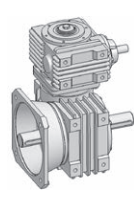
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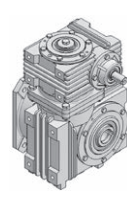
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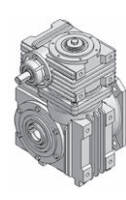
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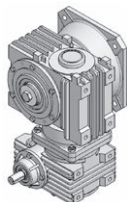
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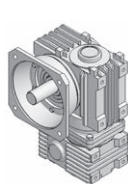
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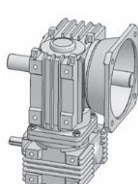
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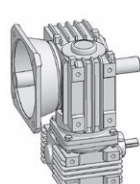
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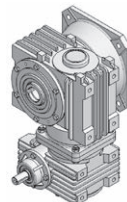
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2_D3__6



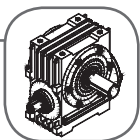
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2_V3__6



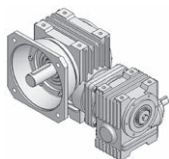
As figuras são ilustrativas



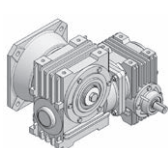
Fixação por flange

3

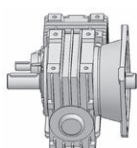
3_E4__1



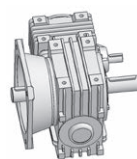
4_N3__1



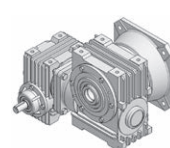
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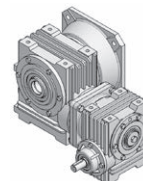
4_D3__1



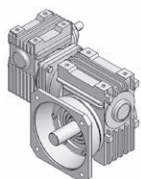
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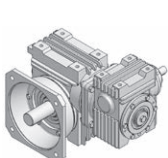
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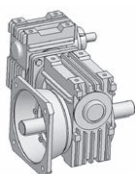
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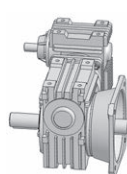
4_N3__2



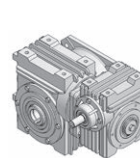
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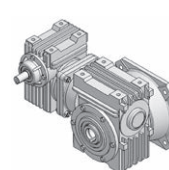
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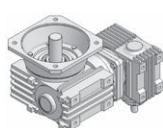
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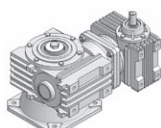
4_V3__2



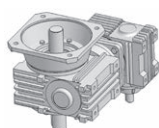
3_E4__3



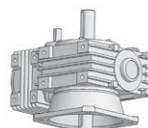
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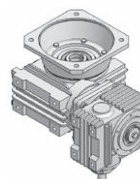
3_D4__3



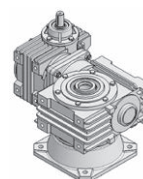
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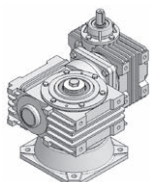
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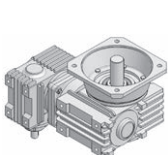
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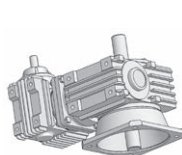
3_E4__4



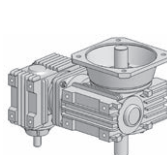
4_N3__4



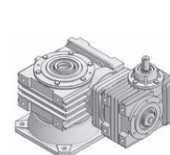
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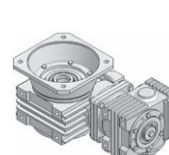
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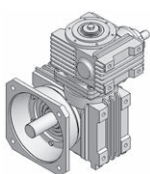
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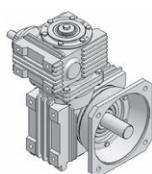
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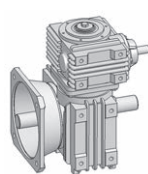
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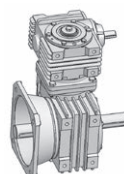
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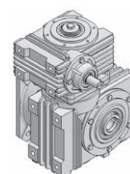
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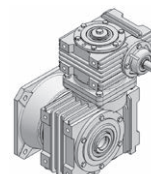
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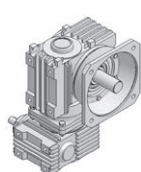
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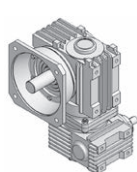
4_V3__5



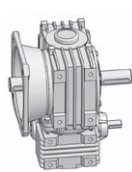
3_E4__6



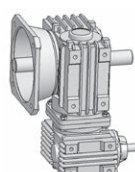
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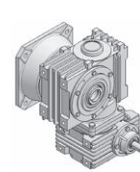
3_D4__6



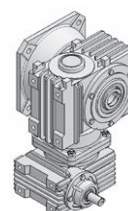
4_D3__6



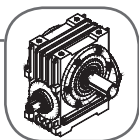
3_V4__6



4_V3__6



As figuras são ilustrativas



Fixação por flange

3

5_E4__1

5_N4__1

6_E3__1

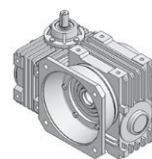
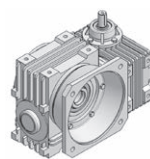
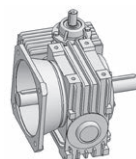
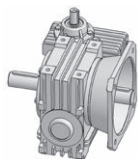
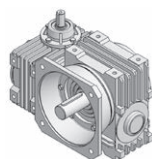
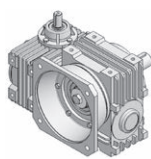
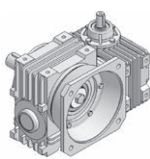
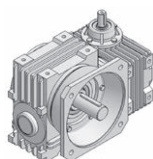
6_N3__1

5_D4__1

6_D3__1

5_V4__1

6_V3__1



5_E4__2

5_N4__2

6_E3__2

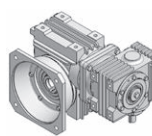
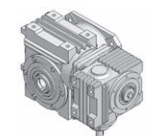
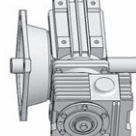
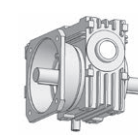
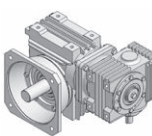
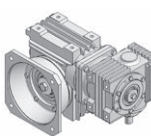
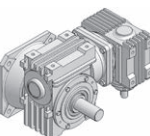
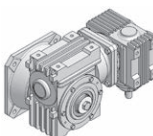
6_N3__2

5_D4__2

6_D3__2

5_V4__2

6_V3__2



5_E4__3

5_N4__3

6_E3__3

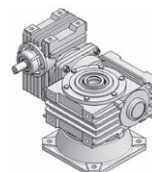
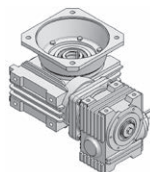
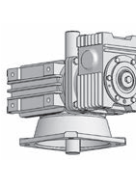
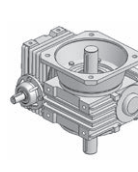
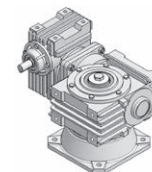
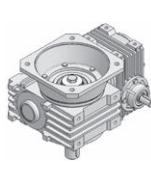
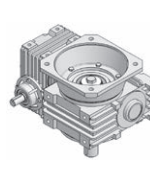
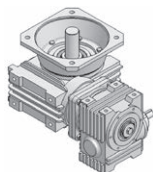
6_N3__3

5_D4__3

6_D3__3

5_V4__3

6_V3__3



5_E4__4

5_N4__4

6_E3__4

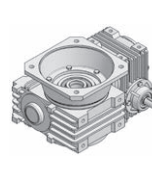
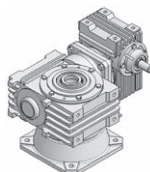
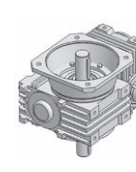
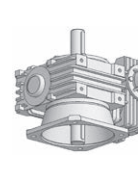
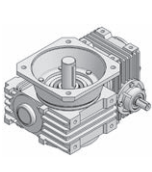
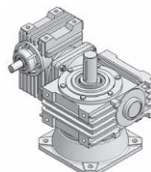
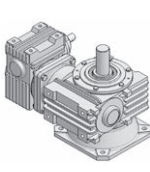
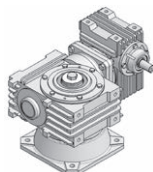
6_N3__4

5_D4__4

6_D3__4

5_V4__4

6_V3__4



5_E4__5

5_N4__5

6_E3__5

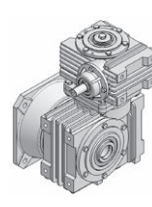
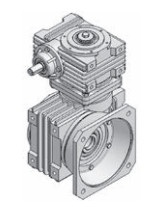
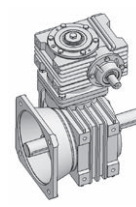
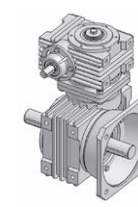
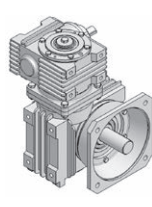
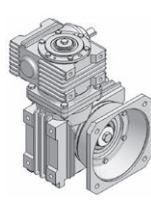
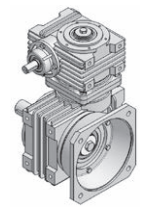
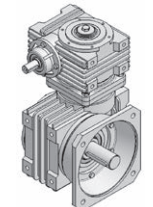
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5_D4__5

6_D3__5

5_V4__5

6_V3__5



5_E4__6

5_N4__6

6_E3__6

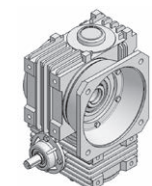
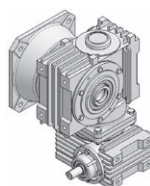
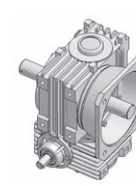
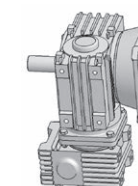
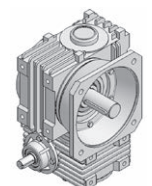
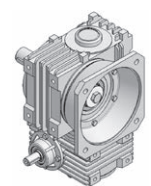
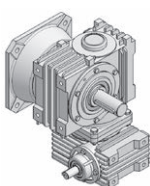
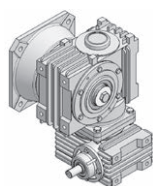
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5_D4__6

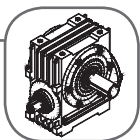
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5_V4__6

6_V3__6



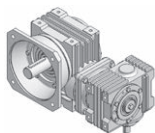
As figuras são ilustrativas



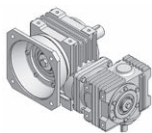
Fixação por flange

3

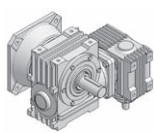
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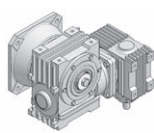
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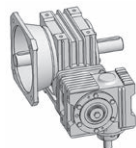
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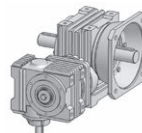
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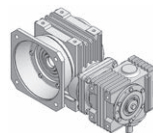
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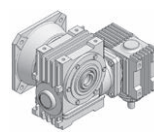
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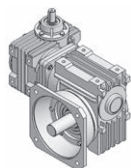
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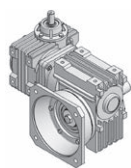
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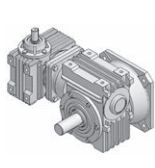
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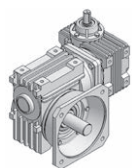
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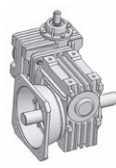
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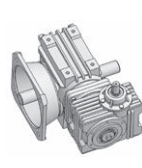
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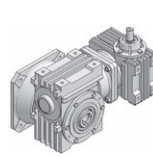
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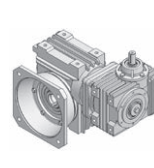
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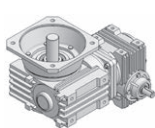
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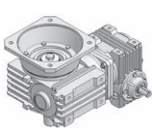
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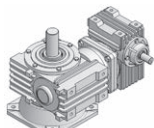
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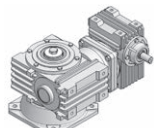
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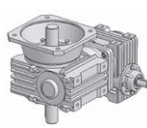
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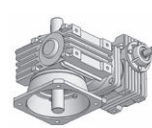
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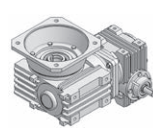
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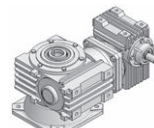
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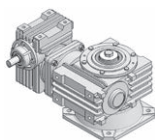
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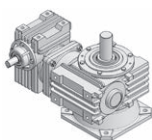
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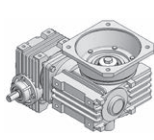
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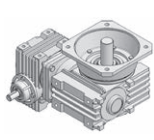
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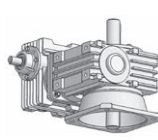
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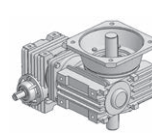
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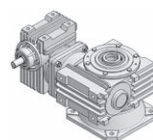
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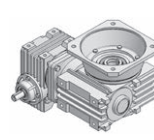
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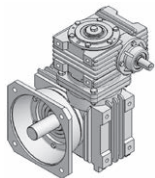
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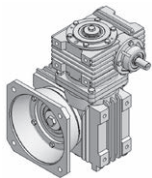
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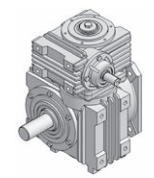
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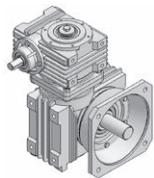
7_N4__5



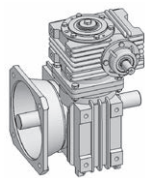
8_E3__5



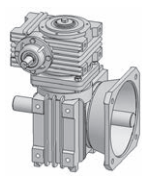
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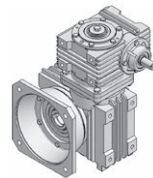
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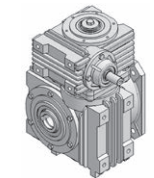
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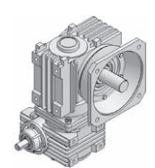
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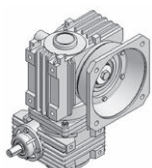
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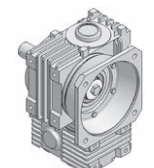
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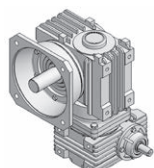
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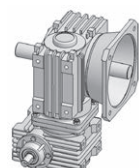
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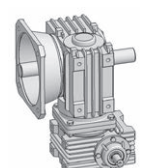
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7_D4__6



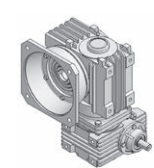
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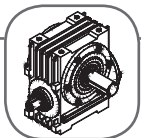
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8_V3__6

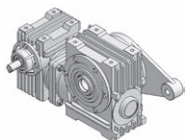


As figuras são ilustrativas

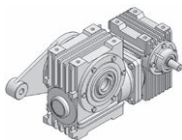


Fixação por braço de torção

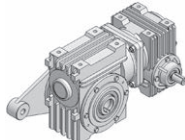
1_V8__1



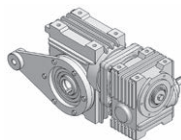
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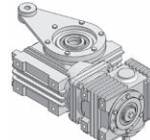
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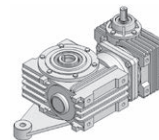
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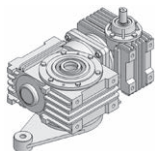
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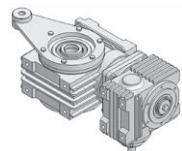
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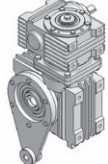
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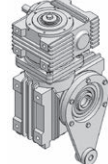
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1_V8__5



2_V7__5



1_V8__6

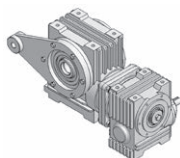


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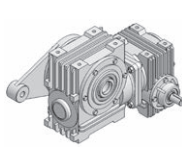


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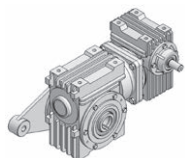
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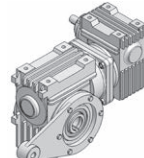
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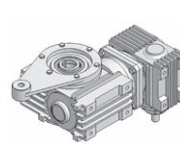
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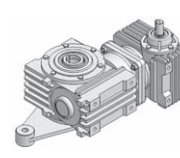
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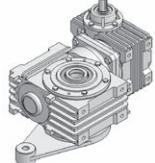
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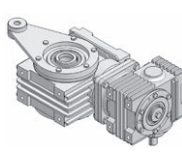
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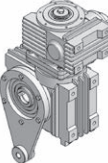
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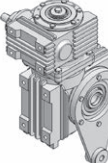
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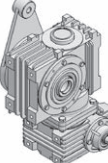
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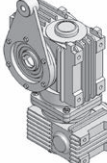
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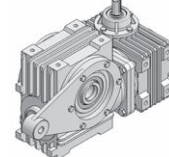
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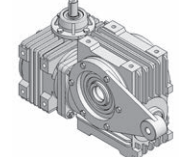
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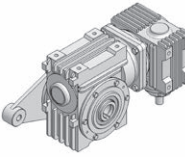
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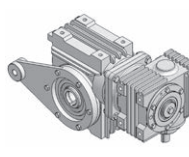
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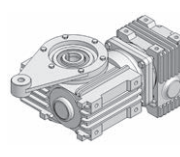
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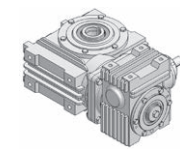
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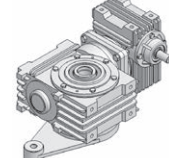
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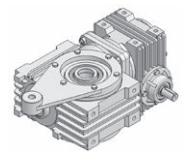
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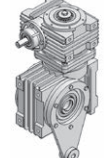
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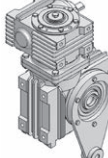
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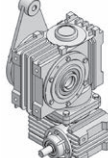
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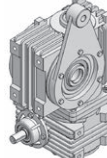
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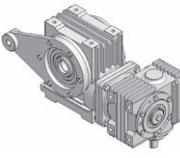
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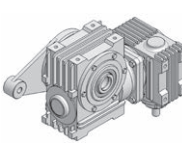
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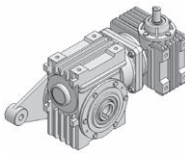
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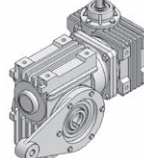
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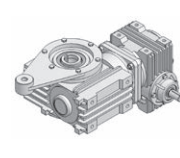
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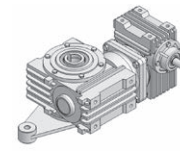
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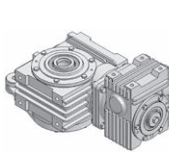
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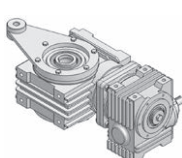
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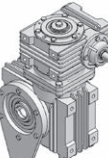
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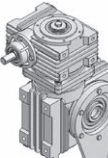
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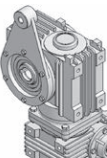
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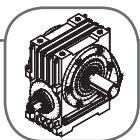
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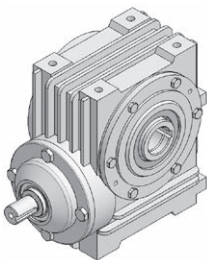
As figuras são ilustrativas



Posição de trabalho

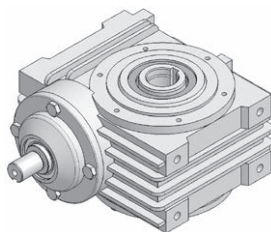
Eixo de entrada horizontal
Eixo de saída horizontal

1



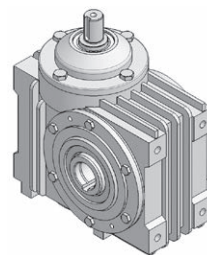
Eixo de entrada horizontal
Eixo de saída vertical

3



Eixo de entrada vertical
Eixo de saída horizontal

5



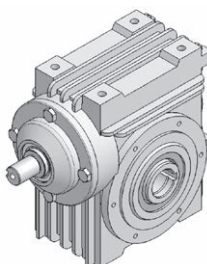
4

Eixo de entrada em baixo

Eixo de entrada a esquerda

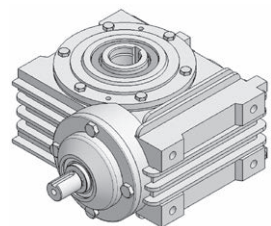
Eixo de entrada para cima

2



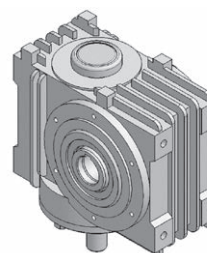
Eixo de entrada em cima

4



Eixo de entrada a direita

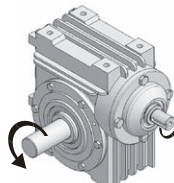
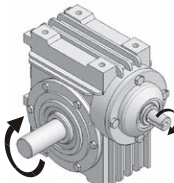
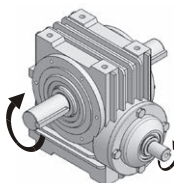
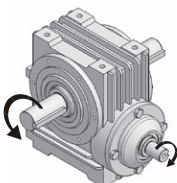
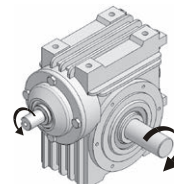
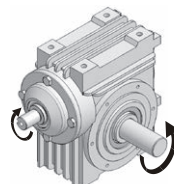
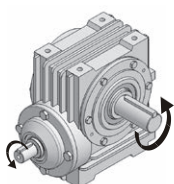
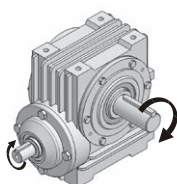
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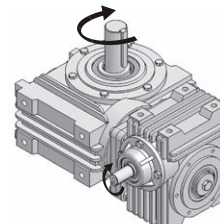
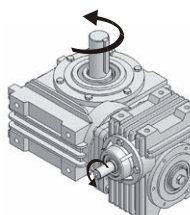
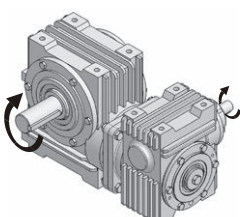
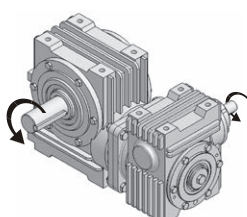
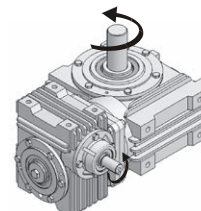
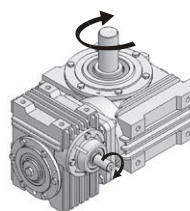
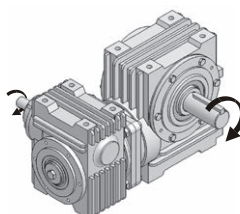
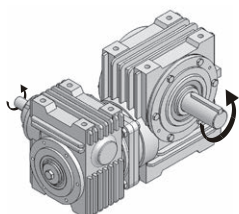
Eixo de entrada para baixo

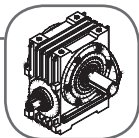
Sentido de rotação dos eixos - rosca filete à direita

1 estágio



2 estágios





1) Dados necessários

- Tipo de máquina movida
- Tipo de máquina motora
- Potência efetiva em "kW" requerida pela máquina movida (Pc)
- Rotação no eixo de entrada do redutor (n1)
- Rotação no eixo de saída do redutor (n2)
- Ciclo operativo (horas de serviço por dia)

2) Fator de serviço "FS"

De acordo com a máquina movida determine na tabela 1, página 19, o tipo de carga: carga uniforme, choques moderados ou choques fortes.

Conhecendo-se o tipo de carga, o tipo de máquina motora e o ciclo operativo, determine na tabela 2, página 20, o fator de serviço (FS).

3) Potência equivalente

Determine a potência equivalente (Pe), multiplicando a potência efetiva (Pc) pelo fator de serviço (FS).

$$Pe = Pc \times FS$$

4) Relação de redução "I"

Determine a redução (I), dividindo a rotação no eixo de entrada do redutor pela rotação necessária no eixo de saída.

$$I = \frac{N1}{N2}$$

Nas tabelas de capacidade estão indicadas as reduções nominais e efetivas.

5) Escolha do redutor

Conhecendo-se a rotação no eixo de entrada do redutor, a potência equivalente (Pe) e a redução (I), determine o redutor ideal através das tabelas das páginas 21 a 26.

O redutor selecionado deve ter uma potência na saída maior ou igual à potência equivalente.

Para uma rotação de entrada diferente das rotações indicadas nas tabelas e inferior a 1750 rpm, as capacidades podem ser determinadas por interpolação.

O tamanho do redutor é determinado a partir da carga efetiva requerida pela máquina e não pela potência do motor a ser utilizado.

6) Exemplo de aplicação

Dados:

- Máquina movida: agitador de líquidos
- Máquina motora: motor elétrico, 1750 rpm
- Potência efetiva requerida pelo agitador = 1,912 kW
- Rotação no eixo por agitador = 60 rpm
- Ciclo operativo = 12 horas/dia

a) Na tabela 1, página 19, determinamos que para um agitador de líquido, o tipo de carga é uniforme.

b) Na tabela 2, página 20, determinamos que para carga uniforme e motor elétrico em funcionamento 12 horas por dia, o fator de serviço correspondente é FS=1,25.

c) A potência equivalente (Pe) será: potência efetiva (Pc) x fator de serviço (FS)

$$Pe = Pc \times FS = 1,912 \times 1,25 = 2,39 \text{ kW}$$

d) A redução necessária será:

$$I = \frac{N1}{N2} = \frac{1750}{60} = 29,17$$

e) Na tabela da página 21 (1750 rpm na entrada), para uma redução nominal de 1:30 temos:

Tamanho	= 10
Potência saída	= 3,45 kW
Potência entrada	= 4,93 kW
Momento torção eixo saída	= 565 Nm
Rendimento (η)	= 0,70
Redução efetiva	= 31

f) Verificação da potência do motor (Pm)

$$Pm = \frac{Pe}{\eta} = \frac{2,39}{0,70} = 3,41$$

Portanto, adota-se um motor padrão de 3,68 kW.

g) Verificação da rotação real no eixo do agitador

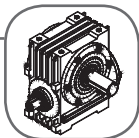
$$\frac{\text{Rotação do motor}}{\text{Redução efetiva}} = \frac{1750}{31} = 56,45 \text{ rpm}$$

Obs: Nos casos de aplicações onde houver carga radial ou axial nos eixos, ver página 18.

Para rotações de entrada diferentes de 1750 e 1150, que já constam nas tabelas, considerar os seguintes fatores para cálculo da capacidade na entrada dos redutores, considerando o valor das tabelas de 1750 rpm.

Rotação rpm	1450	870	580	100
Fator	0,83	0,54	0,38	0,09

Para valores intermediários, usar interpolação simples. Rotação de entrada acima de 1800 rpm e abaixo de 100 rpm, sob consulta.



Para determinar a carga radial resultante de elementos de transmissão, devem ser considerados os fatores abaixo:

Tipo de elemento	Fator (K)
Roda dentada	1,00
Pinhão e engrenagem	1,25
Correia V	1,50
Correia plana	2,50

F = carga radial efetiva (N)
 Pc = potência efetiva requerida pela máquina (kW)
 Dp = diâmetro primitivo do elemento (mm)
 n2 = rotação no eixo de saída (rpm)
 K = fator de correção

$$F = \frac{Pc \times 19.100.000}{Dp \times n2} K$$

A carga radial efetiva (F) deverá ser menor ou igual à carga radial admissível.

As cargas radiais admissíveis nos eixos de saída estão indicadas nas tabelas de capacidade, e foram calculadas considerando a carga radial atuando no ponto central da ponta do eixo.

Quando a carga estiver atuando fora do ponto central é necessário recalcular a carga radial admissível; como indicado abaixo.

Eixo de entrada

Quando houver cargas radiais no eixo de entrada do redutor, consultar a Cestari.

Recálculo das cargas radiais admissíveis no eixo de saída

Carga radial baseada na vida do rolamento

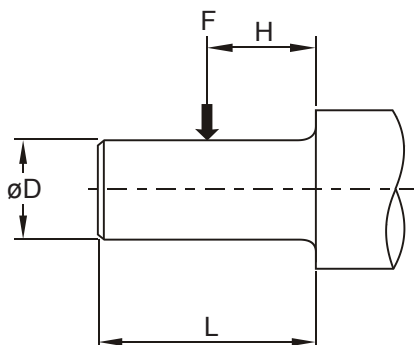
$$FRv = CR \frac{a}{b + H} (N)$$

CR = Carga radial indicada nas tabelas de capacidade

Carga radial baseada na resistência do eixo

$$Fre = \frac{C}{H} (N)$$

A carga radial admissível é a de menor valor



Exemplo de cálculo

Dados:

Redutor tamanho 08, redução 1:10 à 1750 rpm na entrada

Elemento de transmissão: engrenagem

Diâmetro primitivo da engrenagem = 100 mm

Distância do centro da engrenagem ao encosto do eixo:

H = 60mm

Potência efetiva requerida pela máquina = 3,68 kW

Carga radial efetiva

$$F = \frac{3,7 \times 19.100.000}{100 \times 175} \times 1,25 = 5047,8 N$$

$$FRv = 5953 \times \frac{182}{197} = 5500 N$$

$$Fre = \frac{398.000}{60} = 6633 N$$

A carga radial admissível no eixo de saída é 5500 N

Obs: A carga radial efetiva deverá ser menor ou igual a carga radial admissível

Tamanho	a	b	C	D	L
04	101	76	74.000	25	50
05	127	97	118.000	30	60
06	149	114	189.000	35	70
07	162	122	275.000	40	80
08	182	137	398.000	45	90
10	206	156	515.000	50	100
12	241	186	702.000	55	110

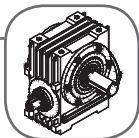


Tabela 1 Classificação de cargas

Aplicação	Classe de carga	Aplicação	Classe de carga	Aplicação	Classe de carga
Agitadores		Dragas		Moinhos Rotativos	
Líquidos puros	U	Guinchos, transportadores e bombas	M	De bolas e rolos	F
Líquidos de densidade consistente	M	Cabeçotes rotativos e peneiras	F	De martelos	F
Líquidos de densidade variável	M				
Alimentadores		Elevadores		Papel	
Alimentadores de rosca	M	Caçambas - cargas uniformes	U	Agitadores (misturadores)	M
Transportadores (esteira e correia)	M	Caçambas - cargas pesadas	F	Alvejadores	U
		Elevadores de carga	M	Batedores e despoldadores	M
		Elevadores de canecas	M	Calandras	M
Bobinadoras				Supercalandras	F
Metal	M	Engarrafadoras e Enlatadoras	U	Cilindros	U
Papel	U			Descascadores hidráulicos e mecânicos	M
Têxtil	M	Fornos Rotativos	M	Tambores descascadores	F
				Esticadores de feltro	M
Bombas		Geradores	U	Prensas	U
Centrífugas	U			Secadores	M
Dupla ação, multicilíndricas	M	Guinchos			
Recíproca de descarga livre	M	Cargas uniformes	M	Pontes rolantes	
Rotativas a engrenagens	U	Cargas pesadas	F	Acionamento do carro e da ponte	F
				Acionamento do guincho	U
Borracha e Plástico		Indústrias Açucareiras		Saneamento	
Calandras*	M	Moendas	F	Aeradores	F
Equipamentos de laboratório	M	Facas de cana*	M	Alimentadores, bombas, decantadores	U
Extrusoras	M			Filtros mexedores e peneiras	M
Moinhos cilíndricos 2 em linha*	M	Indústrias Alimentícias		Clarificadores	U
Moinhos cilíndricos 3 em linha*	U	Cozinheiros de cereais	U		
Refinadores*	M	Misturadores de massa, moedores de carne, picadores	M	Secadores e resfriadores rotativos	M
Trituradores e misturadores*	F				
		Indústrias Madeireiras		Torres de refrigeração	**
Britadores		Alimentadores de plaina	M		
Pedras e minérios	F	Serras, tambores despoldadores, transportadores de toras	F	Transportadores	
				Caçamba, correia, corrente, esteira, rosca:	
Cerâmica		Indústrias Metalúrgicas		- Cargas uniformes	U
Extrusoras e misturadores	M	Cortadores de chapa rotativos	M	- Cargas pesadas e interminentes	M
Prensas de tijolos e ladrilhos	F	Cortadores de chapa de faca	F	Vibratórios	F
		Viradeiras	F		
Cimento		Trefilas	M	Ventiladores	
Britadores de mandíbulas	F			Centrífugos	U
Moinhos rotativos*	M	Indústrias têxteis		Outros	M
Moinhos de bolas e rolos*	F	Calandras, cardas, filatórios, retorcedoras, maçarqueiras e máquinas de tinturaria	M		
Classificadores Rotativos	M				
		Máquinas operatrizes			
Compressores		Acionamento principal - Cargas pesadas	F		
Centrífugos	U	Acionamento principal - Cargas uniformes	M		
Multicilíndricos	M	Acionamento auxiliar	U		
Um cilindro	F	Prensas	F		
		Rosqueadora	F		
Destilarias					
Cozinheiros - serviço contínuo	U	Misturadores			
Tachos de fermentação- serviço contínuo	U	Betoneiras	M		
Misturadores	U	Borracha*	F		
		Polpa de papel	M		

U - Carga uniforme
M - Choques moderados
F - Choques fortes
 * Tempo de trabalho acima de 10h/dia
 ** Torre de resfriamento deve ser analisado redutor específico - sob consulta



Tabela 2 Fatores de serviço FS

		Classificação de serviço da máquina acionada		
		Carga uniforme	Choques moderados	Choques fortes
Acionamento por	Tempo de Trabalho	U	M	F
Motor elétrico ou turbina a vapor	Ocasional até ½ h/dia	0,80	0,90	1,00
	Intermitente até 2 h/dia	0,90	1,00	1,25
	Até 10 h/dia	1,00	1,25	1,50
	Acima de 10 h/dia	1,25	1,50	1,75
Motor a explosão Multicilindro ou Motor Hidráulico	Ocasional até ½ h/dia	0,90	1,00	1,25
	Intermitente até 2 h/dia	1,00	1,25	1,50
	Até 10 h/dia	1,25	1,50	1,75
	Acima de 10 h/dia	1,50	1,75	2,00
Motor a explosão de 1 cilindro	Ocasional até ½ h/dia	1,00	1,25	1,50
	Intermitente até 2 h/dia	1,25	1,50	1,75
	Até 10 h/dia	1,50	1,75	2,00
	Acima de 10 h/dia	1,75	2,00	2,25
Motor elétrico com partidas e paradas frequentemente	Ocasional até ½ h/dia	0,90	1,00	1,25
	Intermitente até 2 h/dia	1,00	1,25	1,50
	Até 10 h/dia	1,25	1,50	1,75
	Acima de 10 h/dia	1,50	1,75	2,00

O tempo de trabalho especificado como ocasional e intermitente refere-se ao tempo total de operação por dia. Por partidas e paradas frequentes entende-se mais de 10 partidas por hora.

Irreversibilidade

A irreversibilidade é uma característica dos redutores de rosca sem fim, isto quer dizer que não podemos acionar o redutor pelo eixo de saída. Esta propriedade depende do rendimento, que varia de redutor para redutor, e também de fatores externos como: vibrações, esforços alternativos, lubrificação, etc. Para efeito orientativo temos a tabela abaixo, mas é praticamente impossível assegurarmos a irreversibilidade de um redutor. Quanto mais distante estiverem os redutores irreversíveis da zona neutra maior será a probabilidade de sua irreversibilidade.

A tabela está dividida em três grupos:

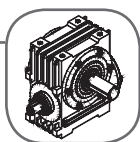
Reversível: Os que podem ser acionados pelo eixo de saída

Neutro: Podem ser reversíveis se a rosca receber um impulso inicial

Irreversível: Não podem ser acionados pelo eixo de saída desde que não haja esforços externos

Importante: Quando é necessário garantir a irreversibilidade do redutor, deve-se empregar dispositivo anti-recuo.

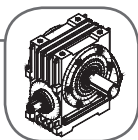
Redução	04	05	06	07	08	10	12
10							Reversíveis
15							
20							
25							
30							
40							
50							
60							
80							



1 estágio - 1750 rpm

Capacidades

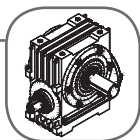
Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Rendimento	Redução efetiva
									
		kW	CV	kW	CV	Nm	N	η	
1:10	4	0,97	1,32	0,78	1,06	42	1.569	0,8	10
	5	1,89	2,57	1,55	2,11	84	3.923	0,82	10
	6	2,94	4,00	2,44	3,32	133	5.021	0,83	10
	7	4,60	6,25	3,91	5,31	213	5.374	0,85	10
	8	7,14	9,71	6,14	8,35	335	5.953	0,86	10
	10	10,04	13,65	8,74	11,88	477	7.061	0,87	10
12	14,67	19,95	12,92	17,56	704	7.845	0,88	10	
1:15	4	0,74	1,00	0,54	0,73	44	1.834	0,73	15
	5	1,45	1,97	1,09	1,48	89	3.923	0,75	15
	6	2,24	3,05	1,71	2,32	139	5.394	0,76	15,5
	7	3,36	4,57	2,62	3,56	215	6.276	0,78	15
	8	5,06	6,88	4,05	5,50	331	7.061	0,8	15,5
	10	7,49	10,19	6,14	8,35	503	8.385	0,82	15,5
12	11,28	15,33	9,47	12,88	776	9.218	0,84	15	
1:20	4	0,62	0,84	0,42	0,57	46	2.010	0,68	19,5
	5	1,27	1,72	0,89	1,21	97	3.923	0,7	19,5
	6	1,88	2,56	1,35	1,84	148	5.394	0,72	20
	7	2,78	3,78	2,06	2,80	225	6.865	0,74	20
	8	4,21	5,72	3,20	4,35	349	7.767	0,76	20
	10	6,25	8,50	4,88	6,63	533	9.277	0,78	20
12	9,27	12,60	7,41	10,08	809	10.268	0,8	19,5	
1:25	4	0,57	0,78	0,38	0,51	51	2.157	0,66	25
	5	1,18	1,60	0,80	1,09	109	3.923	0,68	24,5
	6	1,75	2,38	1,23	1,67	167	5.394	0,7	25
	7	2,63	3,57	1,89	2,57	258	6.865	0,72	25
	8	3,94	5,36	2,91	3,96	397	8.238	0,74	24,5
	10	5,77	7,85	4,39	5,97	598	9.856	0,76	25
12	8,34	11,34	6,51	8,85	888	11.023	0,78	25	
1:30	4	0,49	0,66	0,29	0,39	47	2.354	0,59	30
	5	1,02	1,38	0,62	0,84	101	3.923	0,61	30
	6	1,51	2,05	0,95	1,29	156	5.394	0,63	31
	7	2,28	3,10	1,49	2,02	242	6.865	0,65	31
	8	3,31	4,50	2,22	3,02	363	8.826	0,67	31
	10	4,93	6,70	3,45	4,69	565	10.297	0,7	31
12	7,06	9,60	5,08	6,91	833	12.121	0,72	30	
1:40	4	0,46	0,62	0,25	0,34	55	2.550	0,55	40
	5	0,93	1,26	0,53	0,72	116	3.923	0,57	40
	6	1,35	1,84	0,81	1,10	178	5.394	0,6	39
	7	2,06	2,80	1,28	1,74	279	6.865	0,62	39
	8	3,12	4,24	1,99	2,71	435	8.826	0,64	39
	10	4,60	6,25	3,08	4,19	673	10.297	0,67	40
12	6,77	9,20	4,74	6,44	1.034	12.749	0,7	39	
1:50	4	0,38	0,52	0,18	0,24	49	2.746	0,47	48
	5	0,79	1,08	0,40	0,54	108	3.923	0,5	48
	6	1,14	1,55	0,60	0,82	165	5.394	0,53	49
	7	1,74	2,36	0,97	1,32	265	6.865	0,56	49
	8	2,60	3,54	1,51	2,05	412	8.826	0,58	48
	10	3,86	5,25	2,35	3,20	642	10.297	0,61	49
12	5,55	7,55	3,55	4,83	970	12.749	0,64	49	
1:60	4	0,33	0,45	0,15	0,20	48	2.942	0,44	60
	5	0,63	0,85	0,29	0,40	96	3.923	0,47	60
	6	0,93	1,26	0,46	0,63	152	5.394	0,5	60
	7	1,38	1,88	0,74	1,00	240	6.865	0,53	60
	8	2,06	2,80	1,13	1,54	371	8.826	0,55	60
	10	3,02	4,10	1,75	2,38	573	10.297	0,58	60
12	4,49	6,10	2,74	3,72	896	12.749	0,61	60	
1:80	4	0,26	0,36	0,10	0,13	43	2.942	0,37	80
	5	0,49	0,66	0,19	0,26	84	3.923	0,4	80
	6	0,71	0,96	0,28	0,38	124	5.394	0,43	80
	7	1,04	1,41	0,48	0,65	208	6.865	0,46	80
	8	1,53	2,08	0,74	1,00	321	8.826	0,48	80
	10	2,23	3,03	1,14	1,55	496	10.297	0,51	80
12	3,27	4,45	1,77	2,40	772	12.749	0,54	80	
1:100	4	---	---	---	---	---	---	---	---
	5	0,30	0,41	0,12	0,16	65	3.923	0,40	100
	6	0,54	0,73	0,23	0,31	124	5.394	0,42	100
	7	0,70	0,95	0,32	0,43	170	6.865	0,45	99
	8	1,13	1,54	0,53	0,72	281	8.826	0,47	97
	10	1,75	2,38	0,88	1,19	473	10.297	0,50	99
12	2,60	3,54	1,35	1,84	723	12.749	0,52	98	



1 estágio - 1150 rpm

Capacidades

Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Rendimento	Redução efetiva
 T_{nom}		 kW	 CV	 kW	 CV	 Nm	 N	 η	 i_{efet}
1:10	4	0,70	0,95	0,55	0,75	46	1.765	0,79	10
	5	1,36	1,85	1,10	1,5	91	3.923	0,81	10
	6	2,12	2,88	1,74	2,36	144	5.394	0,82	10
	7	3,31	4,5	2,78	3,78	230	6.149	0,84	10
	8	5,14	6,99	4,42	6,01	368	6.796	0,86	10
	10	7,23	9,83	6,29	8,55	523	8.071	0,87	10
1:15	12	10,56	14,36	9,30	12,64	772	9.101	0,88	10
1:15	4	0,53	0,72	0,38	0,52	47	2.059	0,72	15
	5	1,04	1,42	0,77	1,05	96	3.923	0,74	15
	6	1,62	2,2	1,21	1,65	151	5.394	0,75	15,5
	7	2,42	3,29	1,86	2,53	232	6.865	0,77	15
	8	3,64	4,95	2,91	3,96	363	8.012	0,8	15,5
1:20	10	5,39	7,33	4,42	6,01	551	9.561	0,82	15,5
	12	8,12	11,04	6,82	9,27	849	10.611	0,84	15
1:20	4	0,44	0,6	0,30	0,41	49	2.275	0,67	19,5
	5	0,91	1,24	0,63	0,86	105	3.923	0,69	19,5
	6	1,35	1,84	0,96	1,31	160	5.394	0,71	20
	7	2,00	2,72	1,46	1,99	242	6.865	0,73	20
	8	3,03	4,12	2,30	3,13	382	8.787	0,76	20
	10	4,50	6,12	3,51	4,77	583	10.297	0,78	20
1:25	12	6,67	9,07	5,34	7,26	887	11.807	0,8	19,5
1:25	4	0,41	0,56	0,26	0,36	56	2.452	0,65	25
	5	0,85	1,15	0,57	0,77	118	3.923	0,67	24,5
	6	1,26	1,71	0,87	1,18	180	5.394	0,69	25
	7	1,89	2,57	1,34	1,82	279	6.865	0,71	25
	8	2,84	3,86	2,07	2,81	430	8.826	0,73	24,5
1:30	10	4,16	5,65	3,12	4,24	647	10.297	0,75	25
	12	6,00	8,16	4,69	6,37	973	12.670	0,78	25
1:30	4	0,35	0,48	0,21	0,28	50	2.667	0,58	30
	5	0,73	0,99	0,44	0,6	109	3.923	0,6	30
	6	1,09	1,48	0,68	0,92	168	5.394	0,62	31
	7	1,64	2,23	1,05	1,43	262	6.865	0,64	31
	8	2,38	3,24	1,57	2,14	392	8.826	0,66	31
	10	3,55	4,82	2,45	3,33	610	10.297	0,69	31
1:40	12	5,08	6,91	3,61	4,91	899	12.749	0,71	30
1:40	4	0,33	0,45	0,18	0,24	59	2.893	0,54	40
	5	0,67	0,91	0,38	0,51	125	3.923	0,56	40
	6	0,97	1,32	0,57	0,78	191	5.394	0,59	39
	7	1,49	2,02	0,90	1,23	300	6.865	0,61	39
	8	2,24	3,05	1,43	1,95	478	8.826	0,64	39
1:50	10	3,31	4,5	2,18	2,97	726	10.297	0,66	40
	12	4,87	6,62	3,36	4,57	1.117	12.749	0,69	39
1:50	4	0,27	0,37	0,13	0,17	53	2.942	0,46	48
	5	0,57	0,78	0,28	0,38	117	3.923	0,49	48
	6	0,82	1,12	0,43	0,58	178	5.394	0,52	49
	7	1,25	1,7	0,68	0,93	285	6.865	0,55	49
	8	1,88	2,55	1,07	1,45	443	8.826	0,57	48
	10	2,78	3,78	1,67	2,27	692	10.297	0,6	49
1:60	12	4,00	5,44	2,52	3,42	1.045	12.749	0,63	49
1:60	4	0,24	0,32	0,10	0,14	51	2.942	0,43	60
	5	0,45	0,61	0,21	0,28	103	3.923	0,46	60
	6	0,67	0,91	0,32	0,44	163	5.394	0,49	60
	7	0,99	1,35	0,51	0,7	258	6.865	0,52	60
	8	1,49	2,02	0,80	1,09	399	8.826	0,54	60
1:80	10	2,17	2,95	1,24	1,68	617	10.297	0,57	60
	12	3,23	4,39	1,94	2,64	966	12.749	0,6	60
1:80	4	0,19	0,26	0,07	0,09	45	2.942	0,36	80
	5	0,35	0,48	0,14	0,19	90	3.923	0,39	80
	6	0,51	0,69	0,21	0,29	142	5.394	0,42	80
	7	0,75	1,02	0,34	0,46	224	6.865	0,45	80
	8	1,10	1,5	0,51	0,7	344	8.826	0,47	80
	10	1,60	2,18	0,80	1,09	533	10.297	0,5	80
1:100	12	2,35	3,2	1,25	1,7	830	12.749	0,53	80
1:100	4	---	---	---	---	---	---	---	---
	5	0,22	0,30	0,09	0,12	71	3.923	0,39	100
	6	0,39	0,53	0,16	0,22	133	5.394	0,41	100
	7	0,51	0,69	0,22	0,31	184	6.865	0,44	99
	8	0,82	1,12	0,38	0,51	304	8.826	0,46	97
1:100	10	1,26	1,71	0,62	0,84	508	10.297	0,49	99
	12	1,88	2,56	0,96	1,30	780	12.749	0,51	98



2 estágios - 1750 rpm

Capacidades

Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Redução efetiva
		kW	CV	kW	CV	Nm	N	
1:100	5	0,32	0,43	0,19	0,26	104	3.923	100
	6	0,49	0,67	0,30	0,41	165	5.394	100
	7	0,75	1,02	0,46	0,63	253	6.865	100
	8	1,07	1,46	0,70	0,95	381	8.826	100
	10	1,60	2,18	1,06	1,44	578	10.297	100
	12	2,29	3,12	1,54	2,09	838	12.749	100
1:150	5	0,25	0,34	0,13	0,18	109	3.923	150
	6	0,37	0,5	0,20	0,27	163	5.394	155
	7	0,56	0,76	0,31	0,42	253	6.865	150
	8	0,80	1,09	0,46	0,63	392	8.826	155
	10	1,16	1,58	0,70	0,95	591	10.297	155
	12	1,76	2,39	1,09	1,48	891	12.749	150
1:200	5	0,23	0,31	0,11	0,15	118	3.923	195
	6	0,32	0,44	0,16	0,22	177	5.394	200
	7	0,51	0,69	0,26	0,35	281	6.865	200
	8	0,72	0,98	0,39	0,53	426	8.826	200
	10	1,07	1,46	0,60	0,82	658	10.297	200
	12	1,57	2,14	0,91	1,24	971	12.749	195
1:250	5	0,21	0,28	0,10	0,13	127	3.923	245
	6	0,29	0,4	0,14	0,19	190	5.394	250
	7	0,48	0,65	0,24	0,32	321	6.865	250
	8	0,69	0,94	0,36	0,49	482	8.826	245
	10	1,03	1,4	0,54	0,74	742	10.297	250
	12	1,40	1,91	0,79	1,07	1.079	12.749	250
1:300	5	0,18	0,25	0,08	0,11	129	3.923	292,5
	6	0,26	0,35	0,12	0,16	192	5.394	300
	7	0,40	0,55	0,19	0,26	313	6.865	300
	8	0,59	0,8	0,29	0,4	482	8.826	300
	10	0,89	1,21	0,46	0,62	746	10.297	300
	12	1,30	1,77	0,69	0,94	1.108	12.749	292,5
1:400	5	0,16	0,22	0,07	0,09	137	3.923	380,2
	6	0,23	0,31	0,10	0,13	204	5.394	390
	7	0,35	0,48	0,15	0,21	329	6.865	390
	8	0,51	0,7	0,24	0,32	501	8.826	390
	10	0,77	1,04	0,37	0,5	783	10.297	390
	12	1,07	1,46	0,54	0,73	1.147	12.749	390
1:450	5	0,15	0,2	0,05	0,072	129	3.923	450
	6	0,22	0,3	0,08	0,11	205	5.394	465
	7	0,32	0,43	0,13	0,17	318	6.865	465
	8	0,46	0,63	0,19	0,26	485	8.826	465
	10	0,65	0,89	0,29	0,39	728	10.297	465
	12	0,98	1,33	0,45	0,61	1.098	12.749	450
1:500	5	0,15	0,2	0,06	0,078	149	3.923	477,7
	6	0,22	0,3	0,09	0,12	234	5.394	487,5
	7	0,34	0,46	0,14	0,19	372	6.865	487,5
	8	0,49	0,66	0,21	0,29	556	8.826	477,7
	10	0,72	0,98	0,33	0,45	881	10.297	487,5
	12	0,98	1,33	0,47	0,64	1.285	12.749	500
1:600	5	0,13	0,18	0,04	0,058	137	3.923	585
	6	0,19	0,26	0,07	0,09	218	5.394	604,5
	7	0,29	0,39	0,10	0,14	339	6.865	604,5
	8	0,41	0,56	0,16	0,22	533	8.826	604,5
	10	0,59	0,8	0,24	0,33	800	10.297	604,5
	12	0,82	1,12	0,35	0,48	1.157	12.749	600
1:750	5	0,11	0,15	0,04	0,05	149	3.923	735
	6	0,16	0,22	0,06	0,076	228	5.394	750
	7	0,24	0,33	0,09	0,12	361	6.865	750
	8	0,37	0,5	0,14	0,19	561	8.826	735
	10	0,54	0,74	0,21	0,29	873	10.297	750
	12	0,72	0,98	0,30	0,41	1.275	12.749	775

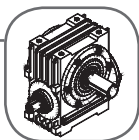
8



2 estágios - 1750 rpm

Capacidades

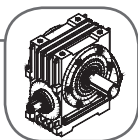
Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Redução efetiva
								
i_{nom}		kW	CV	kW	CV	Nm	N	i_{efet}
1:900	5	0,10	0,13	0,03	0,038	137	3.923	900
	6	0,14	0,19	0,04	0,058	218	5.394	930
	7	0,22	0,3	0,07	0,093	348	6.865	930
	8	0,31	0,42	0,10	0,14	523	8.826	930
	10	0,46	0,63	0,16	0,22	821	10.297	930
	12	0,62	0,84	0,23	0,31	1.157	12.749	930
1:1000	5	0,10	0,14	0,03	0,04	160	3.923	1000
	6	0,15	0,2	0,04	0,061	238	5.394	975
	7	0,23	0,31	0,07	0,098	383	6.865	975
	8	0,32	0,43	0,11	0,15	576	8.826	955,5
	10	0,46	0,62	0,17	0,23	905	10.297	980
	12	0,60	0,82	0,24	0,33	1.294	12.749	975
1:1200	5	0,10	0,13	0,02	0,033	160	3.923	1200
	6	0,14	0,19	0,04	0,051	238	5.394	1170
	7	0,21	0,29	0,06	0,082	383	6.865	1170
	8	0,29	0,39	0,09	0,12	564	8.826	1170
	10	0,43	0,59	0,14	0,19	915	10.297	1200
	12	0,54	0,74	0,19	0,26	1.265	12.749	1209
1:1500	5	0,07	0,1	0,02	0,025	149	3.923	1470
	6	0,11	0,15	0,03	0,038	228	5.394	1500
	7	0,17	0,23	0,04	0,061	369	6.865	1500
	8	0,24	0,32	0,07	0,093	550	8.826	1470
	10	0,37	0,5	0,11	0,15	903	10.297	1500
	12	0,47	0,64	0,15	0,21	1.265	12.749	1500
1:1800	5	0,07	0,1	0,01	0,019	135	3.923	1800
	6	0,10	0,14	0,02	0,03	219	5.394	1800
	7	0,16	0,22	0,04	0,048	350	6.865	1800
	8	0,21	0,29	0,05	0,07	506	8.826	1800
	10	0,31	0,42	0,08	0,11	794	10.297	1800
	12	0,40	0,55	0,12	0,16	1.196	12.749	1860
1:2000	5	0,07	0,09	0,01	0,019	149	3.923	1960
	6	0,10	0,13	0,02	0,028	228	5.394	2000
	7	0,15	0,21	0,03	0,046	369	6.865	2000
	8	0,21	0,28	0,05	0,07	550	8.826	1960
	10	0,31	0,42	0,08	0,11	883	10.297	2000
	12	0,40	0,55	0,12	0,16	1.285	12.749	2000
1:2400	5	0,06	0,084	0,01	0,016	160	3.923	2400
	6	0,10	0,13	0,02	0,025	238	5.394	2340
	7	0,15	0,2	0,03	0,041	383	6.865	2340
	8	0,20	0,27	0,04	0,061	575	8.826	2340
	10	0,27	0,37	0,07	0,093	899	10.297	2400
	12	0,37	0,5	0,10	0,14	1.314	12.749	2340
1:3000	5	0,06	0,075	0,01	0,012	138	3.923	2880
	6	0,08	0,11	0,01	0,019	221	5.394	2940
	7	0,13	0,17	0,02	0,03	361	6.865	2940
	8	0,16	0,22	0,03	0,047	539	8.826	2880
	10	0,24	0,32	0,05	0,07	826	10.297	2940
	12	0,29	0,4	0,07	0,1	1.177	12.749	2940
1:3600	5	0,05	0,067	0,01	0,009	135	3.923	3600
	6	0,07	0,1	0,01	0,015	219	5.394	3600
	7	0,10	0,14	0,02	0,024	350	6.865	3600
	8	0,13	0,18	0,03	0,035	506	8.826	3600
	10	0,21	0,28	0,04	0,055	800	10.297	3600
	12	0,27	0,37	0,06	0,084	1.216	12.749	3600
1:4000	5	0,05	0,069	0,01	0,009	138	3.923	3840
	6	0,07	0,1	0,01	0,014	221	5.394	3920
	7	0,11	0,15	0,02	0,023	361	6.865	3920
	8	0,15	0,21	0,03	0,035	539	8.826	3840
	10	0,20	0,27	0,04	0,052	826	10.297	3920
	12	0,27	0,37	0,06	0,078	1.236	12.749	3920



2 estágios - 1150 rpm

Capacidades

Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Redução efetiva
		kW	CV	kW	CV	Nm	N	
1:100	5	0,24	0,33	0,15	0,2	122	3.923	100
	6	0,36	0,49	0,22	0,3	183	5.394	100
	7	0,54	0,74	0,34	0,46	280	6.865	100
	8	0,79	1,08	0,51	0,7	428	8.826	100
	10	1,19	1,62	0,79	1,07	653	10.297	100
	12	1,70	2,31	1,14	1,55	946	12.749	100
1:150	5	0,18	0,24	0,10	0,13	119	3.923	150
	6	0,29	0,39	0,15	0,21	192	5.394	155
	7	0,43	0,58	0,24	0,32	293	6.865	150
	8	0,60	0,81	0,35	0,47	445	8.826	155
	10	0,88	1,2	0,53	0,72	682	10.297	155
	12	1,29	1,76	0,80	1,09	1.000	12.749	150
1:200	5	0,17	0,23	0,08	0,11	131	3.923	195
	6	0,24	0,32	0,12	0,16	195	5.394	200
	7	0,38	0,51	0,19	0,26	318	6.865	200
	8	0,53	0,72	0,29	0,39	477	8.826	200
	10	0,80	1,09	0,45	0,61	744	10.297	200
	12	1,18	1,6	0,68	0,93	1.108	12.749	195
1:250	5	0,15	0,21	0,07	0,098	146	3.923	245
	6	0,22	0,3	0,10	0,14	214	5.394	250
	7	0,35	0,47	0,17	0,23	351	6.865	250
	8	0,51	0,69	0,26	0,36	538	8.826	245
	10	0,77	1,04	0,40	0,55	839	10.297	250
	12	1,05	1,43	0,59	0,8	1.226	12.749	250
1:300	5	0,13	0,18	0,06	0,077	137	3.923	292,5
	6	0,18	0,24	0,08	0,11	201	5.394	300
	7	0,28	0,38	0,13	0,18	330	6.865	300
	8	0,41	0,56	0,21	0,28	513	8.826	300
	10	0,62	0,84	0,32	0,43	787	10.297	300
	12	0,89	1,21	0,47	0,64	1.147	12.749	292,5
1:400	5	0,10	0,14	0,04	0,059	137	3.923	380,2
	6	0,15	0,21	0,06	0,088	211	5.394	390
	7	0,24	0,32	0,10	0,14	333	6.865	390
	8	0,34	0,46	0,15	0,21	500	8.826	390
	10	0,51	0,69	0,24	0,33	786	10.297	390
	12	0,71	0,96	0,35	0,48	1.147	12.749	390
1:450	5	0,10	0,14	0,04	0,05	137	3.923	450
	6	0,15	0,21	0,06	0,077	218	5.394	465
	7	0,23	0,31	0,09	0,12	340	6.865	465
	8	0,32	0,44	0,13	0,18	511	8.826	465
	10	0,47	0,64	0,21	0,28	795	10.297	465
	12	0,67	0,91	0,31	0,42	1.157	12.749	450
1:500	5	0,10	0,13	0,04	0,051	149	3.923	477,7
	6	0,14	0,19	0,06	0,077	228	5.394	487,5
	7	0,21	0,29	0,09	0,12	357	6.865	487,5
	8	0,32	0,43	0,14	0,19	554	8.826	477,7
	10	0,46	0,63	0,21	0,29	863	10.297	487,5
	12	0,64	0,87	0,31	0,42	1.285	12.749	500
1:600	5	0,09	0,12	0,03	0,038	137	3.923	585
	6	0,13	0,17	0,04	0,059	218	5.394	604,5
	7	0,19	0,26	0,07	0,094	348	6.865	604,5
	8	0,26	0,36	0,10	0,14	517	8.826	604,5
	10	0,40	0,54	0,16	0,22	812	10.297	604,5
	12	0,54	0,74	0,24	0,32	1.177	12.749	600
1:750	5	0,07	0,097	0,02	0,033	149	3.923	735
	6	0,10	0,14	0,04	0,05	228	5.394	750
	7	0,16	0,22	0,06	0,08	369	6.865	750
	8	0,23	0,31	0,09	0,12	538	8.826	735
	10	0,36	0,49	0,14	0,19	870	10.297	750
	12	0,47	0,64	0,20	0,27	1.275	12.749	775



2 estágios - 1150 rpm

Capacidades

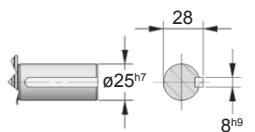
Redução	Tamanho	Potência entrada		Potência saída		Momento torçor	Carga radial	Redução efetiva
								
i_{nom}		kW	CV	kW	CV	Nm	N	i_{efet}
1:900	5	0,06	0,086	0,02	0,025	137	3.923	900
	6	0,10	0,13	0,03	0,038	218	5.394	930
	7	0,15	0,2	0,04	0,061	348	6.865	930
	8	0,21	0,28	0,07	0,092	523	8.826	930
	10	0,29	0,4	0,10	0,14	795	10.297	930
	12	0,40	0,54	0,15	0,2	1.138	12.749	930
1:1000	5	0,07	0,09	0,02	0,026	160	3.923	1000
	6	0,10	0,13	0,03	0,04	238	5.394	975
	7	0,15	0,2	0,05	0,064	383	6.865	975
	8	0,21	0,28	0,07	0,098	575	8.826	955,5
	10	0,29	0,4	0,11	0,15	897	10.297	980
	12	0,40	0,55	0,16	0,22	1.314	12.749	975
1:1200	5	0,06	0,088	0,02	0,022	160	3.923	1200
	6	0,09	0,12	0,02	0,033	238	5.394	1170
	7	0,14	0,19	0,04	0,054	383	6.865	1170
	8	0,19	0,26	0,06	0,08	575	8.826	1170
	10	0,27	0,37	0,09	0,12	880	10.297	1200
	12	0,35	0,48	0,13	0,17	1.255	12.749	1209
1:1500	5	0,05	0,068	0,01	0,017	149	3.923	1470
	6	0,07	0,096	0,02	0,025	228	5.394	1500
	7	0,11	0,15	0,03	0,04	369	6.865	1500
	8	0,15	0,21	0,04	0,061	550	8.826	1470
	10	0,24	0,32	0,07	0,096	878	10.297	1500
	12	0,31	0,42	0,10	0,14	1.285	12.749	1500
1:1800	5	0,05	0,065	0,01	0,012	135	3.923	1800
	6	0,07	0,095	0,01	0,02	219	5.394	1800
	7	0,11	0,15	0,02	0,032	350	6.865	1800
	8	0,14	0,19	0,03	0,046	506	8.826	1800
	10	0,21	0,28	0,05	0,073	800	10.297	1800
	12	0,28	0,38	0,08	0,11	1.245	12.749	1860
1:2000	5	0,04	0,059	0,01	0,012	149	3.923	1960
	6	0,07	0,09	0,01	0,019	228	5.394	2000
	7	0,10	0,14	0,02	0,03	369	6.865	2000
	8	0,13	0,18	0,03	0,046	550	8.826	1960
	10	0,21	0,28	0,05	0,072	878	10.297	2000
	12	0,25	0,34	0,07	0,1	1.226	12.749	2000
1:2400	5	0,04	0,058	0,01	0,011	160	3.923	2400
	6	0,06	0,085	0,01	0,017	238	5.394	2340
	7	0,10	0,13	0,02	0,027	383	6.865	2340
	8	0,13	0,17	0,03	0,04	575	8.826	2340
	10	0,18	0,24	0,04	0,061	899	10.297	2400
	12	0,24	0,32	0,07	0,09	1.285	12.749	2340
1:3000	5	0,04	0,05	0,01	0,008	138	3.923	2880
	6	0,05	0,07	0,01	0,012	221	5.394	2940
	7	0,08	0,11	0,01	0,02	361	6.865	2940
	8	0,11	0,15	0,02	0,031	539	8.826	2880
	10	0,15	0,21	0,03	0,046	826	10.297	2940
	12	0,21	0,28	0,05	0,069	1.236	12.749	2940
1:3600	5	0,03	0,043	0,00	0,006	135	3.923	3600
	6	0,05	0,067	0,01	0,01	219	5.394	3600
	7	0,07	0,094	0,01	0,016	350	6.865	3600
	8	0,09	0,12	0,02	0,023	506	8.826	3600
	10	0,13	0,18	0,03	0,036	800	10.297	3600
	12	0,18	0,24	0,04	0,055	1.216	12.749	3600
1:4000	5	0,03	0,045	0,00	0,006	138	3.923	3840
	6	0,05	0,064	0,01	0,009	221	5.394	3920
	7	0,07	0,1	0,01	0,015	361	6.865	3920
	8	0,10	0,14	0,02	0,023	539	8.826	3840
	10	0,13	0,18	0,03	0,034	826	10.297	3920
	12	0,18	0,25	0,04	0,052	1.236	12.749	3920



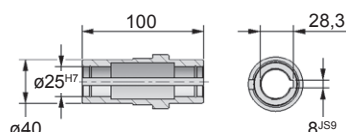
Fixação pela carcaça Simples

Dimensões

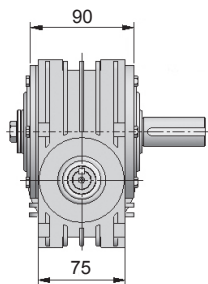
Tamanho **04**



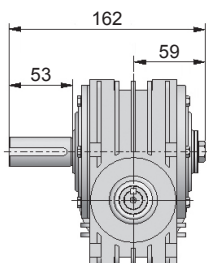
Detalhe eixo de saída integral



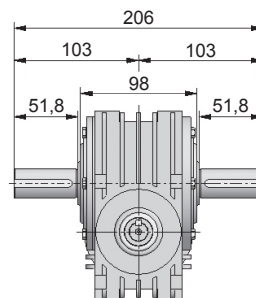
Detalhe eixo de saída vazado



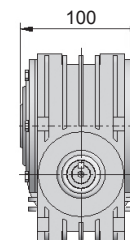
Eixo de saída integral à direita



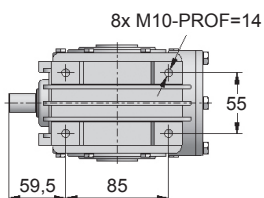
Eixo de saída integral à esquerda



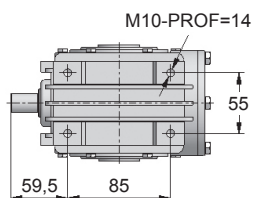
Eixo de saída integral duplo



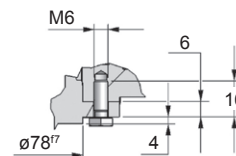
Eixo de saída vazado



Vista A

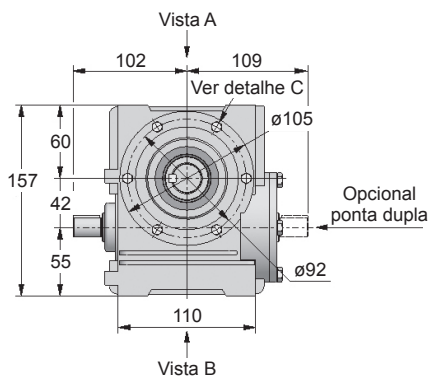


Vista B

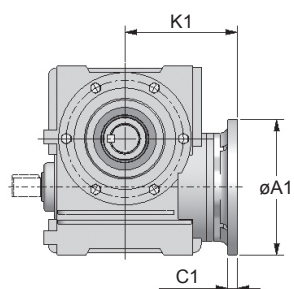


Detalhe C

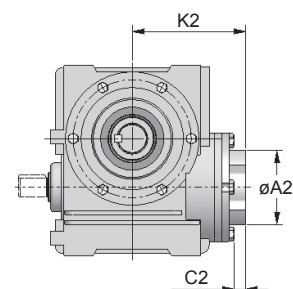
9



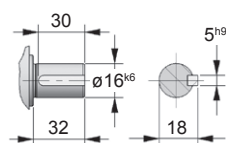
Entrada eixo integral



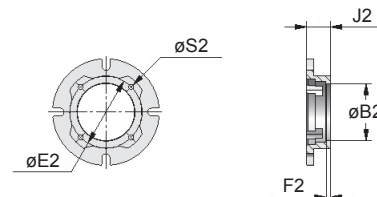
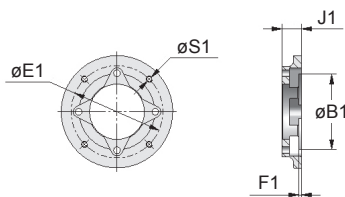
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



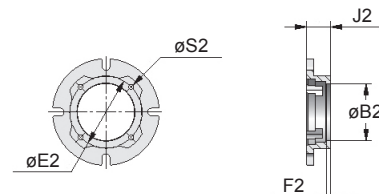
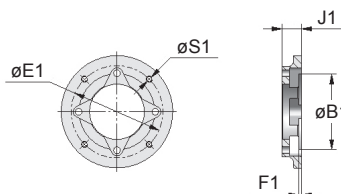
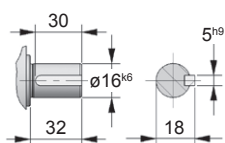
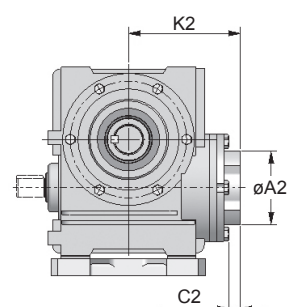
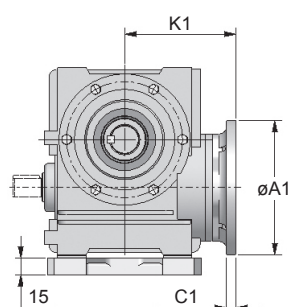
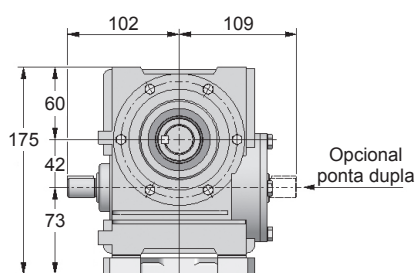
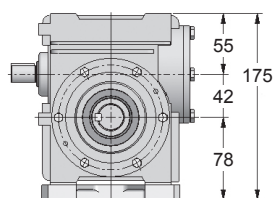
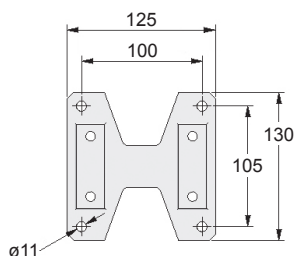
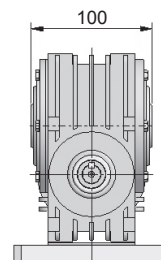
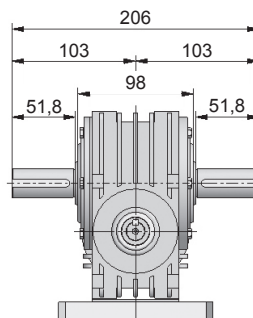
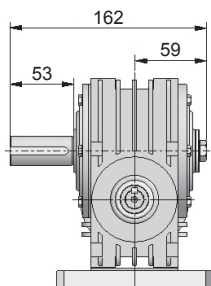
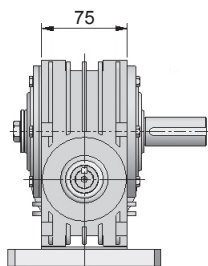
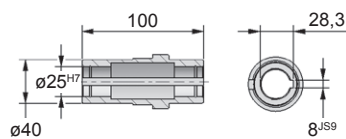
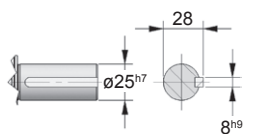
Carcasa do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcasa do motor	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

Obs. Ver dimensões dos eixos na página 88



Tamanho **04**



Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

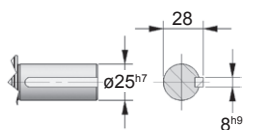
Obs. Ver dimensões dos eixos na página 88



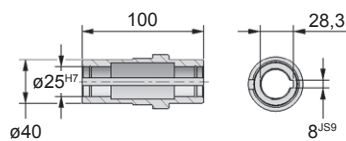
Fixação por flange de saída Simples

Dimensões

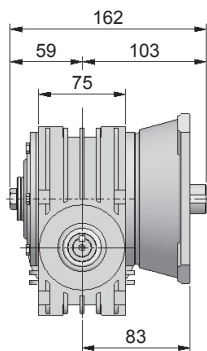
Tamanho **04**



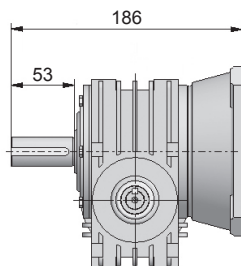
Detalhe eixo de saída integral



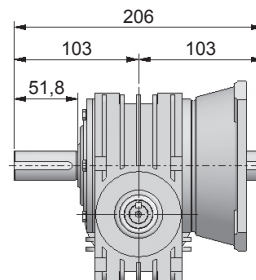
Detalhe eixo de saída vazado



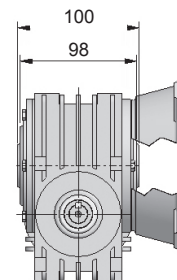
Eixo de saída integral à direita



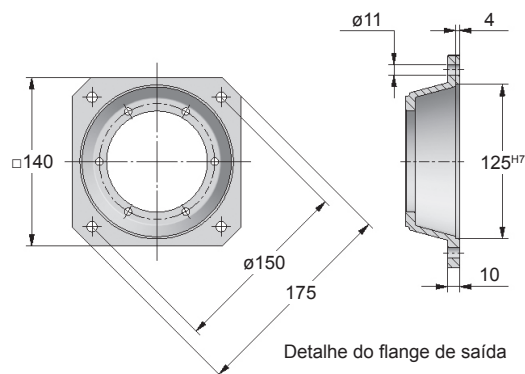
Eixo de saída integral à esquerda



Eixo de saída integral duplo

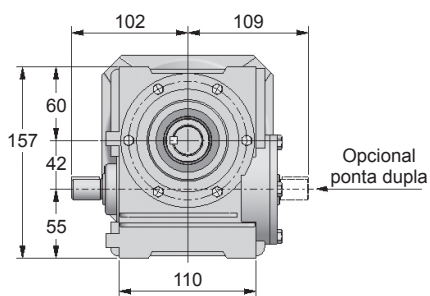


Eixo de saída vazado

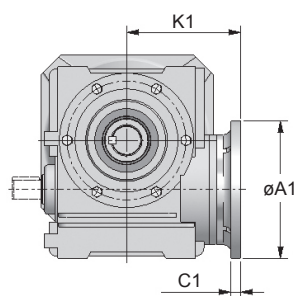


Detalhe do flange de saída

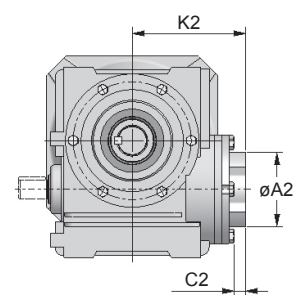
9



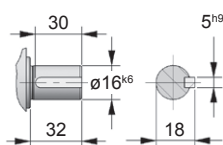
Entrada eixo integral



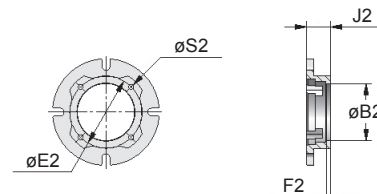
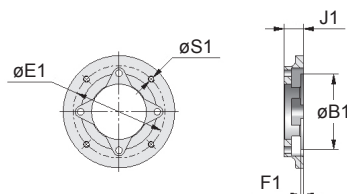
Entrada flange FF



Entrada flange C-DIN



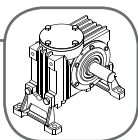
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

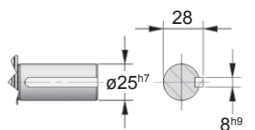
Obs. Ver dimensões dos eixos na página 88



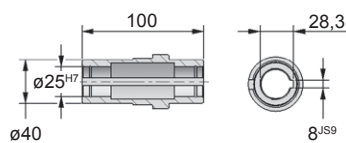
Fixação por pé lateral Simples

Dimensões

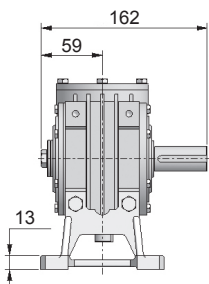
Tamanho **04**



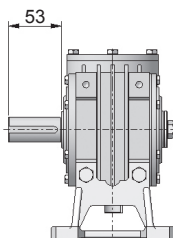
Detalhe eixo de saída integral



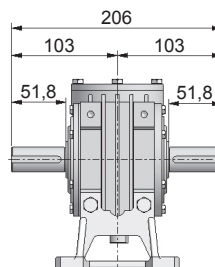
Detalhe eixo de saída vazado



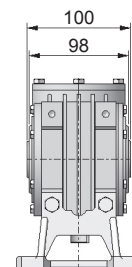
Eixo de saída integral à direita



Eixo de saída integral à esquerda

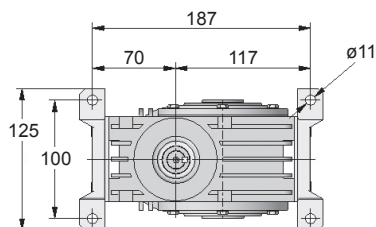


Eixo de saída integral duplo

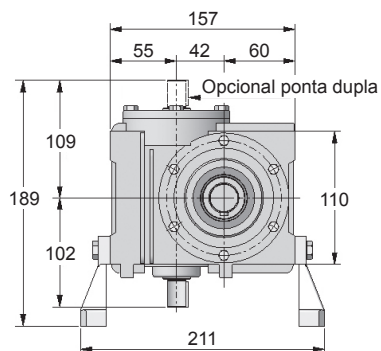


Eixo de saída vazado

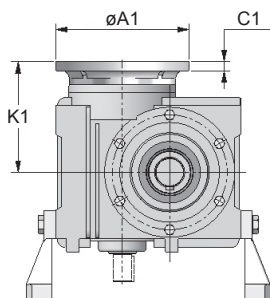
9



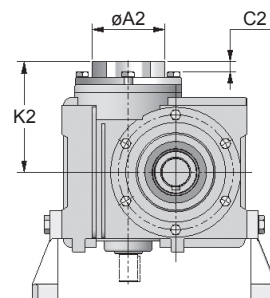
Detalhe da fixação



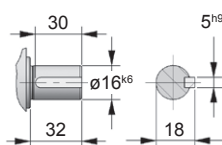
Entrada eixo integral



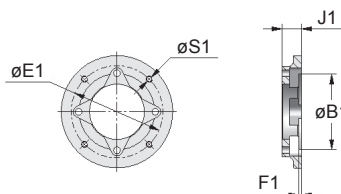
Entrada flange FF



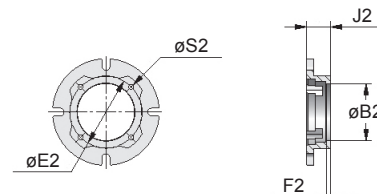
Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87



Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

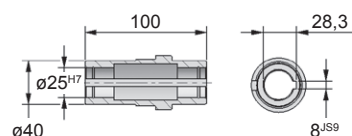
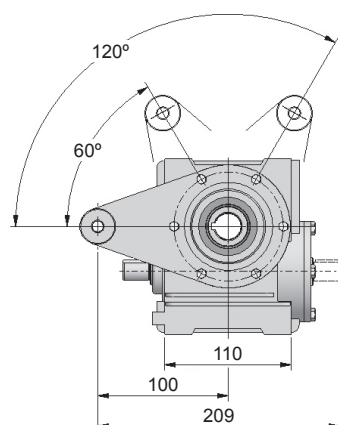
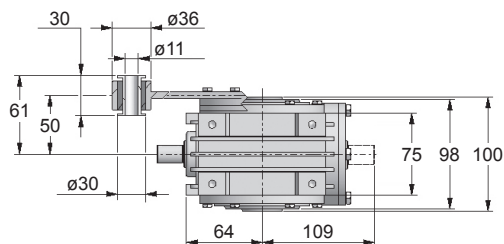
Obs. Ver dimensões dos eixos na página 88



Fixação por braço de torção Simples

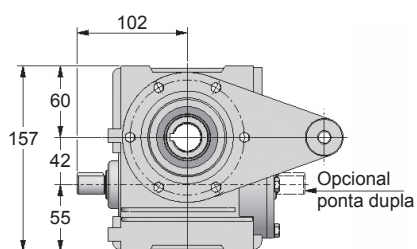
Dimensões

Tamanho **04**

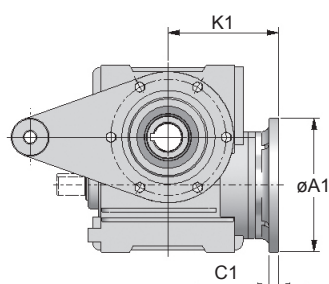


Detalhe eixo de saída vazado

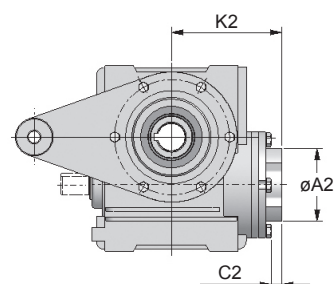
9



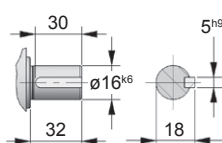
Entrada eixo integral



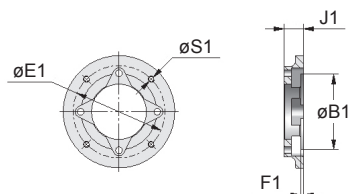
Entrada flange FF



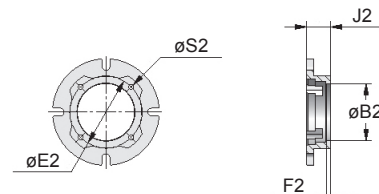
Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87



Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

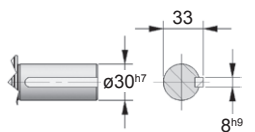
Obs. Ver dimensões dos eixos na página 88



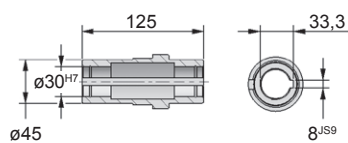
Fixação pela carcaça Simples

Dimensões

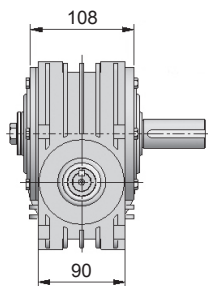
Tamanho **05**



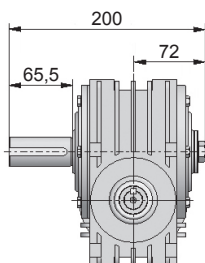
Detalhe eixo de saída integral



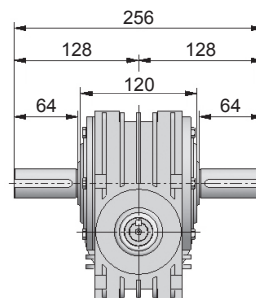
Detalhe eixo de saída vazado



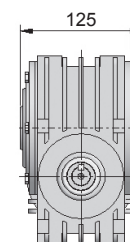
Eixo de saída integral à direita



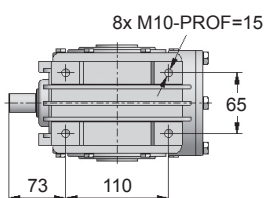
Eixo de saída integral à esquerda



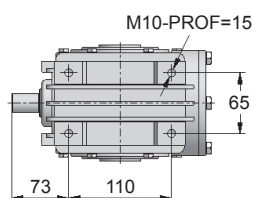
Eixo de saída integral duplo



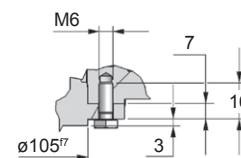
Eixo de saída vazado



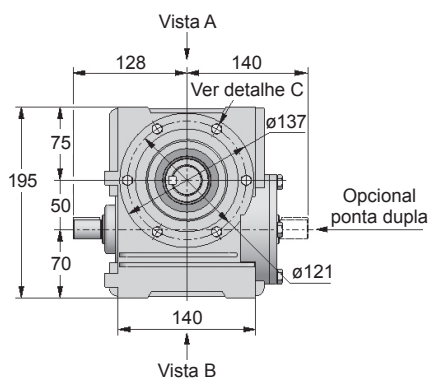
Vista A



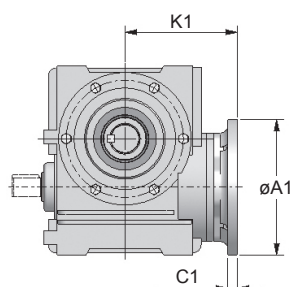
Vista B



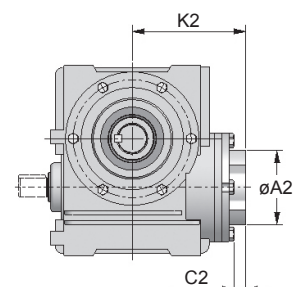
Detalhe C



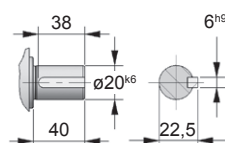
Entrada eixo integral



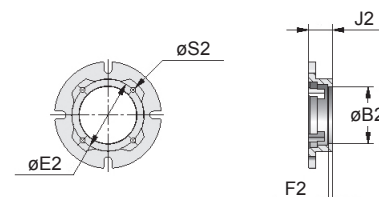
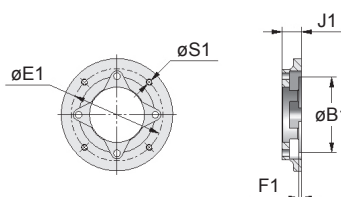
Entrada flange FF



Entrada flange C-DIN



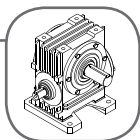
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	109
71	105	70	9	85	3,5	32	6,5	116
80	120	80	9	100	4	33	6,5	117
90S/L	140	95	9	115	4	38	8,5	122

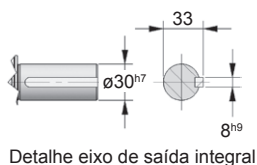
Obs. Ver dimensões dos eixos na página 88



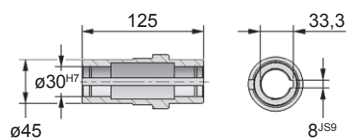
Fixação por pé Simples

Dimensões

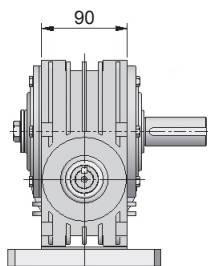
Tamanho **05**



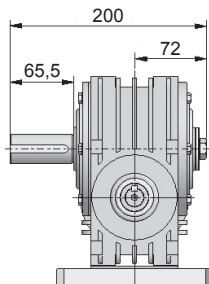
Detalhe eixo de saída integral



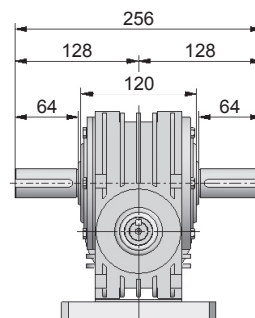
Detalhe eixo de saída vazado



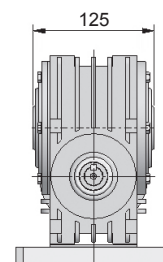
Eixo de saída integral à direita



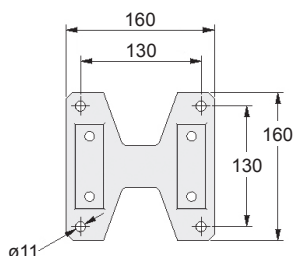
Eixo de saída integral à esquerda



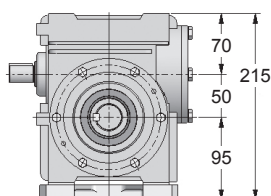
Eixo de saída integral duplo



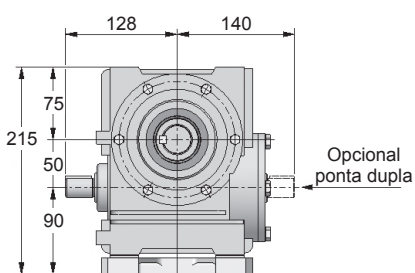
Eixo de saída vazado



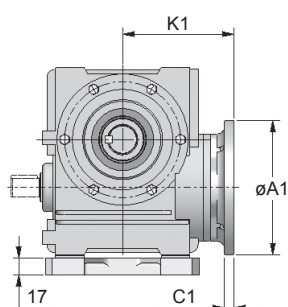
Detalhe do pé



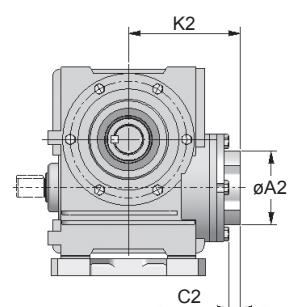
Pé lado do eixo de saída



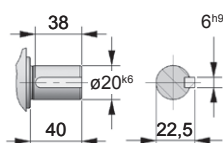
Entrada eixo integral



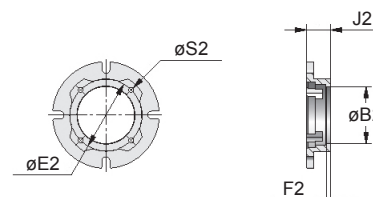
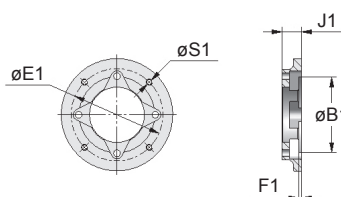
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	109
71	105	70	9	85	3,5	32	6,5	116
80	120	80	9	100	4	33	6,5	117
90S/L	140	95	9	115	4	38	8,5	122

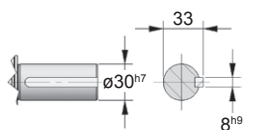
Obs. Ver dimensões dos eixos na página 88



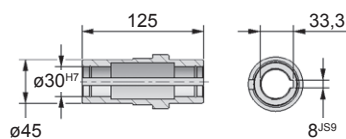
Fixação por flange de saída Simples

Dimensões

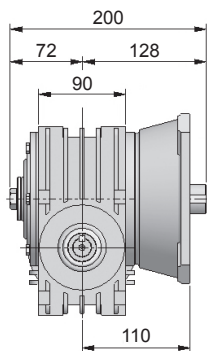
Tamanho **05**



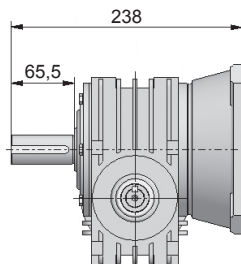
Detalhe eixo de saída integral



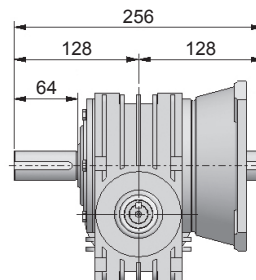
Detalhe eixo de saída vazado



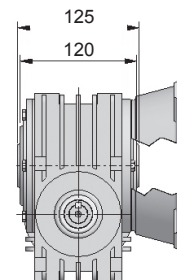
Eixo de saída integral à direita



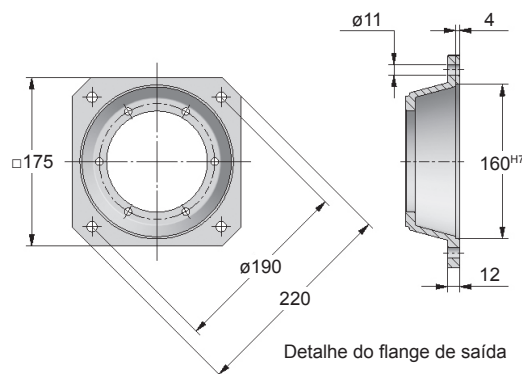
Eixo de saída integral à esquerda



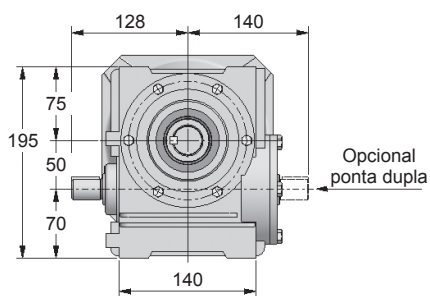
Eixo de saída integral duplo



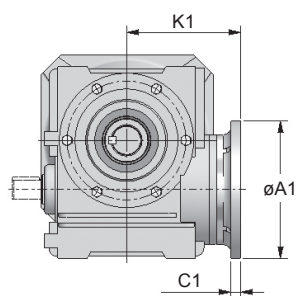
Eixo de saída vazado



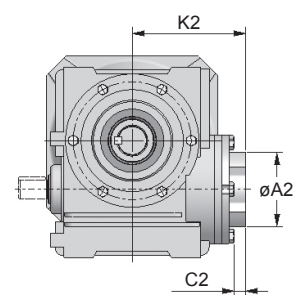
Detalhe do flange de saída



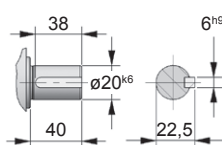
Entrada eixo integral



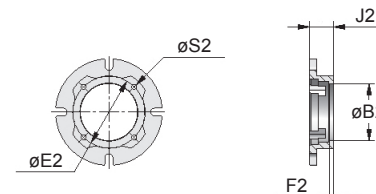
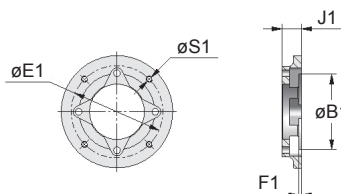
Entrada flange FF



Entrada flange C-DIN



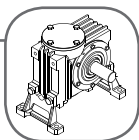
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	109
71	105	70	9	85	3,5	32	6,5	116
80	120	80	9	100	4	33	6,5	117
90S/L	140	95	9	115	4	38	8,5	122

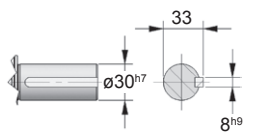
Obs. Ver dimensões dos eixos na página 88



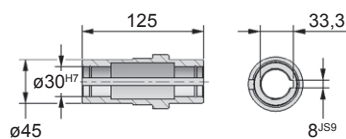
Fixação por pé lateral Simples

Dimensões

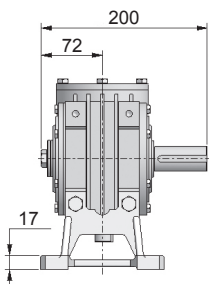
Tamanho **05**



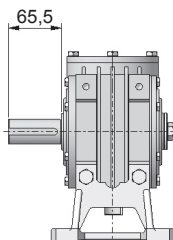
Detalhe eixo de saída integral



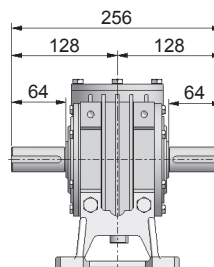
Detalhe eixo de saída vazado



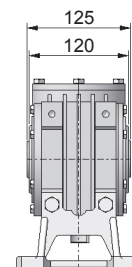
Eixo de saída integral à direita



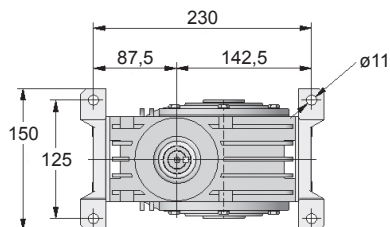
Eixo de saída integral à esquerda



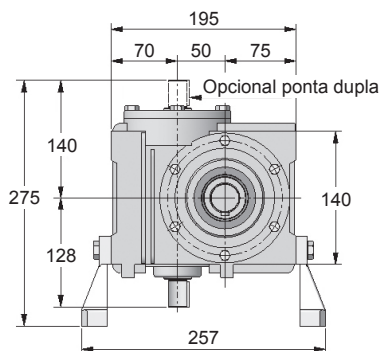
Eixo de saída integral duplo



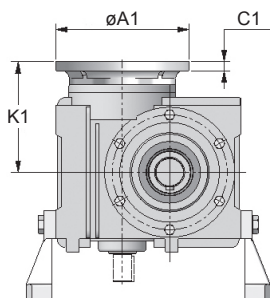
Eixo de saída vazado



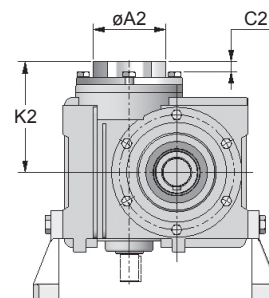
Detalhe da fixação



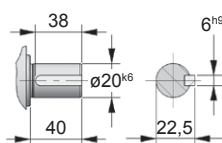
Entrada eixo integral



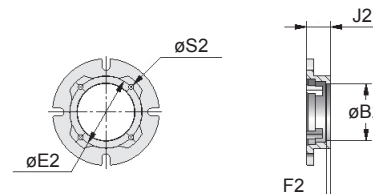
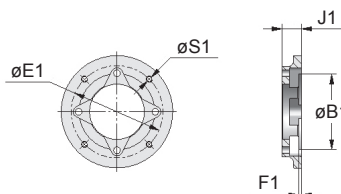
Entrada flange FF



Entrada flange C-DIN



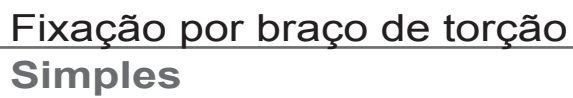
Eixo de entrada integral



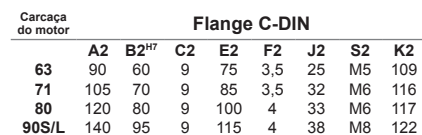
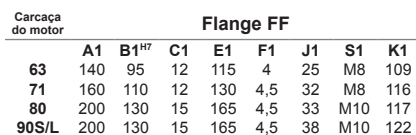
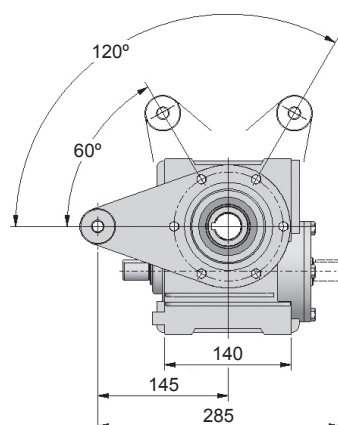
Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	109
71	105	70	9	85	3,5	32	6,5	116
80	120	80	9	100	4	33	6,5	117
90S/L	140	95	9	115	4	38	8,5	122

Obs. Ver dimensões dos eixos na página 88



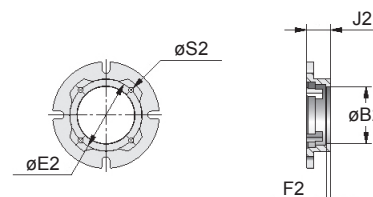
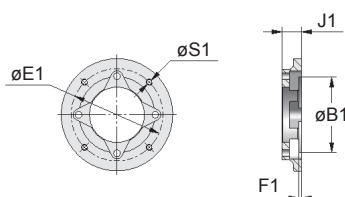
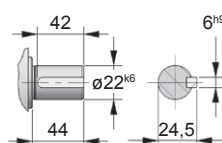
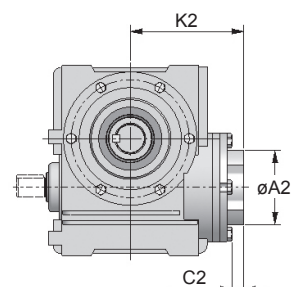
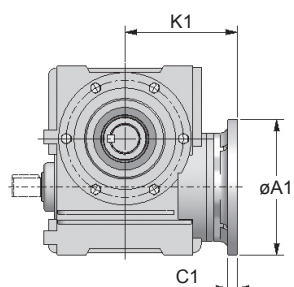
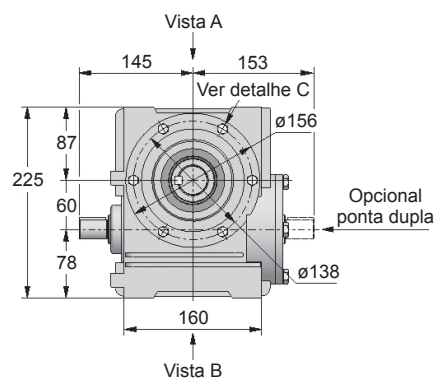
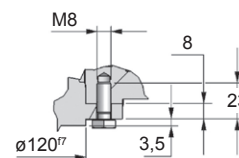
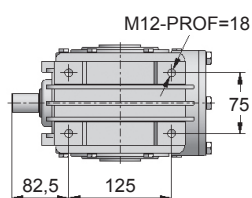
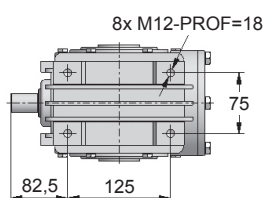
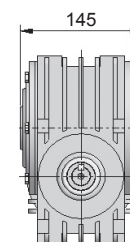
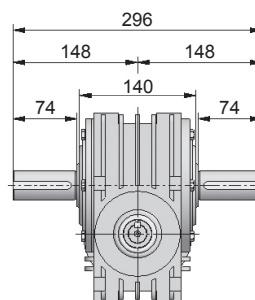
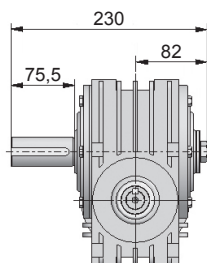
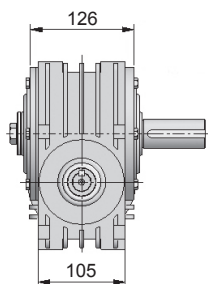
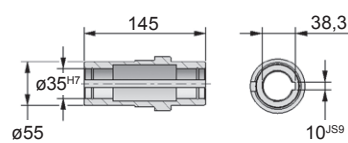
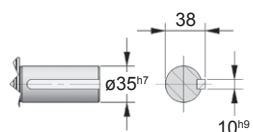
Tamanho **05**



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Tamanho **06**



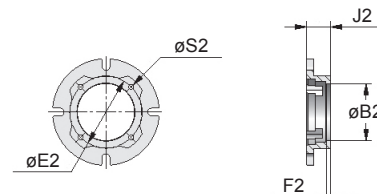
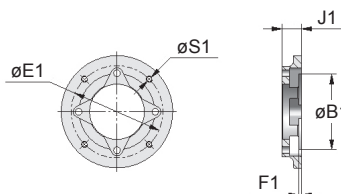
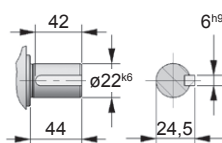
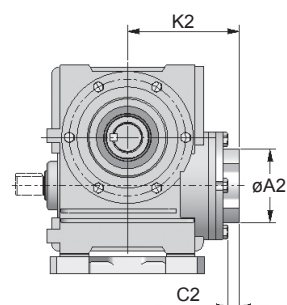
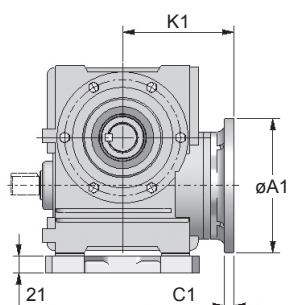
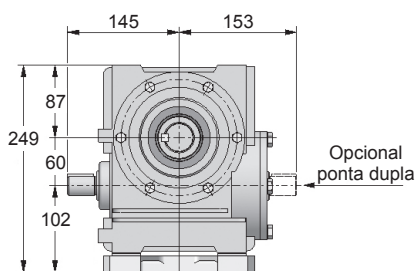
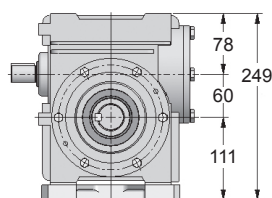
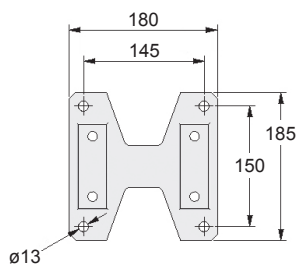
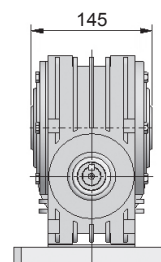
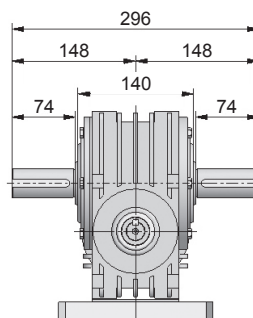
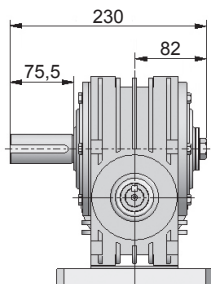
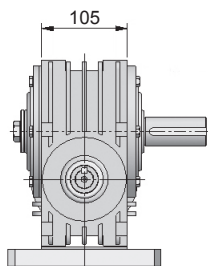
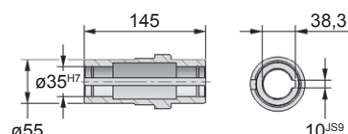
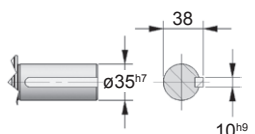
Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	118
71	105	70	9	85	3,5	32	6,5	125
80	120	80	9	100	4	33	6,5	126
90S/L	140	95	9	115	4	38	8,5	131

Obs. Ver dimensões dos eixos na página 88



Tamanho **06**



Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	118
71	105	70	9	85	3,5	32	6,5	125
80	120	80	9	100	4	33	6,5	126
90S/L	140	95	9	115	4	38	8,5	131

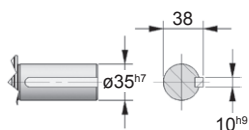
Obs. Ver dimensões dos eixos na página 88



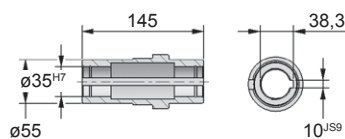
Fixação por flange de saída Simples

Dimensões

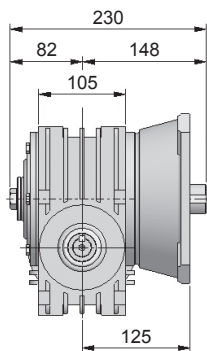
Tamanho **06**



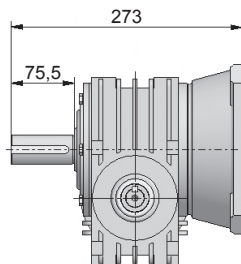
Detalhe eixo de saída integral



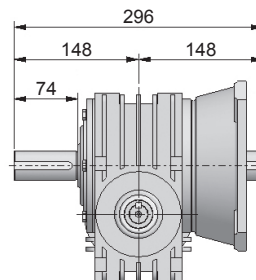
Detalhe eixo de saída vazado



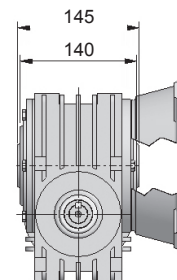
Eixo de saída integral à direita



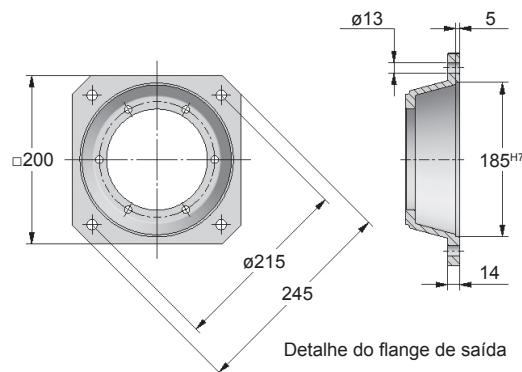
Eixo de saída integral à esquerda



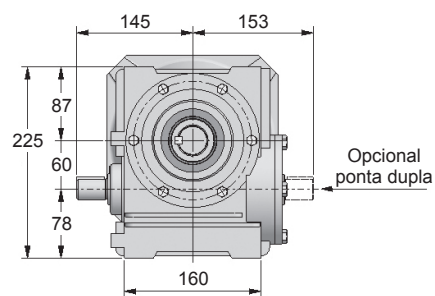
Eixo de saída integral duplo



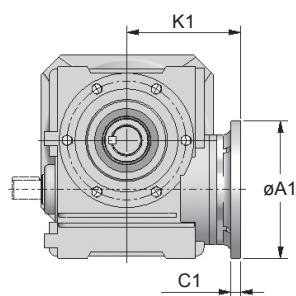
Eixo de saída vazado



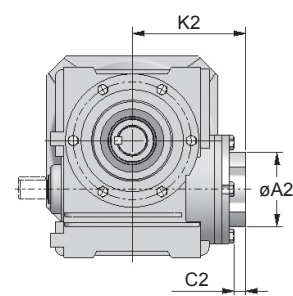
Detalhe do flange de saída



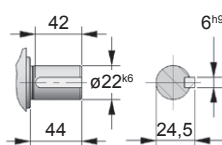
Entrada eixo integral



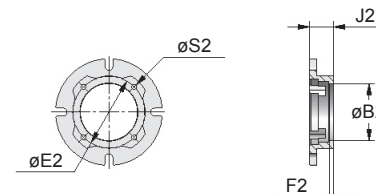
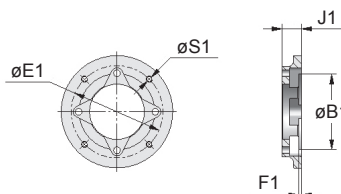
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

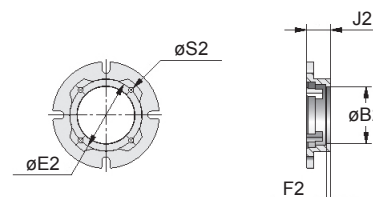
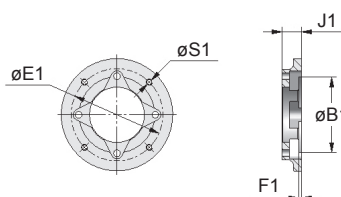
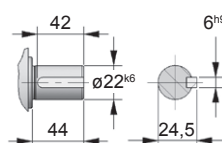
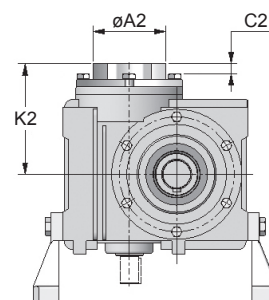
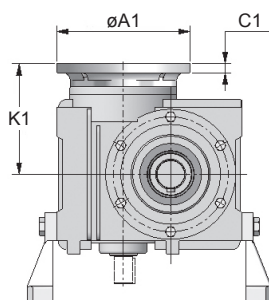
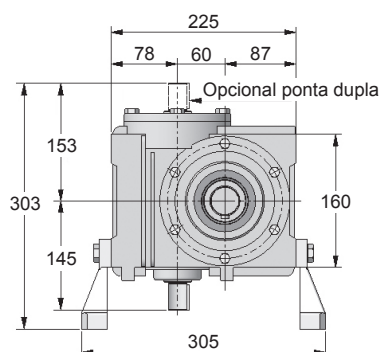
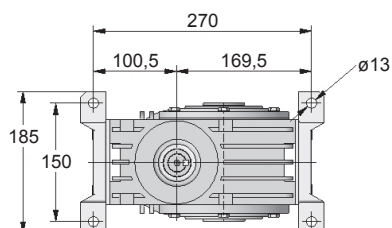
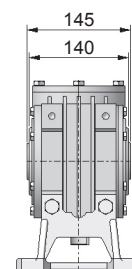
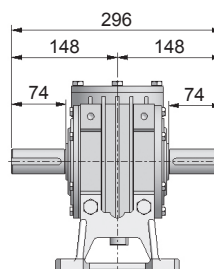
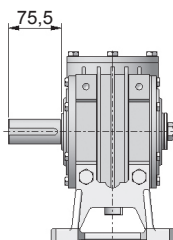
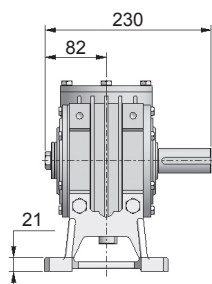
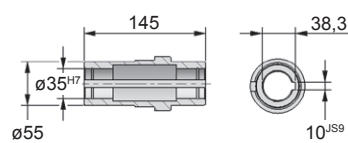
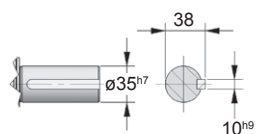
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	118
71	105	70	9	85	3,5	32	6,5	125
80	120	80	9	100	4	33	6,5	126
90S/L	140	95	9	115	4	38	8,5	131

Obs. Ver dimensões dos eixos na página 88

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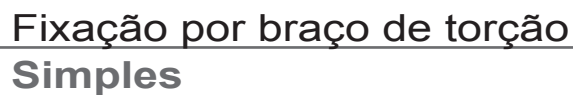
Tamanho **06**



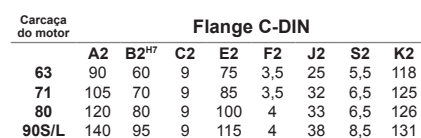
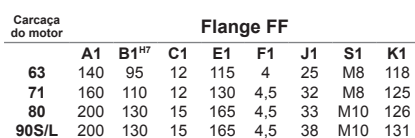
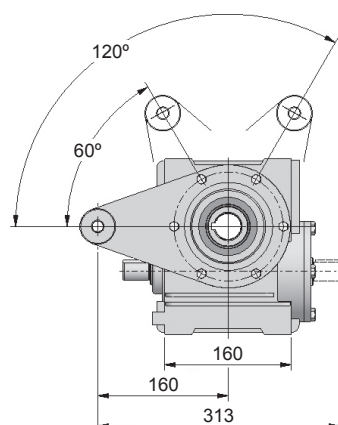
Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	25	5,5	118
71	105	70	9	85	3,5	32	6,5	125
80	120	80	9	100	4	33	6,5	126
90S/L	140	95	9	115	4	38	8,5	131

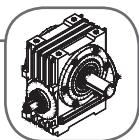
Obs. Ver dimensões dos eixos na página 88



Tamanho **06**



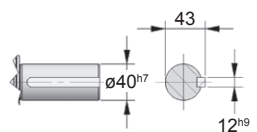
Weg CESTARI
REDUTORES



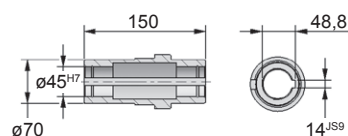
Fixação pela carcaça Simples

Dimensões

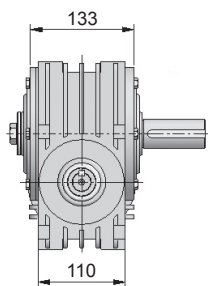
Tamanho **07**



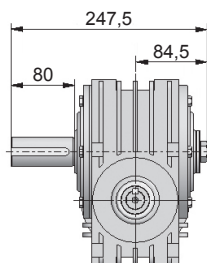
Detalhe eixo de saída integral



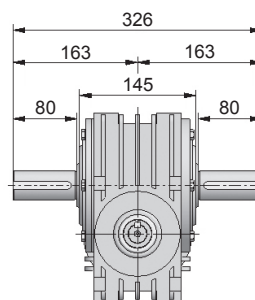
Detalhe eixo de saída vazado



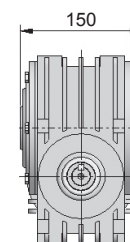
Eixo de saída integral à direita



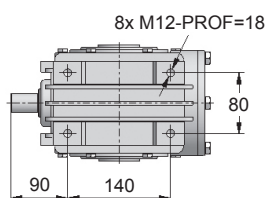
Eixo de saída integral à esquerda



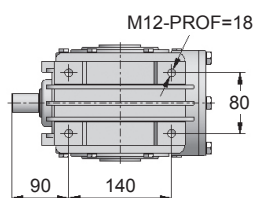
Eixo de saída integral duplo



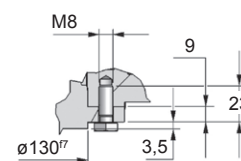
Eixo de saída vazado



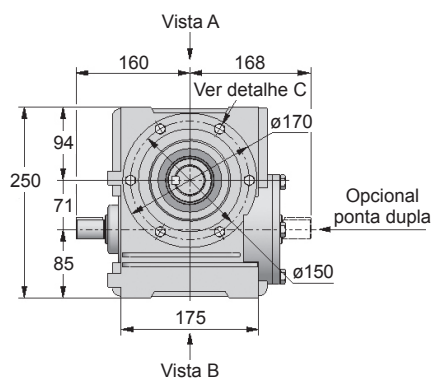
Vista A



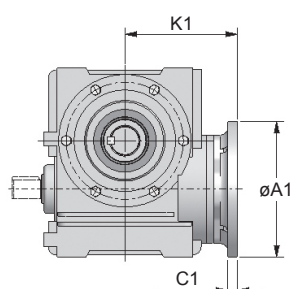
Vista B



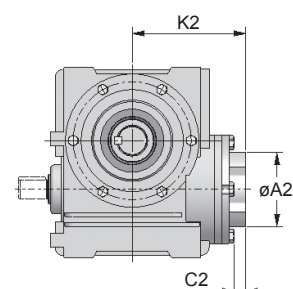
Detalhe C



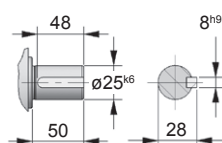
Entrada eixo integral



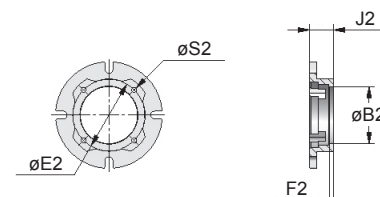
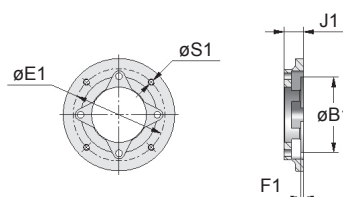
Entrada flange FF



Entrada flange C-DIN



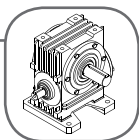
Eixo de entrada integral



Carcaça do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	133
80	200	130	15	165	4,5	33	M10	134
90S/L	200	130	15	165	4,5	38	M10	139
100/112	250	180	15	215	5	40	M12	141

Carcaça do motor	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	133
80	120	80	9	100	4	33	6,5	134
90S/L	140	95	9	115	4	38	8,5	139
100/112	160	110	9	130	4,5	40	8,5	141

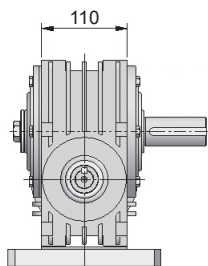
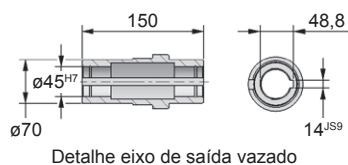
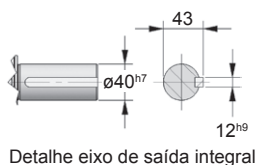
Obs. Ver dimensões dos eixos na página 88



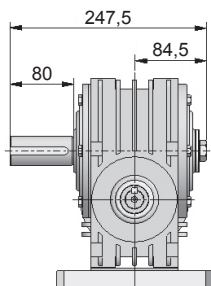
Fixação por pé Simples

Dimensões

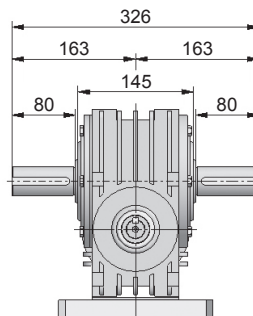
Tamanho **07**



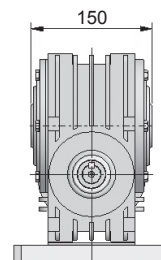
Eixo de saída integral à direita



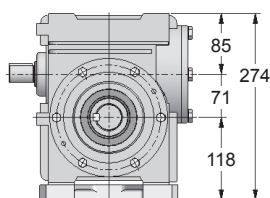
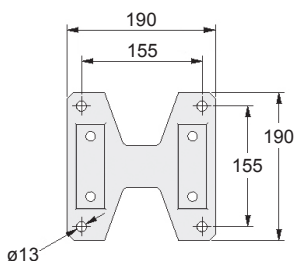
Eixo de saída integral à esquerda



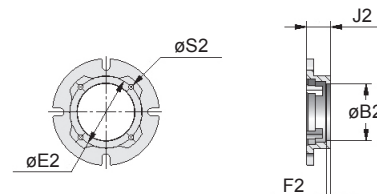
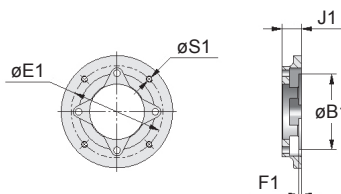
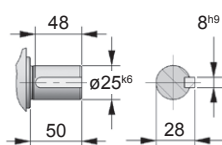
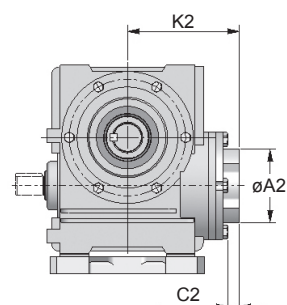
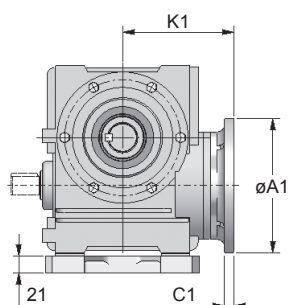
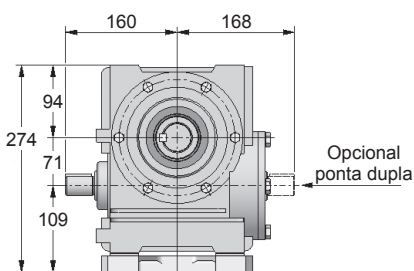
Eixo de saída integral duplo



Eixo de saída vazado



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Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	133
80	200	130	15	165	4,5	33	M10	134
90S/L	200	130	15	165	4,5	38	M10	139
100/112	250	180	15	215	5	40	M12	141

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	133
80	120	80	9	100	4	33	6,5	134
90S/L	140	95	9	115	4	38	8,5	139
100/112	160	110	9	130	4,5	40	8,5	141

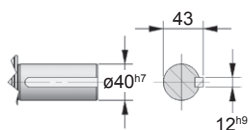
Obs. Ver dimensões dos eixos na página 88



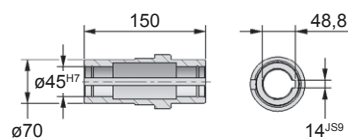
Fixação por flange de saída Simples

Dimensões

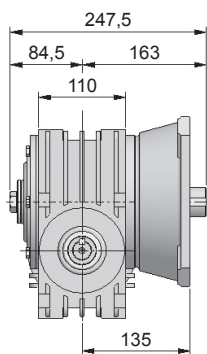
Tamanho **07**



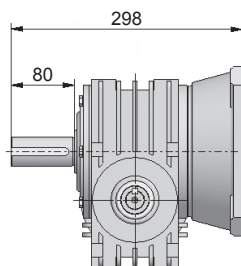
Detalhe eixo de saída integral



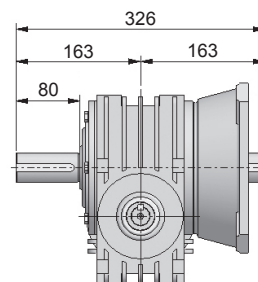
Detalhe eixo de saída vazado



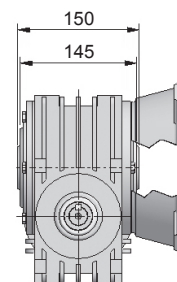
Eixo de saída integral à direita



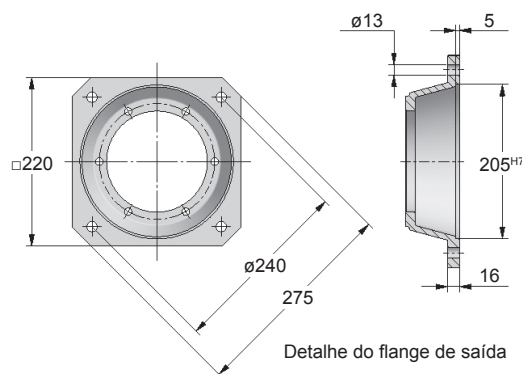
Eixo de saída integral à esquerda



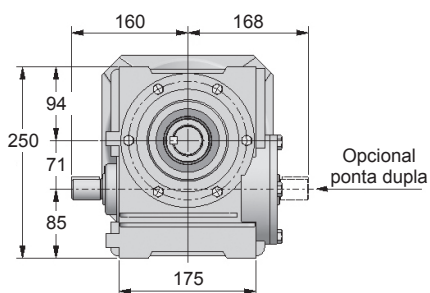
Eixo de saída integral duplo



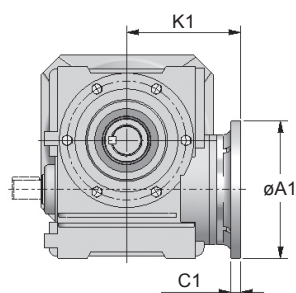
Eixo de saída vazado



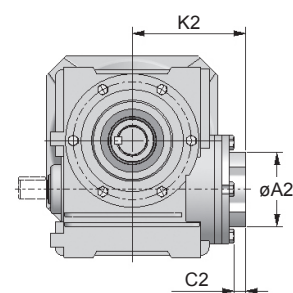
Detalhe do flange de saída



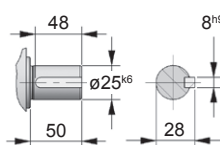
Entrada eixo integral



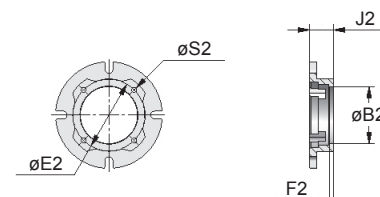
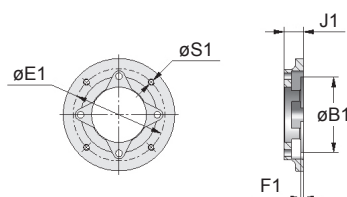
Entrada flange FF



Entrada flange C-DIN



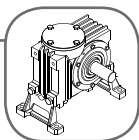
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	133
80	200	130	15	165	4,5	33	M10	134
90S/L	200	130	15	165	4,5	38	M10	139
100/112	250	180	15	215	5	40	M12	141

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	133
80	120	80	9	100	4	33	6,5	134
90S/L	140	95	9	115	4	38	8,5	139
100/112	160	110	9	130	4,5	40	8,5	141

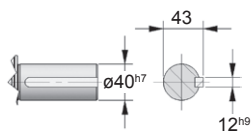
Obs. Ver dimensões dos eixos na página 88



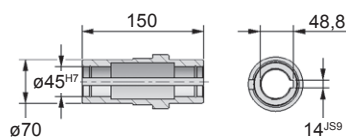
Fixação por pé lateral Simples

Dimensões

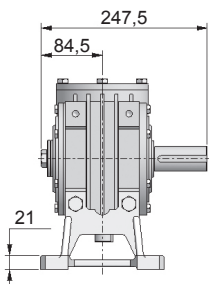
Tamanho **07**



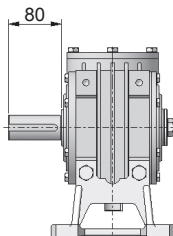
Detalhe eixo de saída integral



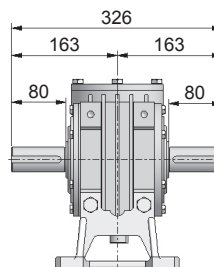
Detalhe eixo de saída vazado



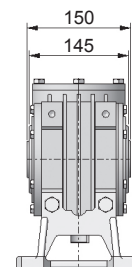
Eixo de saída integral à direita



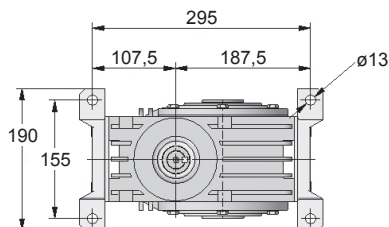
Eixo de saída integral à esquerda



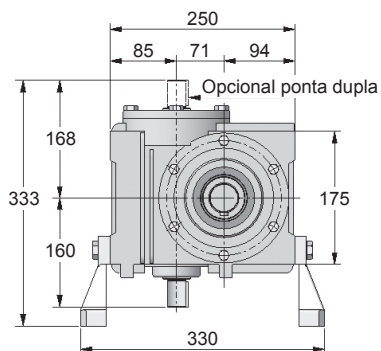
Eixo de saída integral duplo



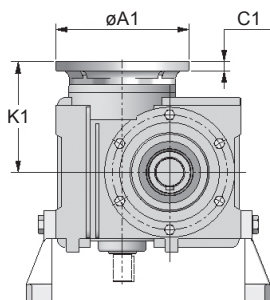
Eixo de saída vazado



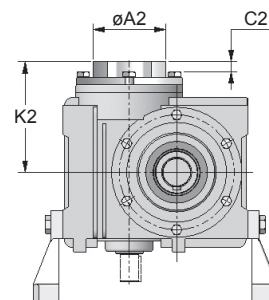
Detalhe da fixação



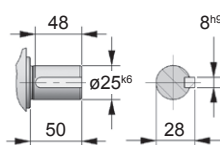
Entrada eixo integral



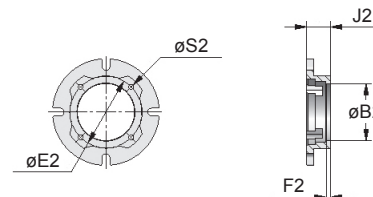
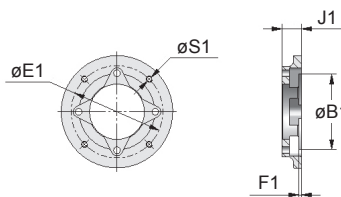
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral

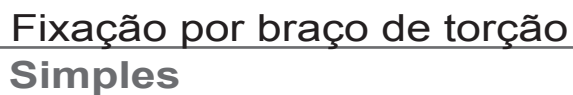


Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	133
80	200	130	15	165	4,5	33	M10	134
90S/L	200	130	15	165	4,5	38	M10	139
100/112	250	180	15	215	5	40	M12	141

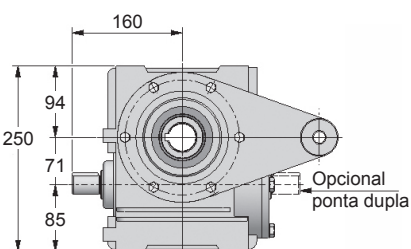
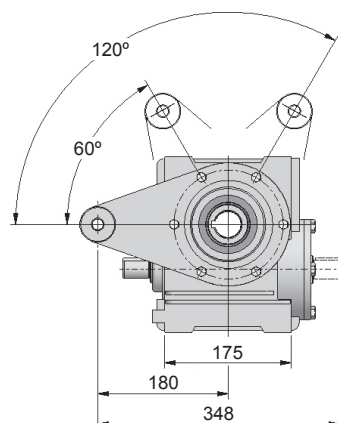
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	133
80	120	80	9	100	4	33	6,5	134
90S/L	140	95	9	115	4	38	8,5	139
100/112	160	110	9	130	4,5	40	8,5	141

Obs. Ver dimensões dos eixos na página 88

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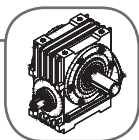
Tamanho **07**



Technical drawing of the F2 component. The top view shows a circular part with a central hole of diameter $\phi S2$ and an outer diameter of $\phi E2$. The side view shows a cross-section with a total width of J2 and a central hole of diameter $\phi B2$. The component is labeled F2.

Carcaça do motor	Flange C-DIN							
	A2	B2 ¹⁷	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	133
80	120	80	9	100	4	33	6,5	134
90S/L	140	95	9	115	4	38	8,5	139
100/112	160	110	9	130	4,5	40	8,5	141

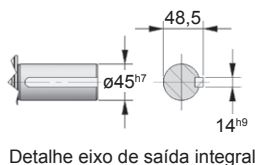




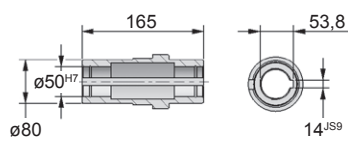
Fixação pela carcaça Simples

Dimensões

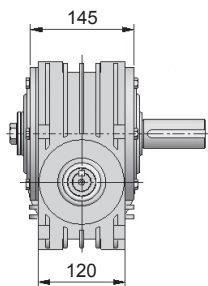
Tamanho **08**



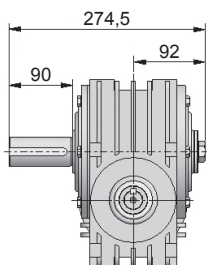
Detalhe eixo de saída integral



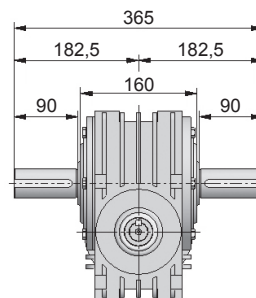
Detalhe eixo de saída vazado



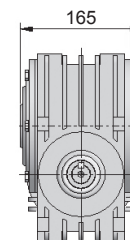
Eixo de saída integral à direita



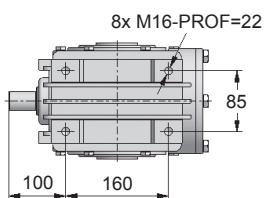
Eixo de saída integral à esquerda



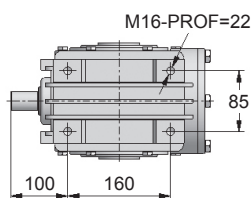
Eixo de saída integral duplo



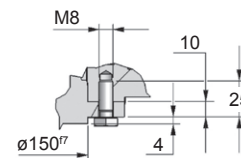
Eixo de saída vazado



Vista A

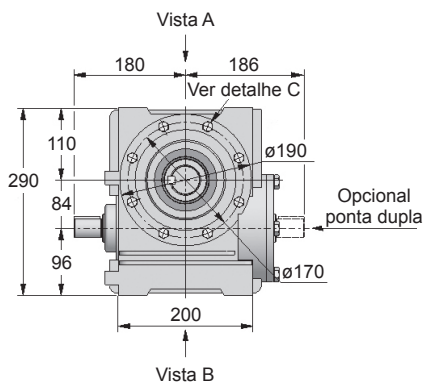


Vista B

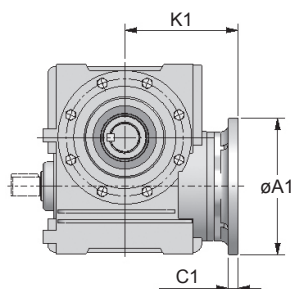


Detalhe C

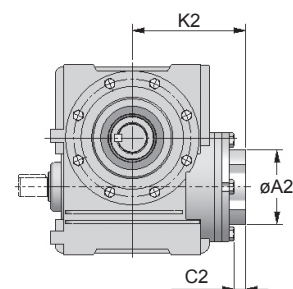
13



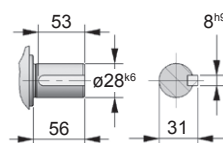
Entrada eixo integral



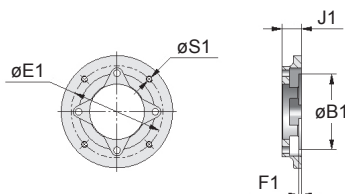
Entrada flange FF



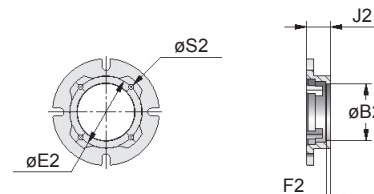
Entrada flange C-DIN



Eixo de entrada integral



Flange FF



Flange C-DIN

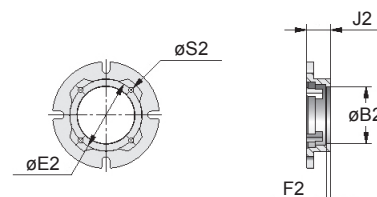
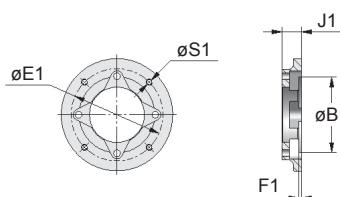
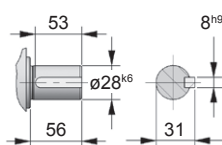
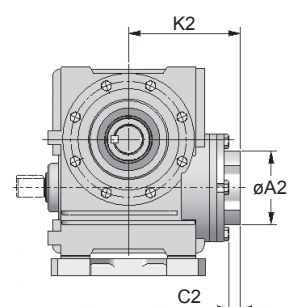
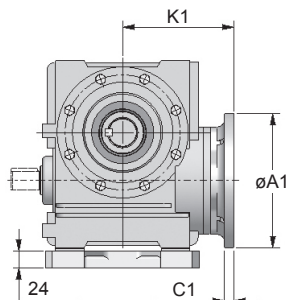
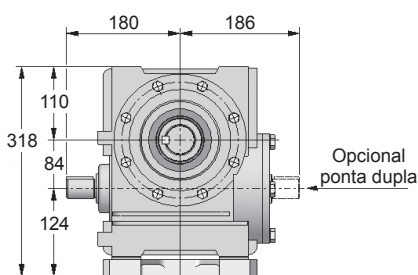
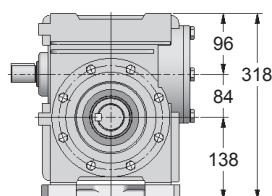
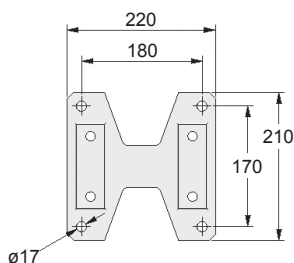
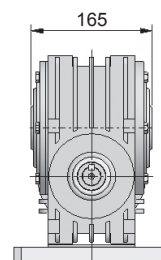
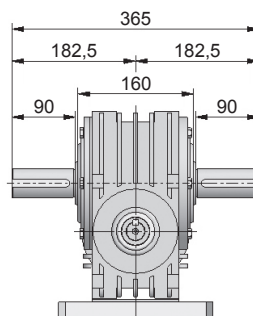
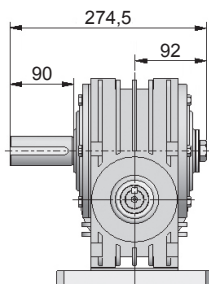
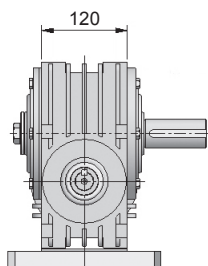
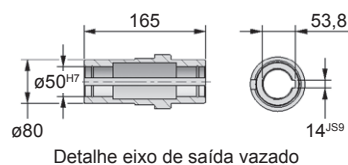
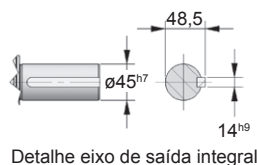
Obs. Ver dimensões dos eixos na página 88

Carcasa do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	145
80	200	130	15	165	4,5	33	M10	146
90S/L	200	130	15	165	4,5	38	M10	151
100/112	250	180	15	215	5	40	M12	153

Carcasa do motor	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	145
80	120	80	9	100	4	33	6,5	146
90S/L	140	95	9	115	4	38	8,5	151
100/112	160	110	9	130	4,5	40	8,5	153



Tamanho **08**



Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	145
80	200	130	15	165	4,5	33	M10	146
90S/L	200	130	15	165	4,5	38	M10	151
100/112	250	180	15	215	5	40	M12	153

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	145
80	120	80	9	100	4	33	6,5	146
90S/L	140	95	9	115	4	38	8,5	151
100/112	160	110	9	130	4,5	40	8,5	153

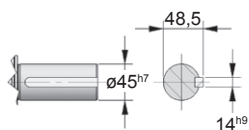
Obs. Ver dimensões dos eixos na página 88



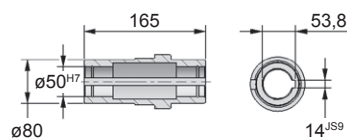
Fixação por flange de saída Simples

Dimensões

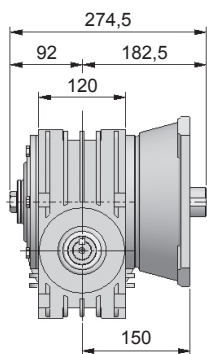
Tamanho **08**



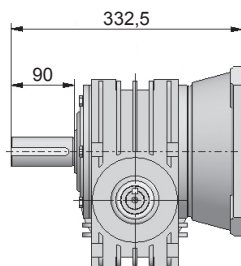
Detalhe eixo de saída integral



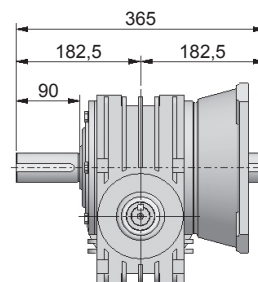
Detalhe eixo de saída vazado



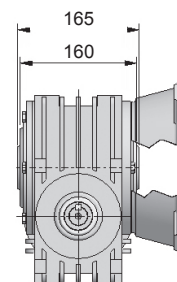
Eixo de saída integral à direita



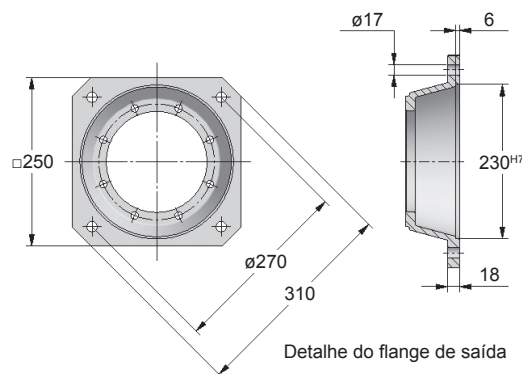
Eixo de saída integral à esquerda



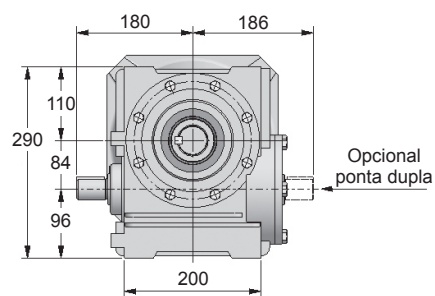
Eixo de saída integral duplo



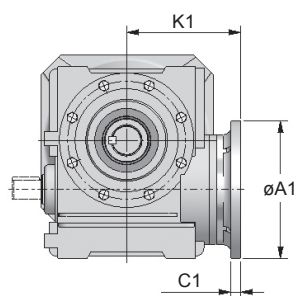
Eixo de saída vazado



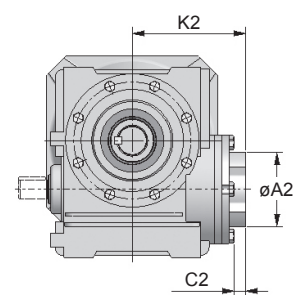
Detalhe do flange de saída



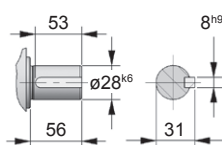
Entrada eixo integral



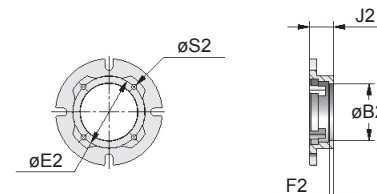
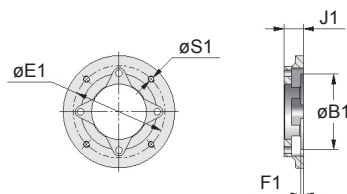
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	145
80	200	130	15	165	4,5	33	M10	146
90S/L	200	130	15	165	4,5	38	M10	151
100/112	250	180	15	215	5	40	M12	153

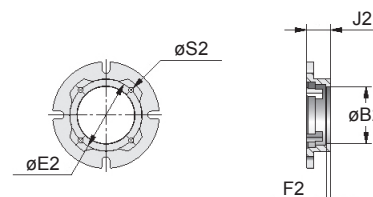
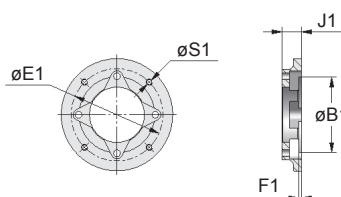
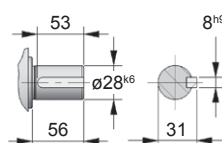
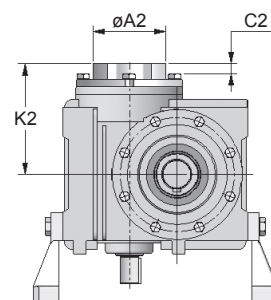
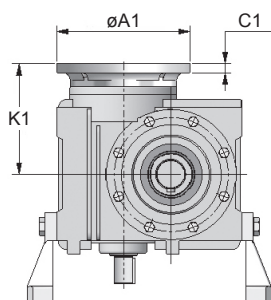
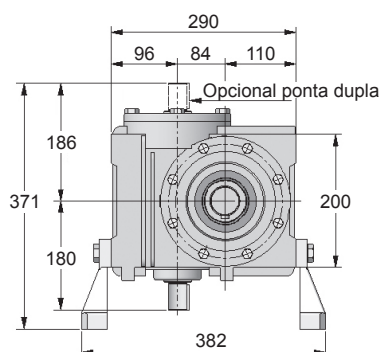
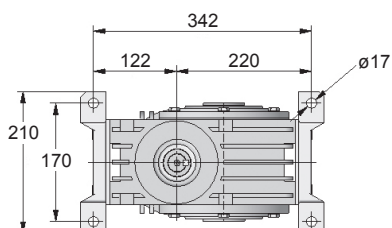
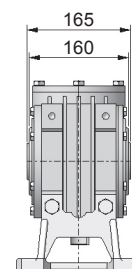
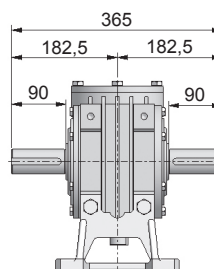
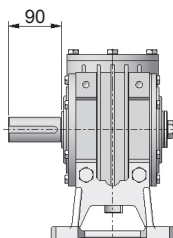
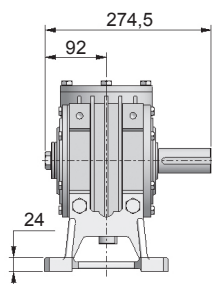
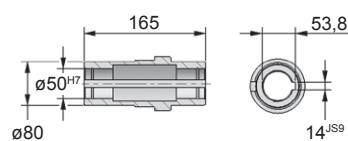
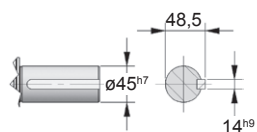
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	145
80	120	80	9	100	4	33	6,5	146
90S/L	140	95	9	115	4	38	8,5	151
100/112	160	110	9	130	4,5	40	8,5	153

Obs. Ver dimensões dos eixos na página 88

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Tamanho **08**



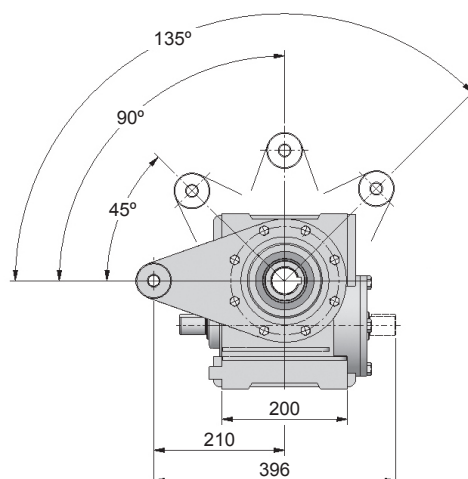
Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
71	160	110	12	130	4,5	32	M8	145
80	200	130	15	165	4,5	33	M10	146
90S/L	200	130	15	165	4,5	38	M10	151
100/112	250	180	15	215	5	40	M12	153

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
71	105	70	9	85	3,5	32	6,5	145
80	120	80	9	100	4	33	6,5	146
90S/L	140	95	9	115	4	38	8,5	151
100/112	160	110	9	130	4,5	40	8,5	153

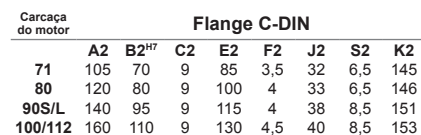
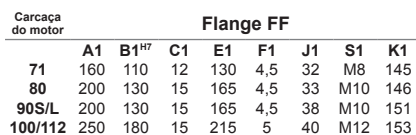
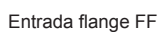
Obs. Ver dimensões dos eixos na página 88



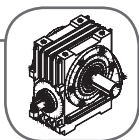
Tamanho **08**



Entrada eixo integral



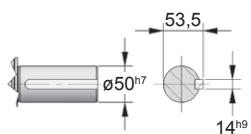
Magma - Redutores e Motorredutores de Coroa e Rosca Sem Fim



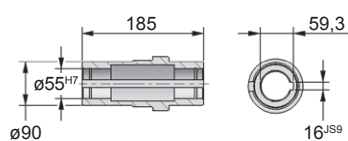
Fixação pela carcaça Simples

Dimensões

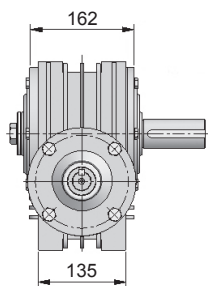
Tamanho **10**



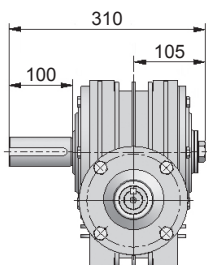
Detalhe eixo de saída integral



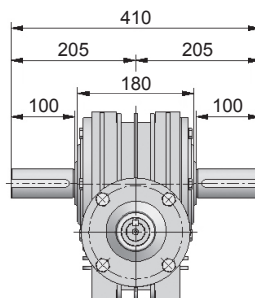
Detalhe eixo de saída vazado



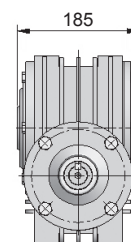
Eixo de saída integral à direita



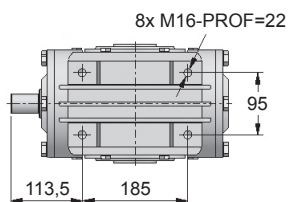
Eixo de saída integral à esquerda



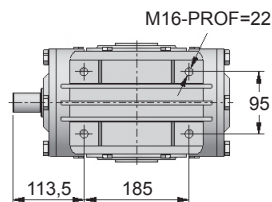
Eixo de saída integral duplo



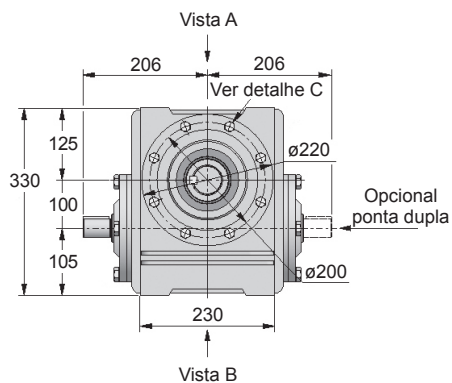
Eixo de saída vazado



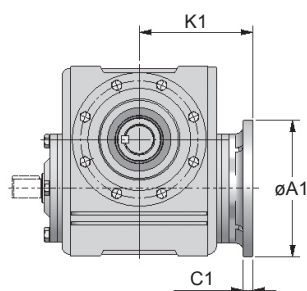
Vista A



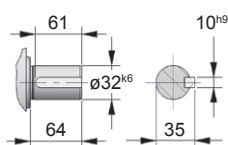
Vista B



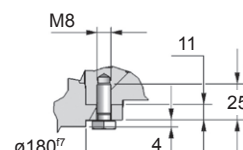
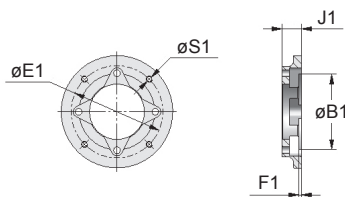
Entrada eixo integral



Entrada flange FF



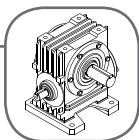
Eixo de entrada integral



Detalhe C

Caixa do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	152,5
90S/L	200	130	15	165	4,5	32	M10	155,5
100/112	250	180	15	215	5	36	M12	159,5

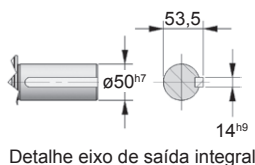
Obs. Ver dimensões dos eixos na página 88



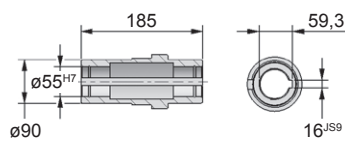
Fixação por pé Simplex

Dimensões

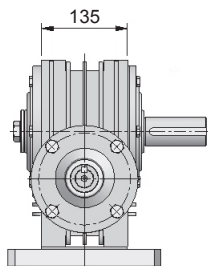
Tamanho **10**



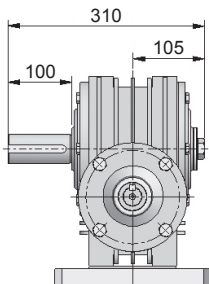
Detalhe eixo de saída integral



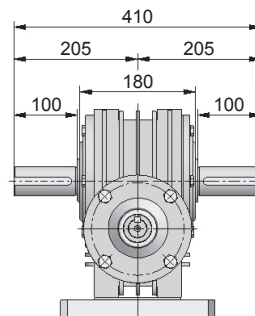
Detalhe eixo de saída vazado



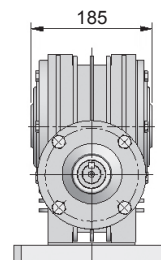
Eixo de saída integral à direita



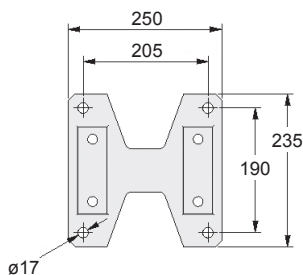
Eixo de saída integral à esquerda



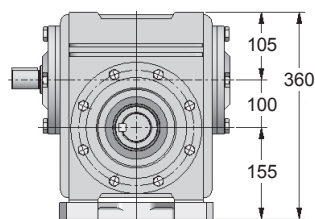
Eixo de saída integral duplo



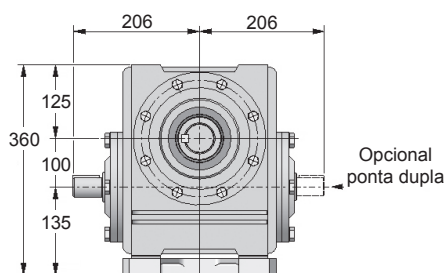
Eixo de saída vazado



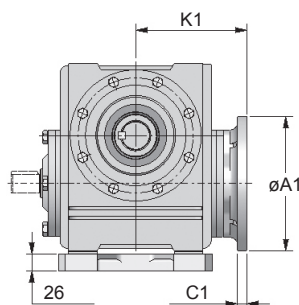
Detalhe do pé



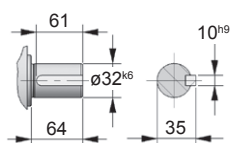
Pé lado do eixo de saída



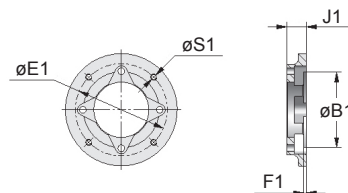
Entrada eixo integral



Entrada flange FF



Eixo de entrada integral



Carga do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	152,5
90S/L	200	130	15	165	4,5	32	M10	155,5
100/112	250	180	15	215	5	36	M12	159,5

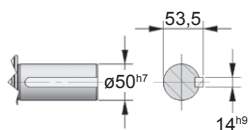
Obs. Ver dimensões dos eixos na página 88



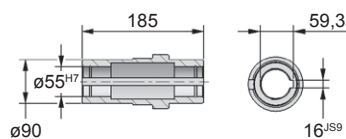
Fixação por flange de saída Simples

Dimensões

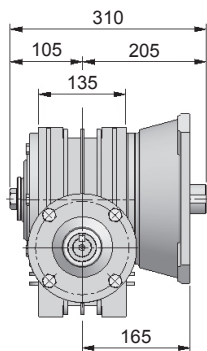
Tamanho **10**



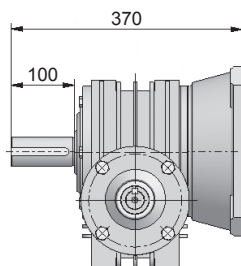
Detalhe eixo de saída integral



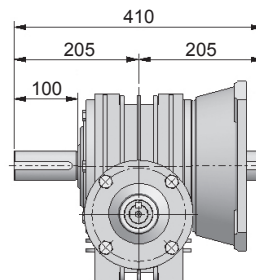
Detalhe eixo de saída vazado



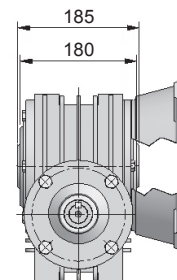
Eixo de saída integral à direita



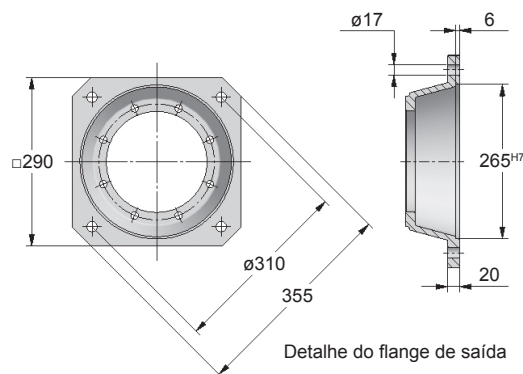
Eixo de saída integral à esquerda



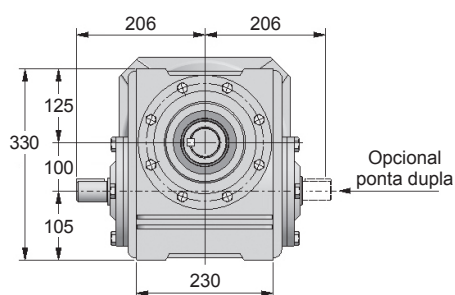
Eixo de saída integral duplo



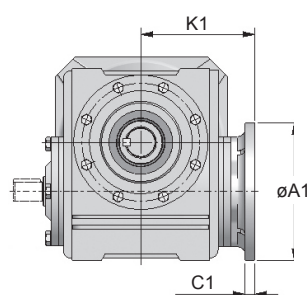
Eixo de saída vazado



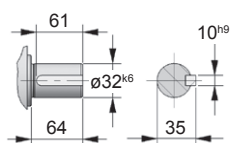
Detalhe do flange de saída



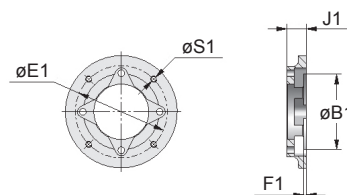
Entrada eixo integral



Entrada flange FF

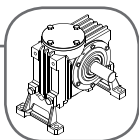


Eixo de entrada integral



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	152,5
90S/L	200	130	15	165	4,5	32	M10	155,5
100/112	250	180	15	215	5	36	M12	159,5

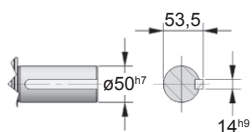
Obs. Ver dimensões dos eixos na página 88



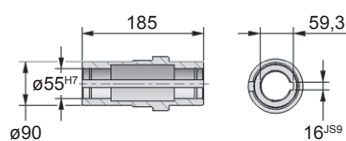
Fixação por pé lateral Simples

Dimensões

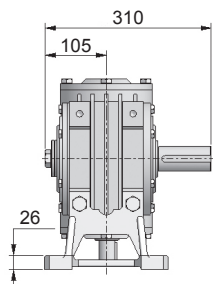
Tamanho **10**



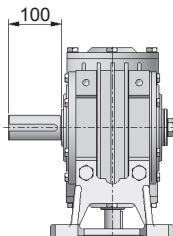
Detalhe eixo de saída integral



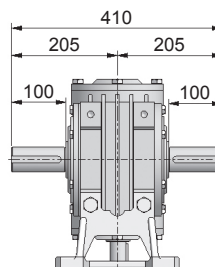
Detalhe eixo de saída vazado



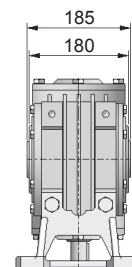
Eixo de saída integral à direita



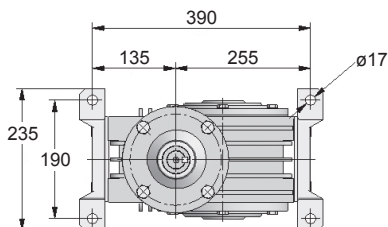
Eixo de saída integral à esquerda



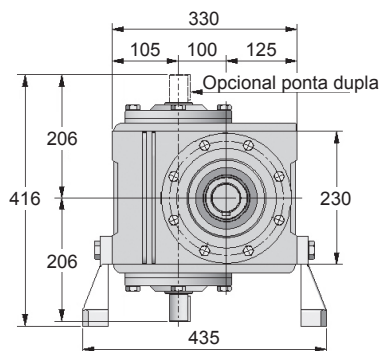
Eixo de saída integral duplo



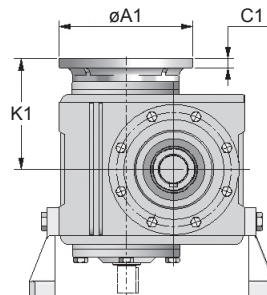
Eixo de saída vazado



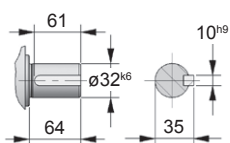
Detalhe da fixação



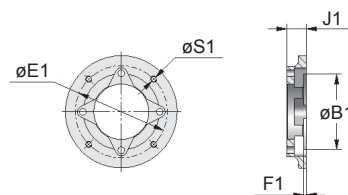
Entrada eixo integral



Entrada flange FF



Eixo de entrada integral



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	152,5
90S/L	200	130	15	165	4,5	32	M10	155,5
100/112	250	180	15	215	5	36	M12	159,5

Obs. Ver dimensões dos eixos na página 88

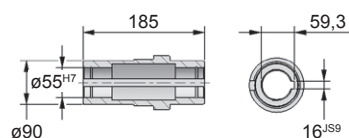
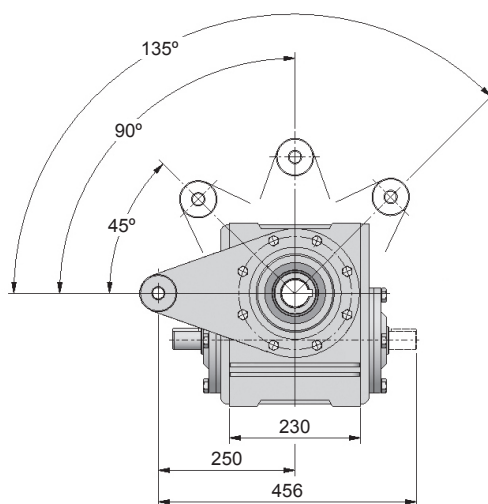
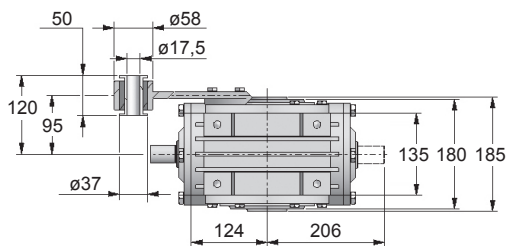
14



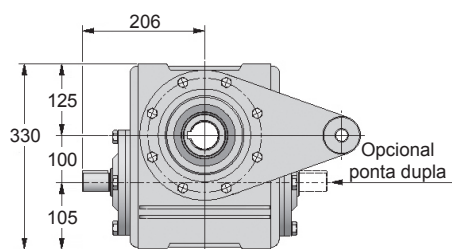
Fixação por braço de torção Simples

Dimensões

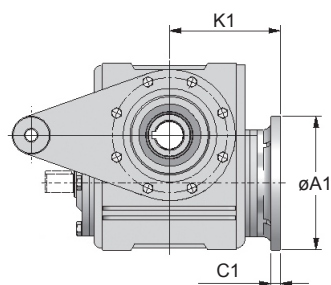
Tamanho **10**



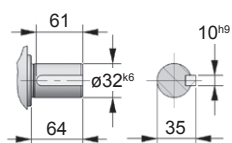
Detalhe eixo de saída vazado



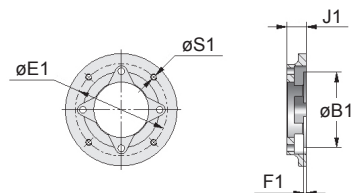
Entrada eixo integral



Entrada flange FF

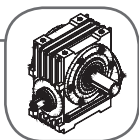


Eixo de entrada integral



Carga do motor	Flange FF						
	A1	B1 ^{H7}	C1	E1	F1	J1	S1
80	200	130	15	165	4,5	32	M10
90S/L	200	130	15	165	4,5	32	M10
100/112	250	180	15	215	5	36	M12

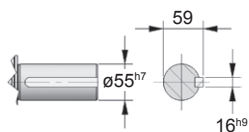
Obs. Ver dimensões dos eixos na página 88



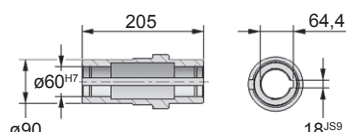
Fixação pela carcaça Simples

Dimensões

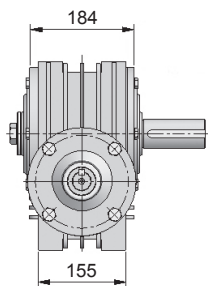
Tamanho **12**



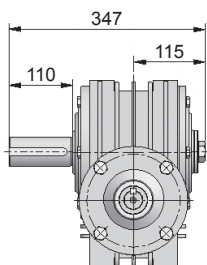
Detalhe eixo de saída integral



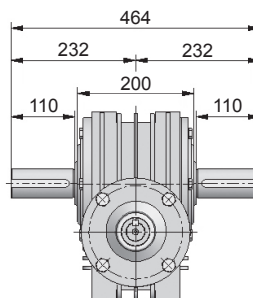
Detalhe eixo de saída vazado



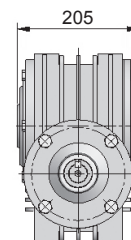
Eixo de saída integral à direita



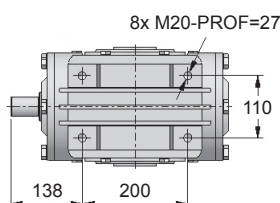
Eixo de saída integral à esquerda



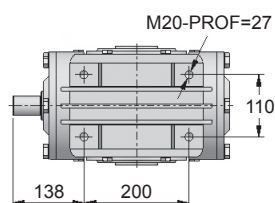
Eixo de saída integral duplo



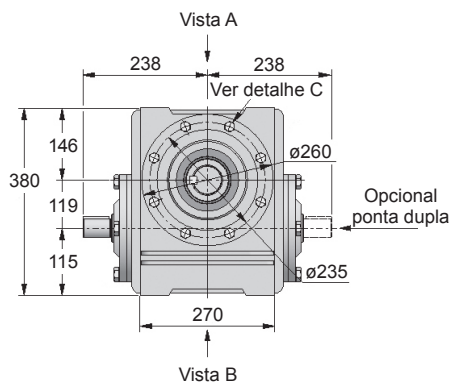
Eixo de saída vazado



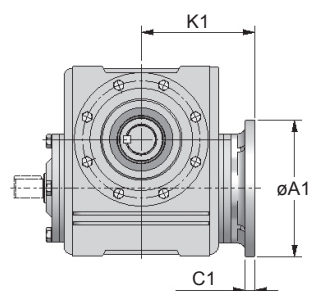
Vista A



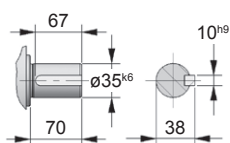
Vista B



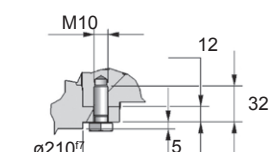
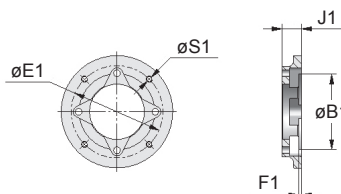
Entrada eixo integral



Entrada flange FF



Eixo de entrada integral

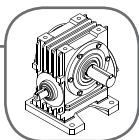


Detalhe C

Carcasa do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	173
90S/L	200	130	15	165	4,5	32	M10	176
100/112	250	180	15	215	5	36	M12	180

Obs. Ver dimensões dos eixos na página 88

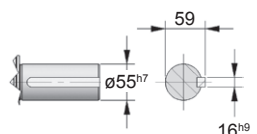
15



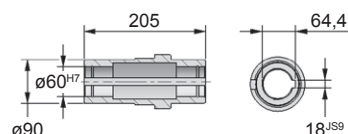
Fixação por pé Simples

Dimensões

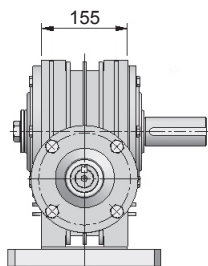
Tamanho **12**



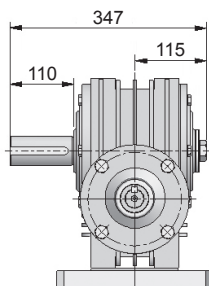
Detalhe eixo de saída integral



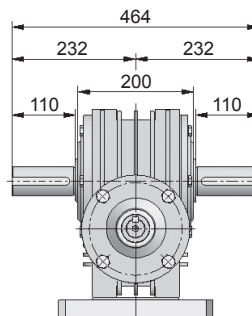
Detalhe eixo de saída vazado



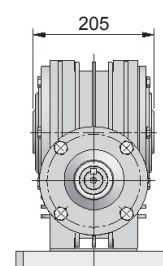
Eixo de saída integral à direita



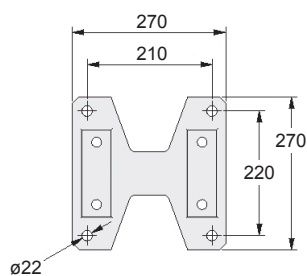
Eixo de saída integral à esquerda



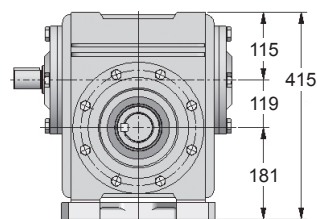
Eixo de saída integral duplo



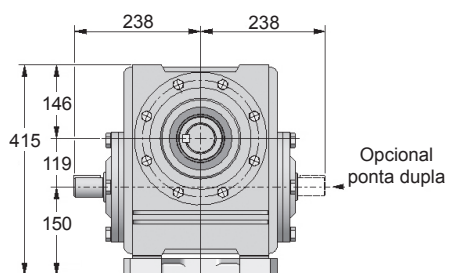
Eixo de saída vazado



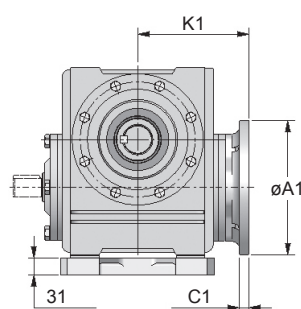
Detalhe do pé



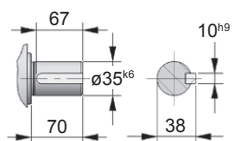
Pé lado do eixo de saída



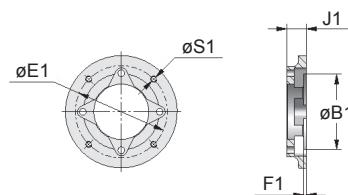
Entrada eixo integral



Entrada flange FF



Eixo de entrada integral

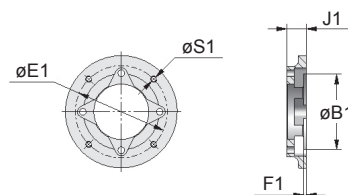
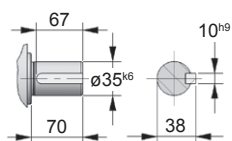
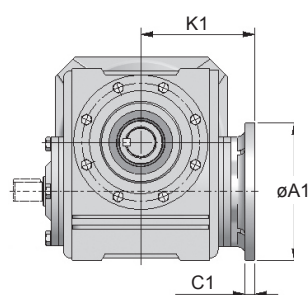
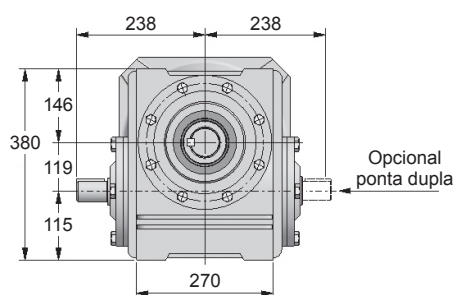
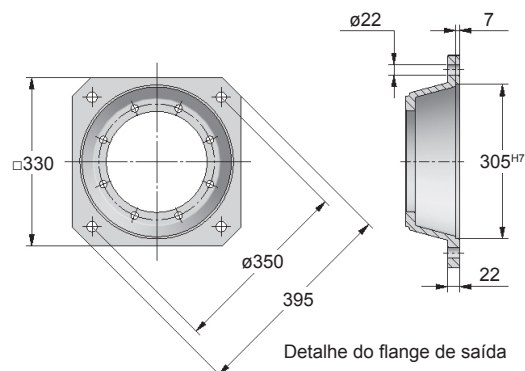
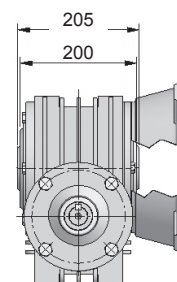
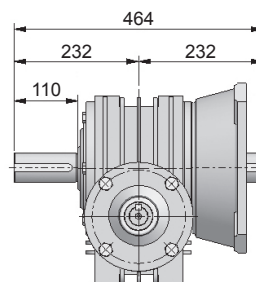
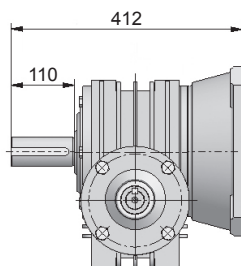
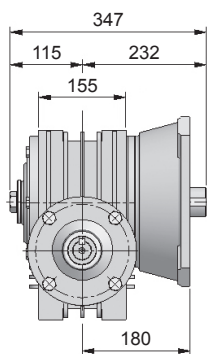
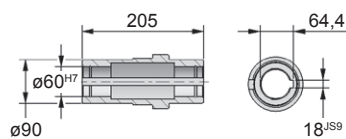
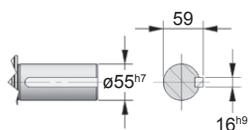


Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	173
90S/L	200	130	15	165	4,5	32	M10	176
100/112	250	180	15	215	5	36	M12	180

Obs. Ver dimensões dos eixos na página 88

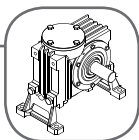


Tamanho **12**



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	173
90S/L	200	130	15	165	4,5	32	M10	176
100/112	250	180	15	215	5	36	M12	180

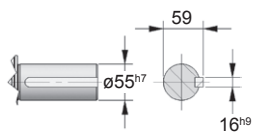
Obs. Ver dimensões dos eixos na página 88



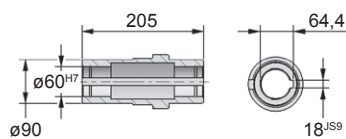
Fixação por pé lateral Simples

Dimensões

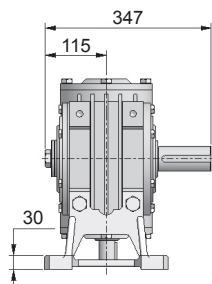
Tamanho **12**



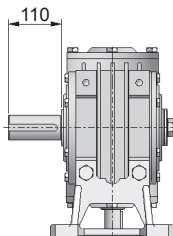
Detalhe eixo de saída integral



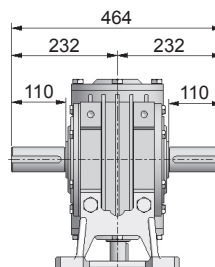
Detalhe eixo de saída vazado



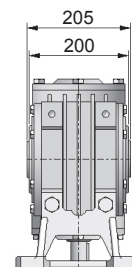
Eixo de saída integral à direita



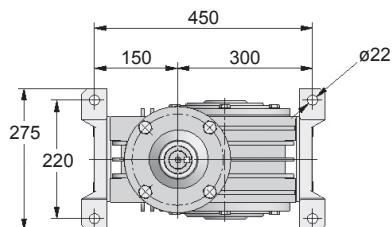
Eixo de saída integral à esquerda



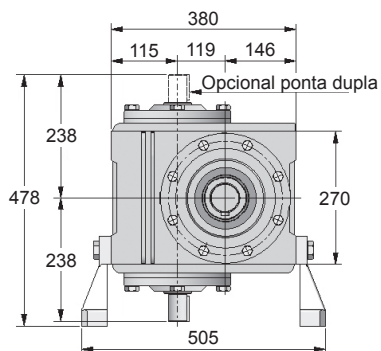
Eixo de saída integral duplo



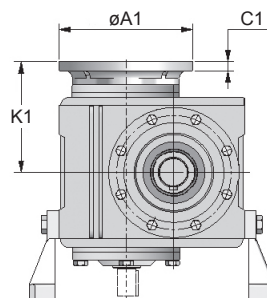
Eixo de saída vazado



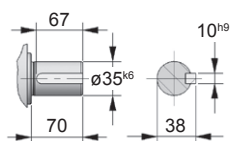
Detalhe da fixação



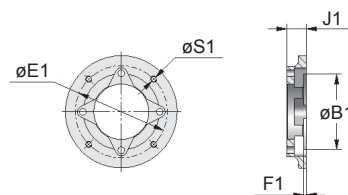
Entrada eixo integral



Entrada flange FF



Eixo de entrada integral



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	173
90S/L	200	130	15	165	4,5	32	M10	176
100/112	250	180	15	215	5	36	M12	180

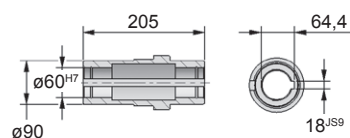
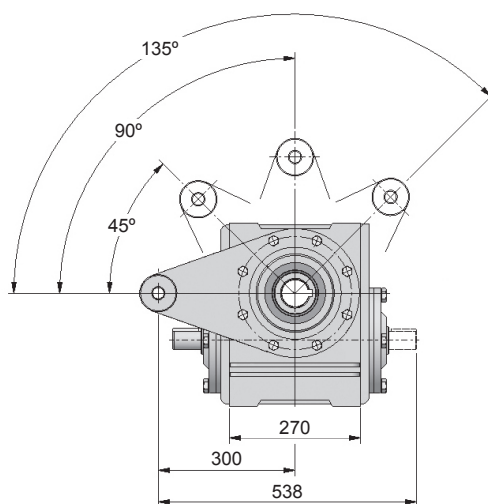
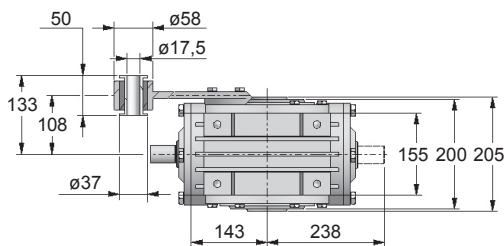
Obs. Ver dimensões dos eixos na página 88



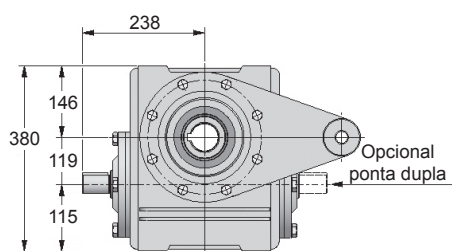
Fixação por braço de torção Simples

Dimensões

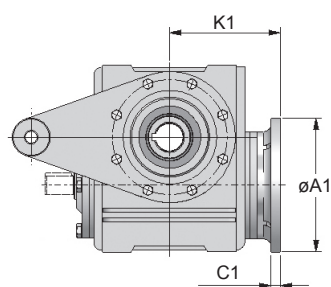
Tamanho **12**



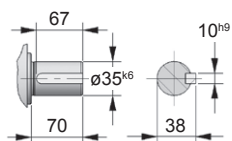
Detalhe eixo de saída vazado



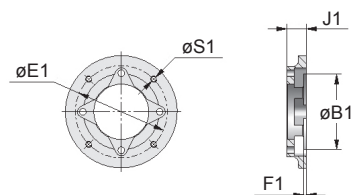
Entrada eixo integral



Entrada flange FF

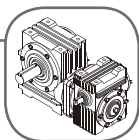


Eixo de entrada integral



Caraça do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
80	200	130	15	165	4,5	32	M10	173
90S/L	200	130	15	165	4,5	32	M10	176
100/112	250	180	15	215	5	36	M12	180

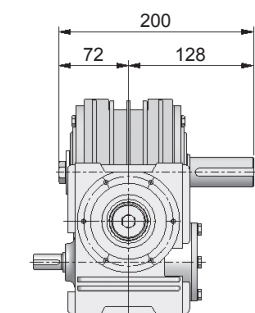
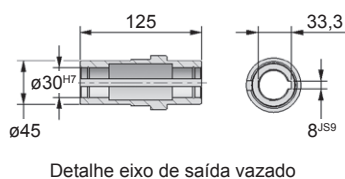
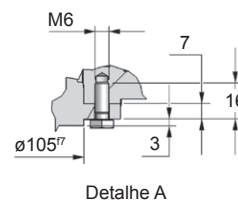
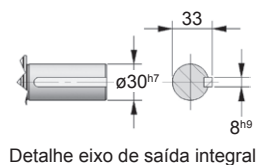
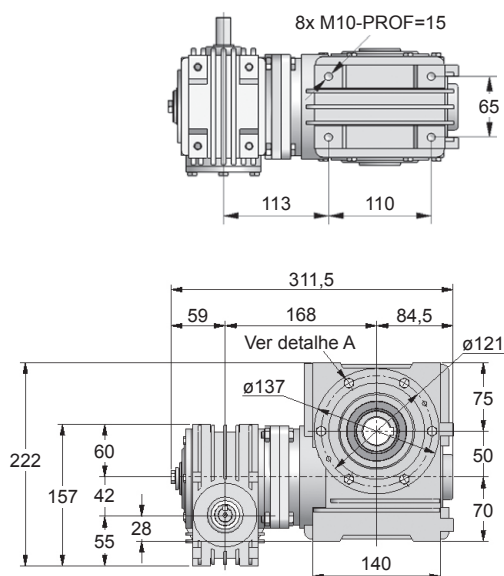
Obs. Ver dimensões dos eixos na página 88



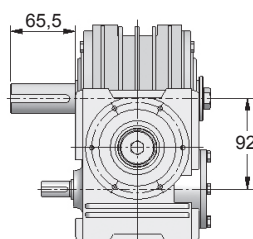
Fixação pela carcaça Duplex

Dimensões

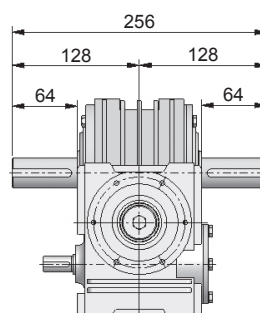
Tamanho **05**



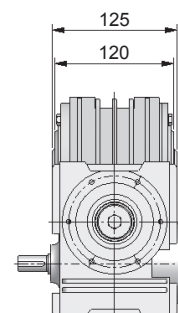
Eixo de saída integral à direita



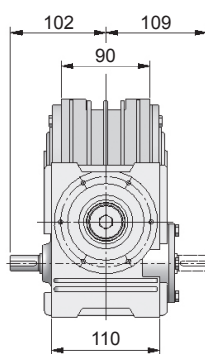
Eixo de saída integral à esquerda



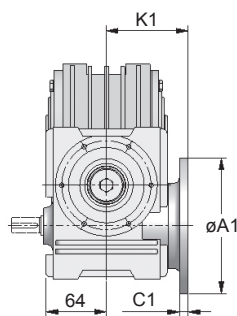
Eixo de saída integral duplo



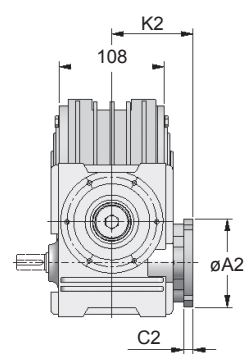
Eixo de saída vazado



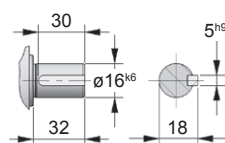
Entrada eixo integral



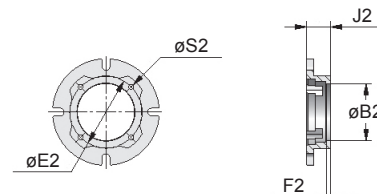
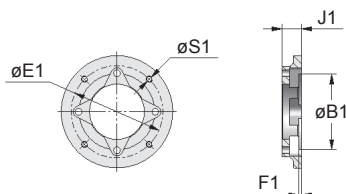
Entrada flange FF



Entrada flange C-DIN



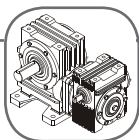
Eixo de entrada integral



Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

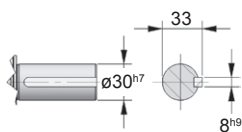
Obs. Ver dimensões dos eixos na página 88



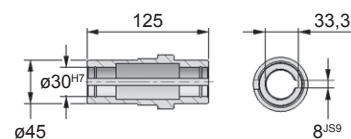
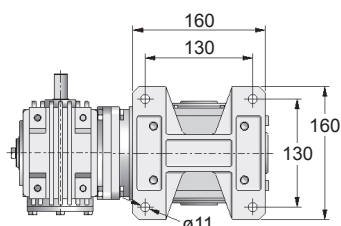
Fixação por pé Duplex

Dimensões

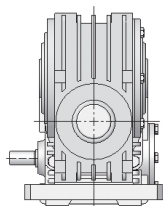
Tamanho **05**



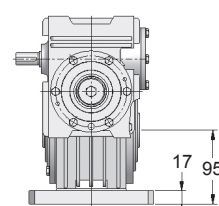
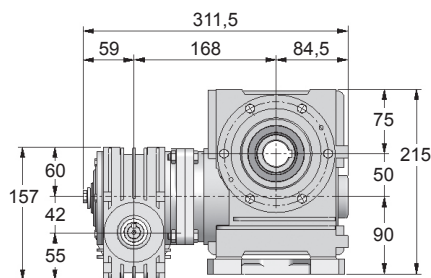
Detalhe eixo de saída integral



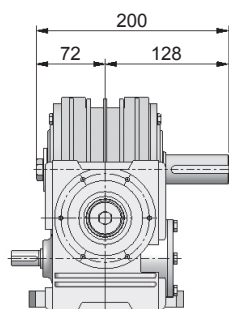
Detalhe eixo de saída vazado



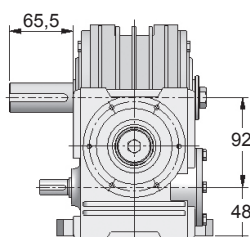
Pé lado sem fim



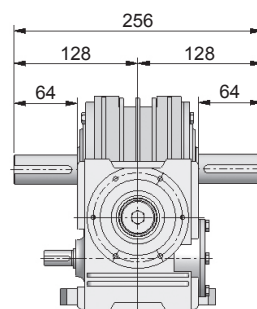
Pé lado do eixo de saída



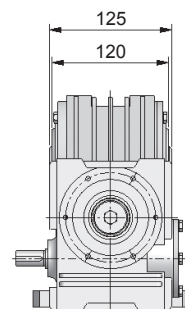
Eixo de saída integral à direita



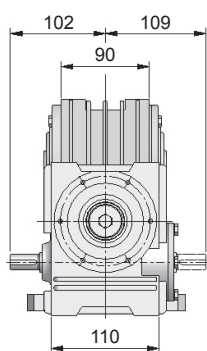
Eixo de saída integral à esquerda



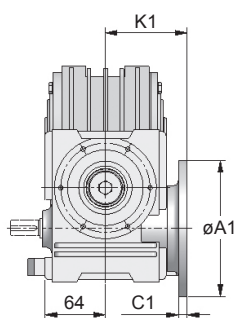
Eixo de saída integral duplo



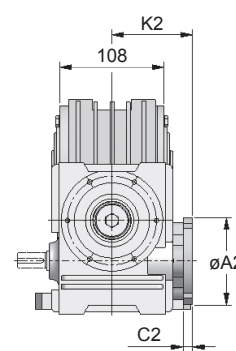
Eixo de saída vazado



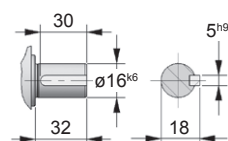
Entrada eixo integral



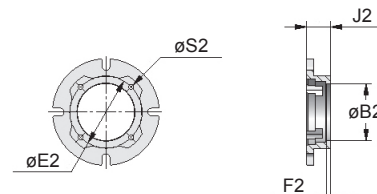
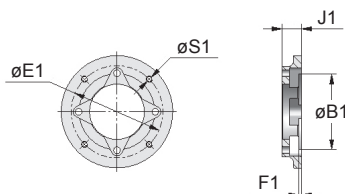
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

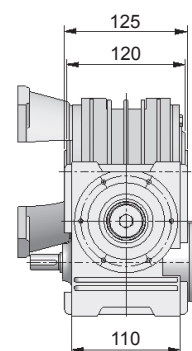
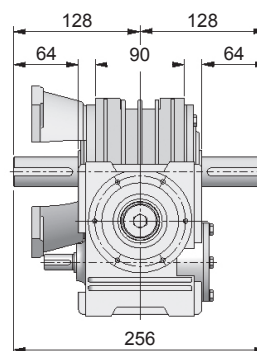
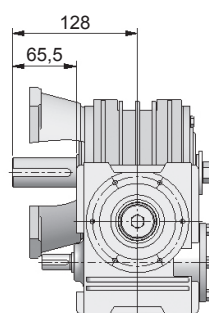
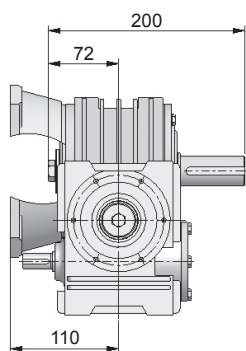
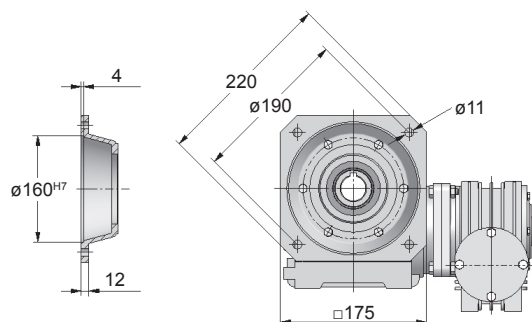
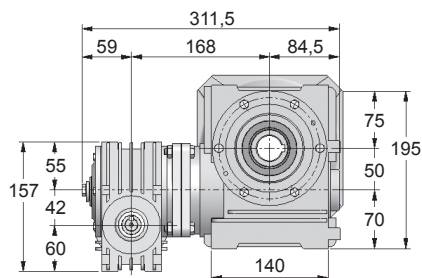
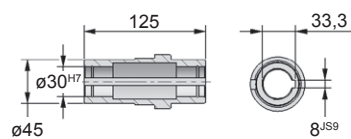
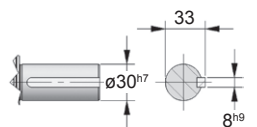
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

Obs. Ver dimensões dos eixos na página 88

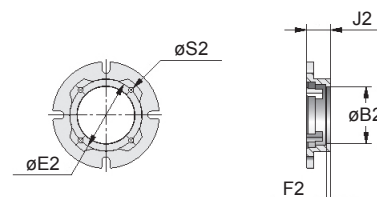
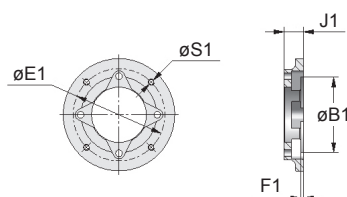
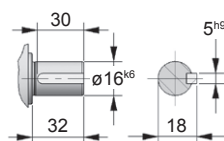
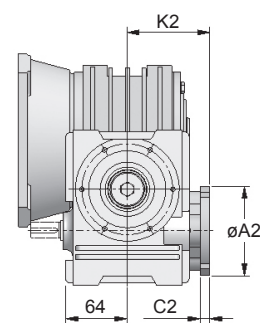
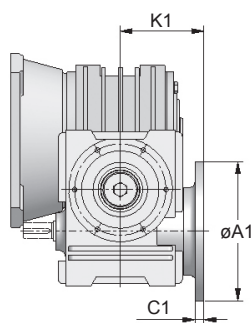
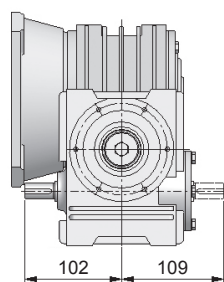
16



Tamanho **05**



16



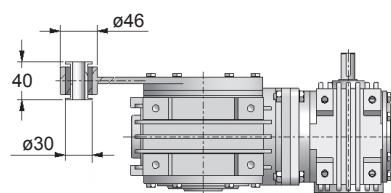
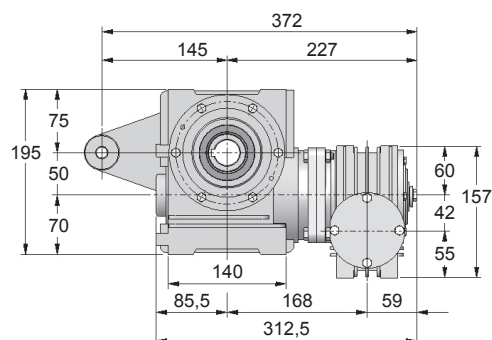
Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4.5	23	M8	87

Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

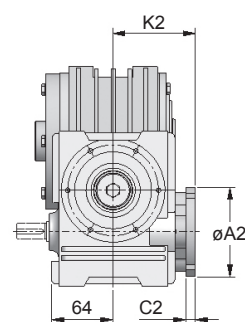
Obs. Ver dimensões dos eixos na página 88



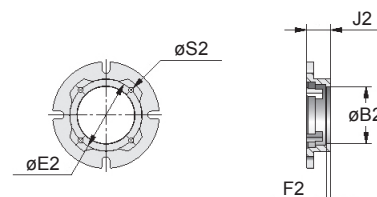
Tamanho **05**



Braço de torção à direita

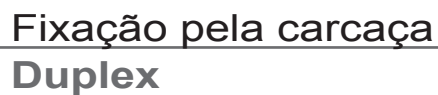


Entrada flange C-DIN

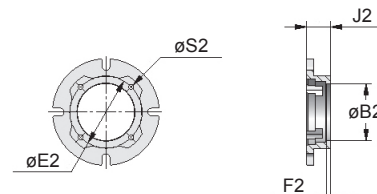
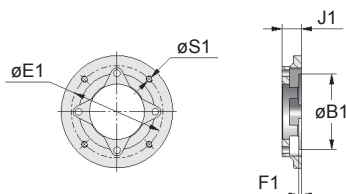
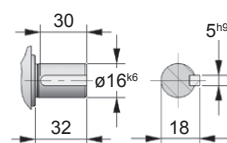
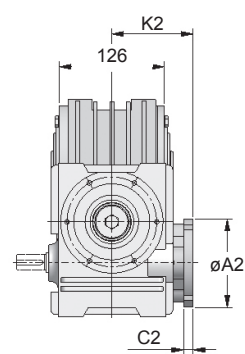
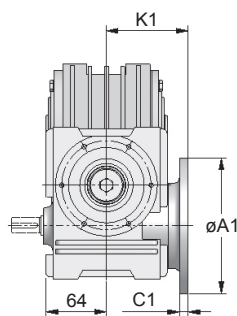
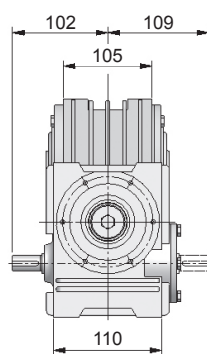
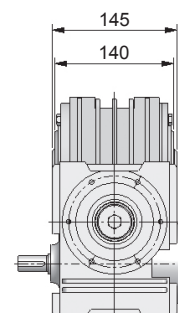
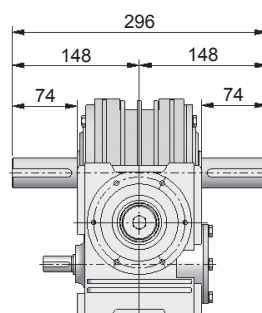
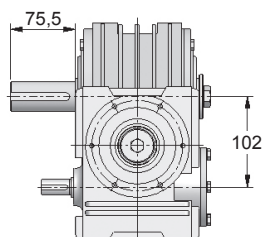
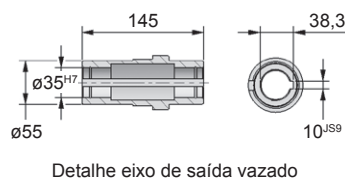
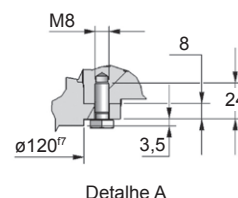
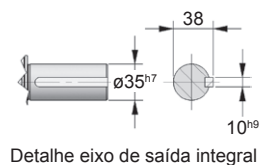


Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

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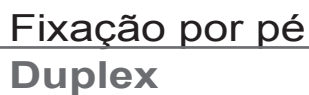


Tamanho **06**

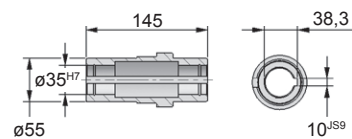


Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4.5	23	M8	87

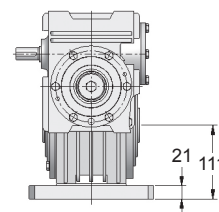
Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87



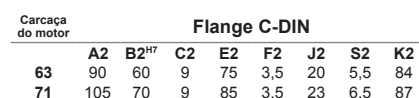
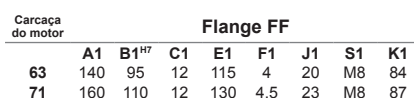
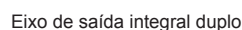
Tamanho **06**



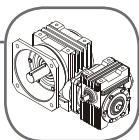
Detalhe eixo de saída vazado



Pé lado do eixo de saída



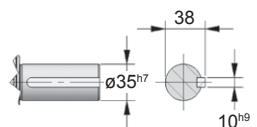
Obs. Ver dimensões dos eixos na página 88



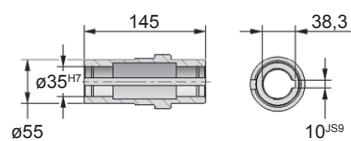
Fixação por flange de saída Duplex

Dimensões

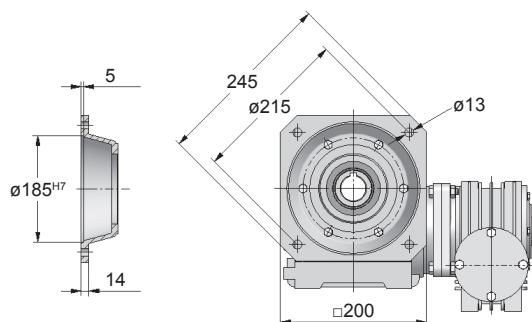
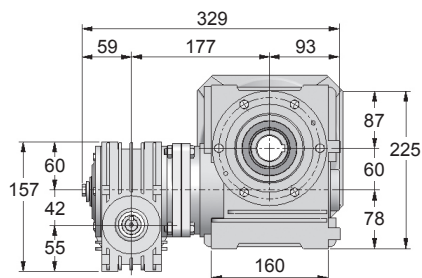
Tamanho **06**



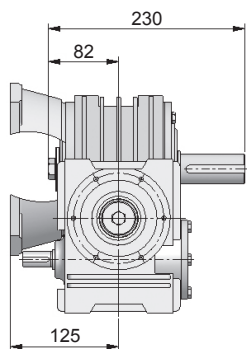
Detalhe eixo de saída integral



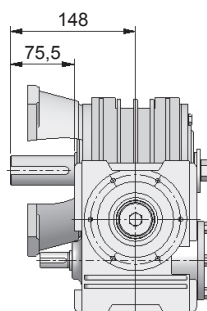
Detalhe eixo de saída vazado



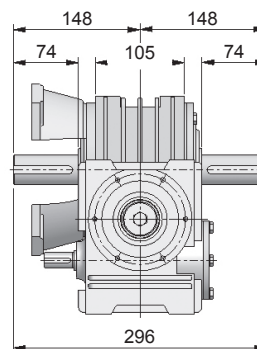
Detalhe do flange de saída



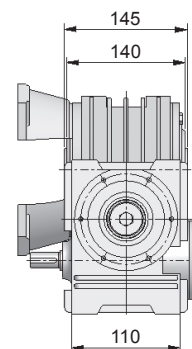
Eixo de saída integral à direita



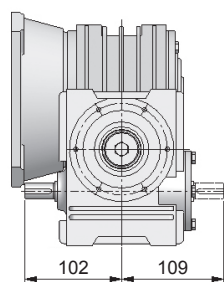
Eixo de saída integral à esquerda



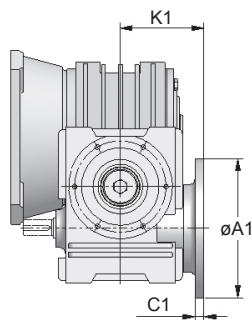
Eixo de saída integral duplo



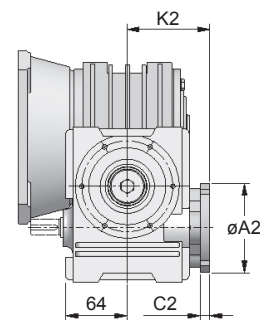
Eixo de saída vazado



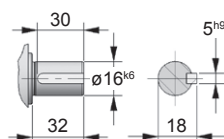
Entrada eixo integral



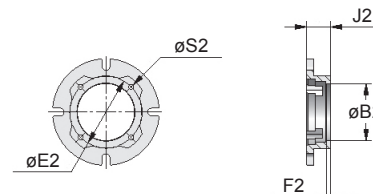
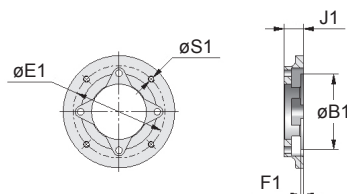
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

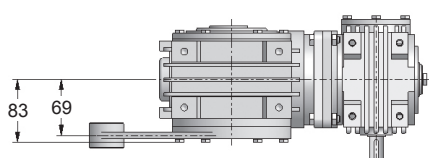
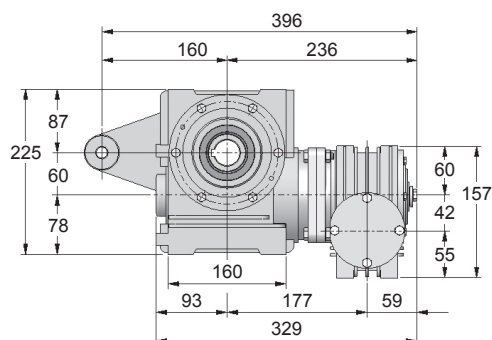
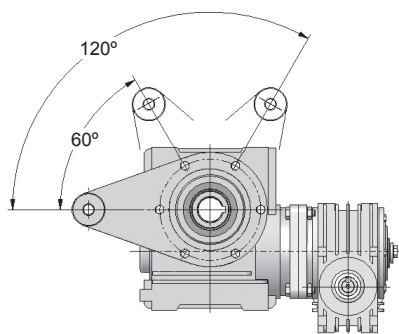
Obs. Ver dimensões dos eixos na página 88



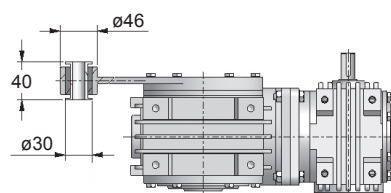
Fixação por braço de torção Duplex

Dimensões

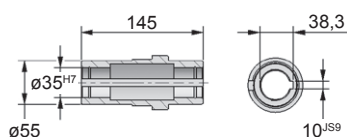
Tamanho **06**



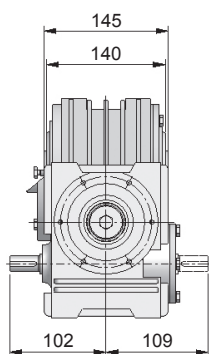
Braço de torção à esquerda



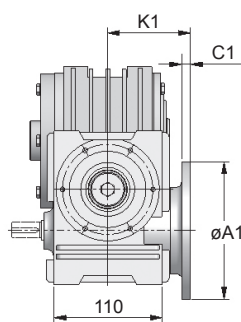
Braço de torção à direita



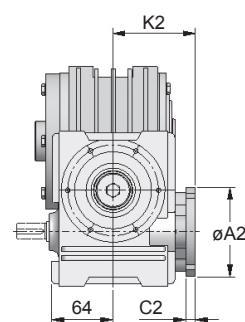
Detalhe eixo de saída vazado



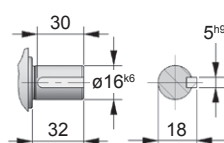
Entrada eixo integral



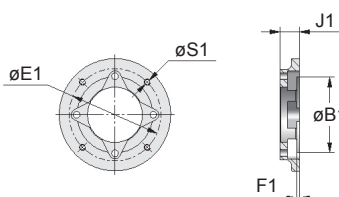
Entrada flange FF



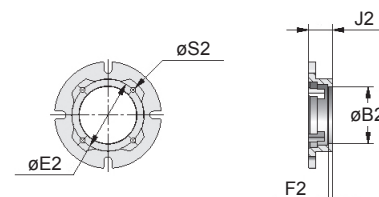
Entrada flange C-DIN



Eixo de entrada integral

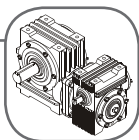


Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87



Carga do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	86	3,5	23	6,5	87

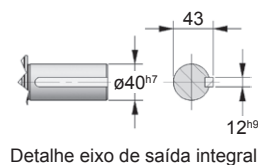
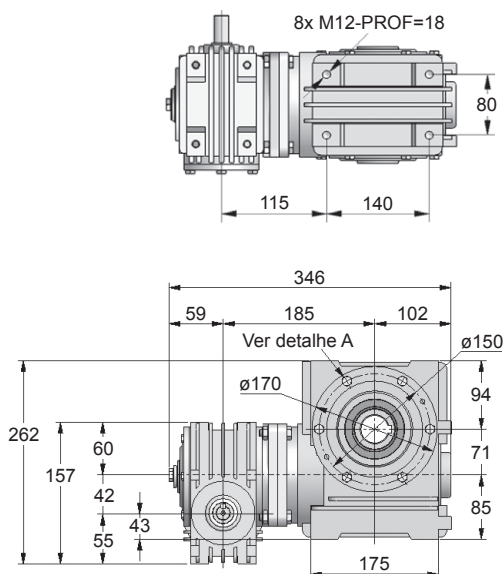
Obs. Ver dimensões dos eixos na página 88



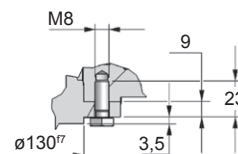
Fixação pela carcaça Duplex

Dimensões

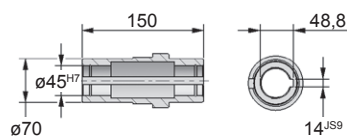
Tamanho **07**



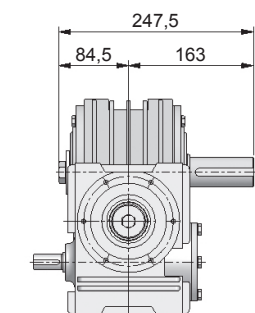
Detalhe eixo de saída integral



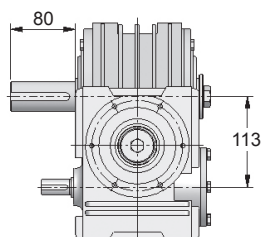
Detalhe A



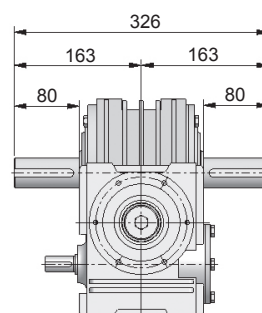
Detalhe eixo de saída vazado



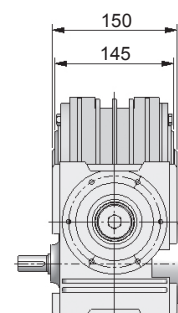
Eixo de saída integral à direita



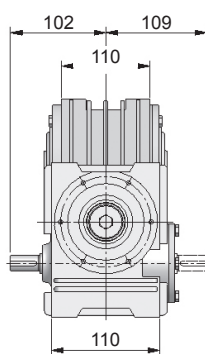
Eixo de saída integral à esquerda



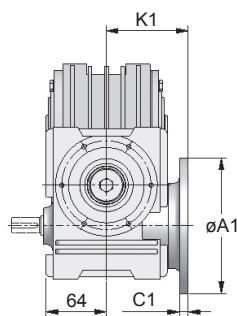
Eixo de saída integral duplo



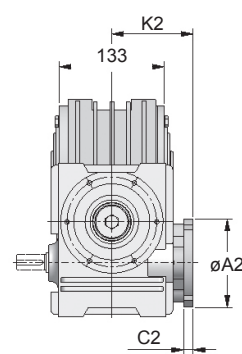
Eixo de saída vazado



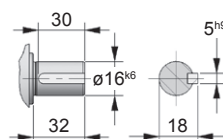
Entrada eixo integral



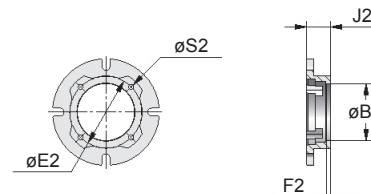
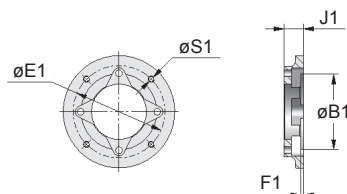
Entrada flange FF



Entrada flange C-DIN



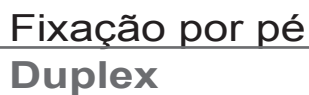
Eixo de entrada integral



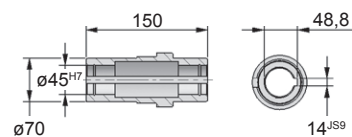
Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

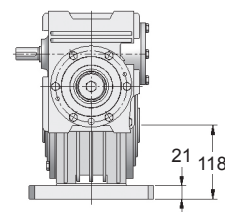
Obs. Ver dimensões dos eixos na página 88



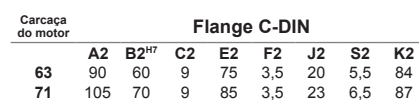
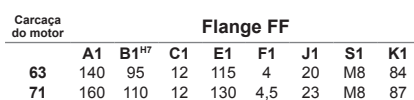
Tamanho **07**



Detalhe eixo de saída vazado



Pé lado do eixo de saída



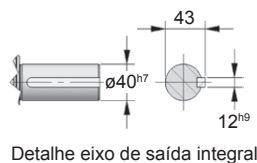
Obs. Ver dimensões dos eixos na página 88



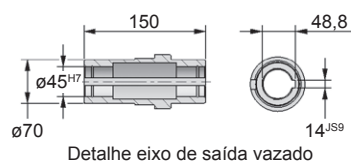
Fixação por flange de saída Duplex

Dimensões

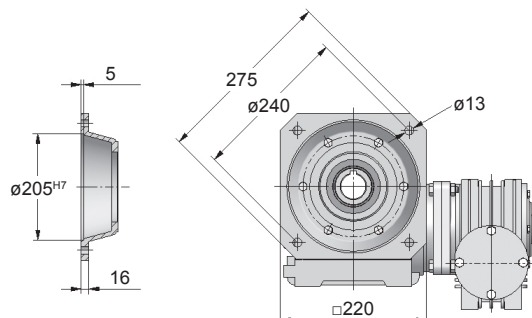
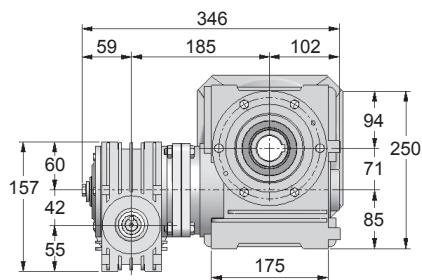
Tamanho **07**



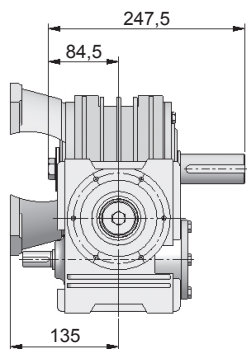
Detalhe eixo de saída integral



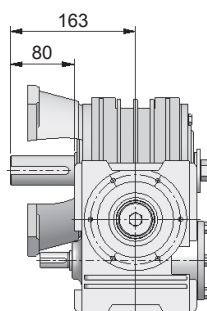
Detalhe eixo de saída vazado



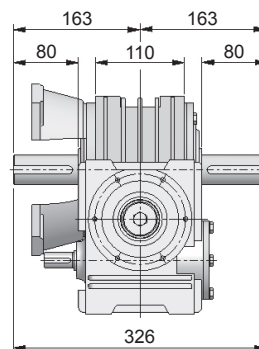
Detalhe do flange de saída



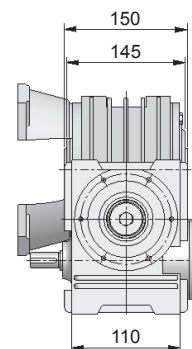
Eixo de saída integral à direita



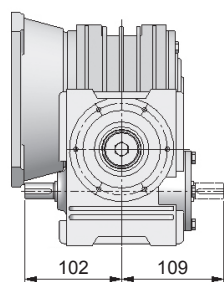
Eixo de saída integral à esquerda



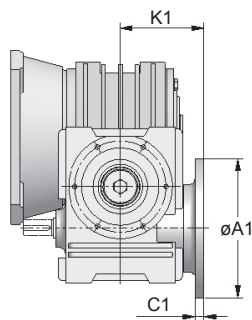
Eixo de saída integral duplo



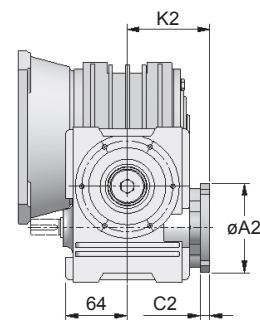
Eixo de saída vazado



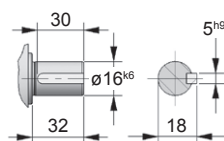
Entrada eixo integral



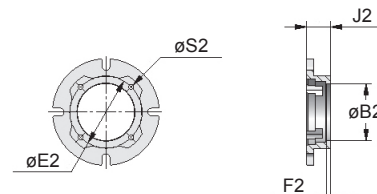
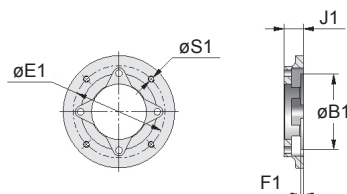
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



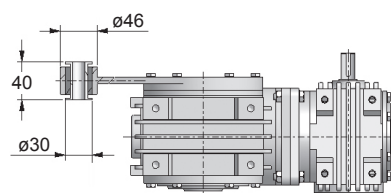
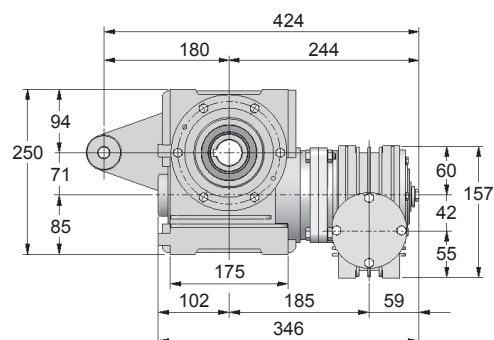
Carga do motor	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	20	M8	84
71	160	110	12	130	4,5	23	M8	87

Carga do motor	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

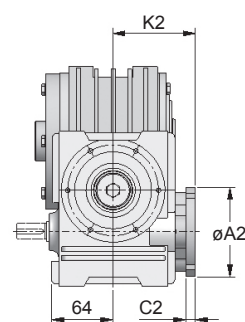
Obs. Ver dimensões dos eixos na página 88



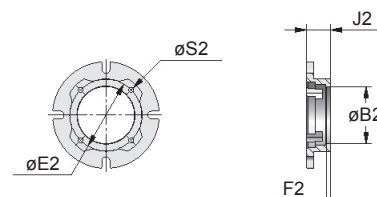
Tamanho 07



Braço de torção à direita



Entrada flange C-DIN



Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	9	75	3,5	20	5,5	84
71	105	70	9	85	3,5	23	6,5	87

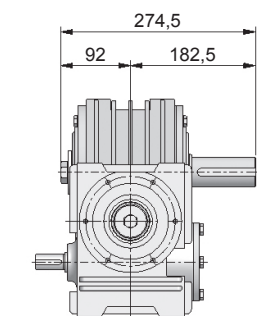
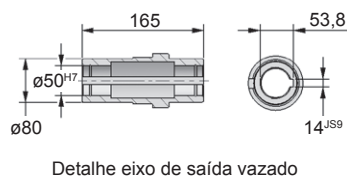
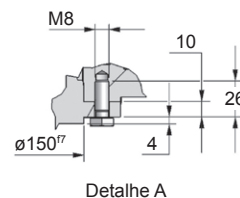
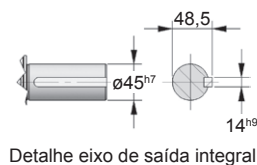
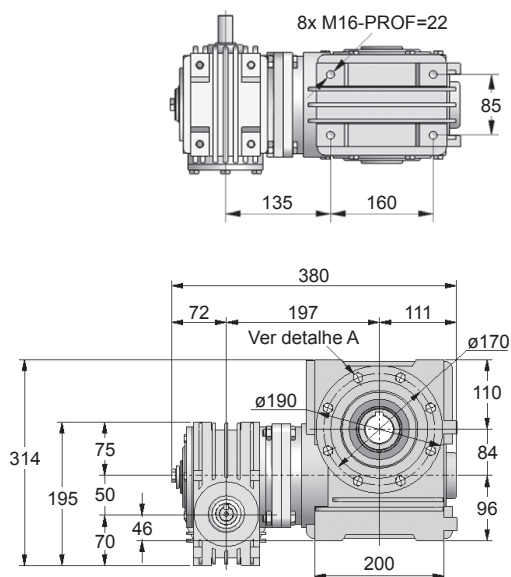
18



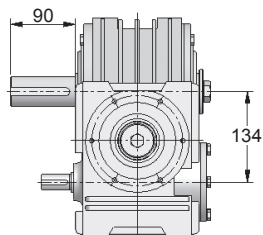
Fixação pela carcaça Duplex

Dimensões

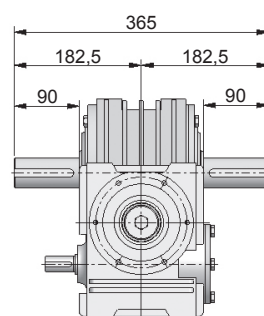
Tamanho **08**



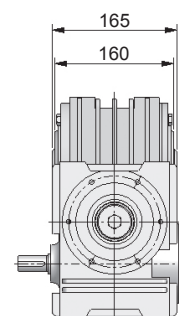
Eixo de saída integral à direita



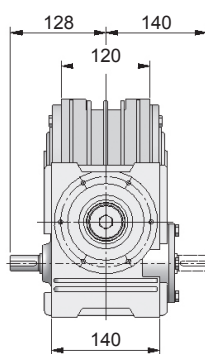
Eixo de saída integral à esquerda



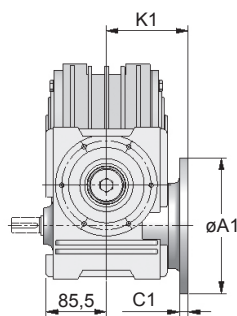
Eixo de saída integral duplo



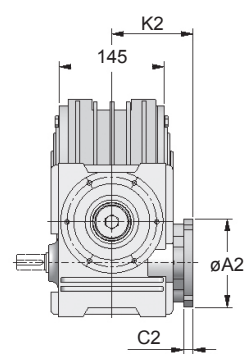
Eixo de saída vazado



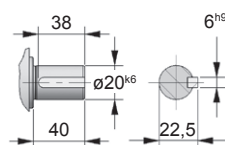
Entrada eixo integral



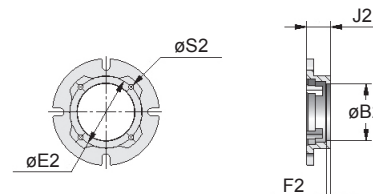
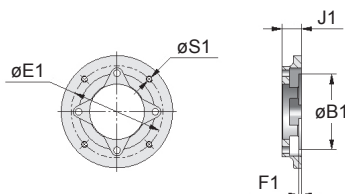
Entrada flange FF



Entrada flange C-DIN



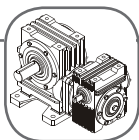
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

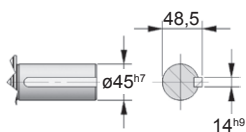
Obs. Ver dimensões dos eixos na página 88



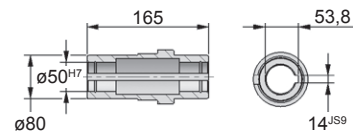
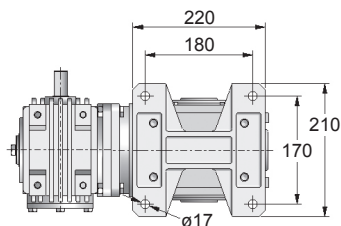
Fixação por pé Duplex

Dimensões

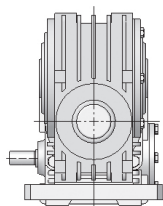
Tamanho **08**



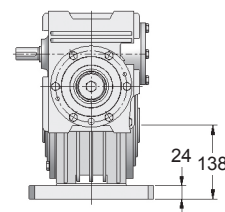
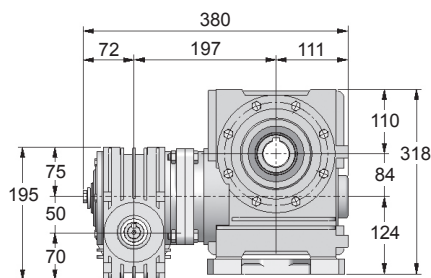
Detalhe eixo de saída integral



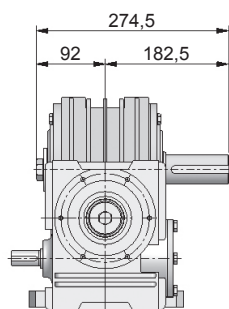
Detalhe eixo de saída vazado



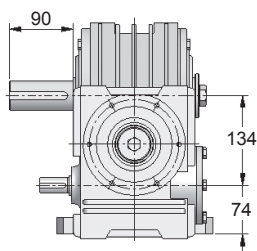
Pé lado sem fim



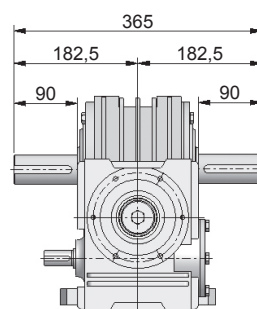
Pé lado do eixo de saída



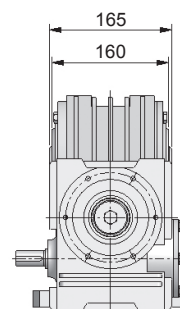
Eixo de saída integral à direita



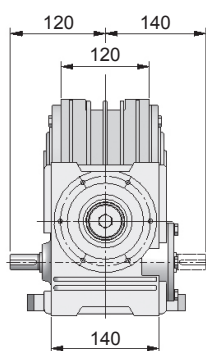
Eixo de saída integral à esquerda



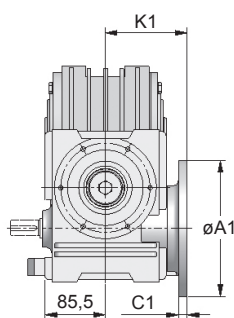
Eixo de saída integral duplo



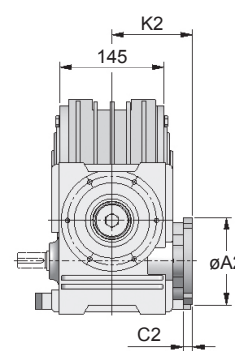
Eixo de saída vazado



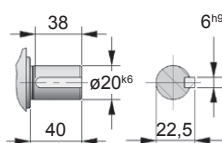
Entrada eixo integral



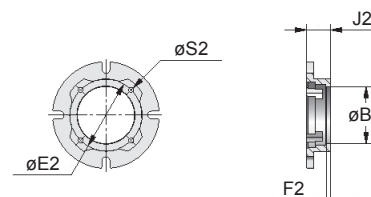
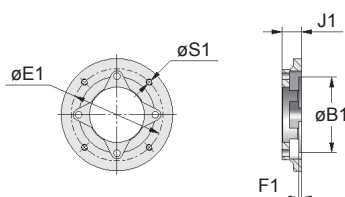
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

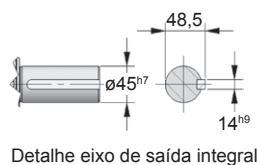
Carcaca do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122



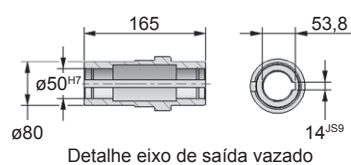
Fixação por flange de saída Duplex

Dimensões

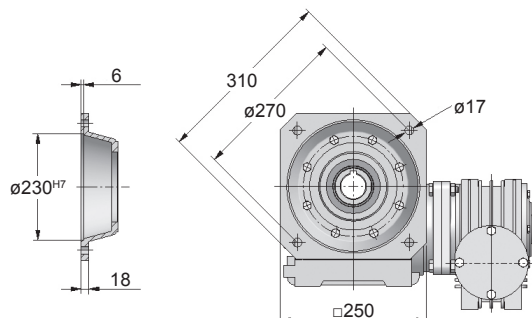
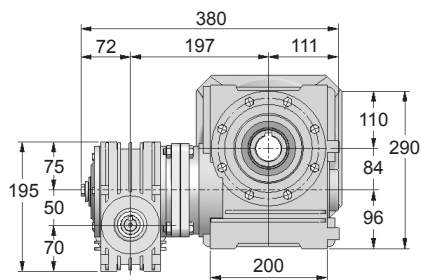
Tamanho **08**



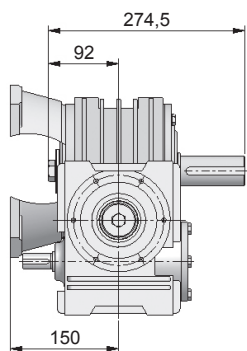
Detalhe eixo de saída integral



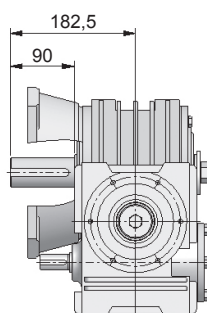
Detalhe eixo de saída vazado



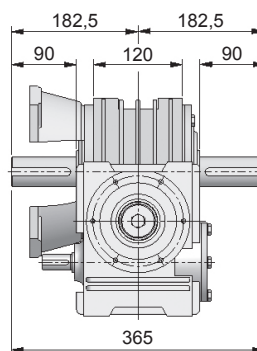
Detalhe do flange de saída



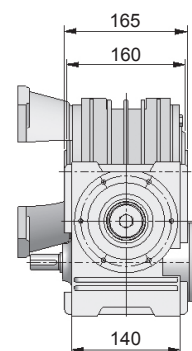
Eixo de saída integral à direita



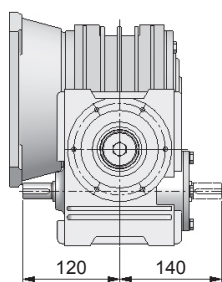
Eixo de saída integral à esquerda



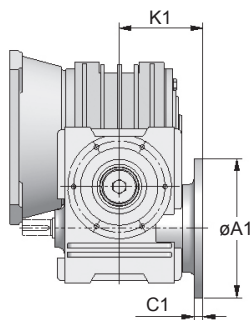
Eixo de saída integral duplo



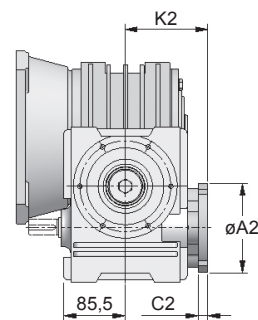
Eixo de saída vazado



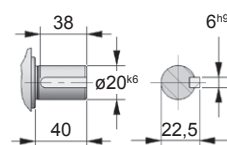
Entrada eixo integral



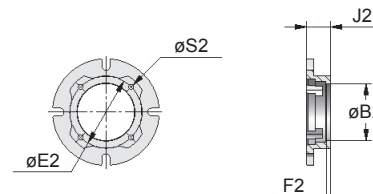
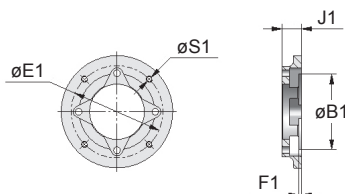
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carga do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

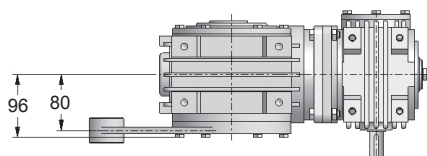
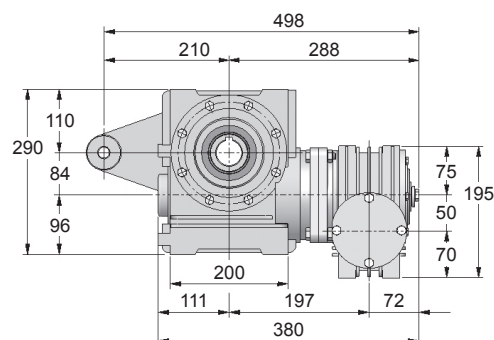
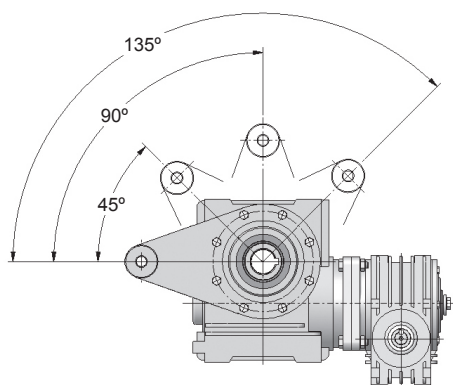
Obs. Ver dimensões dos eixos na página 88



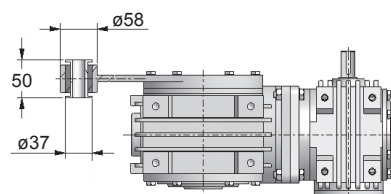
Fixação por braço de torção Duplex

Dimensões

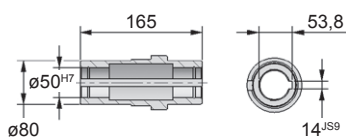
Tamanho **08**



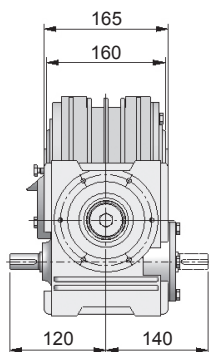
Braço de torção à esquerda



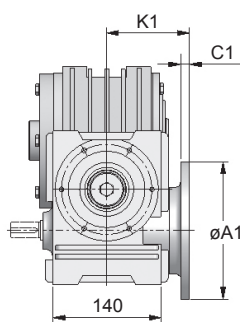
Braço de torção à direita



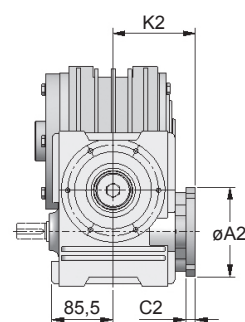
Detalhe eixo de saída vazado



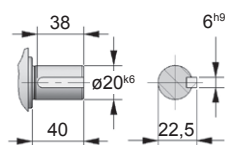
Entrada eixo integral



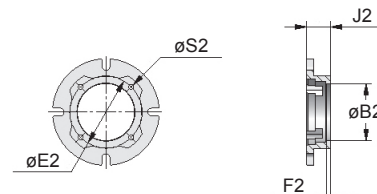
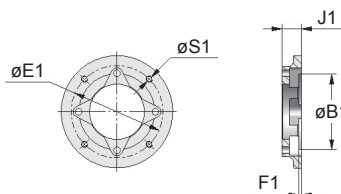
Entrada flange FF



Entrada flange C-DIN



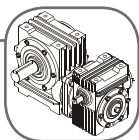
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

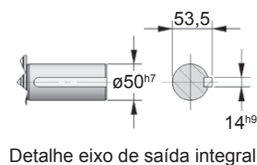
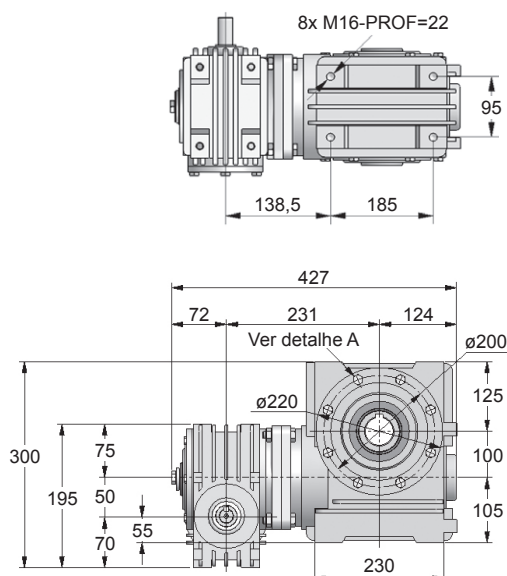
Obs. Ver dimensões dos eixos na página 88



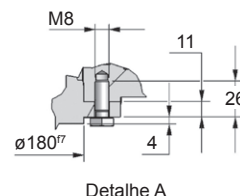
Fixação pela carcaça Duplex

Dimensões

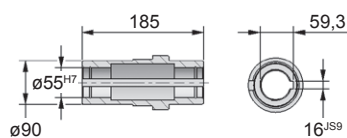
Tamanho **10**



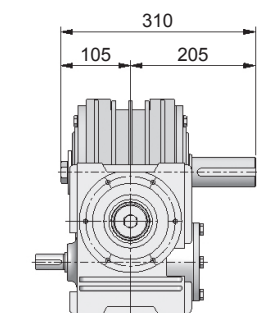
Detalhe eixo de saída integral



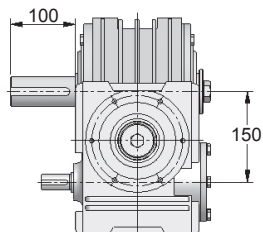
Detalhe A



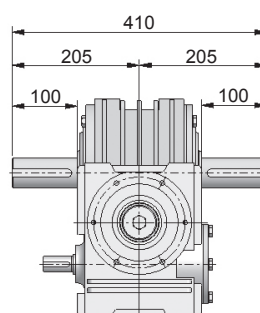
Detalhe eixo de saída vazado



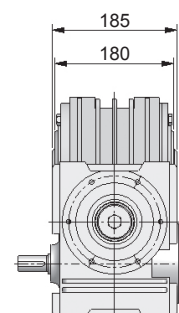
Eixo de saída integral à direita



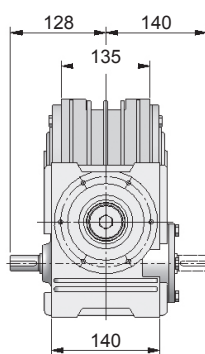
Eixo de saída integral à esquerda



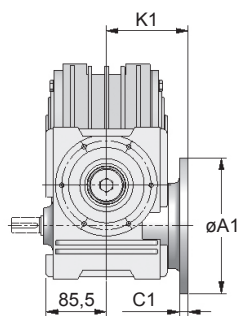
Eixo de saída integral duplo



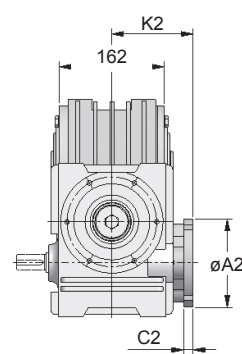
Eixo de saída vazado



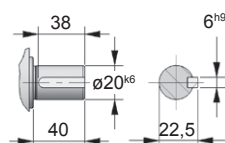
Entrada eixo integral



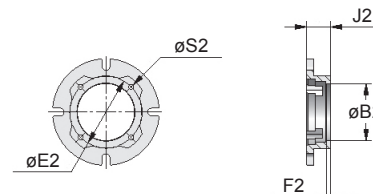
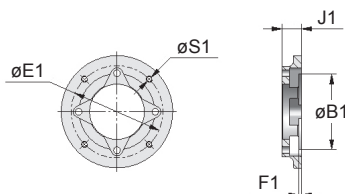
Entrada flange FF



Entrada flange C-DIN



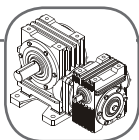
Eixo de entrada integral



Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

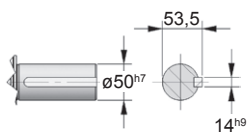
Obs. Ver dimensões dos eixos na página 88



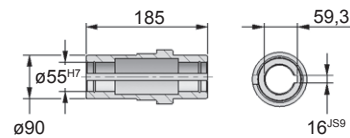
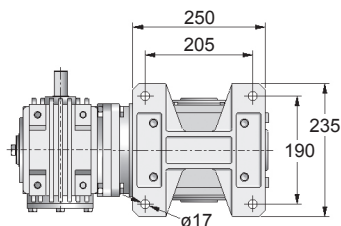
Fixação por pé Duplex

Dimensões

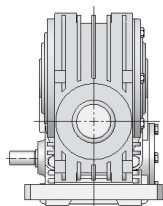
Tamanho **10**



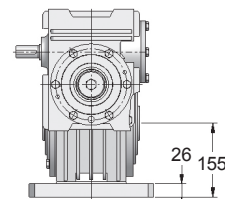
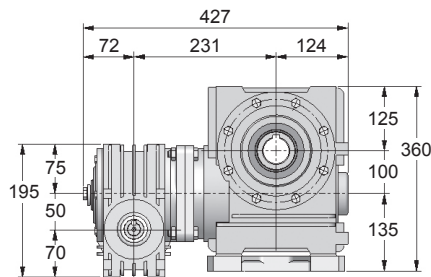
Detalhe eixo de saída integral



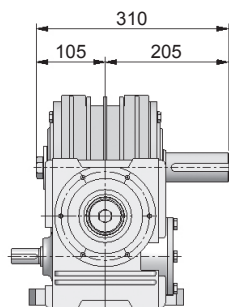
Detalhe eixo de saída vazado



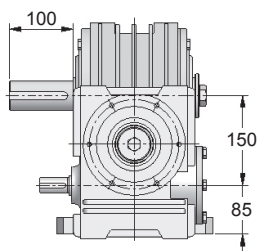
Pé lado sem fim



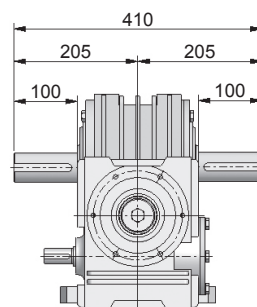
Pé lado do eixo de saída



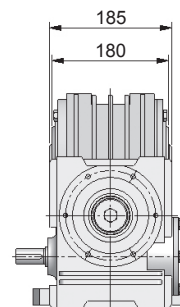
Eixo de saída integral à direita



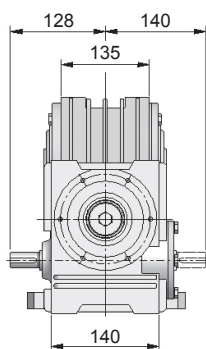
Eixo de saída integral à esquerda



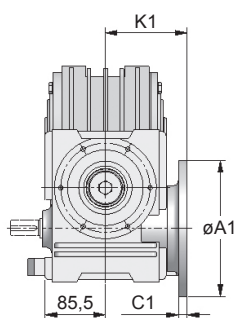
Eixo de saída integral duplo



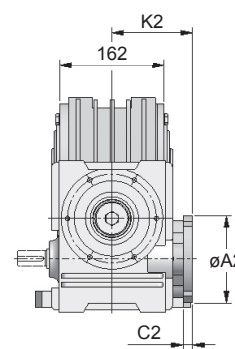
Eixo de saída vazado



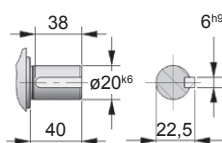
Entrada eixo integral



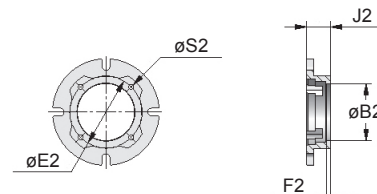
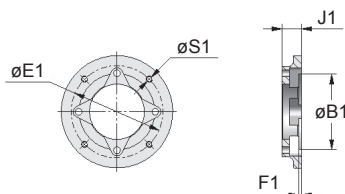
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Obs. Ver dimensões dos eixos na página 88

Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

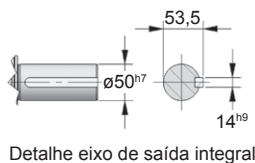
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122



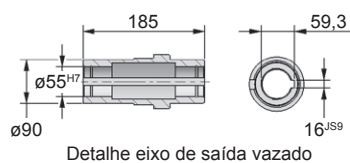
Fixação por flange de saída Duplex

Dimensões

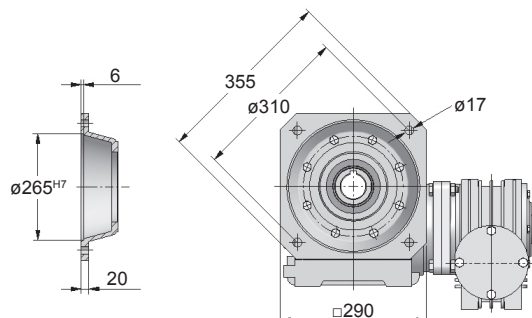
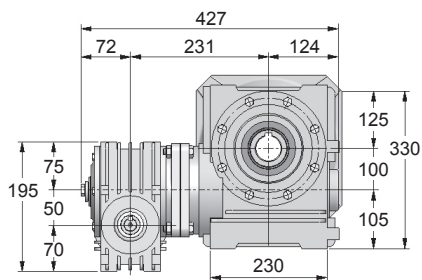
Tamanho **10**



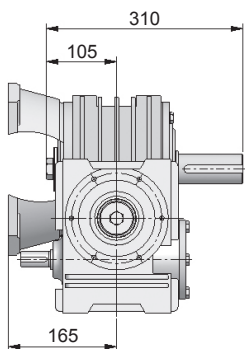
Detalhe eixo de saída integral



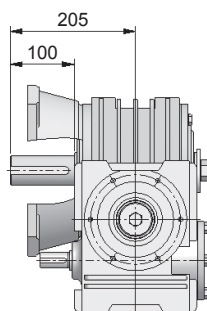
Detalhe eixo de saída vazado



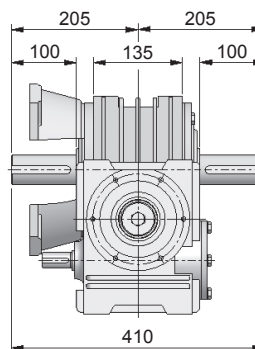
Detalhe do flange de saída



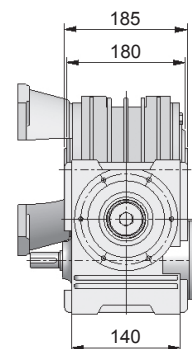
Eixo de saída integral à direita



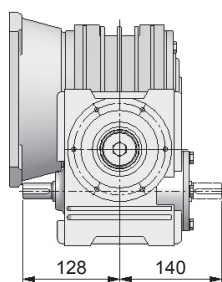
Eixo de saída integral à esquerda



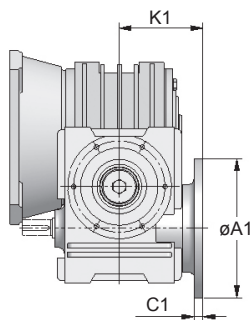
Eixo de saída integral duplo



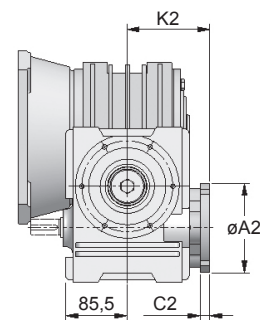
Eixo de saída vazado



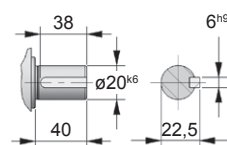
Entrada eixo integral



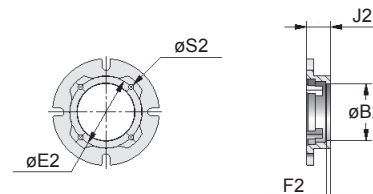
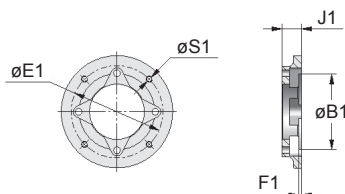
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carga do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

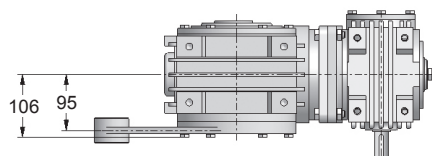
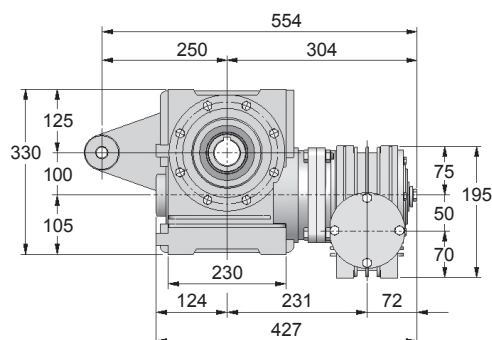
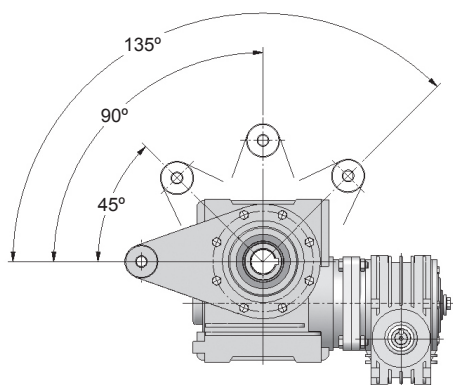
Obs. Ver dimensões dos eixos na página 88



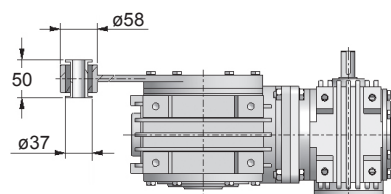
Fixação por braço de torção Duplex

Dimensões

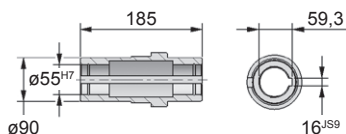
Tamanho **10**



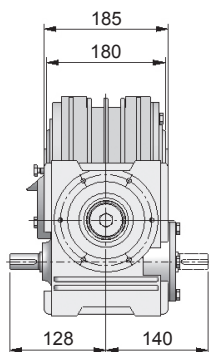
Braço de torção à esquerda



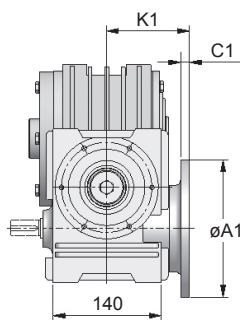
Braço de torção à direita



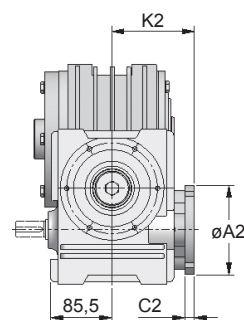
Detalhe eixo de saída vazado



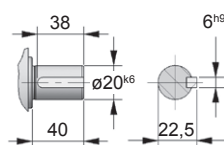
Entrada eixo integral



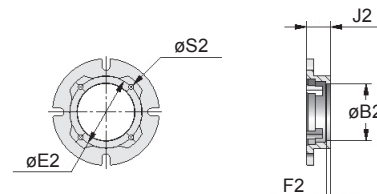
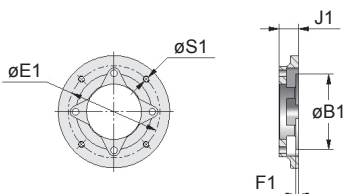
Entrada flange FF



Entrada flange C-DIN



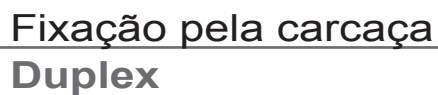
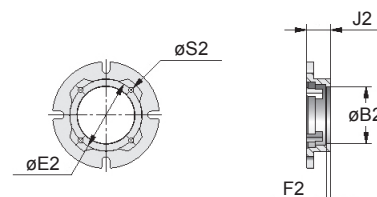
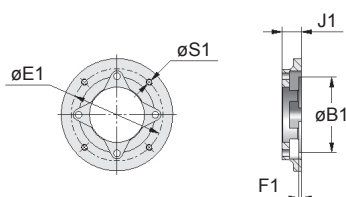
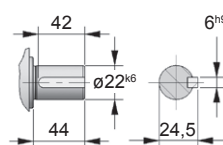
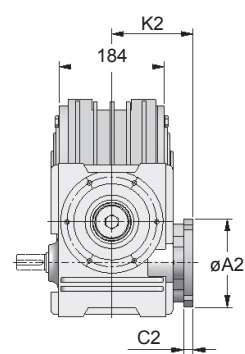
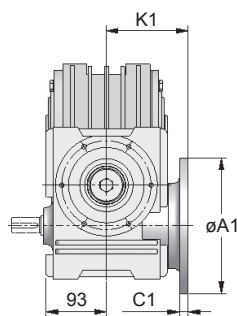
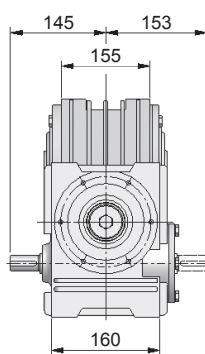
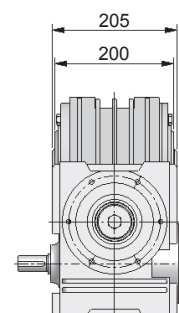
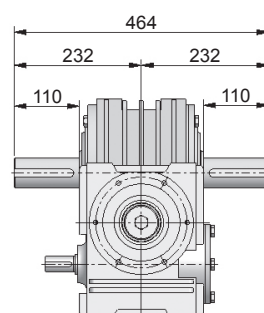
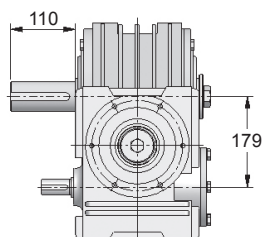
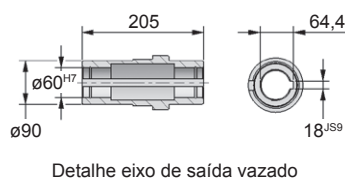
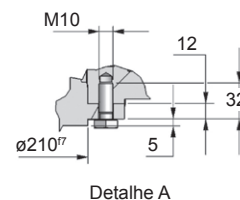
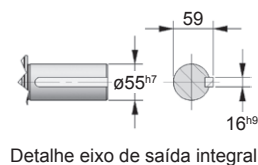
Eixo de entrada integral



Obs. Ver dimensões dos eixos na página 88

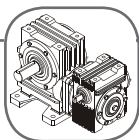
Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	109
71	160	110	12	130	4,5	32	M8	116
80	200	130	15	165	4,5	33	M10	117
90S/L	200	130	15	165	4,5	38	M10	122

Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	109
71	105	70	11	85	3,5	32	6,5	116
80	120	80	11	100	4	33	8,5	117
90S/L	140	95	13	115	4	38	8,5	122

Tamanho **12**

Carcaça do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

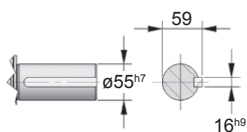
Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	118
71	105	70	11	85	3,5	32	6,5	125
80	120	80	11	100	4	33	8,5	126
90S/L	140	95	13	115	4	38	8,5	131



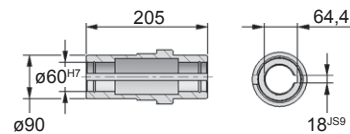
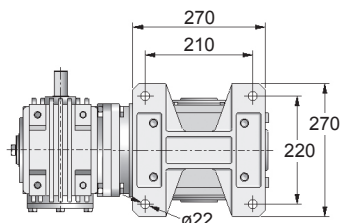
Fixação por pé Duplex

Dimensões

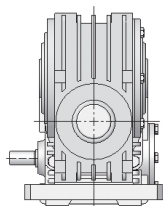
Tamanho **12**



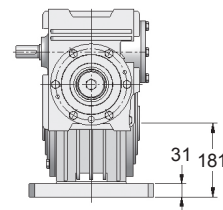
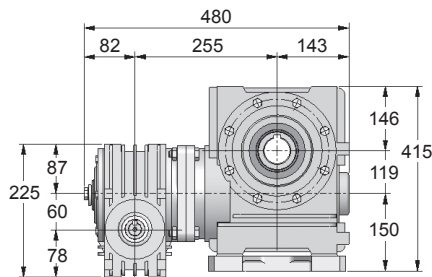
Detalhe eixo de saída integral



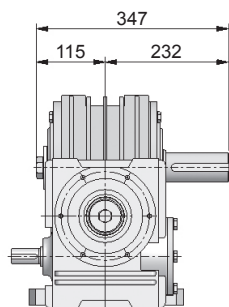
Detalhe eixo de saída vazado



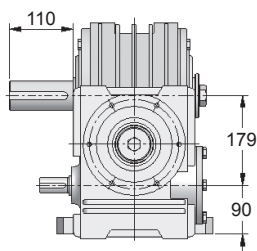
Pé lado sem fim



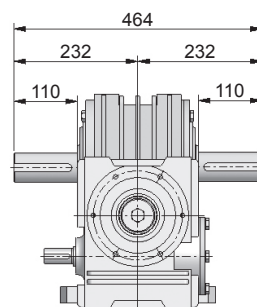
Pé lado do eixo de saída



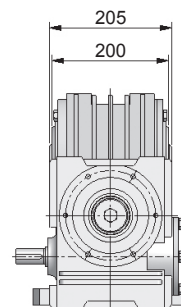
Eixo de saída integral à direita



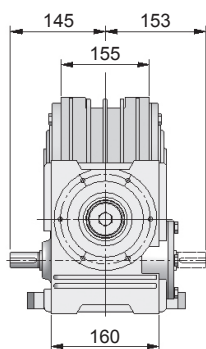
Eixo de saída integral à esquerda



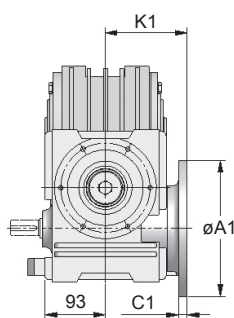
Eixo de saída integral duplo



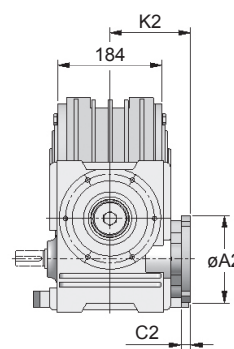
Eixo de saída vazado



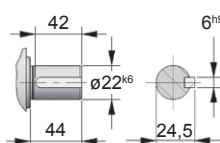
Entrada eixo integral



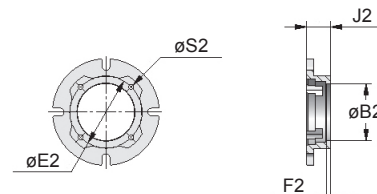
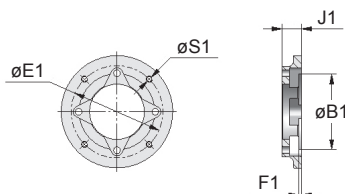
Entrada flange FF



Entrada flange C-DIN



Eixo de entrada integral



Obs. Ver dimensões dos eixos na página 88

Carcasa do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

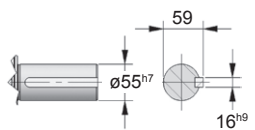
Carcasa do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	118
71	105	70	11	85	3,5	32	6,5	125
80	120	80	11	100	4	33	8,5	126
90S/L	140	95	13	115	4	38	8,5	131



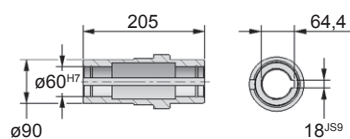
Fixação por flange de saída Duplex

Dimensões

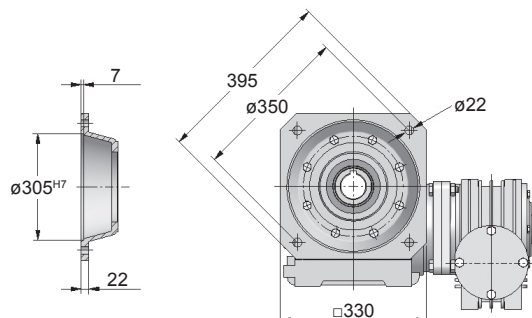
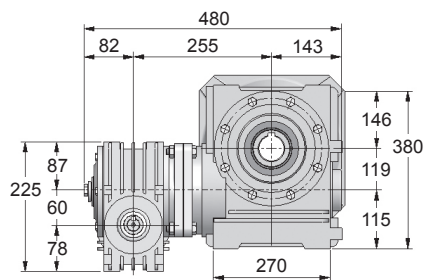
Tamanho **12**



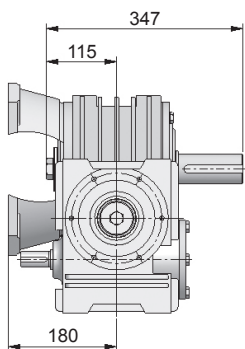
Detalhe eixo de saída integral



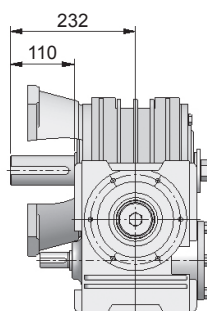
Detalhe eixo de saída vazado



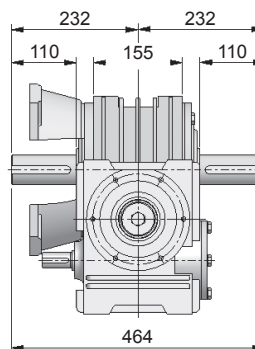
Detalhe do flange de saída



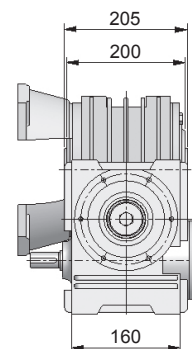
Eixo de saída integral à direita



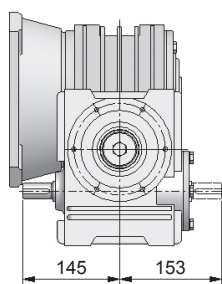
Eixo de saída integral à esquerda



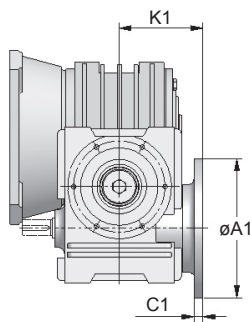
Eixo de saída integral duplo



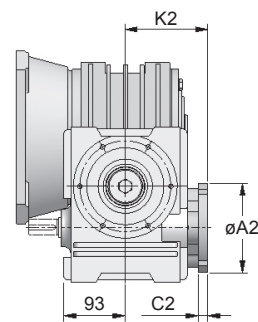
Eixo de saída vazado



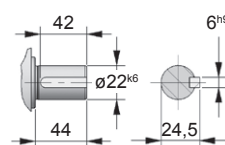
Entrada eixo integral



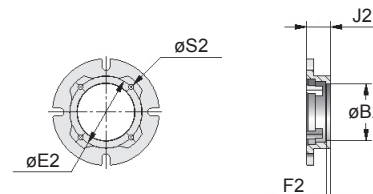
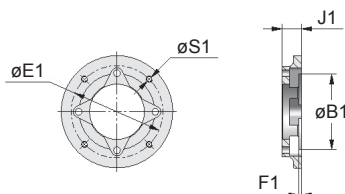
Entrada flange FF



Entrada flange C-DIN



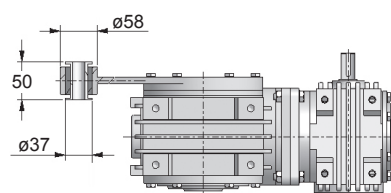
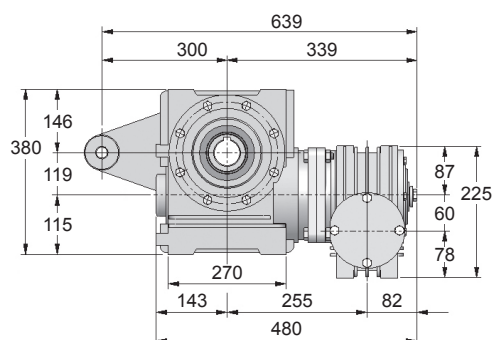
Eixo de entrada integral



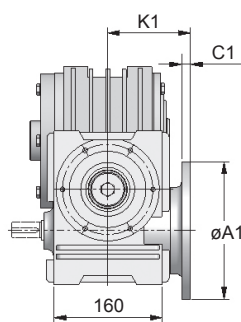
Carga do motor	Flange FF							
	A1	B1 ^{H7}	C1	E1	F1	J1	S1	K1
63	140	95	12	115	4	25	M8	118
71	160	110	12	130	4,5	32	M8	125
80	200	130	15	165	4,5	33	M10	126
90S/L	200	130	15	165	4,5	38	M10	131

Carga do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	118
71	105	70	11	85	3,5	32	6,5	125
80	120	80	11	100	4	33	8,5	126
90S/L	140	95	13	115	4	38	8,5	131

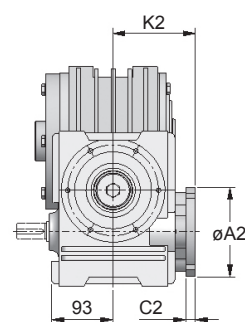
Obs. Ver dimensões dos eixos na página 88

Tamanho **12**

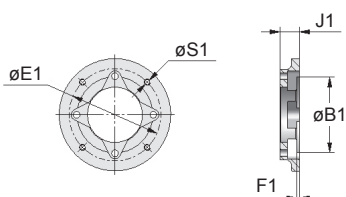
Braço de torção à direita



Entrada flange FF

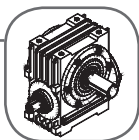


Entrada flange C-DIN

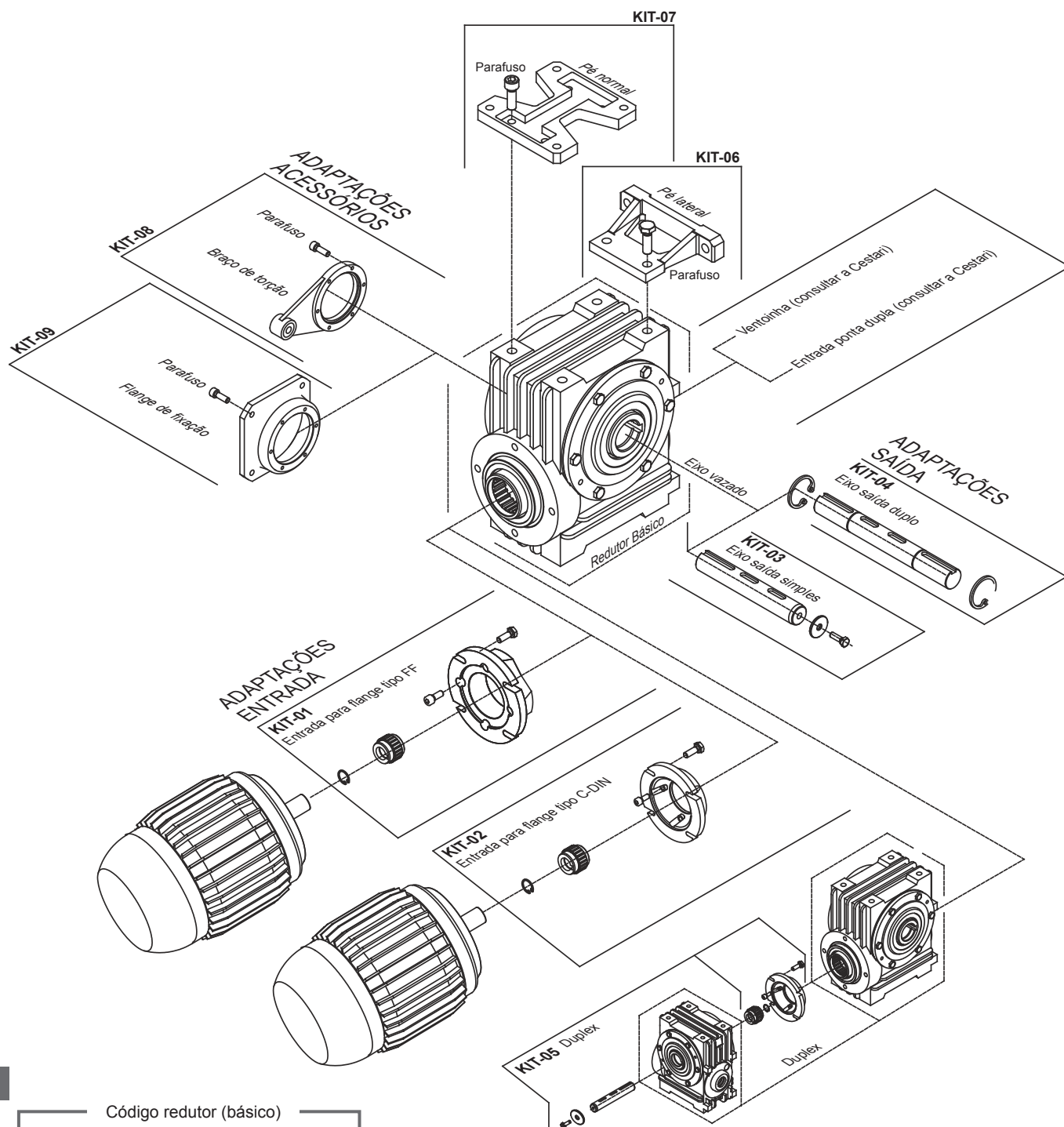


Carcaça do motor	Flange C-DIN							
	A2	B2 ^{H7}	C2	E2	F2	J2	S2	K2
63	90	60	8,5	75	3,5	25	5,5	118
71	105	70	11	85	3,5	32	6,5	125
80	120	80	11	100	4	33	8,5	126
90S/L	140	95	13	115	4	38	8,5	131

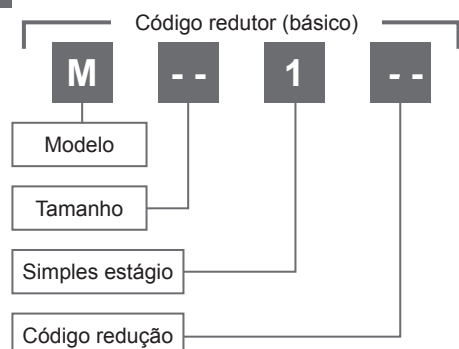
21

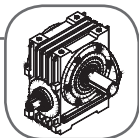


Código dos kits ver página 87



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Adaptações Entrada

KIT-01

Redutor	Descrição do Kit (Flange tipo FF)	Código Kit
04	Carcaça motor 63	MKE04B2
	Carcaça motor 71	MKE04C2
05 e 06	Carcaça motor 63	MKE05B2
	Carcaça motor 71	MKE05C2
	Carcaça motor 80	MKE05D2
	Carcaça motor 90S/90L	MKE05E2
07 e 08	Carcaça motor 71	MKE07C2
	Carcaça motor 80	MKE07D2
	Carcaça motor 90S/90L	MKE07E2
	Carcaça motor 100 e 112	MKE07G2
10 e 12	Carcaça motor 80	MKE10D2
	Carcaça motor 90	MKE10E2
	Carcaça motor 100 e 112	MKE10G2

KIT-02

Redutor	Descrição do Kit (Flange tipo C-DIN)	Código Kit
04	Carcaça motor 63	MKE04B3
	Carcaça motor 71	MKE04C3
05 e 06	Carcaça motor 63	MKE05B3
	Carcaça motor 71	MKE05C3
	Carcaça motor 80	MKE05D3
	Carcaça motor 90S/90L	MKE05E3
07 e 08	Carcaça motor 71	MKE07C3
	Carcaça motor 80	MKE07D3
	Carcaça motor 90S/90L	MKE07E3
	Carcaça motor 100 e 112	MKE07G3

Adaptações Saída

KIT-03

Redutor	Descrição do Kit	Código Kit
04	Eixo saída simples	MKS04N
05		MKS05N
06		MKS06N
07		MKS07N
08		MKS08N
10		MKS10N
12		MKS12N

KIT-04

Redutor	Descrição do Kit	Código Kit
04	Eixo saída duplo	MKS04D
05		MKS05D
06		MKS06D
07		MKS07D
08		MKS08D
10		MKS10D
12		MKS12D

KIT-05

Redutor	Descrição do Kit	Código Kit
05/04	Duplex	MKD05
06/04		MKD05
07/04		MKD07
08/05		MKD08
10/05		MKD10
12/06		MKD12

Adaptações Acessórios

KIT-06

Redutor	Descrição do Kit	Código Kit
04	Pé lateral	MKA045
05		MKA055
06		MKA065
07		MKA075
08		MKA085
10		MKA105
12		MKA125

KIT-07

Redutor	Descrição do Kit	Código Kit
04	Pé normal	MKA041
05		MKA051
06		MKA061
07		MKA071
08		MKA081
10		MKA101
12		MKA121

KIT-08

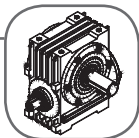
Redutor	Descrição do Kit	Código Kit
04	Braço de torção	MKA047
05		MKA057
06		MKA067
07		MKA077
08		MKA087
10		MKA107
12		MKA127

KIT-09

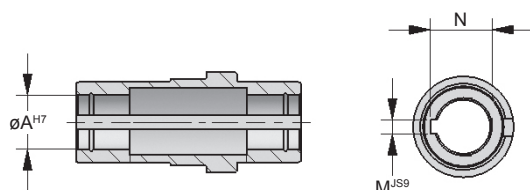
Redutor	Descrição do Kit	Código Kit
04	Flange de fixação	MKA043
05		MKA053
06		MKA063
07		MKA073
08		MKA083
10		MKA103
12		MKA123

Kit-Poeira

Redutor	04	05	06	07	08	10	12
Código Kit	MKP04	MKP05	MKP06	MKP07	MKP08	MKP10	MKP12



- Para montagem em eixos vazados, usar eixos acionados com as seguintes tolerâncias:
k7 para cargas uniformes ou choques moderados
k6 para choques fortes ou serviços reversíveis

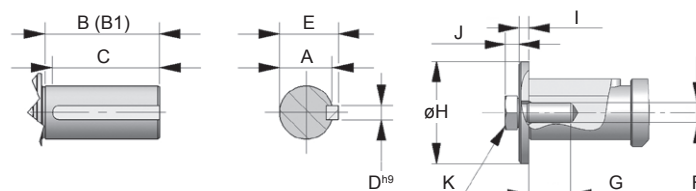


Eixo vazado

Tamanho	ϕA^{H7}	FL	M^{JS9}	N
04	25 ⁰ _{+0,021}	35,5	8 ^{-0,018} _{-0,018}	28,3 ⁰ _{+0,2}
05	30 ⁰ _{+0,021}	45		33,3 ⁰ _{+0,2}
06	35 ⁰ _{+0,025}	50	10 ^{-0,0215} _{-0,0215}	38,3 ⁰ _{+0,2}
07	45 ⁰ _{+0,025}	55	14 ^{-0,0215} _{-0,0215}	48,8 ⁰ _{+0,2}
08	50 ⁰ _{+0,025}	65		53,8 ⁰ _{+0,2}
10	55 ⁰ _{+0,030}	70	16 ^{-0,0215} _{-0,0215}	59,3 ⁰ _{+0,2}
12	60 ⁰ _{+0,030}	75	18 ^{-0,0215} _{-0,0215}	64,4 ⁰ _{+0,2}

Eixo entrada simples integral

Tamanho	ϕA^{k6}	Chaveta			Rosca			Arruela		Parafuso	
		B	C	D^{H9}	E	F	G	H	I	J	K
04	16 ^{+0,012} _{+0,001}	32	30	5 ⁰ _{-0,030}	18	M5	13	30	3,0	3,5	M5x15
05	20 ^{+0,015} _{+0,002}	40	38	6 ⁰ _{-0,030}	22,5	M6	16				M6x15
06	22 ^{+0,015} _{+0,002}	44	42		24,5	M8	19				M8x15
07	25 ^{+0,015} _{+0,002}	50	48	8 ⁰ _{-0,036}	28	M10	22	35	3,5	5,5	M8x20
08	28 ^{+0,015} _{+0,002}	56	53		31						
10	32 ^{+0,018} _{+0,002}	64	61	10 ⁰ _{-0,036}	35	M12	28	45	4,0	7	M12x35
12	35 ^{+0,018} _{+0,002}	70	67		38		28			8	

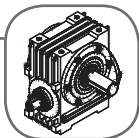


Eixo saída simples e duplo

Tamanho	øA ^{h7}	Chaveta					Rosca		Arruela		Parafuso	
		B	(B1)	C	D ^{h9}	E	F	G	H	I	J	K
04	25 ⁰ _{-0,021}	53	51,8	48	8 ⁰ _{-0,036}	28	M10	19	35	3,5	5,5	M10x20
05	30 ⁰ _{-0,021}	65,5	64	60		33	M10	22			7	M10x25
06	35 ⁰ _{-0,025}	75,5	74	67	10 ⁰ _{-0,036}	38	M12	28			8	M12x35
07	40 ⁰ _{-0,025}	80	80	75	12 ⁰ _{-0,043}	43	M16	36	60	5,5	10,5	M16x40
08	45 ⁰ _{-0,025}	90	90	85	14 ⁰ _{-0,043}	48,5						
10	50 ⁰ _{-0,025}	100	100	95		53,5						
12	55 ⁰ _{-0,030}	110	110	105	16 ⁰ _{-0,043}	59	M20	42	80	7,0	13	M20x45

B= Eixo saída
B1= Eixo saída duplo

- Chavetas conforme norma DIN6885/1
- Dimensões em mm
- Eixos com rosca e arruela somente serão fornecidos sob encomenda
- Eixo de entrada duplo será fornecido sob encomenda



Instalação do redutor

Antes de instalar o redutor, verificar a plaqueta de identificação e as recomendações do Manual de Instalação fornecido junto com o redutor.

Observar a posição do respiro no momento da montagem do redutor na máquina, para evitar vazamento no início da operação.

Fixar sobre uma base rígida e plana para evitar esforços e tensões adicionais.

Utilizar os parafusos de fixação com o máximo de diâmetro possível.

Os elementos a serem montados no eixo, tais como: acoplamentos, polias, rodas dentadas, etc., devem ter seus furos executados com tolerância H7 e montados com esforço leve, devendo ficar os mesmos o mais próximo possível do encosto do eixo.

O uso de martelo na montagem desses elementos pode danificar os rolamentos.

Alinhar cuidadosamente os eixos, para que não exista esforço adicional.

Os redutores com eixo de saída vazado e braço de torção, devem ser montados com o braço de torção entre o redutor e a máquina.

Manter acessíveis todos os bujões de óleo.

Lubrificação

Os redutores de rosca sem fim da linha Magma "M" são fornecidos de fábrica, com óleo sintético de longa duração, o que proporciona redução de custos com manutenção, combinado com um alto rendimento em uma larga faixa de temperatura, tendo uma grande resistência ao envelhecimento. Ver tabela 3, página 90.

Os redutores devem sempre ser transportados e armazenados na posição de trabalho 2, conforme página 91.

Os rolamentos dos mancais são lubrificados com graxa permanente especial de base orgânica. Contém em sua formulação uma aditivação de lubrificantes sólidos (moS2) que lhe confere boa resistência no campo de atrito misto. Ver tabela 4, página 90.

Para a identificação dos níveis de óleo relacionado à posição de trabalho ver página 91.

Troca de óleo lubrificante

Os redutores abastecidos com óleo sintético foram projetados para que trabalhando em condições normais não necessitem de amaciamento. Portanto recomenda-se a primeira troca de óleo após 7500 horas de funcionamento ou 18 meses em condições normais de trabalho, isto é, com a temperatura ambiente entre 10°C e 40°C sem grandes variações.

Em condições severas consultar as tabelas na página 90. Sendo que a máxima temperatura recomendada é de 90°C medida no óleo (corresponde a 75°C medido na caixa do redutor), e o ambiente deve estar sem contaminação por pó ou agente químico agressivo que possam contaminar o óleo do redutor.

A escolha do óleo na primeira troca deve obedecer às recomendações da tabela 3, página 90.

Se a opção na troca for por óleo mineral é necessário

observar o período de troca correspondente ver tabela 5, página 90. **Nunca misturar o óleo mineral ao óleo sintético e nem óleos de diferentes marcas.**

A troca de óleo deve ser feita com óleo ainda quente, a fim de facilitar o seu escoamento e limpeza.

Refrigeração

Dependendo das condições ambientais, deve-se providenciar a limpeza externa do redutor em intervalos regulares para permitir uma melhor dissipação de calor.

Quando existir a possibilidade de contaminação do lubrificante por agentes externos recomenda-se a desmontagem, limpeza interna e reenchimento com lubrificante sintético, conforme indicação na plaqueta do redutor. A quantidade de óleo está na página 91 e o tipo de óleo na tabela 3, página 90. Recomenda-se o reenchimento com o óleo original de fábrica conforme indicado na plaqueta do redutor para a manutenção da **garantia do redutor**.

Não misturar lubrificantes de marcas diferentes.

A Cestari recomenda, para redutores abastecidos com óleo sintético, a verificação e, se necessário, a troca dos rolamentos e retentores na ocasião da troca de óleo. Com isso os custos de parada de equipamento para manutenção serão reduzidos. Após a garantia, quando o conjunto coroa e pinhão sinalizarem o fim de vida, recomenda-se substituir o redutor básico completo, e só aproveitar os itens periféricos: flange, motor, base, pé. Nos distribuidores Cestari a entrega é quase sempre imediata e a garantia pode ser prolongada, evitando-se assim os custos de máquina parada, possíveis erros de ajustes na montagem e estoques desnecessários de peças para manutenção.

Quantidade de graxa para os rolamentos

Para rolamentos de alta rotação (motor e eixo de entrada do redutor), preencher com graxa um terço da cavidade entre rolamentos e rolos cilíndricos.

Rolamentos de baixa rotação são blindados, portanto devem ser trocados quando for necessário.

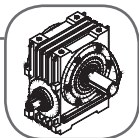
Importante: Se o redutor após um período de utilização for transferido de uma posição de trabalho para uma outra posição de trabalho em que o rolamento fique numa posição que não receba a lubrificação por salpico, os mesmos devem ser trocados ou engraxados, pois sua lubrificação por graxa permanente pode ter sido lavada pelo óleo da posição anterior.

Proteção dos redutores

Os redutores são pintados com tinta padrão A1. Os eixos e partes expostas são protegidos contra oxidação por uma camada de óleo protetor. Maiores informações favor consultar o "Manual de Instalação, Lubrificação, Manutenção e Garantia" fornecido junto com o redutor.

Segurança

A responsabilidade de proteger as peças em movimento para evitar acidentes é do usuário do equipamento onde o redutor será montado.


Tabela 3 Lubrificantes sintéticos recomendados

Fabricante	Símbolo na plaqueta do redutor	Viscosidade mm ² /s (c St) a 40°C ISO - NLGI	Tipo do lubrificante Temp. máxima do óleo - 90°C
ExxonMobil	OA	VG 460	SHC 634
Shell	OB	VG 460	Tivela S 460
Klüber	OC	VG 460	Klüber Synth - EG4-460
Klüber	OD	VG 460	Syntheso D460 EP
Petrobras	—	VG 460	Lubrax Syntesis Gear 0 460

Tabela 4 Lubrificantes minerais

Fabricante	Viscosidade e tipo de lubrificante		
	AGMA 7 EP -10°C a 10°C	AGMA 8 EP 10°C a 50°C	Graxa para mancais
Petrobrás	Lubrax Industrial EGF 460 PS	Lubrax Industrial EGF 680 PS	Lubrax GMA - 2
Ipiranga	Ipiranga SP 460	Ipiranga SP 680	Ipiflex 2
Esso	Spartan EP 460	Spartan EP 680	Beacon 2
Texaco	Meropa 460	Meropa 680	Multifak
Atlantic	Pennant 460	Pennant 680	Litholine 2
Shell	Omala 460	Omala 680	Alvania 2
Mobiloil	Mobilgear 634	Mobilgear 636	Mobil Grease MP
Promax	G. O 140	G. O 250	Bardahl Purpose Grease
Chemlub	—	Gear 680	UD-90 Especial

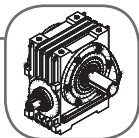
- Rotações na entrada inferior a 500 rpm combinado com baixas temperaturas, consultar a Cestari.
- É necessário esgotar todo o óleo do redutor e lavar seus componentes para evitar contaminação.
- Para a indústria alimentícia e farmacêutica, deve ser utilizado óleo sintético com requisito do registro NSF H1 - Sob consulta.

Tabela 5 Lubrificação para rotações de entrada na faixa de 500 rpm a 2800 rpm

Temperatura do óleo (°C)	Intervalo para trocas subsequentes (horas)	
	Óleo Mineral	Óleo Sintético
< 80°	5000	15.000
80 - 85	3500	10.000
85 - 90	2500	7.500

Tabela 6 Conversões de unidades

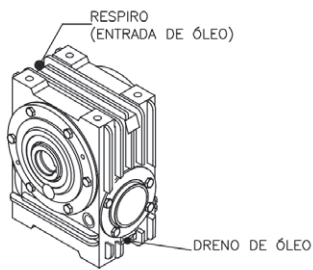
Multiplique	por	para obter
atmosfera física (atm) 760 mmHg	101.325	Pa
bar	100.000	Pa
cavalo vapor (cv)	0,7355	kW
dina (dyn)	0,00001	N
pé (ft)	12	in
pé (ft)	0,3048	m
galão (U.S. liquid) (gal)	3,785412	dm ³
galão (U.K. liquid) (Imp. gal)	4,546087	dm ³
horsepower (HP)	0,7457	kW
polegada (in)	0,0254	m
kilograma força (kgf)	9,80665	N
kilopond (kp)	9,80665	N
kilopound (kip)	4448,222	N
metros cúbicos (m ³)	1.000	litros (l)
milha, U.S. statute	1609,343	m
nó (U.S. Knot)	0,514791	m/s
onça (avoirdupois) (oz)	28,4131	g
onça (troy) (oz tr)	31,10348	g
poise (p)	0,1	N , s/m ²
pound (avoirdupois) (lb)	0,4536	kg
pound (avoirdupois) (lb)	16	onça (avdp)
libra-força por poleg. quadr. (psi)	0,070306	kgf/cm ²
libra-força por poleg. quadr. (psi)	6894,757	Pa
rpm	0,1047	radianos / s
stoke (St)	0,0001	m ² / s
tonelada (t)	1.000	kg
torr	133,322	Pa



POSIÇÃO TRABALHO 1

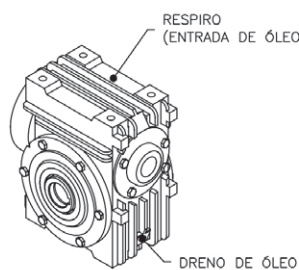


M04/M08



M10/M12

POSIÇÃO TRABALHO 2



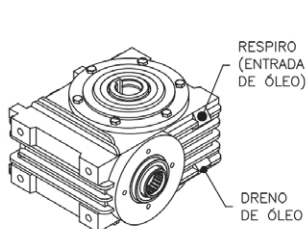
M04/M08



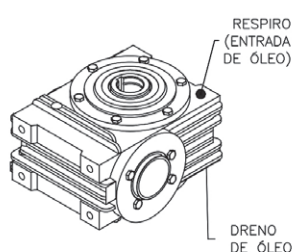
M10/M12

* Posição de transporte e armazenamento

POSIÇÃO TRABALHO 3

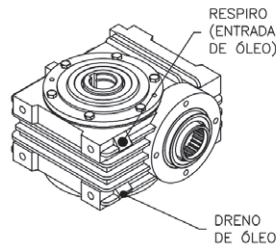


M04/M08

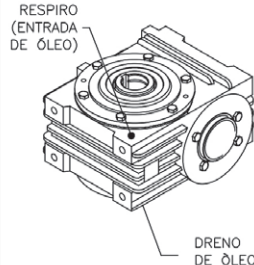


M10/M12

POSIÇÃO TRABALHO 4

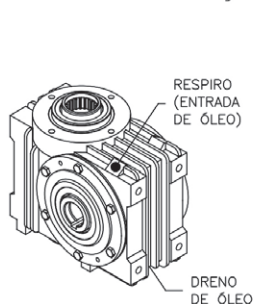


M04/M08

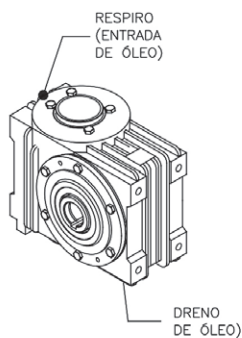


M10/M12

POSIÇÃO TRABALHO 5

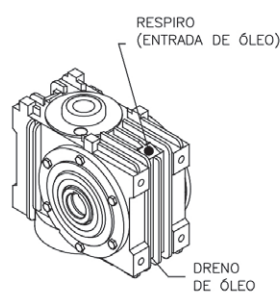


M10/M12

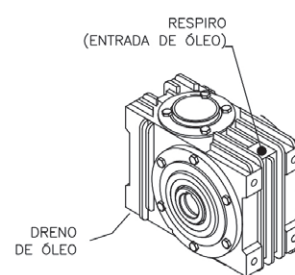


M10/M12

POSIÇÃO TRABALHO 6



M04/M08

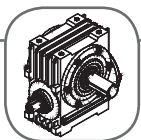


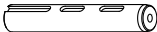
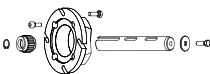
M10/M12

Nota: A válvula para respiro do redutor deve ser montada somente antes do redutor entrar em operação observando a posição de trabalho (PT).

Quantidade de lubrificante (lts)

	Tamanho	04	05	06	07	08	10	12
	Volume	0,27	0,65	0,87	1,2	1,68	2,74	3,9
SIMPLES	Tamanho	05 (04)	06 (04)	07 (04)	08 (05)	10 (05)	12 (06)	
	Volume	0,65 / 0,27	0,87 / 0,27	1,2 / 0,27	1,68 / 0,65	2,74 / 0,65	3,9 / 0,87	


Peso aproximado dos redutores básicos, kits e acessórios em kg

		Tamanho							
		motor	04	05	06	07	08	10	12
			6,5	13	19	26	35	52	75
	Redutor básico com lubrificante								
	63	1,2	1,7	1,7	-	-	-	-	-
	71	1,5	2,0	2,0	2,5	2,5	-	-	-
	80	-	3,0	3,0	3,2	3,2	4,5	4,5	4,5
	90S/90L	-	3,0	3,0	3,2	3,2	4,5	4,5	4,5
	100/112	-	-	-	4,2	4,2	6,5	6,5	6,5
	63	0,5	0,8	0,8	-	-	-	-	-
	71	0,7	0,9	0,9	1,0	1,0	-	-	-
	80	-	1,1	1,1	1,2	1,2	2,0	2,0	2,0
	90S/90L	-	1,5	1,5	1,5	1,5	2,5	2,5	2,5
	100/112	-	-	-	2,0	2,0	3,5	3,5	3,5
			0,6	1,1	1,7	2,8	3,8	5,0	6,5
Eixo saída simples									
			0,9	1,4	2,3	3,8	5,2	6,5	7,5
Eixo saída duplo									
			0,7	1,6	2,8	3,0	4,3	5,0	7,5
Pé lateral									
			0,8	1,5	2,4	2,5	3,6	4,5	6,5
Pé normal									
			0,6	1,3	1,6	2,0	3,0	4,0	6,0
Braço de torção									
			1,0	2,0	3,0	0,4	5,7	8,0	11
Base de fixação									
			-	2,0	2,0	2,0	2,4	5,2	6,1
Kit duplex									



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