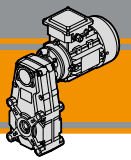


Motorreductores pendulares
Motoredutores de eixos paralelos
Helical parallel gearmotors



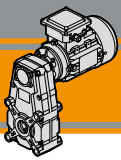


Índice	Índice	Index	Pag. Pág. Page
Características técnicas	<i>Características técnicas</i>	Technical features	E2
Clasificación	<i>Designação</i>	Classification	E2
Sentidos de rotación	<i>Sentidos de rotação</i>	Direction of rotation	E3
Nomenclatura	<i>Simbologia</i>	Legend	E3
Lubricación	<i>Lubrificação</i>	Lubrication	E3
Cargas radiales	<i>Cargas radiais</i>	Radial loads	E4
Datos técnicos	<i>Dados técnicos</i>	Technical data	E5
Dimensiones	<i>Dimensões</i>	Dimensions	E8

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FT

Motorreductores pendulares
Motoredutores de eixos paralelos
Helical parallel gearmotors

60 Hz

Características técnicas

Características técnicas

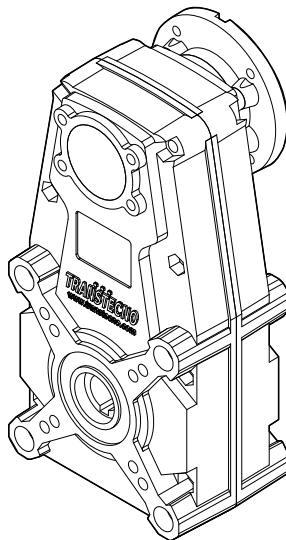
Technical features

La gama de motorreductores pendulares FT tiene las siguientes características principales:

Os Motoredutores de eixos paralelos FT possuem as seguintes características principais:

FT helical parallel gearmotors range has the following main features:


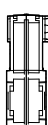
- Carcasas de aluminio fundido a presión
- Aceite de lubricación sintética de larga duración
- Engranajes helicoidales.
- Caixa de alumínio fundido sob pressão
- Lubrificação permanente com óleo sintético
- Engrenagens cilíndricas com dentes helicoidais.
- Die-cast aluminum housings
- Permanent synthetic oil long-life lubrication.
- helical gears.

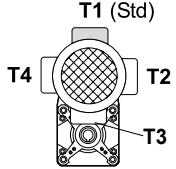


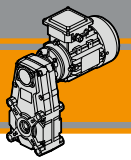
Clasificación

Designação

Classification

REDUCTOR / REDUTOR / GEARBOX						
FT	146	U	60.63	O20	56	B5
Tipo Tipo Type	Tamaño Tamanho Size	Versión Versão Version	Relación de reducción Rapporto Ratio	Eje de salida hueco Eixo saída vazado Hollow output shaft	IEC 	Forma constructiva Forma construtiva Version
FT 	105/3 105/4 146 196	U...	Véase tablas Veja tabelas see tables	Véase tablas Veja tabelas see tables	56 63 71 80 90	B5 B14

MOTOR / MOTOR / MOTOR					
0.09kW	4p	3ph	230/400V	60Hz	T1
Potencia Potência Power	Polos Pólos Poles	Fases Fases Phases	Tensión Tensão Voltage	Frecuencia Frequência Frequency	Posición caja de bornes Pos. Conexão Terminal box pos.
Véase tablas Veja tabelas see tables	2p 4p 6p 8p	1ph 3ph	230V 230/400V	60Hz	T1 (Std) 

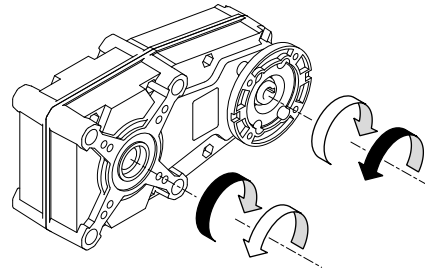
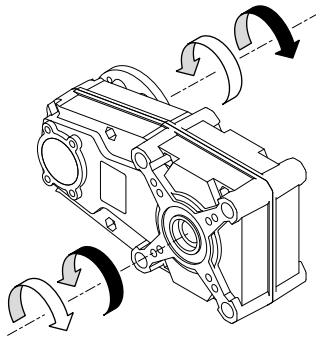


Sentidos de rotación

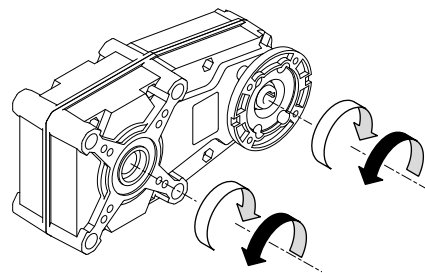
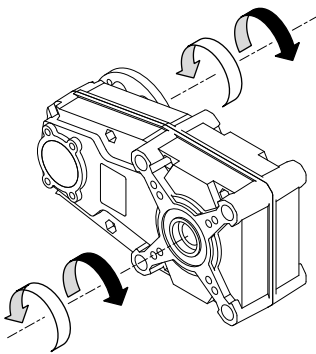
Sentidos de rotação

Direction of rotation

FT105/3
 FT146
 FT196



FT105/4



Nomenclatura

Simbologia

Legend

n_1	[rpm]	Velocidad de entrada / <i>Velocidade na entrada</i> / Input speed
n_2	[rpm]	Velocidad de salida / <i>Velocidade na saída</i> / Output speed
i		Relación de reducción / <i>Relação de redução</i> / Ratio
P_1	[kW]	Potencia en la entrada / <i>Potência da entrada</i> / Input power
M_2	[Nm]	Par en la salida en función de P_1 / <i>Torque na saída em função de P_1</i> / Output torque referred to P_1
P_{n1}	[kW]	Potencia nominal en la entrada / <i>Potência nominal na entrada</i> / Nominal input power
M_{n2}	[Nm]	Par nominal en la salida en función de P_{n1} / <i>Torque nominal na saída em função de P_{n1}</i> / Nominal output torque referred to P_{n1}
sf		Factor de servicio / <i>Fator de serviço</i> / Service factor
R_2	[N]	Carga radial admisible en la salida / <i>Carga radial admissível na saída</i> / Maximum output radial load
A_2	[N]	Carga axial admisible en la salida / <i>Carga axial admissível na saída</i> / Maximum output axial load

Lubricación

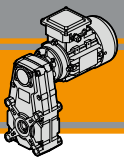
Lubrificação

Lubrication

Todos los motoredutores pendulares son previamente lubricados con aceite sintético con grado de viscosidad 320, por lo tanto, pueden ser instalados en cualquier posición de montaje y no requieren mantenimiento.

Todos os motoredutores são fornecidos completos de lubrificante sintético de viscosidade 320, portanto, podem ser instalados em qualquer posição de montagem e não necessitam de manutenção.

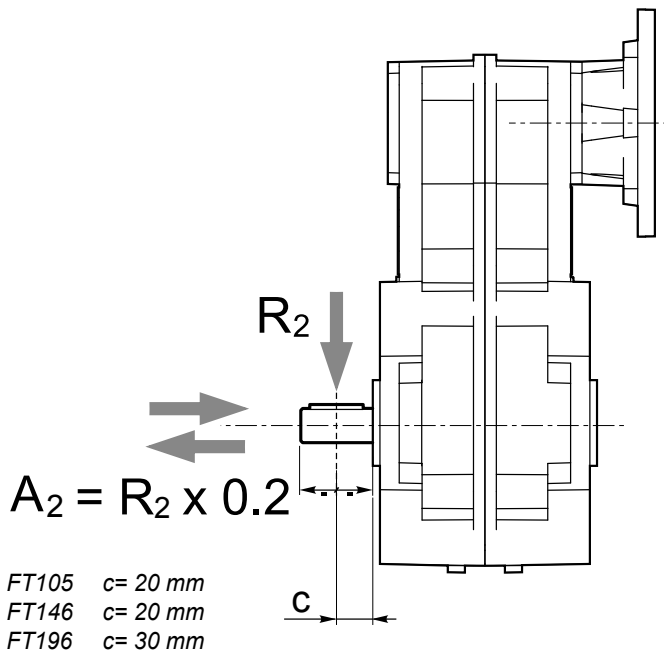
Permanent synthetic oil long-life lubrication (viscosity grade 320) makes it possible to use the gearmotors in all mounting positions; for this reason they can be installed in any assembly position and do not require maintenance.



Cargas radiales

Cargas radiais

Radial loads

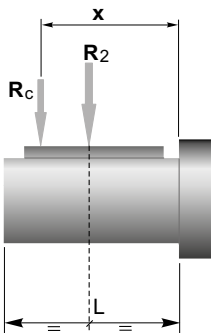


n ₂ [min ⁻¹]	R ₂ [N]		
	FT105	FT146	FT196
70	1500	2500	3500
40	1700	2700	4000
30	1850	2850	4600
20	2000	3000	5500
10	2000	3000	7000
5	2000	3000	7000

Cuando la carga radial no se aplica en el punto medio del eje, es necesario calcular la carga efectiva a través la siguiente fórmula:

Quando a carga radial resultante não é aplicada na linha mediana da eixo, é preciso calcular aquela efetiva com a seguinte fórmula:

When the resulting radial load is not applied on the centre line of the shaft it is necessary to calculate the effective load with the following formula:

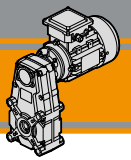


	FT105	FT146	FT196
a	82	82,5	132
b	62	62,5	102
R _{2MAX}	2000	3000	7000

$$R_c = \frac{R_2 \cdot a}{(b+x)} \leq R_{2MAX}$$

$$R \leq R_c$$

a, b = valores dados en la tabla
 a, b = valores referidos na tabela
 a, b = values given in the table




Datos técnicos

Dados técnicos

Technical data

n_1 1750 [min⁻¹]

	n_2 [min ⁻¹]	Mn_2 [Nm]	Pn_1 [kW]	i
FT105				
FT105/3	85	40	0.38	20.57
	53	50	0.29	33.32
	39	65	0.29	44.36
	32	65	0.23	54.87
	24	65	0.18	71.84
	23	65	0.16	77.07
	20	65	0.14	88.87
	14	65	0.10	124.81
	9.6	65	0.07	181.35
FT105/4	7.8	65	0.06	224.32
	5.6	65	0.04	315.05
	4.8	65	0.03	368.19
	3.3	65	0.02	534.98
	2.6	65	0.02	661.76
1.9	65	0.01	929.40	

IEC Motores aplicables
 IEC Motores aplicáveis
 IEC Motor adapters

56B14

FT146

93	80	0.81	18.75			
				67	0.58	26.17
50	100	0.54	35.07			
				44	0.48	39.44
33	0.36	52.86				
			29	110	0.35	60.63
21	0.25	84.63				
			18	0.22	95.61	
						15
13	0.16	133.45				
			12	0.14	150.18	
						11
9.8	0.13	178.83				
			7.8	0.10	223.92	
						7.4
5.8	0.08	300.07				
			4.4	0.06	397.38	

56 B5/B14

63 B5/B14

71 B5/B14

FT196

86	350	3.3	20.41								
				50	400	2.2	34.81				
								41	450	2.0	42.61
24	550	1.4	72.68								
				19	1.1	92.82					
							14	0.85	123.95		
										11	0.66
8.7	0.52	201.80									
			6.5	0.39	269.47						

71 B5/B14

80 B5/B14

90 B5/B14

NOTA

Las áreas resaltadas indican el tamaño de carcasa del motor correspondiente.



* =seleccionar con respecto a la aplicación: Favor de contactar con nuestro Servicio Técnico

Antes de seleccionar cualquier reductor, favor de revisar los valores de desempeño en las páginas E6-E7.

N.B.

As áreas destacadas indicam a aplicabilidade correspondente ao tamanho do motor.



* =hido em função da aplicação: entre em contato com o nosso Serviço Técnico.

Antes de executar a escolha do motoredutor analisar o desempenho listado nas tabelas das páginas E6-E7.

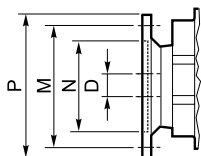
N.B.

Highlighted areas indicate motor inputs available on each size of unit.

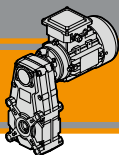






* =lected depending on application: please contact our Technical Department.

Before selecting any gearbox, please read the performance values shown in the tables on page E6-E7



	IEC Dimension / IEC Dimensões / IEC Dimensions									
	56 B5	56 B14	63 B5	63 B14	71 B5	71 B14	80 B5	80 B14	90 B5	90 B14
N	80	50	95	60	110	70	130	80	130	95
M	100	65	115	75	130	85	165	100	165	115
P	120	80	140	90	160	105	200	120	200	140
	9		11		14		19		24	

**FT****Motorreductores pendulares**
Motoredutores de eixos paralelos
Helical parallel gearmotors**60 Hz****Datos técnicos****Dados técnicos****Technical data**

P ₁ [kW]	n ₂ [min ⁻¹]	M ₂ [Nm]	sf	i			P ₁ [kW]	n ₂ [min ⁻¹]	M ₂ [Nm]	sf	i		
0.09						0.12							
(0.12 hp) 56B4 (1750 min ⁻¹)	85	9	4.2	20.57	FT105/3	B14	(0.16 hp) 63A4 (1750 min ⁻¹)	93	12	6.9	18.75	FT146	B5/B14
	53	15	3.3	33.32		B14		67	16	5.0	26.17		B5/B14
	39	20	3.2	44.36		B14		62	17	4.6	28.26		B5/B14
	32	25	2.6	54.87		B14		50	22	4.6	35.07		B5/B14
	24	33	2.0	71.84		B14		44	24	4.1	39.44		B5/B14
	23	36	1.8	77.07		B14		38	29	3.5	46.44		B5/B14
	20	41	1.6	88.87		B14		33	33	3.1	52.86		B5/B14
	14	58	1.1	124.81		B14		29	37	2.9	60.63		B5/B14
	9.6	84	0.8	181.35		B14		25	43	2.6	70.00		B5/B14
	7.8	100	0.7	224.32	B14	21		52	2.1	84.63	B5/B14		
	5.6	100	0.7	315.05	B14	18		59	1.9	95.61	B5/B14		
	4.8	110	0.6	368.19	FT105/4	B14		15	70	1.6	113.40	B5/B14	
	3.3	110	0.6	534.98		B14		13	82	1.3	133.45	B5/B14	
	2.6	110	0.6	661.76		B14		12	92	1.2	150.18	B5/B14	
	2.6	110	0.6	661.76		B14		11	99	1.2	160.43	B5/B14	
	1.9	110	0.6	929.40		B14		9.8	110	1.1	178.83	B5/B14	
	93	9	9.2	18.75	FT146	B5/B14		7.8	138	0.9	223.92	B5/B14	
	67	12	6.6	26.17		B5/B14		7.4	146	0.8	236.83	B5/B14	
62	13	6.1	28.26	B5/B14		5.8	150	0.8	300.07	B5/B14			
50	16	6.2	35.07	B5/B14		4.4	150	0.8	397.38	B5/B14			
44	18	5.5	39.44	B5/B14		93	17	4.6	18.75	FT146	B5/B14		
38	21	4.7	46.44	B5/B14		67	24	3.3	26.17		B5/B14		
33	24	4.1	52.86	B5/B14		62	26	3.1	28.26		B5/B14		
25	28	3.9	60.63	B5/B14		50	32	3.1	35.07		B5/B14		
21	32	3.4	70.00	B5/B14		44	36	2.7	39.44		B5/B14		
15	39	2.8	84.63	B5/B14		38	43	2.3	46.44		B5/B14		
13	44	2.5	95.61	B5/B14		33	49	2.0	52.86		B5/B14		
11	52	2.1	113.40	B5/B14		29	56	2.0	60.63		B5/B14		
9.8	62	1.8	133.45	B5/B14	25	65	1.7	70.00	B5/B14				
7.8	69	1.6	150.18	B5/B14	21	78	1.4	84.63	B5/B14				
7.4	74	1.6	160.43	B5/B14	18	88	1.2	95.61	B5/B14				
5.8	83	1.5	178.83	B5/B14	15	105	1.1	113.40	B5/B14				
4.4	103	1.2	223.92	B5/B14	13	123	0.9	133.45	B5/B14				
7.4	109	1.1	236.83	B5/B14	12	139	0.8	150.18	B5/B14				
5.8	139	0.9	300.07	B5/B14	11	148	0.8	160.43	B5/B14				
4.4	150	0.8	397.38	B5/B14	93	24	3.3	18.75	FT146	B5/B14			
67	34	2.4	26.17	B5/B14	67	34	2.4	26.17		B5/B14			
62	36	2.2	28.26	B5/B14	62	36	2.2	28.26		B5/B14			
50	45	2.2	35.07	B5/B14	50	45	2.2	35.07		B5/B14			
44	51	2.0	39.44	B5/B14	44	51	2.0	39.44		B5/B14			
38	60	1.7	46.44	B5/B14	38	60	1.7	46.44		B5/B14			
33	68	1.5	52.86	B5/B14	33	68	1.5	52.86		B5/B14			
29	78	1.4	60.63	B5/B14	29	78	1.4	60.63		B5/B14			
25	90	1.2	70.00	B5/B14	25	90	1.2	70.00		B5/B14			
21	109	1.0	84.63	B5/B14	21	109	1.0	84.63		B5/B14			
18	123	0.9	95.61	B5/B14	18	123	0.9	95.61		B5/B14			

Nota:

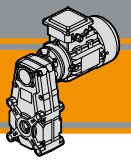
Por favor, compruebe que el par de salida M2 no exceda el valor en las áreas grises

N. B.

Sempre verifique que o torque (M2) não exceda o valor indicado nas tabelas cinzas

N.B.





Please check that the output torque M2 does not exceed the value in the grey areas



Datos técnicos

Dados técnicos

Technical data

P ₁ [kW]	n ₂ [min ⁻¹]	M ₂ [Nm]	sf	i			P ₁ [kW]	n ₂ [min ⁻¹]	M ₂ [Nm]	sf	i			
0.37							1.5							
(0.50 hp)	93	36	2.2	18.75	FT146	B5/B14	(2.0 hp)	86	157	2.2	20.41	FT196	B5/B14	
	67	50	1.6	26.17		B5/B14		50	268	1.5	34.81		B5/B14	
71A4	62	54	1.5	28.26		B5/B14		90S4	41	328	1.4		42.61	B5/B14
(1750 min ⁻¹)	50	67	1.5	35.07		B5/B14		(1750 min ⁻¹)	29	457	1.1		59.36	B5/B14
	44	75	1.3	39.44		B5/B14			24	559	1.0		72.68	B5/B14
	38	88	1.1	46.44		B5/B14								
	33	100	1.0	52.86		B5/B14								
	29	115	1.0	60.63		B5/B14								
	25	133	0.8	70.00		B5/B14								
	86	39	9.0	20.41		FT196	B5/B14	(3.0 hp)	86	230	1.5		20.41	FT196
	50	66	6.1	34.81	B5/B14			50	393	1.0	34.81	B5/B14		
	41	81	5.6	42.61	B5/B14			90L4	41	481	0.9	42.61	B5/B14	
	29	113	4.4	59.36	B5/B14			(1750 min ⁻¹)					B5/B14	
	24	138	4.0	72.68	B5/B14								B5/B14	
	19	176	3.1	92.82	B5/B14								B5/B14	
	14	235	2.3	123.95	B5/B14								B5/B14	
	11	300	1.8	158.02	B5/B14								B5/B14	
	8.7	383	1.4	201.80	B5/B14								B5/B14	
	6.5	511	1.1	269.47	B5/B14								B5/B14	

0.55

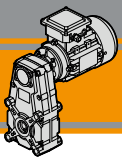
(0.75 hp)	93	53	1.5	18.75	FT146	B5/B14
	67	74	1.1	26.17		B5/B14
71B4	62	80	1.0	28.26		B5/B14
(1750 min ⁻¹)	50	99	1.0	35.07		B5/B14
	44	111	0.90	39.44		B5/B14
	86	58	6.1	20.41	FT196	B5/B14
	50	98	4.1	34.81		B5/B14
	41	120	3.7	42.61		B5/B14
	29	167	3.0	59.36		B5/B14
	24	205	2.7	72.68		B5/B14
	19	262	2.1	92.82		B5/B14
	14	350	1.6	123.95		B5/B14
	11	446	1.2	158.02		B5/B14
	8.7	569	1.0	201.80	B5/B14	

0.75

(1.0 hp)	86	79	4.5	20.41	FT196	B5/B14
	50	134	3.0	34.81		B5/B14
80A4	41	164	2.7	42.61		B5/B14
(1750 min ⁻¹)	29	228	2.2	59.36		B5/B14
	24	280	2.0	72.68		B5/B14
	19	357	1.5	92.82		B5/B14
	14	477	1.2	123.95		B5/B14
	11	608	0.9	158.02		B5/B14

1.1

(1.5 hp)	86	115	3.0	20.41	FT196	B5/B14
	50	196	2.0	34.81		B5/B14
80B4	41	240	1.9	42.61		B5/B14
(1750 min ⁻¹)	29	335	1.5	59.36		B5/B14
	24	410	1.3	72.68		B5/B14
	19	524	1.1	92.82		B5/B14



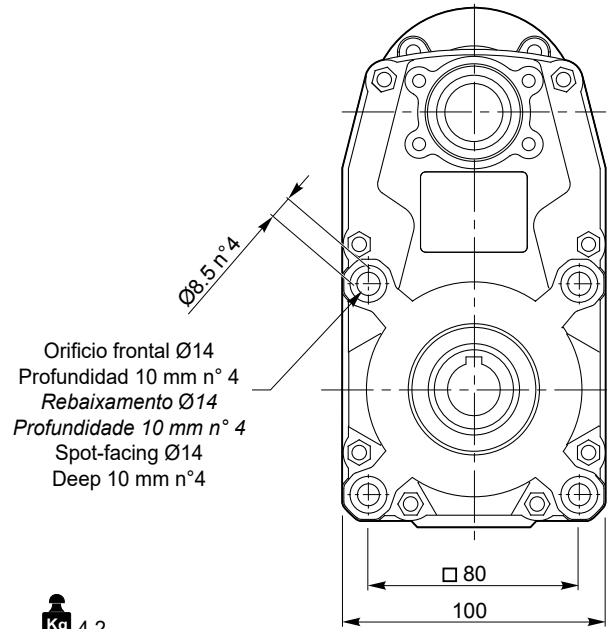
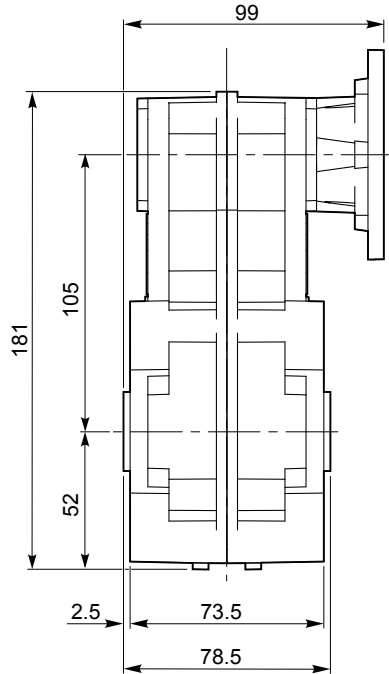
Dimensiones

Dimensões

Dimensions

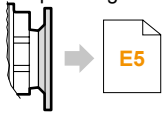
FT 105

FT 105...U



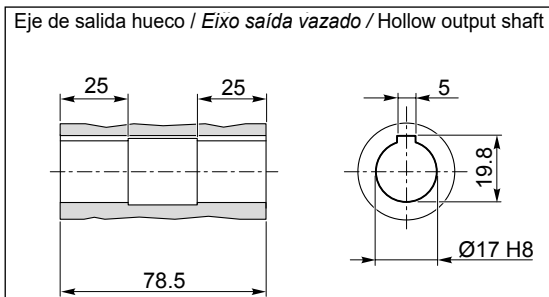
4.2 Kg

Bridas Motor
 Flange do motor
 Input flange

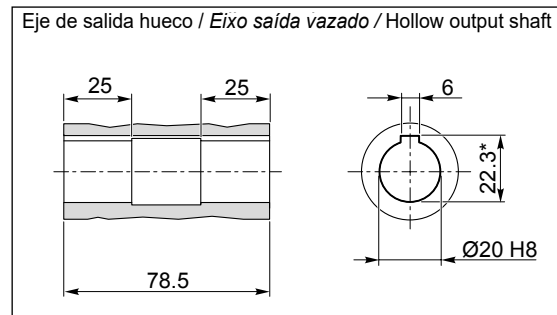


NOTA: Mismos puntos de arreglo en ambos lados
 NOTA: Mesma fixação em ambos os lados
 NOTE: Same fixing points in both sides

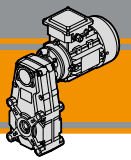
O17



O20



*Ranura especial / Encaixe da chaveta rebaixada / Special Keyway



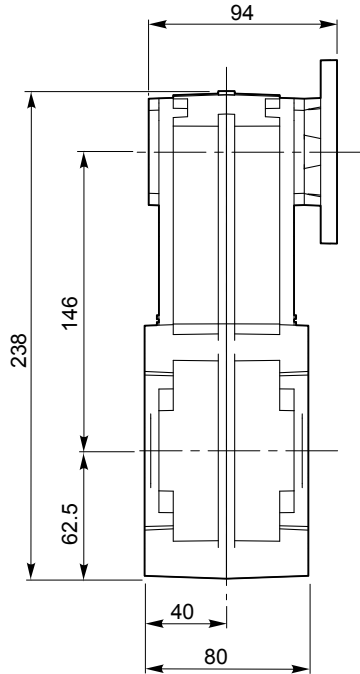
Dimensiones

Dimensões

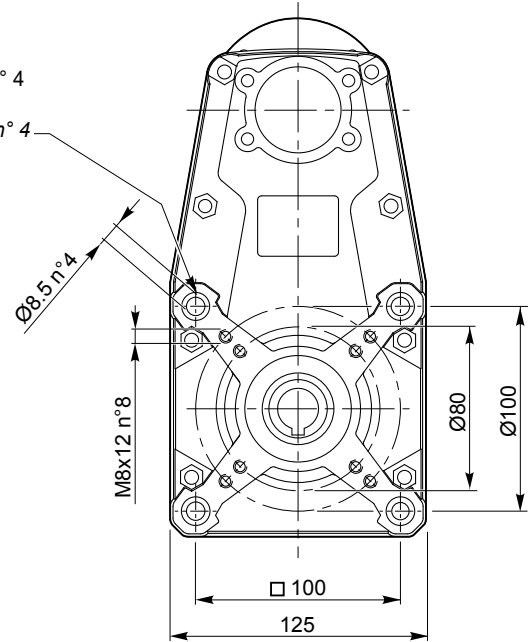
Dimensions

FT 146

FT 146 U



Orificio frontal Ø14
 Profundidad 9.5 mm n° 4
 Rebaixamento Ø14
 Profundidade 9.5 mm n° 4
 Spot-facing Ø14
 Deep 9.5 mm n°4



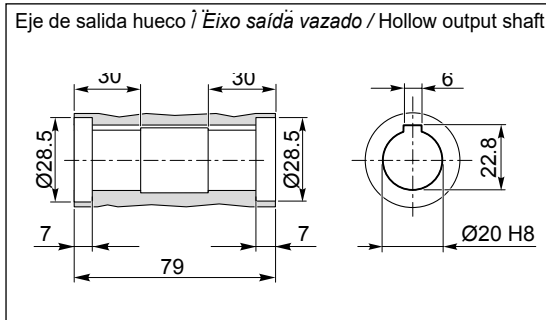
Kg 4.7

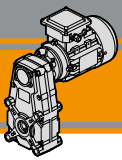
Bridas Motor
 Flange do motor
 Input flange



NOTA: Mismos puntos de arreglo en ambos lados
 NOTA: Mesma fixação em ambos os lados
 NOTE: Same fixing points in both sides

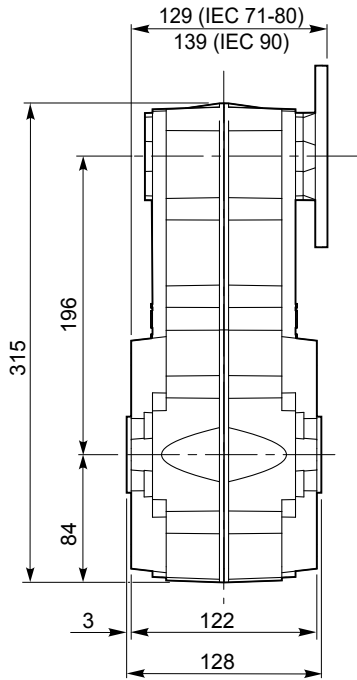
O20



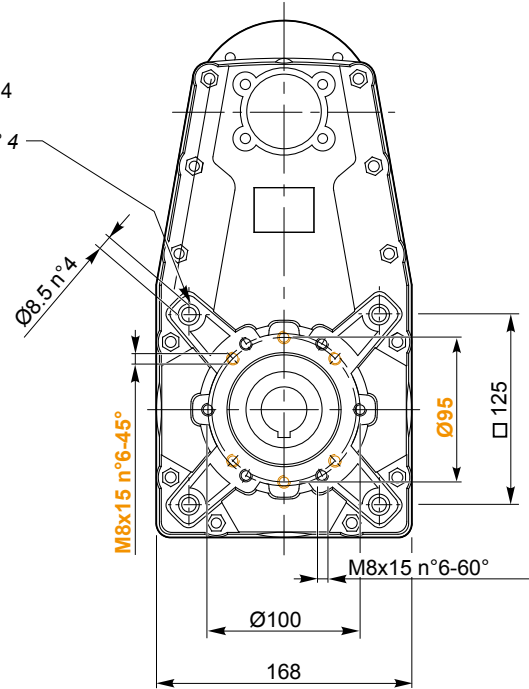


FT 196

FT 196 U



Orificio frontal Ø14
 Profundidad 11 mm n° 4
 Rebaixamento Ø14
 Profundidade 11 mm n° 4
 Spot-facing Ø14
 Deep 11 mm n° 4



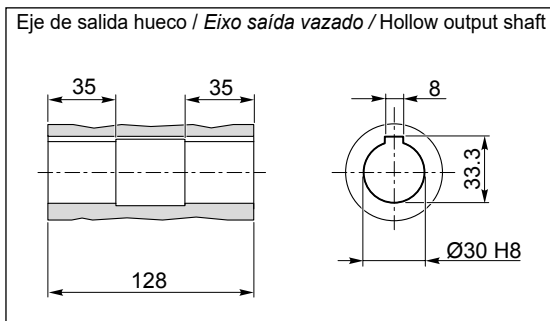
Kg 12.1

Bridas Motor
 Flange do motor
 Input flange

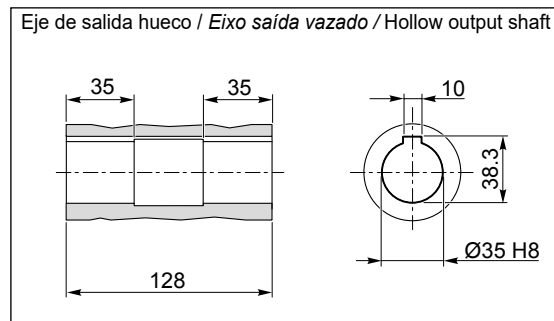


NOTA: Mismos puntos de arreglo en ambos lados
 NOTA: Mesma fixação em ambos os lados
 NOTE: Same fixing points in both sides

O30



O35



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