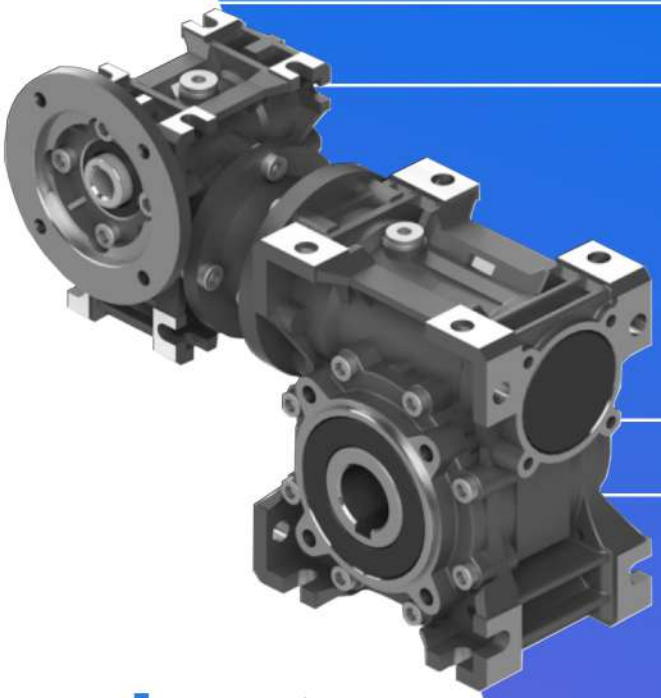
VSF - VF

Reductores de tornillo Sinfín



Worm geared motors

adpmotion

adpmotion

ÍNDICE / INDEX

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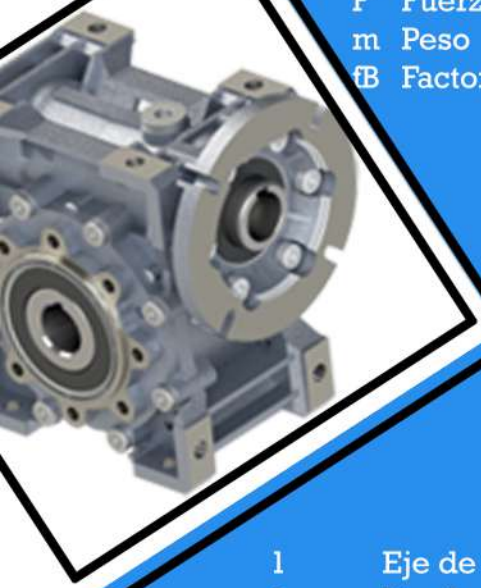
SIMBOLOGÍA / SYMBOLS

P	Potencia	(kW)
M	Momento torsor	(Nm)
n	N° de revoluciones	(rpm)
i	Relación de reducción	
F	Fuerza	(N)
m	Peso	(Kg)
fB	Factor servicio	



1	Input Shaft
2	Output shaft
R	Radial
A	Axial
s	Static
d	Dynamic
max	Maximum
min	Minimum

1	Eje de entrada
2	Eje de salida
R	Radial
A	Axial
s	Estático
d	Dinámico
max	Máximo
min	Mínimo

P	Power	(kW)
M	Torque	(Nm)
n	Speed	(rpm)
i	Reduction ratio	
F	Load	(N)
m	Weight	(Kg)
fB	Service Factor	

FACTOR SERVICIO/ SERVICE FACTOR

El factor de servicio (f_B) depende de las condiciones de funcionamiento a las cuales está sometido el reductor. Los parámetros que pueden ser considerados para una correcta selección de servicio más adecuado son:

- Tipo de carga de la máquina accionada: **U - M- H**
- Duración de funcionamiento diario: **horas/dia**
- Frecuencia de arranques: **arr/hora**

TIPO DE CARGA:

U- Uniforme	maf ≤ 0.3
M- Sobrecarga media	maf ≤ 3
H- Sobrecarga fuerte	maf ≤ 10

maf= Je/Jm
- maf factor de inercia
- Je (kgm^2) inercia externa reducida al eje motor
- Jm (hgm^2) inercia motr

En caso de maf > 10, ponerse en contacto con nuestro Servicio técnico.

U- Tornillos de Arquímedes para materiales ligeros, ventiladores, líneas de montaje, cintas transportadoras para materiales ligeros, pequeños agitadores, elevadores, máquinas limpiadoras, máquinas llenadoras, máquinas comprobadoras, cintas trasportadoras.

M- Dispositivos de enrollado, alimentadores de las máquinas para la madera, montacargas, equilibradores, roscadoras, agitadores medios y mezcladores, cintas transportadoras para materiales pesados, cabrestantes, puertas corredizas, raspadores de abono, máquinas empaquetadoras, hormigoneras, mecanismos para el movimiento de las grúas, fresadoras, plegadoras, bombas de engranajes.

H- Agitadores para materiales pesados, cizallas, prensas, centrifugadoras, soportes rotativos, cabrestantes y elevadores para materiales pesados, tornos para la rectificación, molinos de piedras, elevadores de cangilones, perforadoras, moledoresa percusión, prensas de excéntrica, plegadoras, mesas giratorias, pulidoras, vibradores, cortadoras.

The service factor(f_B) depends on the operating conditions the reduction unit is subjected to. The parameters that need to be taken into consideration to select the most adequate service factor correctly comprise:

- Type of load of the operated machine: **U-M-M**
- Length of daily operating time: **hours/day**
- Start- up frequency: **starts/Hour**

TYPE OF LOAD:

U- Uniform	maf ≤ 0.3
M- Moderate shocks	maf ≤ 3
H- Heavy shocks	maf ≤ 10

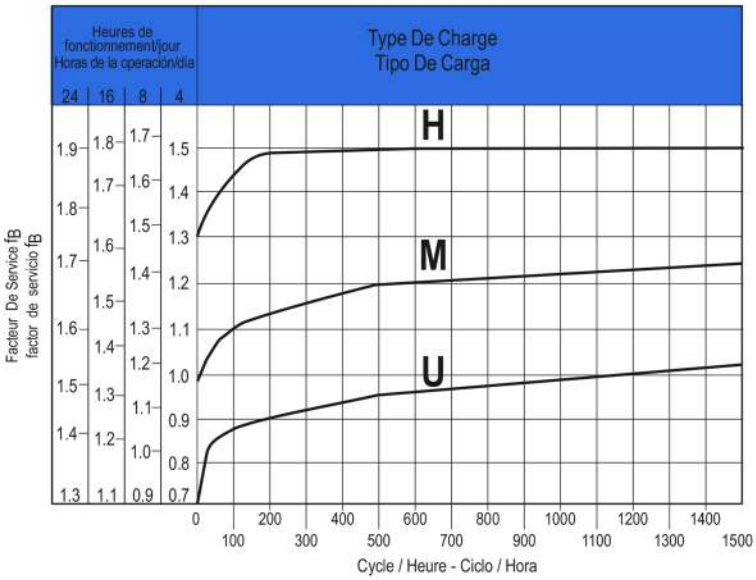
maf = Je/Jm
- maf factor of inertia
- Je (kgm) moment of reduced external inertia at the drive-shaft
- Jm (Kgm) moment of inertia of motor

If maf > 10 call our Technical Service

U- Screw feeders for light materials, fans, assembly lines, conveyor belts for light materials. small mixers, lifts, cleaning machines, fillers. control machines.

M- Winding devices, woodworking machine feeders, goods lifts, balancers, threading machines, medium mixers, conveyor belts for heavy materials, winches, sliding doors, fertilizar scrapers, packing machines, concrete mixers, crane mechanisms, milling cutters, folding machines, gear pumps.

H- Mixers for heavy materials, shears, presser, centrifuges, rotating supports, winches and lifts for heavy materials, grinding lathes, stone mills, bucket elevators, drilling machines, hammes mills, cam presses, folding machines, turntables, tumbling barrels, vibrators, sheredders.



APLICACIONES CRÍTICAS/ CRITICAL APPLICATIONS

Las prestaciones indicadas en el catálogo corrsponden a la posición B3 o similares, cuando el primer tren de engranajes no está completamente inmergido en el aceite.
Para posiciones de montaje distintas y/o de velocidades particulares a la entrada, atenerse a las tablas que ponen en evidencia las distintas situaciones criticas por cada tamaño de reductor.
Además es necesario considerar y evaluar cuidadosamente las siguientes aplicaciones, poniendose en contacto con nuestro Servicio técnico:

- Utilización como multiplicador.
- Utilización en servicios que, en caso de ruptura del reductor, podrían resultar peligrosos para el hombre.
- Aplicaciones con inercias particularmente elevadas.
- Utilización como cabestrante de levantamiento.
- Aplicaciones con esfuerzos dinámicos elevados sobre la carcasa del reductor.
- Utilización en ambiente con T° inferior a -5C° o superior a 40°C.
- Utilización en ambiente con presencia de agentes quimicos agresivos.
- Utilización en ambiente salino.
- Posiciones en montaje no prevista en catálogo.
- Utilización en ambiente radioactivo.
- Utilización en ambiente con presión distinta de la atmosférica.

Evitar aplicaciones donde es prevista la inmersión, aún parcial, del reductor.
El par máximo (*) soportable por el reductor no debe superar el doble del par nominal (fB =1) indicado en la tabla de prestaciones.
(*) Entendida como sobrecarga instantanea debida a puestas en marchaa plena carga, frenadores, impactos y otras causas sobre todo dinámicas.

The performance given in the catalogue correspond to mounting position B3 or similar, ie. when the first stage is not entirely immersed in oil.
For other mounting positions and/or particular input speeds, refer to the tables that highlight different critical situations for each size of reduction unit.

It is also necessary to take due consideration of and carefully assess the following applications by calling our Technical Service:

- Asa speed increasing.
- Use in services that could be hazardous for people if the reduction unit fails.
- Applications with especially high inertia.
- Use as a lifting winch.
- Applications with high dynamic strain on the case of the reduction unit.
- In places with T° under -5°C or over 40°C.
- Use in chemically aggressive environments.
- Use in a salty environment.
- Mounting positions not envisaged in the catalogue.
- Use in radioactive environments.
- Use in environments pressures other than atmospheric pressure.
- Avoid applications where even partial immersion of the reduction unit is required.

The maximum torque(*) that the gear reducer can support must not exceed two times the nominal torque (fB =1) stated in the performance tables.
(*) intended for momentary overloads due to starting at full load, braking, shocks or other causes, particularly those that are dynamic.

VSF	030	040	050	063	075	090	105	110	130	150
V5: 1500 < n1 < 3000	-	-	-	-	B	B	B	B	B	B
n1 > 3000	B	B	B	B	A	A	A	A	A	A
V6	B	B	B	B	B	B	B	B	B	B

A: Aplicación desancosejada
Discouraged application

B: Controlar la aplicación y/o ponerse en contacto con nuestro servicio técnico.
Control the application and/or contact our technical service

INSTALACIÓN/ INSTALLATION

Para la **instalación del reductor**, atenerse a las siguientes indicaciónes:

- Para **evitar las vibraciónes**, la fijación sobre la máquina tiene que ser estable.

- Antes del montaje del grupo sobre la máquina, **controlar que el sentido de rotación del eje** de salida del reductor sea correcto.

- En caso de **periodos de almacenamiento** muy largos (4/6 meses), si el retén no está sumergido en el lubricante contenido en el grupo, se aconseja su reemplazo porque la goma podría estar pegada al eje o haber perdido las características de elasticidad necesarias para un funcionamiento correcto.

- En la **fijación pendular,** adoptar, para reductores de eje de salida hueco, los brazos de reacción entregados por NRW; si no es posible, asegurarse que la limitación esté axialmente libre y con juegos que puedan garantizar la libre oscilación del reductor.

- Siempre que sea posible, **proteger el reductor** contra los rayos del sol y la intemperie.

- Controlar que la **refrigeración del motor** sea suficiente, asegurando una correcta transferencia de aire del lado ventilador.

- En caso de temperature ambiente de **<-5°C** o **>+40°C**, ponerse en Contacto con el Servicio ténico.

- El **montaje de distintos órganos** (poleas, ruedas dentadas, acoplamientos, ejes, etc.) sobre los ejes llenos o huecos debe ser efectuado utilizando los agujeros roscados correspondientes u otros sistemas, asegurando de todas maneras una operación correcta sin correr el riesgo de dañar los cojinetes o las partes externas de los grupos. Lubricar las superficies en contacto para evitas los gripados o las oxidaciones.

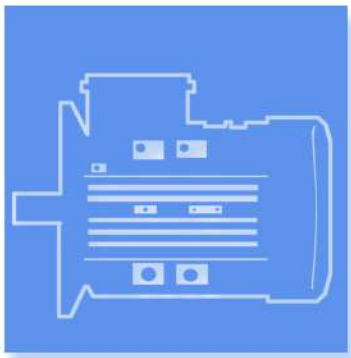
- El **barnizado** no debe cubrir las partes de goma y los agujeros de los posibles tapónes-respiraderos

- Para los **grupos equipados de tapones de aceite**, reemplazer el tapón cerrado, utilizado durante el transporte, por el tapón respiradero.

- Controlar el correcto **nivel de lubricante** mediante la mirilla (si la hay).

- La **puesta en marcha** se debe producir de manera gradual evitando la aplicación súbita de la carga máxima.

- Si bajo el reductor hay mecanismos, cosas ó materiales que puedan dañarse por una eventual pérdida de aceite, deberá preverse una protección adecuada.



To **install the reduction** unit it is necessary to note the following recommendations:

- The mounting on the machine must be stable to **avoid any vibration.**

- **Check the correct direction of rotation** of the gear reducer output shaft before fitting the unit to be the machine.

- In the case of particulary lengthy **periods of storage** (4/6 months), if the oil seal is not immersed in the lubricant inside the unit, itis recommended to change it since the rubber could stick to the shaft or may even have lost the elasticity it needs to function properly.

- For a **shaft mounting**, for reduction units with a hollow output shaft, use the torque arms NRW can supply. If this is not possible, make sure that the constraint is axially free and with such play as to ensure free movement for the reduction unit.

- Whenever possible, **protect the reduction** unit against solar radiation and bad weather.

- Ensure the **motor cools** correctly by assuring good passage of air from the fan side.

- In the case of ambient temperatures **<-5°C** or **>+40°C** call the Technical Service.

- The **various parts** (pulleys, gear wheels, couplings, shafts, etc.) must be mounted on the solid or hollow shafts using special threaded holes or other systems that anyhow ensure correct operation without risking damage to the bearings or external parts of the units. Lubricate the surfaces in contact to avoid seizure or oxidation.

- **Painting** must definitely not go over rubber parts and the holes on the breather plugs, if any.

- For **units equipped** with oil plugs, replace the closed plug used for shipping with the special breather plug.

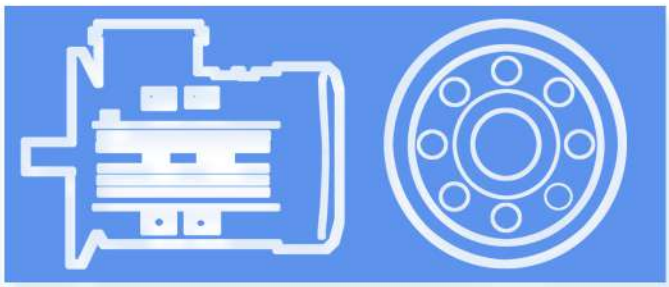
- Check the correct **level of the lubricant** through the indicator, if there is one.

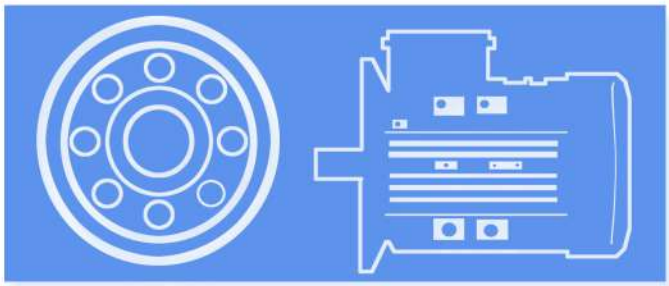
- **Starting** must take place gradually, without immediately applying the maximum load.

- When there are parts, objects or materials under the motor drive that can be damaged by even limited spillage of oil, special protection should be fitted.

GUÍA PARA LA SELECCIÓN DE PRODUCTO
PRODUCT SELECTION GUIDE

Si el equipo se suministra sin motor es preciso observar las siguientes recomendaciones para garantizar un correcto montaje del motor eléctrico. Verificar que la tolerancia del eje y de la brida motor se correspondan al menos a una clase de calidad "normal". Limpiar cuidadosamente el eje, el centraje y el plano de asiento de restos de barniz o suciedad.
Proceder al montaje del semiacoplamiento en el eje del motor eléctrico sin excesiva fuerza, si no entra con suavidad verificar la correcta tolerancia de la chaveta del motor (ver imagen), utilizar en cualquier caso métodos de montaje que no dañen los rodamientos del motor.





When the unit is supplied without motor, it is necessary to follow these recommendation to ensure the correct assembly of the electric motor. Assembly of flange mounting motors to the gear unit with the PAM flange not uses a coupling.

Check that the tolerances for the motor shaft and flange correspond to the standard. Carefully clean the shaft, spigot and surfaces of the flange removing traces of paintand dirt, and confirm the key is fitted correctly.

CARGAS RADIALES/ RADIAL LOADS

La carga radial sobre el eje se calcula con la siguiente fórmula:

$$Fre = \frac{2000 \cdot M \cdot fz}{D} \leq F_{R}1 \text{ o } F_{R}2$$

Fre (N)
Carga radial resultante

M (Nm)
Par de torsión sobre el eje

D (mm)
Diametro del elemento de transmisión montado sobre el eje

FR (N)
Valor de carga radial máximo admitido (ver tablas correspondientes)

fz= 1,1 Piñon dentado
1,4 Piñon de cadena
1,7 Polea para correa trapezoidal
2,9 Polea plana

Si la carga radial resultante no está aplicada sobre la línea da centro del eje, es necesario calcular la efectiva con la siguiente fórmula:

$$Fre \leq \frac{F_{R}.a}{(b + x)} \leq F_{R}1max \text{ o } F_{R}2max$$

a, b, x = valores indicados en las tablas

The radial load on the shaft is calculated with the following formula:

$$\frac{2000 \cdot M \cdot fz}{D} \leq F_{R}1 \text{ o } F_{R}2$$

Fre (N)
Resulting radial load

M (Nm)
Torque on the shaft

D (mm)
Diameter of the transmission member mounted on the shaft

FR (N)
Value of the maximum admitted radial load (see relative tables)

fz= 1,1 gear pinion
1,4 chain wheel
1,7 v-pulley
2,5 flat pulley

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:

$$Fre \leq \frac{F_{R}.a}{(b + x)} \leq F_{R}1max \text{ o } F_{R}2max$$

a, b, x= values given in the tables

CARGAS RADIALES/ RADIAL LOADS

DESCRIPCIONES TÉCNICAS/ TECHNICAL DESCRIPTIONS

El **valor de carga radial** (N) admisible es el indicado en las tablas relacionadas a las prestaciones del reductor examinado y se refiere a la carga aplicada sobre la línea de centro del eje y en las condiciónes más desfavorables como ángulo de aplicación y sentido de rotación.

Las **cargas axiales** máximas admisibles son 1/5 del valor de carga radial indicado, cuando están aplicadas en combinación con la carga radial misma.

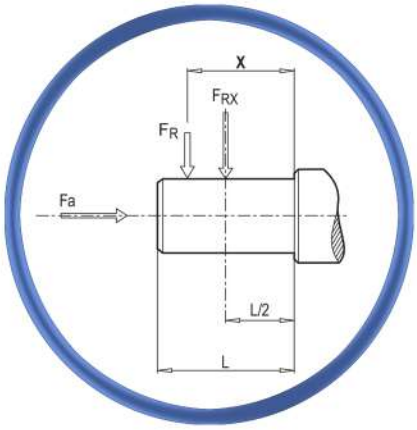
En las **tablas relacionadas a los ejes de salida** se indica el valor máximo admisible; nunca se debe superar este valor, porque se refiere a la resistencia de la carcasa.
Podrían presentarse condiciónes particulares de carga radial superiores a los límites de catálogo; en este caso, ponerse en contacto con nuestro Servicio técnico e indicar todos los datos de la aplicación: dirección de carga, sentido de rotación del eje, tipo de servicio.

The **value of the admissible radial load** (N) is given in the tables relating to the performance of the reduction unit at issue. It is related to the load applied on the centre line of the shaft and in the most unfavourable conditions of angle of application and direction of rotation.

The **maximum admissible** axial loads are 1/5 of the value of the given radial load when are applied in combination with the radial load.

The **tables relating to the output** shafts give the maximum admissible value. This value must never be exceeded since it relates to the strength of the case.

Particular conditions of radial load higher than the limits of the catalogue may occur. In this case, call our Technical Sevice and provide details on the application: direction of the load, direction of rotation of the shaft, type of service.



EJE DE SALIDA/ OUTPUT SHATS

VSF	030	040	050	063	075	090	105	110	130	150
a	65	84	101	120	131	162	176	176	188	215
b	50	64	76	95	101	122	136	136	148	174
FR max	1830	3490	4840	6270	7380	8180	12000	12000	13500	18000

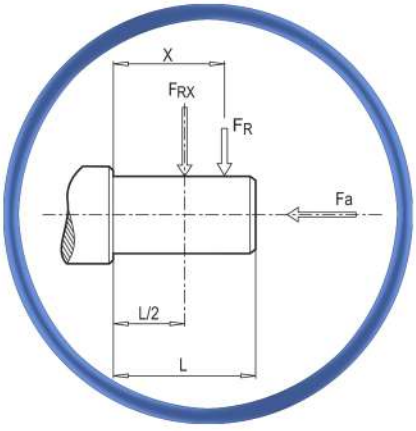
(*) Maximum axial load values admissible in only one direction with the use of a thrust bearing (on request).
(*) Valores de la fuerza axial maxima admisible en un unico sentido con rodamiento axial (bajo demanda).

The vaules of the admissible radial loads are given on the pages relating to performance. (Fr)
Los valores de cargas radiales admisibles son indicados en las páginas sobre las prestaciones (Fr)

EJE DE ENTRADA/ INPUT SHATS

VSF	030	040	050	063	075	090	105	110	130	150
a	86	106	129	159	192	227	266	266	314	350
b	76	94,5	114	139	167	202	236	236	274	310
FR max	210	350	490	700	980	1270	1700	1700	2100	2800

The values of the admissible radial loads are given on the pages relating to performance (Fr).
Los valores de cargas radiales admisibles son indicados en las páginas sobre las prestaciones (Fr).



LUBRICACIÓN/ LUBRICATION

En caso de temperaturas no previstas en la tabla, ponerse en contacto con nuestro Servicio técnico.

En caso de temperaturas inferioers a -30°C o superiores a 60°C, es necesario utilizar anillos de retén con mezclas especiales. Para los campos de funcionamiento con temperaturas inferiores a 0°C, es necesario cumplir con lo que sigue:

1- Los motores tienen que ser idóneos al funcionamiento con la temperatura ambiente prevista.
2- La potencia del motor eléctrico tiene que ser idónea para superar los mayores pares de arranque pedidos.
3- En caso de reductores con carcasa de fundición, cuidado con las cargas de choque porque la fundición puede presentar problemas de fragilidad con temperaturas inferiores a los -15°C.
4- Durante las primeras fases de servicio podrian surgir unos problemas de lubricación debidos a la elevada viscosidad del aceite y es por lo tanto oportuno efectuar una rotación en "vacío" por algunos minutos.

El cambio de aceite tiene que ser efectuado aproximadamente después de 10.000 horas; claramente, este periodo es en función del tipo de ambiente en el que trabaja el reductor. En los grupos entregados sin tapones, el lubricante es permanente y por lo tanto no necesitan ningun mantenimiento.

In cases of ambient temperatures not envisaged in the table, call our Technical Service.

In the case of temperatures under -30°C or over 60°C it is necessary to use oil seals with special properties.
For operating ranges with temperatures under 0°C it is necessary to consider the following:

1- The motors need to be suitable for operation at the envisaged ambient temperature.
2- The power of the electric motor needs to be adequate for exceeding the higher starting torques required.
3- In case of cast - iron gear reducers, pay attention to impact loads since cast iron may have problems of fragility at temperatures under -15°C.
4- During the early stages of service, problems of lubrication may arise due to the high level of viscosity taken on by the oil and so it is wise to have a few minutes of rotation under no load.

The oil needs to be changed after approximately 10,000 hours. This period depends on the type of service and the environment where the reduction unit works. For unit supplied without oil plugs, lubrication is permanent and so they need no servicing.

- The reduction units supplied without lubricant are provided with the relative warning-label.
- Los reductores que se suministran sin lubricante son identificados mediante un tarjeta.
- Specifications of lubricants recommended by NRW
- Especificaciones de lubricante aconsejados por NRW.
For the quantity of oil, please refer to the pages relating. (Page 7)
Para las cantidades de aceite, ver a las páginas. (pág. 7)

VSF		T°C ISO SAE...	AGIP	SHELL	ESSO	MOBIL	CASTROL	BP
$VSF_{100...150}$	Aceite Mineral Mineral Oil	(-5) / (+40) ISO VG460	BLASIA 460	OMALA OIL460	SPARTAN EP460	MOBILGEAR 634	ALPHA MAX 460	ENERGOL GR- XP460
		(-15) / (+25) ISO VG220	BLASIA 220	OMALA OIL220	SPARTAN EP220	MOBILGEAR 630	ALPHA MAX 220	ENERGOL GR- XP220
$VSF_{30...105}$ PC 063...090	Aceite Sintético Syenthetic Oil	(-15) / (+50) ISO VG320	TELIUM VSF320	TIVELA OIL SC320	S220	GLYGOYLE 30	ALPHASYN PG320	ENERGOL GR- XP320

EN **Attention:** Gearbox unit without lubricant, fill it up to the level before starting.

ES **Atención:** Grupo sin lubricante, llenar hasta el nivel antes de la puesta en marcha.

Mineral Oil Aceite mineral	T°C ISO VG...	(-5) / (+40) ISO VG 220	(-15) / (+25) ISO VG 150

CARACTERÍSTICAS DE SUMINISTRO SUPERFICIAL
SURFACE TREATMENT SPECIFICATIONS

Los productos **VSF** se entregan con el siguiente estado de acabado superficial.

Unidades con cajas de aleación de aluminio fundido a presión:

Se realizan las siguientes operaciónes de limpieza superficial en las cajas:

- Eliminación de las barbas de fundición mediante sistemas mecánicos de corte.
- Granallado de alta precisión.
- Pintado
- Lavado y pasivación.

Unidades con cajas de fundición gris:

Las cajas se pintan siempre.

La pintura utilizada sobre las unidades **VSF** (donde está prevista su aplicación) cumple las siguientes condiciónes:
Descripción
- Epoxipoliéster Azul Marino RAL5010

Producto utilizado
- Polvo termoestable a base de resinas poliéster, modificadas con resina epoxídica.

Propiedades mecánicas
- Las pruebas realizadas con las chapas finas Unichim desengrasadas con grosor del film de 60 micrones han satisfecho las siguientes exigencias:

Adherencia (1502409), embutición Erichsen (1501520), golpe inverso (DIN 53158), mandril cónico (DIN 53151), dureza (ASTM D3363/74).

Resistencia a la corrosión
- 24 Horasa 150°C.

Resistencia a la corrosión
- Niebla salina ASTM B 117/97 de 100 a 500 horas en función del tratamiento preliminar del soporte.

VSF products are supplied with the following surface treatment features:

Die-cast aluminium alloy cases for gears.

Die-cast materials undergo the following surface cleaning operations:

- De-burring by means of a mechanically operated shearing system.
- Accurate shot-peening
- Painting
- Washing and passivation

Grey-coloured cast-iron cases for gears:
Die-cast materials are always painted.

Painting used on **VSF** reduction units (if required) meets the following specifications:

Description
- Orange-peel blue - coloured epoxy - polyester RAL 5010

Product used:
- Polyester resin based heat-hardening powders, altered with epoxy resins.

Mechanical properties
- Tests carried out onto degreased Unichim white lattens (film thickness: 60 microns) comply with the following specifications:

Adherence (1502409), Erichsen drawing (150152), inverted shock (DIN53158), cone-shaped mandrel (DIN53151), hardness (ASTM D3363/74).

Heat resistance
- 24 Hours at 150°C.

Corrosion strength
- ASTMB 117/97 salt fog from 100 to 500 hours depending on the support's preliminary treatment.

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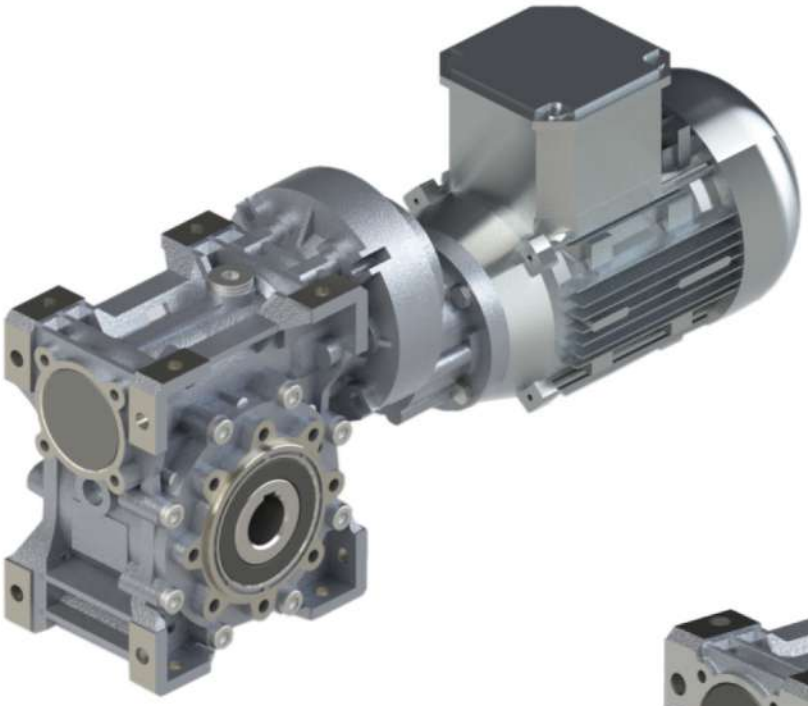
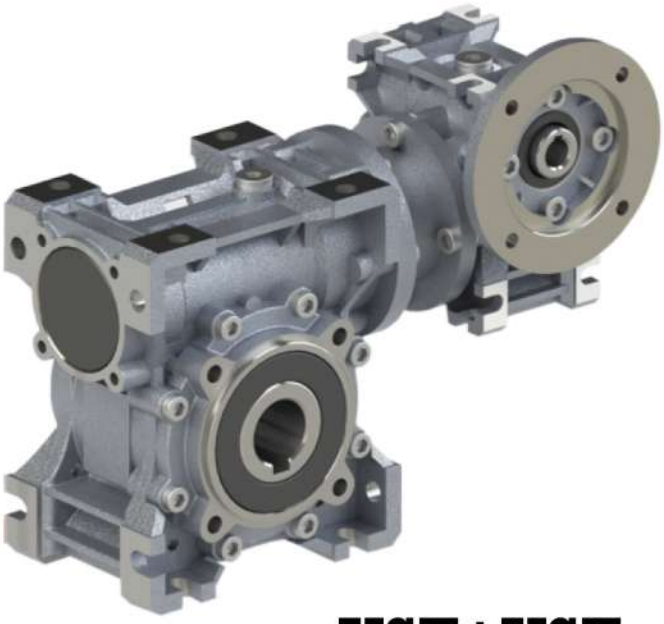
VSF

VF



PC+VSF



VSF+VSF

MOTORREDUCTORES Y REDUCTORES DE TORNILLO SINFÍN
WORM GEARED MOTORS AND WORM GEAR UNITS

VSF

VSF	Motorreductor de tornillo sinfín Worm geared motor

VF

VF	Reductor de tornillo sinfín Worm reduction unit
050	Tamaño Size
FA-FB-FC-FD-FE	Brida de Salida Output flange
30	Relación de reducción Reduction ratio
PAM	Predispuesto para montaje motor Fitted for motor cuopling
200	Diámetro brida Motor Flange diameter
VS	Tornillo sinfin prolongado Double input shaft
AB	Eje de salida doble Double output shaft
0.75 kW	Potencia motor eléctrico Electric motor power
230/400 V	Voltajemotor eléctrico Electric motor voltage

19	Diámetro eje motor Drive- shaft diameter
AS	Eje de salida sencillo Single output shaft
B3	Posición de montaje Mounting position
4P	Polaridad motor eléctrico Electric motor polarity
50 Hz	Frecuencia motor eléctrico Electric motor frequency

PPC+VSF

PPC	Pre- reducción Pre- stage helical module
71	Tamaño Size
VSF	Motorreductor de tornillo sinfín Worm geared motor
050	Tamaño Size
FA-FB-FC-FD-FE	Brida de Salida Output flange
300	Relación de reducción Reduction ratio
PAM	Predispuesto para montaje motor Fitted for motor cuopling
160	Diámetro brida motor Motor flange diameter
VS	Tornillo sinfin prolongado Double input shaft
AB	Eje de salida doble Double output shaft
0.75 kW	Potencia motor eléctrico Electric motor power
230/400 V	Voltajemotor eléctrico Electric motor voltage

VSF+ VSF

14	Diámetro eje motor Drive- shaft diameter
AS	Eje de salida sencillo Single output shaft
B3	Posición de montaje Mounting position
4P	Polaridad motor eléctrico Electric motor polarity
50 Hz	Frecuencia motor eléctrico Electric motor frequency

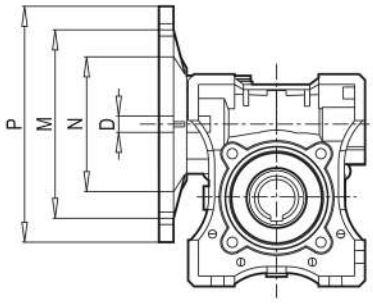
MOTORREDUCTORES Y REDUCTORES DE TORNILLO SINFÍN
WORM GEARED MOTORS AND WORM GEAR UNITS

VSF + VSF	Motorreductor de tornillo sinfín combinado Combined worm geared motor
VF + VSF	Reductor de tornillo sinfín combinado Combined worm reduction unit
050/110	Tamaño Size
FA-FB-FC-FD-FE	Brida de Salida Output flange
900	Relación de reducción Reduction ratio
PAM	Predispuesto para montaje motor Fitted for motor cuopling
200	Diámetro brida motor Motor Flange diameter
VS	Tornillo sinfin prolongado Double input shaft
AB	Eje de salida doble Double output shaft
B3	Posición de montaje Mounting position
0.75 kW	Potencia motor eléctrico Electric motor power
230/400 V	Voltaje motor eléctrico Electric motor voltage

19	Diámetro eje motor Drive- shaft diameter
AS	Eje de salida sencillo Single output shaft
BS1	Ejecución Execution
4P	Polaridad motor eléctrico Electric motor polarity
50 Hz	Frecuencia motor eléctrico Electric motor frequency

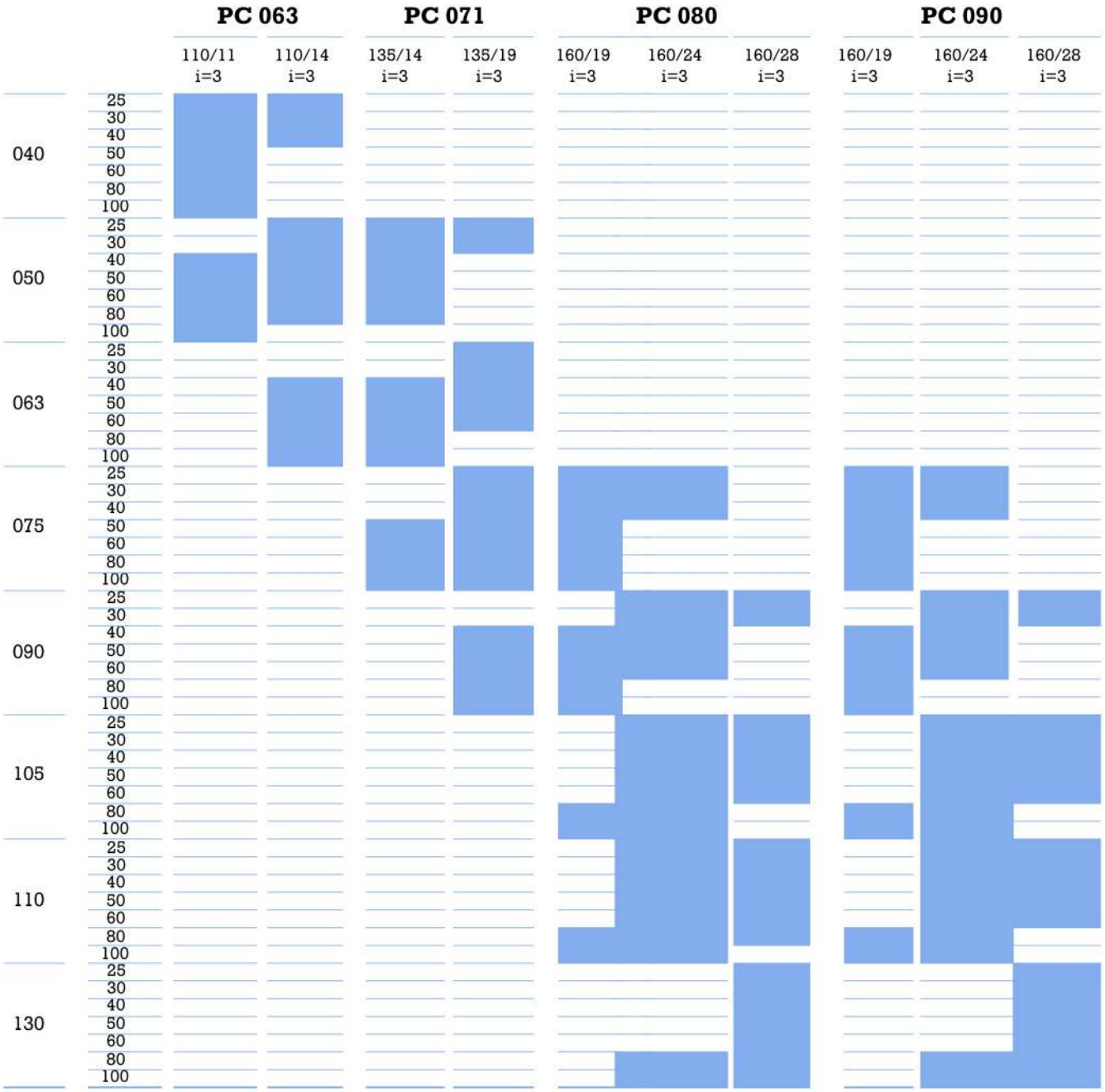
PREDISPOSICIÓN/ PREDISPOSITION

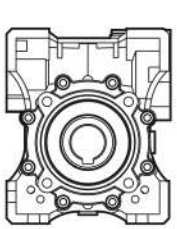
(*)Chavetero rebajado de nuestro suministro
(*)Low profile key supplied by NRW

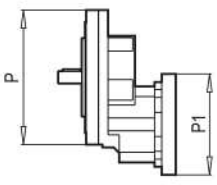


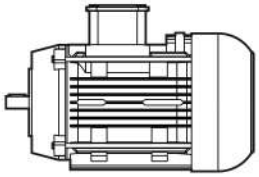
	PAM IEC	N	M	P	D											
					5	7,5	10	15	20	25	30	40	50	60	80	100
030	63B5	95	115	140	11	11	11	11	11	11	11	11	11	11	11	
	63B14 56B5	60 80	75 100	90 120	9	9	9	9	9	9	9	9	9	9	9	
	56B14	50	65	80												
040	71B5	110	130	160	14	14	14	14	14	14	14	14	14	14	14	14
	71B14 63B5	70 95	85 115	105 140	11	11	11	11	11	11	11	11	11	11	11	11
	63B14	60	75	90												
	56B5	80	100	120									9	9	9	9
050	80B5	130	165	200	19	19	19	19	19	19	19	19	19	19	19	19
	80B14 71B5	80 110	100 130	120 160	14	14	14	14	14	14	14	14	14	14	14	14
	71B14	70	85	105												
	63B5	95	115	140								11	11	11	11	11
063	90B5	130	165	200		24	24	24	24	24	24	24	24	24		
	90B14 80B5	85 130	115 165	140 200		19	19	19	19	19	19	19	19	19	19	19
	80B14	80	100	120												
	71B5	110	130	160							14	14	14	14	14	14
	71B14	70	85	105												
075	100/112B5	180	215	250		28	28	28	28	28	28	28				
	100/112B14 90B5	110 130	130 165	160 200		24	24	24	24	24	24	24	24	24	24	24
	90B14	85	115	140												
	80B5	130	165	200					19	19	19	19	19	19	19	19
	80B14 71B5	80 110	100 130	120 160									14	14	14	14
090	100/112B5	180	215	250		28	28	28	28	28	28	28	28	28		
	100/112B14 90B5	110 130	130 165	160 200		24	24	24	24	24	24	24	24	24	24	24
	90B14	95	115	140												
	80B5	130	165	200								19	19	19	19	19
	80B14	80	100	120												
105	132B5	230	265	300						38	38	38	38	38		
	100/112B5 100/112B14	180 110	215 130	250 160		28	28	28	28	28	28	28	28	28	28	28
	90B5	130	165	200						24	24	24	24	24	24	24
	80B5	130	165	200											19	19
110	132B5	230	265	300		38	38	38	38	38	38	38	38	38		
	100/112B5 100/112B14	180 110	215 130	250 160		28	28	28	28	28	28	28	28	28	28	28
	90B5	130	165	200						24	24	24	24	24	24	24
	80B5	130	165	200											19	19
130	132B5	230	265	300		38	38	38	38	38	38	38	38	38	38	38
	100/112B5 100/112B14	180 110	215 130	250 160						28	28	28	28	28	28	28
	90B5	130	165	200											24	24
150	160B5	250	300	350		42	42	42	42	42	42	42	42	42		
	132B5 132B14	230 130	265 165	300 200					38	38	38	38	38	38	38	38
	100/112B5	180	215	250									28	28	28	28

COMBINACIONES/ COMBINATIONS



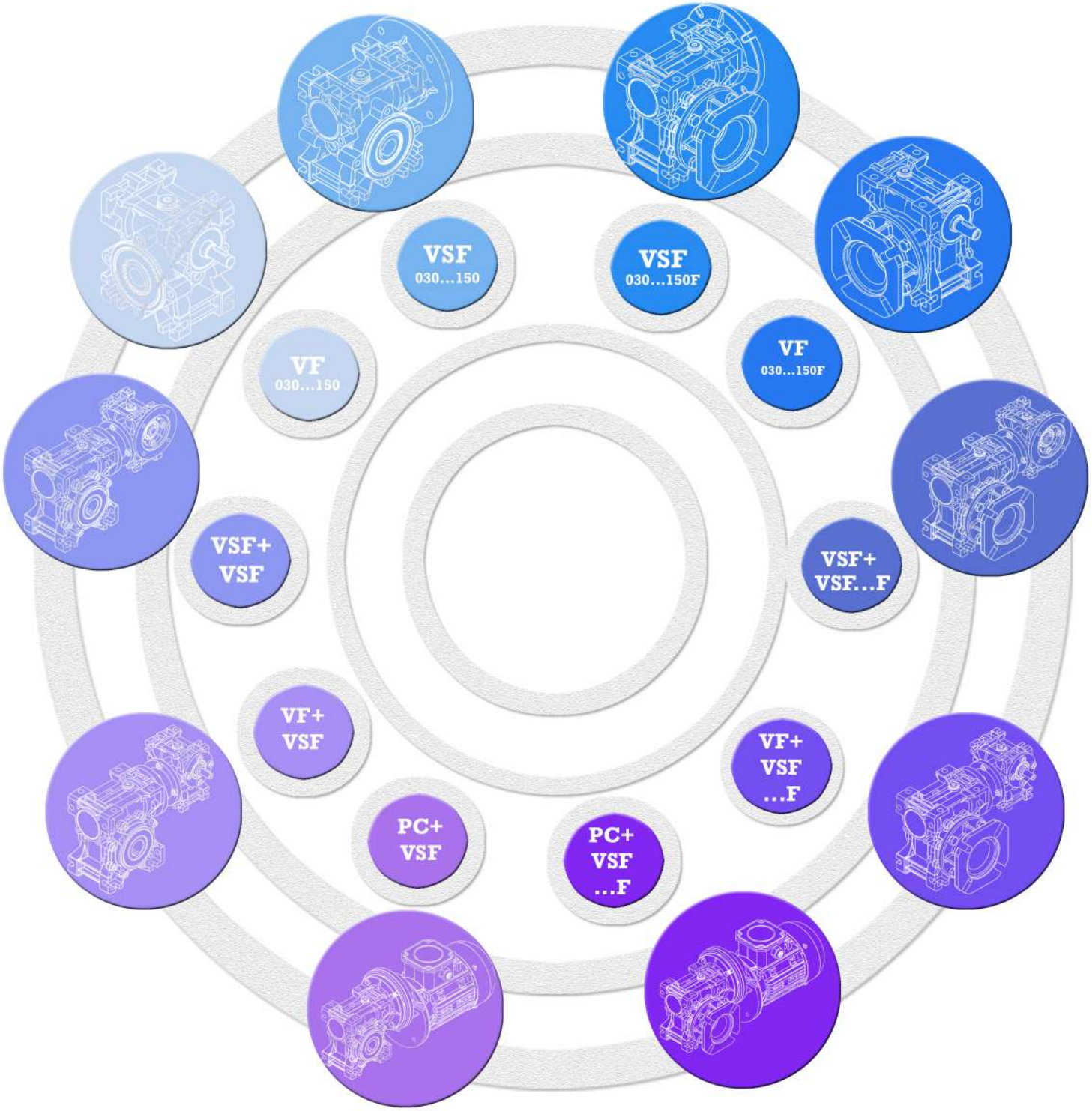






	P1	P	(P)
PC 063	63 B14 - 90/11	110/11	110/14
PC 071	71 B14 - 105 / 14	135/14	135/19
PC 080	80 B14 - 120 / 19	160/19	160/24 160/28
PC 090	90 B14 - 140 / 24	160/24	160/19 160/28

VERSIONES/VERSIONS



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RENDIMIENTO/EFFICIENCY

Un parámetro que reviste importancia fundamental en la definición de algunas aplicaciónes es el rendimiento.
El rendimiento depende esencialmente de variables definidas por el proyectista al momento de definir el par. La tabla de los datos del dentado indica los valores de rendimiento dinámico (nl=1400) y rendimiento estático. Los valores indicados son alcanzados sólo una vez concluida la fase de rodaje.

IRREVERSIBILIDAD DINAMICA
La irreversibilidad dinámica se produce cuando, al faltar el movimiento en el eje del tornillo, se produce una detención instantánea en el eje del arbol lento. Esta situación se produce cuando elrendimiento dinámico es nd< 0.5

IRREVERSIBILIDAD ESTATICA
La irreversibilidad estatica se produce cuando, con el reductor detenido, la aplicación de una carga al árbol lento no pone en movimiento el eje del tornillo.

Esta situación se produce cuando el rendimiento estático es ns < 0.5 .

Efficiency is a parameter which has a major influence on the sizing of certain applications and basically depends on gear pair design elements.

The mesh data table on page 30 shows dynamic efficiency (n1=1400) and static efficiency values. Remember that these values are only achieved after the unit has been run in.

DYNAMIC IRREVERSIBILITY
Dynamic irreversibility is achieved when the output shaft stops instantly when drive is no longer through the worm shaft. This condition requires a dynamic efficiency of nd < 0.5.

STATIC IRREVERSIBILITY
Static irreversibility is achieved when, with the gear reducer at a standstill, the application of a load to the output shaft does not set in motion the worm shaft. This condition requires a static efficiency of ns < 0.5 .

ηd	DYNAMIC IRREVERSIBILITY	IRREVERSIBILIDAD DINAMICA
> 0.6	dynamic reversibility	reversibilidad dinámica
0.5 - 0.6	low dynamic reversibility	reversibilidad dinámica incierta
0.4 - 0.5	good dynamic irreversibility	adecuada irreversibilidad dinámica
< 0.4	dynamic irreversibility	irreversibilidad dinámica

ηs	STATIC IRREVERSIBILITY	IRREVERSIBILIDAD ESTATICA
> 0.55	static reversibility	reversibilidad estática
0.5 - 0.55	low static reversibility	reversibilidad estática incierta
< 0.5	static irreversibility	irreversibilidad estática

ηd	DYNAMIC IRREVERSIBILITY	IRREVERSIBILIDAD DINAMICA
> 0.6	dynamic reversibility	reversibilidad dinámica
0.5 - 0.6	low dynamic reversibility	reversibilidad dinámica incierta
0.4 - 0.5	good dynamic irreversibility	adecuada irreversibilidad dinámica
< 0.4	dynamic irreversibility	irreversibilidad dinámica

ηs	STATIC IRREVERSIBILITY	IRREVERSIBILIDAD ESTATICA
> 0.55	static reversibility	reversibilidad estática
0.5 - 0.55	low static reversibility	reversibilidad estática incierta
< 0.5	static irreversibility	irreversibilidad estática

La tabla indica clasificaciones genéricas sobre el grado de irreversibilidad. La presencia de vibraciónes o choques podria modificar estos valores.Para calcular las condiciones de irreversibilidad de un reductor combinado, es necesario considerar el rendimiento del grupo, que es dado por el producto de los rendimientos de cada reductor, es decir: tot = 1x2

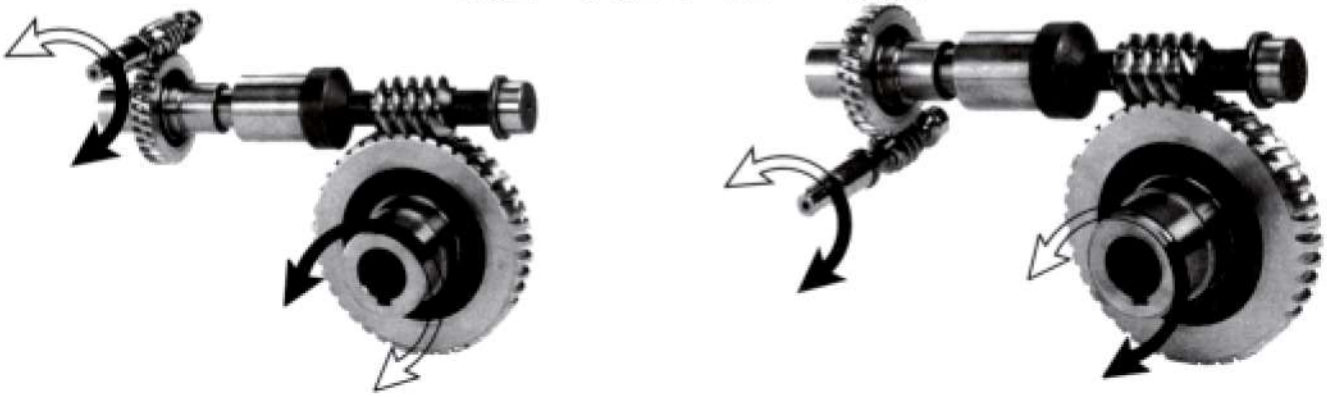
The table shows approximate irreversibility classes. Vibrations and shocks can affect a gear reducer's irreversibility. For the irreversibility conditions of a combined geared unit one must consider that the efficiency of the group is given by the product of the efficiencies of each single reducer, ¡.e.: tot = 1x2

DATOS ENGRANAJE/MESH DATA

VSF	i	5	7,5	10	15	20	25	30	40	50	60	80	100
030	Z1	6	4	3	2	2	1	1	1	1	1	1	-
	γ	27°04 '	18°49 '	14°20 '	9°40 '	7°42 '	5°35 '	4°52 '	3°52 '	3°12 '	2°45 '	2°07 '	-
	Mx	1,44	1,44	1,44	1,44	1,09	1,7	1,44	1,09	0,89	0,74	0,56	-
	ηd (1400)	0,87	0,85	0,82	0,77	0,73	0,68	0,65	0,59	0,55	0,51	0,44	-
	ηs	0,72	0,67	0,63	0,55	0,5	0,43	0,39	0,35	0,31	0,27	0,23	-
040	Z1	6	4	3	2	2	2	1	1	1	1	1	1
	γ	34°19 '	24°28 '	18°51 '	12°49 '	10°23 '	8°43 '	6°29 '	5°14 '	4°23 '	3°47 '	2°57 '	2°25 '
	Mx	2,06	2,06	2,06	2,06	1,57	1,27	2,06	1,57	1,27	1,06	0,81	0,65
	ηd (1400)	0,89	0,87	0,85	0,82	0,78	0,75	0,7	0,65	0,62	0,58	0,52	0,47
	ηs	0,74	0,71	0,67	0,6	0,55	0,51	0,45	0,4	0,36	0,32	0,28	0,24
050	Z1	6	4	3	2	2	2	1	1	1	1	1	1
	γ	33°37 '	23°54 '	18°23 '	12°30 '	10°06 '	8°29 '	6°19 '	5°06 '	4°16 '	3°40 '	2°52 '	2°21 '
	Mx	2,56	2,56	2,56	2,56	1,95	1,58	2,56	1,95	1,58	1,32	1	0,8
	ηd (1400)	0,89	0,88	0,86	0,82	0,79	0,76	0,72	0,67	0,63	0,59	0,53	0,49
	ηs	0,74	0,7	0,66	0,59	0,55	0,51	0,44	0,39	0,35	0,32	0,27	0,23
063	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	24°31 '	18°53 '	12°51 '	10°25 '	8°45 '	6°30 '	5°15 '	4°24 '	3°47 '	2°58 '	2°26 '
	Mx	-	3,25	3,25	3,25	2,48	2	3,25	2,48	2	1,68	1,27	1,02
	ηd (1400)	-	0,88	0,87	0,83	0,81	0,78	0,74	0,7	0,66	0,62	0,57	0,51
	ηs	-	0,71	0,67	0,6	0,55	0,51	0,45	0,4	0,36	0,33	0,28	0,24
075	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	26°17 '	20°20 '	13°52 '	11°18 '	9°32 '	7°02 '	5°42 '	4°48 '	4°08 '	3°14 '	2°40 '
	Mx	-	3,94	3,94	3,94	3	2,42	3,94	3	2,42	2,03	1,54	1,24
	ηd (1400)	-	0,89	0,88	0,85	0,82	0,80	0,76	0,72	0,69	0,65	0,60	0,55
	ηs	-	0,71	0,68	0,61	0,57	0,53	0,46	0,42	0,38	0,35	0,29	0,26
090	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	29°11 '	22°44 '	15°36 '	12°50 '	10°54 '	7°57 '	6°30 '	5°30 '	4°46 '	3°45 '	3°06 '
	Mx	-	4,84	4,84	4,84	3,69	2,98	4,84	3,69	2,98	2,5	1,89	1,52
	ηd (1400)	-	0,9	0,89	0,86	0,84	0,82	0,78	0,75	0,72	0,69	0,63	0,59
	ηs	-	0,73	0,7	0,64	0,6	0,56	0,49	0,45	0,41	0,38	0,32	0,28
105	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	28°15 '	21°57 '	15°02 '	14°41 '	12°34 '	7°39 '	7°28 '	6°22 '	5°32 '	4°24 '	3°39 '
	Mx	-	5,875	5,875	5,875	4,62	3,73	5,875	4,62	3,73	3,13	2,37	1,91
	ηd (1400)	-	0,9	0,89	0,86	0,85	0,84	0,79	0,78	0,75	0,72	0,67	0,63
	ηs	-	0,72	0,69	0,63	0,62	0,59	0,48	0,48	0,44	0,41	0,36	0,32
110	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	28°15 '	21°57 '	15°02 '	14°41 '	12°34 '	7°39 '	7°28 '	6°22 '	5°32 '	4°24 '	3°39 '
	Mx	-	5,875	5,875	5,875	4,62	3,73	5,875	4,62	3,73	3,13	2,37	1,91
	ηd (1400)	-	0,9	0,89	0,86	0,85	0,84	0,79	0,78	0,75	0,72	0,67	0,63
	ηs	-	0,72	0,69	0,63	0,62	0,59	0,48	0,48	0,44	0,41	0,36	0,32
130	Z1	-	4	3	2	2	2	1	1	1	1	1	1
	γ	-	28°41 '	22°19 '	15°18 '	13°52 '	11°49 '	7°47 '	7°02 '	5°58 '	5°11 '	4°07 '	3°24 '
	Mx	-	6,97	6,97	6,97	5,4	4,37	6,97	5,4	4,37	3,67	2,77	2,23
	ηd (1400)	-	0,91	0,89	0,87	0,86	0,84	0,8	0,78	0,75	0,72	0,68	0,64
	ηs	-	0,72	0,69	0,63	0,61	0,58	0,49	0,46	0,43	0,39	0,34	0,3
150	Z1	-	6	4	3	2	2	2	1	1	1	1	1
	γ	-	32°09 '	24°35 '	17°27 '	12°53 '	11°19 '	9°50 '	6°32 '	5°43 '	4°57 '	3°55 '	3°14 '
	Mx	-	5,5	6,155	5,5	6,155	5	4,193	6,155	5	4,193	3,17	2,55
	ηd (1400)	-	0,91	0,9	0,88	0,86	0,84	0,83	0,78	0,76	0,73	0,68	0,64
	ηs	-	0,73	0,71	0,66	0,6	0,57	0,54	0,45	0,42	0,39	0,33	0,29

SENTIDO DE ROTACIÓN
DIRECTION OF ROTATION

VSF+VSF / VF + VSF



El sentido de la hélice es hacia la derecha
The helix is right-handed.

CARACTERÍSTICAS DE CONSTRUCCIÓN (PC)/ DESIGN FEATURES (PC)

La construcción de la pre-reducción es modular y por lo tanto puede ser entregada como grupo separado de montar sobre cualquier tipo de motoreductor predispuesto (PAM). Las distintas posibilidades de bridas/ejes de salida son indicadas en la página . El montaje de la pre-reducción sobre el reductor principal se efectúa muy facilmente, como para cualquler motor de forma B14 - B5.

El pre-reductor no puede ser utilizado directamente como reductor, solo puede ir acoplado a otro reductor.

Materiales
Caja de aleación de aluminio.

Engranajes de acero 20MnCr5 (UNI7846) cementados, templados, revenidos y cuidadosamente rectificado sobre la evolvente.

The PPC construction is modular and therefore it can be supplied as a separate unit to mounted on any type fitted geared motor (PAM). In this connection, the various possibilities of flange/ouput shafts can be found on page . Fitting the pre-stage helical module on the main reduction unit is easily done as for any motor of type B14 - B5.

The pre-stage unit cannot be used by itself, but only coupled with another reduction unit.

Materials

Case in aluminium alloy.

Gears in case hardened, tempered steel 20MnCr5 (UNI7846) accurately ground on the involute.

MONTAJE ELECTRICO
COUPLING TO ELECTRIC MOTOR

Para el correcto montaje del piñon sobre el eje del motor eléctrico, es necesario respetar las siguientes instrucciónes:

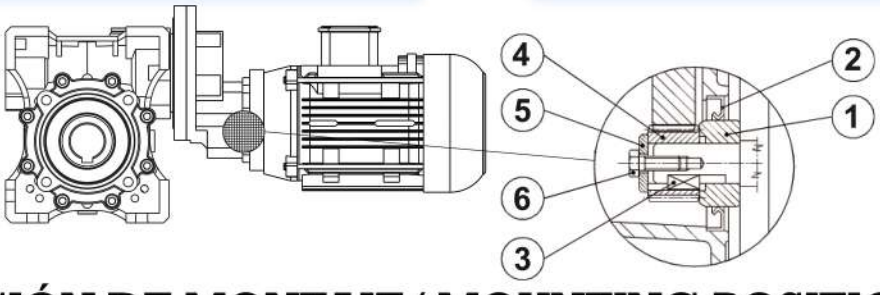
a) Limpiar con cuidado el eje del motor eléctrico.
b) Sacar la chaveta del motor.
c) Montar el casquillo (1) sobre el eje motor según la orientación indicada en el esquema. Para facilitar el montaje, se puede calentar el casquillo a aprox 70/80*C.
d) Montar la nueva chaveta (3) entregada en lugar de la anteriormente sacada.
e) Montar el piñon (4) adoptando las mismas precauciónes indicadas al punto (c).
f) Montar la arandela (5) y apretar con el tornillo (6).
g) Sacar con cuidado el tapón de cierre de goma montado en el asiento del anillo de retén, porque el pre-reductor par está equipado de lubricante.
h) Montar el retén (2) y luego el grupo motor con mucho cuidado para no dañar el labio del retén.

NOTA: Para un correcto funcionamiento sin vibraciónes ní ruidos, se aconseja montar motores de buena calidad.

Correctly fitting the pinion on the electric motor shaft requires you keep to the following instructions:

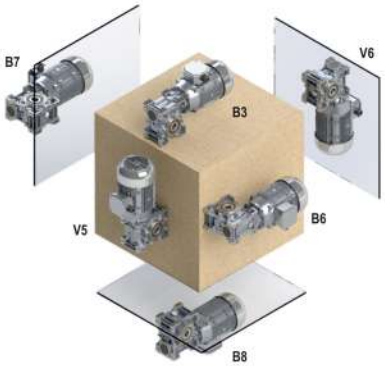
a) Thoroughly clean the electric motor shaft.
b) Remove the motor key from its seat.
c) Fit the bush (1) to the drive shaft as shown in the diagram. To make this easier, you can heat the bush to approximately 70/80°C.
d) Fit the new key (3) provided in place of the one removed beforehand.
e) Fit the pinion (4) taking the same precautions as described in point (c).
f) Fitthe washer (5) and tighten with the screw (6).
g) Remove the rubber cap mounted on the seat of the oil seal, taking care since the pre-stage unit is already complete with lubricant.
h) Fit the oil seal (2) and then the motor assembly, taking care not to damage the lip of the oil seal.

N.B: For correct operation, with no vibration or noise, it is recommended to use good quality motors.



POSICIÓN DE MONTAJE/ MOUNTING POSITIONS

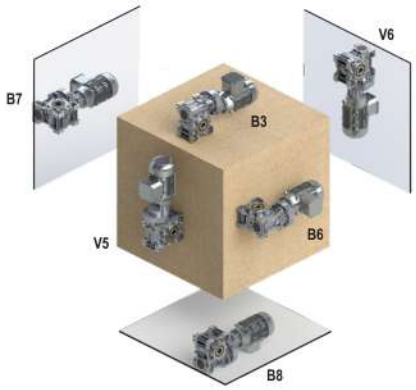
VSF/VF



La version "U"se refiere a los tamanos de 030 hasta 075.
Para estos tamaño no es necesario especificar la posición de montaje.
Para las posiciónes de montaje verticales, ver las paginas

Si no se especifica el contrario, las posiciónes estándar son B3.
Para las posiciónes de montaje no previstas, es necesario ponerse en contacto con nuestro Servicio técnico.

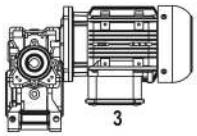
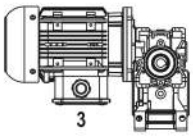
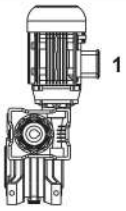
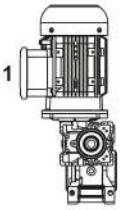
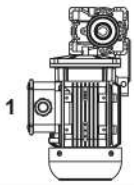
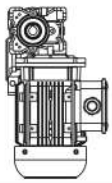
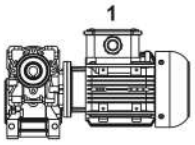
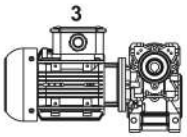
PC- VSF



"U" version is related to sizes from 030 to 075. For these sizes it is not necessary to specify mounting position.
For vertical positions, check with pages 6-7.

Unless specified otherwise, the standard positions are B3.
For positions not envisaged, it is necessary to call our Technical Service.

EJECUCIÓN/EXECUTION

VSF +VSF / VF+VSF			
AS1	AS2	VS1	VS2
			
PS1	PS2	BS1	BS2
			

La ejecucción determina la posición de montaje del premier reductor respecto del segundo. Salvo diversas especificaciones requeridas en el pedido, el grupo es suministrado en ejecucion BS2. La posición de instalación se refiere al segundo reductor: en relación a las posiciones previstas ver pág 17.

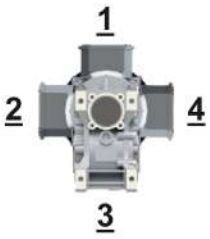
The position of the 1st reducer with respect to the 2nd gear reducer depend on the version. Unless otherwise specified at the time of oder, combination groups are supplied in version BSZ. The specified mounting position refers to the 2nd gear reducer. See page 17 for the possible mounting positions.

POSICIÓN DE MONTAJE/ MOUNTING POSITIONS

D	S
	

Si no está especificado, el reductor se entrega con brida en pos. D, relacionado a la posición de montaje B3.
Unless specified otherwise, the reduction unit is supplied with the flange in pos. D referred to position B3.

POSICIÓN CAJA BORNES/ TERMINAL BOX POSITIONS



En caso de exigencias particulares, detallar en el pedido, la posición de la caja de bornes según el esquema.
In the case of specific requirements, when ordering, specify the position of the terminal box as shown in the diagram.

Tablas de selección de Motorreductores

Selection Tables of Gearedmotors

VSF 030...150

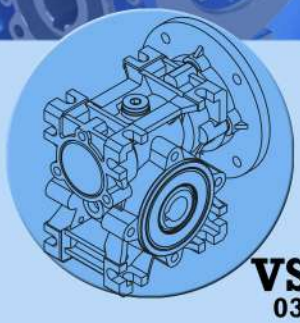
VF 030...150

DESCRIPCIONES TÉCNICAS/ TECHNICAL DESCRIPTIONS

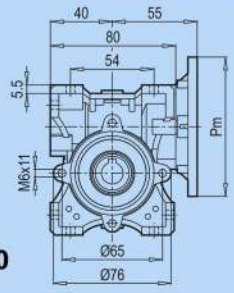
Notificar sobre la tabla de rendimeinto para los motoreductores
Notify about performance tables for Geared motor.

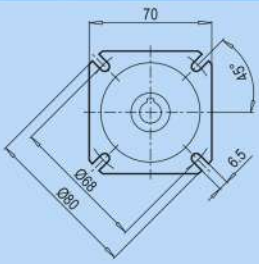
0.37 kW	Potencia del motor del reductor Gear unit motor power
P_1 [kW]	Potencia nominsl del motor Rated motor power
n_2 [Min^{-1}]	Velocidad de salida Output speed
M_2 [Nm]	Par de salida Output torque
^{f}B	Factor de servicio Service factor
^{i}ges	Relación de reducción Reduction ratio
^{F}R [N]	Fuerza radial admisible Permissible radial force
Tipo Type	Tipo de reductor de motor Gear unit motor type
Pag Pag	Página del dibujo Drawing page

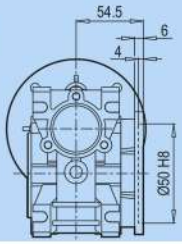
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^{f}B	^{i}ges	^{F}R [N]	Tipo Type	Pag Pag

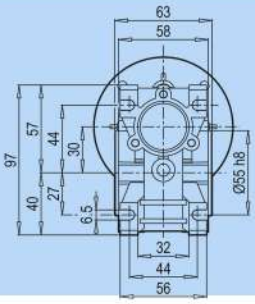


VSF
030...150



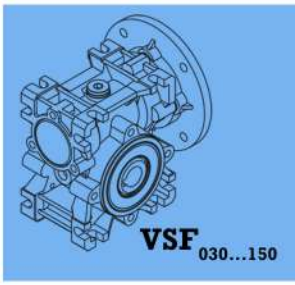


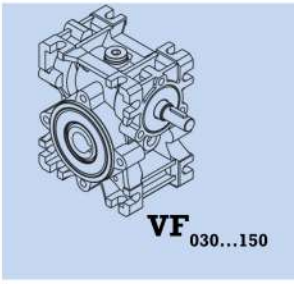


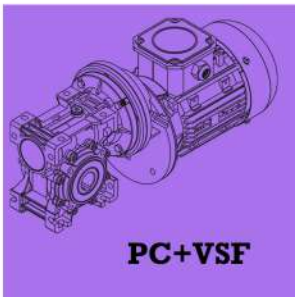


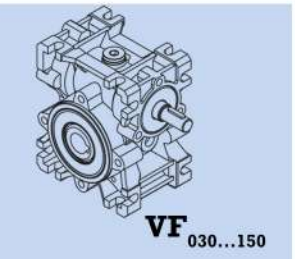
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.06	280.0 186.7 140.0 93.3 70.0 56.0 46.7 35.0 28.0 23.3 17.5	1.8 2.7 3.5 4.8 6.1 7.1 8.2 9.9 11 13 14	10.6 7.2 5.7 4.0 3.2 3.2 2.6 2.0 1.6 1.4 0.9	5 7.5 10 15 20 25 30 40 50 60 80	600 680 750 860 950 1020 1090 1190 1290 1370 1500	**VSF 030 - 56M/4A**	58
	15.0	18	0.9	60	1580	**VSF 030 - 56M/6A**	58
	18.0 15.0 11.3 9.0	18 21 24 28	2.4 2.0 1.5 1.3	50 60 80 100	2870 3050 3350 3490	**VSF 040 - 56M/6A**	59
	4.7 3.5 2.8 2.3 1.9 1.6 1.2 0.9 0.8 0.58 0.4 0.4 0.28	58 71 98 106 123 142 169 200 222 266 306 285 345	1.4 0.9 0.6 0.7 0.6 0.5 0.4 0.4 0.3 0.2 0.2 0.1 0.1	300 400 500 600 750 900 1200 1500 1800 2400 3200 4000 5000	3490 3490 3490 3490 3490 3490 3490 3490 3490 3490 3490 3490 3490	**VSF 030/040 - 56M/4A**	72
	1.6 1.2 0.93 0.78 0.6 0.5 0.35 0.29	144 172 203 226 271 313 294 317	1.1 0.7 0.7 0.7 0.5 0.4 0.3 0.3	900 1200 1500 1800 2400 3000 4000 4800	4840 4840 4840 4840 4840 4840 4840 4840	**VSF 030/050 - 56M/4A**	72
	0.93 0.78 0.58 0.47	208 230 282 325	1.2 0.9 0.8 0.7	1500 1800 2400 3000	6270 6270 6270 6270	**VSF 030/063 - 56M/4A**	73
	0.58 0.47	337 385	1.2 0.8	2400 3000	7380 7380	**VSF 040/075 - 56M/4A**	73
	0.47 0.35 0.28	414 372 440	1.5 1.4 1.1	3000 4000 5000	8180 8180 8180	**VSF 040/090 - 56M/4A**	73

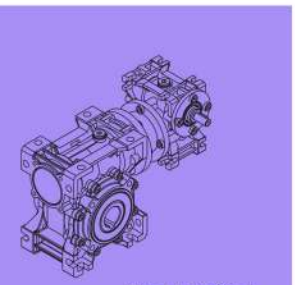
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.09	560.0	1.4	9.2	5	480		
	373.3	2.0	6.8	7.5	540		
	280.0	2.7	5.3	10	600		
	186.7	3.8	3.7	15	680		
	140.0	4.9	2.6	20	750	VSF 030 - 56M/2A	58
	112.0	5.8	2.9	25	810		
	93.3	6.6	2.4	30	860		
	70.0	8.3	1.8	40	950		
	56.0	10	1.5	50	1020		
	46.7	11	1.2	60	1090		
	35.0	13	0.9	80	1190		
	280.0	3	7.0	5	600		
	186.7	4	4.8	7.5	680		
	140.0	5	3.8	10	750		
	93.3	7	2.6	15	860		
	70.0	9	2.1	20	950	VSF 030 - 56M/4B	58
	56.0	10	2.1	25	1120		
	46.7	12	1.8	30	1090		
	35.0	14	1.3	40	1190		
	28.0	17	1.1	50	1290		
	23.3	19	0.9	60	1370		
	180.0	4	5.1	5	690		
	120.0	6	3.6	7.5	790		
	90.0	8	2.7	10	870		
	60.0	11	2.0	15	1000		
	45.0	13	1.6	20	1100	VSF 030 - 63M/6	58
	36.0	15	1.6	25	1180		
	30.0	17	1.3	30	1260		
	22.5	21	1.1	40	1380		
	18.0	24	0.7	50	1490		
	28.0	19	2.1	50	2480		
	23.3	21	1.8	60	2630	VSF 040 - 56M/4B	59
	17.5	27	1.4	80	2900		
	14.0	30	1.1	100	3120		
	30.0	19	2.7	30	2420		
	22.5	24	2.0	40	2660		
	18.0	28	1.6	50	2870	VSF 040 - 63M/6	59
	15.0	32	1.4	60	3050		
	11.3	38	1.1	80	3350		
	9.0	42	0.8	100	3490		
	12.0	48	1.4	75	3280		
	10.0	52	1.5	90	3490		
	7.5	63	1.2	120	3490	PC063/VSF 040 - 63M/6	68
	6.0	73	0.8	150	3490		
	5.0	81	0.7	180	3490		
	4.7	90	0.8	300	3490	VSF 030/040 - 56M/4B	72
	15.0	33	2.4	60	4180		
	11.3	38	1.9	80	4600		
	9.0	43	1.4	100	4840	VSF 050 - 63M/6	60
	6.0	74	1.7	150	4840		
	5.0	83	1.4	180	4840		
	3.8	96	0.9	240	4840		
	3.0	108	0.7	300	4840	PC063/VSF 050 - 63M/6	68
	3.5	109	1.3	400	4840		
	2.8	125	1.1	500	4840		
	2.3	162	0.9	600	4840	VSF 030/050 - 56M/4B	72
	1.9	189	0.8	750	4840		
	1.6	216	0.7	900	4840		
	3.8	101	1.8	240	6270	PC063/VSF 063 - 63M/6	69
	3.0	111	1.5	300	6270		
	1.6	204	1.1	900	6270		
	1.2	268	0.9	1200	6270	VSF 030/063 - 56M/4B	73
	0.93	311	0.7	1500	6270		
	0.93	367	1.2	1500	7380		
	0.78	412	1.1	1800	7380	VSF 040/075 - 56M/4B	73
	0.58	506	0.7	2400	7380		
	0.47	621	0.9	3000	8180	VSF 040/090 - 56M/4B	73

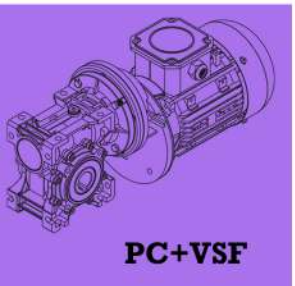






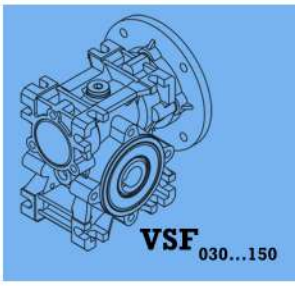


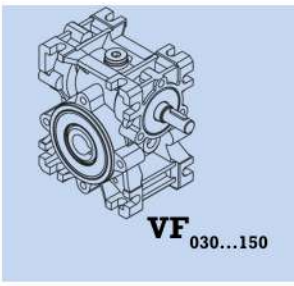


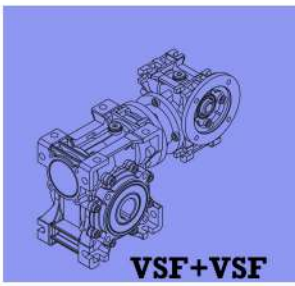


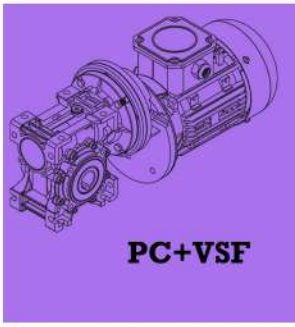
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.12	280.0 186.7 140.0 93.3 70.0 56.0 46.7 35.0 28.0	3.7 5.3 6.8 9.7 12 14 16 19 23	5.4 3.6 2.8 2.0 1.6 1.6 1.4 0.9 0.8	5 7.5 10 15 20 25 30 40 50	600 680 750 860 950 1020 1090 1190 1290	**VSF 030 - 63M/4A**	58
	180.0 120.0 90.0 60.0 45.0 36.0 30.0	6 8 10 14 18 20 23	3.9 2.6 2.1 1.5 1.2 1.2 0.9	5 7.5 10 15 20 25 30	690 790 870 1000 1100 1180 1260	**VSF 030 - 63M/6B**	58
	46.7 35.0 28.0 23.3 17.5 14.0	17 21 26 29 35 39	2.7 2.0 1.6 1.4 1.1 0.8	30 40 50 60 80 100	2090 2300 2480 2630 2900 3120	**VSF 040 - 63M/4A**	59
	30.0 22.5 18.0 15.0	26 33 37 42	2.0 1.5 1.3 0.9	30 40 50 60	2420 2660 2870 3050	**VSF 040 - 63M/6B**	59
	18.7 15.6 11.7 9.3 7.8	43 47 58 67 75	1.3 1.3 0.9 0.7 0.6	75 90 120 150 180	2830 3010 3310 3490 3490	**PC063/VSF 040 - 63M/4A**	68
	12.0 10.0 7.5	63 69 85	1.1 1.2 0.8	75 90 120	3280 3490 3490	**PC063/VSF 040 - 63M/6B**	68
	23.3 17.5 14.0	30 36 41	2.4 2.0 1.5	60 80 100	3610 3970 4280	**VSF 050 - 63M/4A**	60
	22.5 18.0 15.0 11.3 9.0	33 39 43 51 57	2.7 2.1 1.8 1.5 1.1	40 50 60 80 100	3650 3940 4180 4600 4840	**VSF 050 - 63M/6B**	60
	9.3 7.8 5.8 4.7	69 77 90 100	1.4 1.2 0.8 0.7	150 180 240 300	4840 4840 4840 4840	**PC063/VSF 050 - 63M/4A**	68
	12.0 10.0 7.5 6.0 5.0 3.8	64 71 86 99 110 128	1.8 2.2 1.6 1.3 1.1 0.7	75 90 120 150 180 240	4510 4790 4840 4840 4840 4840	**PC063/VSF 050 - 63M/6B**	68
	4.7 3.5 2.8	121 145 167	1.3 0.9 0.7	300 400 500	4840 4840 4840	**VSF 030/050 - 63M/4A**	72
	5.8 4.7	94 105	1.6 1.3	240 300	6270 6270	**PC063/VSF 063 - 63M/4A**	69
	6.0 5.0 3.8 3.0	103 114 134 148	2.2 1.9 1.4 1.1	150 180 240 300	6270 6270 6270 6270	**PC063/VSF 063 - 63M/6B**	69
	2.8 2.3 1.9	174 212 246	1.4 1.2 0.9	500 600 750	6270 6270 6270	**VSF 030/063 - 63M/4A**	73
	1.6 1.2	332 407	1.3 0.9	900 1200	7380 7380	**VSF 040/075 - 63M/4A**	73
	0.8 0.58	558 709	0.9 0.9	1800 2400	8180 8180	**VSF 040/090 - 63M/4A**	73
	0.5 0.35	902 800	1.2 1.1	3000 4000	10320 10320	**VSF 050/105 - 63M/4A**	74
	0.5 0.35	902 800	1.3 1.1	3000 4000	10320 10320	**VSF 050/110 - 63M/4A**	74

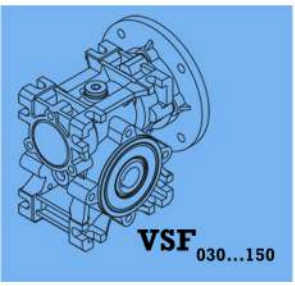
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.15	180.0	7.1	3.2	5	690	VSF 030 - 63M/6C	58
	120.0	10	2.1	7.5	790		
	90.0	13	1.7	10	870		
	60.0	18	1.2	15	1000		
	45.0	22	0.9	20	1100		
	60.0	19	2.5	15	1920	VSF 040 - 63M/6C	59
	45.0	24	1.9	20	2110		
	36.0	30	1.6	25	2280		
	30.0	33	1.7	30	2420		
	22.5	40	1.2	40	2660		
	18.0	46	0.9	50	2870		
	18.0	48	1.7	50	3940	VSF 050 - 63M/6C	60
	15.0	54	1.5	60	4180		
	11.3	63	1.2	80	4600		
	10.0	89	1.8	90	4790	PC063/VSF 050 - 63M/6C	68
	7.5	107	1.3	120	4840		
	6.0	130	1.8	150	6270	PC063/VSF 063- 63M/6C	69
	5.0	143	1.5	180	6270		
0.18	560.0	2.8	4.6	5	470	VSF 030 - 63M/2A	58
	373.3	4.1	3.4	7.5	540		
	280.0	5.3	2.6	10	600		
	186.7	7.7	1.8	15	680		
	140.0	10	1.4	20	750		
	112.0	11	1.5	25	810		
	93.3	13	1.2	30	860		
	70.0	16	0.9	40	950		
	280.0	5.4	3.6	5	600	VSF 030 - 63M/4B	58
	186.7	8.0	2.4	7.5	980		
	140.0	10	1.9	10	750		
	93.3	14	1.4	15	860		
	70.0	18	1.1	20	950		
	56.0	21	1.1	25	1020		
	46.7	24	0.8	30	1090		
	93.3	14	2.5	30	1660	VSF 040 - 63M/2A	59
	70.0	18	1.9	40	1820		
	56.0	21	1.5	50	1960		
	70.0	19	2.1	20	1820	VSF 040 - 63M/4B	59
	56.0	23	1.8	25	1960		
	46.7	27	1.8	30	2090		
	35.0	33	1.4	40	2300		
	28.0	39	1.1	50	2480		
	23.3	44	0.8	60	2630		
	45.0	30	1.6	20	2110	VSF 040 - 71M/6A	59
	36.0	35	1.4	25	2280		
	30.0	39	1.4	30	2420		
	22.5	48	1.1	40	2660		
	18.7	65	0.8	75	2830	PC063/VSF 040- 63M/4B	68
	15.6	71	0.8	90	3010		
	11.7	87	0.6	120	3310		
	46.7	24	2.2	60	2870	VSF 050 - 63M/2A	60
	35.0	31	1.6	80	3150		
	28.0	35	1.3	100	3400		
	35.0	34	2.4	40	3150	VSF 050 - 63M/4B	60
	28.0	40	2.0	50	3400		
	23.3	44	1.7	60	3610		
	17.5	53	1.3	80	3970		
	14.0	61	0.9	100	4280		
	18.0	57	1.5	50	3940	VSF 050 - 71M/6A	60
	15.0	64	1.2	60	4180		
	11.3	77	0.9	80	4600		

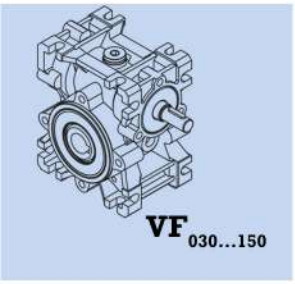


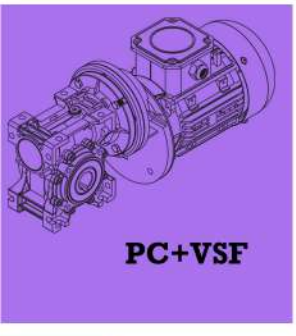






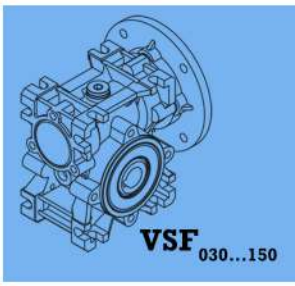


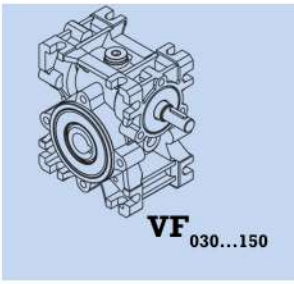


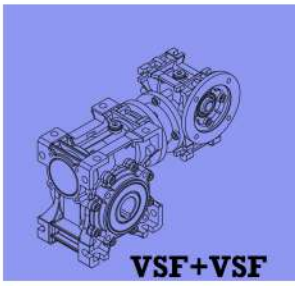


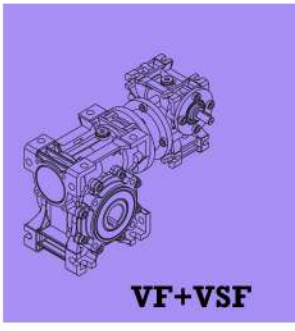
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.18	18.7	65	1.5	75	3890	PC063/VSF 050 - 63M/4B	68
	15.6	72	1.6	90	4130		
	11.7	89	1.2	120	4550		
	9.3	103	0.9	150	4840		
	7.8	115	0.7	180	4840		
	5.8	136	0.6	240	4840		
	12.0	97	1.3	75	4510	PC071/VSF 050 - 71M/6A	69
	10.0	107	1.5	90	4790		
	7.5	129	1.1	120	4840		
	15.0	67	2.2	60	5470	VSF 063 - 71M/6A	61
	11.3	81	1.7	80	6020		
	9.0	92	1.5	100	6270		
	9.3	105	1.8	150	6270	PC063/VSF 063 - 63M/4B	69
	7.8	119	1.5	180	6270		
	5.8	142	1.1	240	6270		
	4.7	158	0.8	300	6270		
	12.0	99	2.3	75	5890	PC071/VSF 063 - 71M/6A	69
	10.0	109	2.5	90	6260		
	7.5	134	1.9	120	6270		
	6.0	155	1.5	150	6270		
	5.0	171	1.3	180	6270		
	3.8	201	0.9	240	6270		
	3.0	222	0.7	300	6270		
	3.5	226	1.1	400	6270	PC071/VSF 063 - 71M/6A	73
	2.8	262	0.8	500	6270		
	5.0	183	1.8	180	7380	PC071/VSF 075 - 71M/6A	70
	3.8	215	1.3	240	7380		
	3.0	240	1.1	300	7380		
	2.3	369	1.2	600	7380	VSF 040/075 - 63M/4B	73
	1.9	444	0.9	750	7380		
	1.6	497	0.8	900	7380		
	1.2	642	1.1	1200	8180	VSF 040/090 - 63M/4B	73
	0.93	750	0.8	1500	8180		
	0.8	878	1.4	1800	10320	VSF 050/105 - 63M/4B	74
	0.58	1135	0.9	2400	10320		
	0.8	878	1.6	1800	10320	VSF 050/110 - 63M/4B	74
	0.58	1135	1.2	2400	10320		
0.22	280.0	7.1	2.9	5	600	VSF 030 - 63M/4D	58
	186.7	10	2.0	7.5	680		
	140.0	12	1.6	10	750		
	93.3	17	1.1	15	860		
	70.0	22	0.8	20	950		
	93.3	18	2.3	15	1660	VSF 040 - 63M/4D	59
	70.0	23	1.8	20	1820		
	56.0	29	1.5	25	1960		
	46.7	33	1.5	30	2090		
	35.0	40	1.2	40	2300		
	28.0	48	0.8	50	2480		
	28.0	48	1.6	50	3400	VSF 050 - 63M/4D	60
	23.3	54	1.4	60	3610		
	17.5	65	1.1	80	3970		
	18.7	80	1.3	75	3890	PC063/VSF 050 - 63M/4D	68
	15.6	88	1.3	90	4130		
	11.7	108	0.9	120	4550		
	9.3	129	1.5	150	6270	PC063/VSF 063 - 63M/4D	69
	7.8	146	1.2	180	6270		
	4.7	214	1.2	300	6270	VSF 030/063 - 63M/4D	73
	3.5	276	0.8	400	6270		

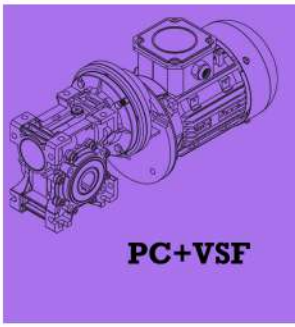
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.25	560.0	3.9	3.4	5	470	VSF 030 - 63M/2B	58
	373.3	5.7	2.4	7.5	540		
	280.0	7.3	1.9	10	600		
	186.7	10	1.4	15	680		
	140.0	13	0.9	20	750		
	112.0	16	1.1	25	810		
	93.3	18	0.8	30	860		
	280.0	8.2	4.7	5	1150	VSF 040 - 71M/4A	59
	186.7	11	3.8	7.5	1320		
	140.0	14	2.9	10	1450		
	93.3	21	2.0	15	1660		
	70.0	28	1.6	20	1820		
	56.0	33	1.3	25	1960		
	46.7	37	1.4	30	2090		
	35.0	45	0.9	40	2300		
	180.0	12	3.7	5	1330	VSF 040 - 71M/6B	59
	120.0	17	2.7	7.5	1520		
	90.0	22	2.1	10	1680		
	60.0	32	1.5	15	1920		
	45.0	41	1.2	20	2110		
	36.0	49	0.9	25	2280		
	30.0	54	0.9	30	2420		
	35.0	43	1.2	80	3150	VSF 050 - 63M/2B	60
	28.0	49	0.8	100	3400		
	70.0	28	2.8	20	2500	VSF 050 - 71M/4A	60
	56.0	33	2.3	25	2700		
	46.7	38	2.4	30	2870		
	35.0	47	1.8	40	3150		
	28.0	55	1.5	50	3400		
	23.3	61	1.2	60	3610		
	17.5	73	0.9	80	3970		
	45.0	41	2.0	20	2900	VSF 050 - 71M/6B	60
	36.0	49	1.6	25	3120		
	30.0	55	1.8	30	3320		
	22.5	68	1.3	40	3650		
	18.0	80	1.1	50	3940		
	15.0	90	0.8	60	4180		
	18.7	90	1.1	75	3890	PC071/VSF 050 - 71M/4A	69
	15.6	100	1.2	90	4130		
	11.7	123	0.8	120	4550		
	35.0	48	3.1	40	4120	VSF 063 - 71M/4A	61
	28.0	57	2.5	50	4440		
	23.3	64	2.1	60	4720		
	17.5	80	1.7	80	5190		
	14.0	89	1.5	100	5600		
	36.0	50	3.0	25	4080	VSF 063 - 71M/6B	61
	30.0	57	3.1	30	4340		
	22.5	70	2.4	40	4780		
	18.0	83	1.9	50	5150		
	15.0	94	1.6	60	5470		
	11.3	112	1.3	80	6020		
	9.0	128	1.1	100	6270		
	18.7	93	1.9	75	5080	PC071/VSF 063 - 71M/4A	69
	15.6	102	2.1	90	5400		
	11.7	128	1.6	120	5950		
	9.3	146	1.3	150	6270		
	7.8	166	1.1	180	6270		
	5.8	196	0.7	240	6270		
	4.7	219	0.6	300	6270		
	12.0	138	1.7	75	5890	PC071/VSF 063 - 71M/6B	69
	10.0	151	1.9	90	6260		
	7.5	185	1.4	120	6270		
	6.0	215	1.1	150	6270		

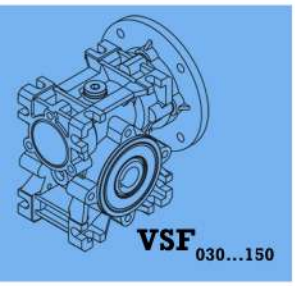


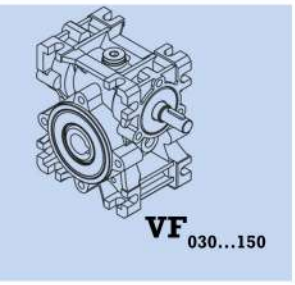


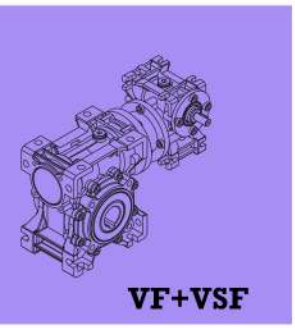


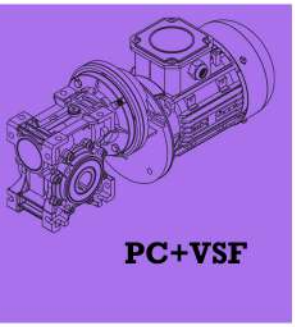






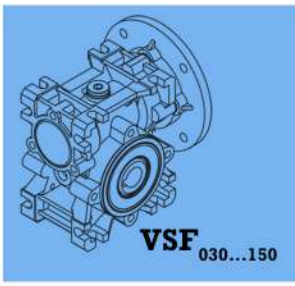


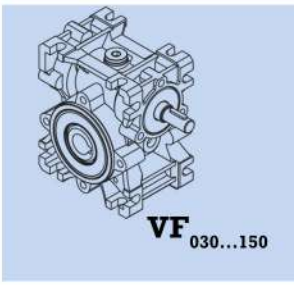


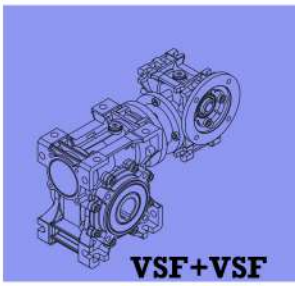


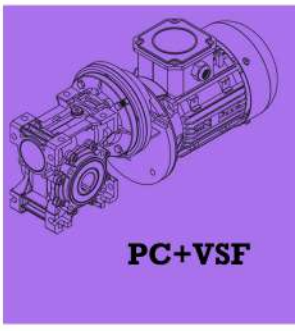
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.25	7.0	162	1.5	400	6270	**VSF 030/063 - 63M/2B**	73
	5.6	189	1.3	500	6270		
	23.3	68	3.2	60	5570	**VSF 075 - 71M/4A**	62
	17.5	84	2.4	80	6130		
	14.0	96	2.0	100	6600		
	18.0	85	3.0	50	6070	**VSF 075 - 71M/6B**	62
	15.0	99	2.5	60	6450		
	11.3	119	1.8	80	7100		
	9.0	136	1.5	100	7380		
	9.3	154	1.8	150	7380	**PC071/VSF 075 - 71M/4A**	70
	7.8	175	1.5	180	7380		
	5.8	205	1.2	240	7380		
	4.7	235	0.9	300	7380		
	12.0	142	2.5	75	6950	**PC071/VSF 075 - 71M/6B**	70
	10.0	158	2.6	90	7380		
	7.5	195	2.0	120	7380		
	6.0	223	1.6	150	7380		
	5.0	253	1.3	180	7380		
	3.5	343	1.2	400	7380	**VSF 040/075 - 71M/4A**	73
	2.8	392	0.8	500	7380		
	5.0	268	2.0	180	8180	**PC071/VSF 090 - 71M/6B**	70
	3.8	324	1.5	240	8180		
	3.0	365	1.2	300	8180		
	2.3	522	1.3	600	8180	**VSF 040/090 - 71M/4A**	73
	1.9	610	0.9	750	8180		
	1.6	680	0.8	900	8180		
	1.2	962	1.2	1200	10320	**VSF 050/105 - 71M/4A**	74
	0.93	1085	1.1	1500	10320		
	0.78	1219	0.9	1800	10320		
	1.2	962	1.4	1200	10320	**VSF 050/110 - 71M/4A**	74
	0.93	1085	1.3	1500	10320		
	0.78	1219	1.2	1800	10320		
	0.6	1656	1.1	2400	13500	**VSF 063/130 - 71M/4A**	74
	0.47	1974	0.8	3000	13500		
	0.8	1223	1.9	1800	18000	**VSF 063/150 - 71M/4A**	74
	0.6	1475	1.9	2400	18000		
	0.5	1747	1.5	3000	18000		
	0.4	2067	0.9	4000	18000		
0.37	560.0	5.7	2.2	5	470	**VSF 030 - 63M/2D**	58
	373.3	8.4	1.7	7.5	540		
	280.0	11	1.3	10	600		
	186.7	15	0.8	15	680		
	560.0	6	4.4	5	910	**VSF 040 - 71M/2A**	59
	373.3	9	3.5	7.5	1040		
	280.0	11	2.7	10	1150		
	186.7	16	2.0	15	1320		
	140.0	21	1.5	20	1450		
	112.0	26	1.2	25	1560		
	280.0	11	3.2	5	1150	**VSF 040 - 71M/4B**	59
	186.7	16	2.5	7.5	1320		
	140.0	21	2.0	10	1450		
	93.3	32	1.4	15	1660		
	70.0	40	1.1	20	1820		
	56.0	48	0.8	25	1960		
	46.7	54	0.8	30	2090		
	112.0	26	2.1	25	2140	**VSF 050 - 71M/2A**	60
	93.3	30	2.3	30	2270		
	70.0	38	1.7	40	2500		
	56.0	45	1.3	50	2700		
	46.7	51	1.1	60	2870		
	35.0	63	0.7	80	3150		

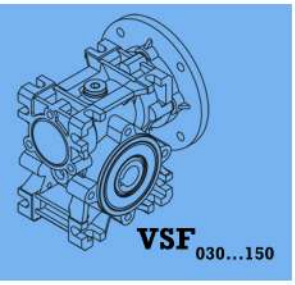
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.37	140.0	22	3.5	10	1990	VSF 050 - 71M/4B	60
	93.3	32	2.5	15	2270		
	70.0	41	1.9	20	2500		
	56.0	49	1.6	25	2700		
	46.7	56	1.6	30	2870		
	35.0	69	1.2	40	3150		
	28.0	82	0.9	50	3400		
	23.3	91	0.8	60	3610		
	180.0	17	4.5	5	1830	VSF 050 - 80M/6A	60
	120.0	26	3.5	7.5	2090		
	90.0	34	2.6	10	2300		
	60.0	48	1.9	15	2640		
	45.0	61	1.4	20	2900		
	36.0	73	1.1	25	3120		
	30.0	82	1.2	30	3320		
	70.0	38	2.9	40	3270	VSF 063 - 71M/2A	61
	56.0	45	2.3	50	3520		
	46.7	52	1.9	60	3750		
	35.0	65	1.4	80	4120		
	28.0	74	1.1	100	4440		
	56.0	50	2.7	25	3520	VSF 063 - 71M/4B	61
	46.7	57	2.8	30	3750		
	35.0	72	2.2	40	4120		
	28.0	85	1.7	50	4440		
	23.3	96	1.5	60	4720		
	17.5	117	1.2	80	5190		
	14.0	132	0.9	100	5600		
	45.0	61	2.5	20	3790	VSF 063 - 80M/6A	61
	36.0	75	2.0	25	4080		
	30.0	84	2.2	30	4340		
	22.5	104	1.7	40	4780		
	18.0	122	1.3	50	5150		
	15.0	140	1.1	60	5470		
	11.3	166	0.8	80	6020		
	18.7	137	1.3	75	5080	PC071/VSF 063 - 71M/4B	69
	15.6	151	1.5	90	5400		
	11.7	189	1.1	120	5950		
	9.3	216	0.8	150	6270		
	9.3	185	1.4	300	6270	VSF 030/063 - 63M/2D	73
	7.0	241	1.1	400	6270		
	56.0	47	3.5	50	4160	VSF 075 - 71M/2A	62
	46.7	55	2.9	60	4420		
	35.0	78	1.8	80	4870		
	28.0	78	1.7	100	5240		
	35.0	74	3.3	40	4870	VSF 075 - 71M/4B	62
	28.0	88	2.5	50	5240		
	23.3	100	2.1	60	5570		
	17.5	123	1.7	80	6130		
	14.0	142	1.4	100	6600		
	36.0	77	3.1	25	4820	VSF 075 - 80M/6A	62
	30.0	87	3.3	30	5120		
	22.5	108	2.6	40	5640		
	18.0	129	1.9	50	6070		
	15.0	147	1.6	60	6450		
	11.3	176	1.3	80	7100		
	9.0	200	1.1	100	7380		
	18.7	141	1.9	75	6000	PC071/VSF 075 - 71M/4B	70
	15.6	157	2.0	90	6380		
	11.7	195	1.6	120	7020		
	9.3	227	1.2	150	7380		
	7.8	259	0.9	180	7380		
	12.0	210	1.7	75	6950	PC080/VSF 075 - 80M/6A	70
	10.0	235	1.8	90	7380		
	7.5	289	1.4	120	7380		
	6.0	330	1.1	150	7380		

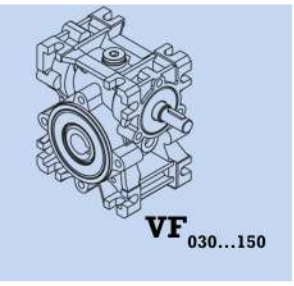


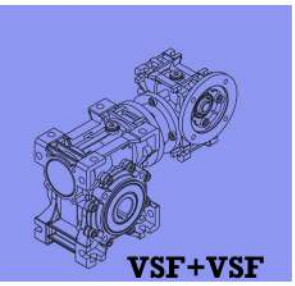


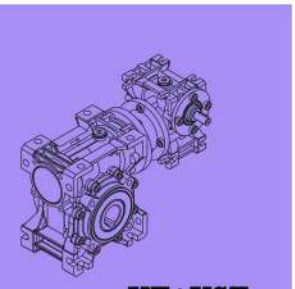


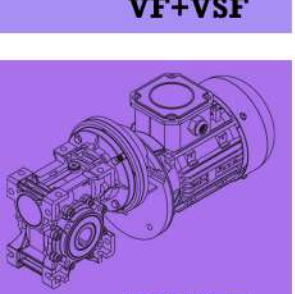






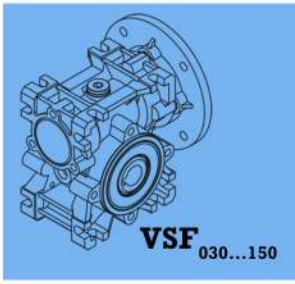


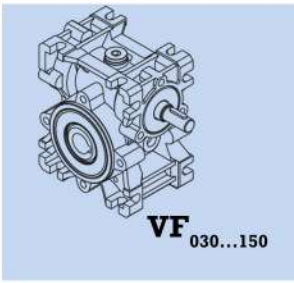


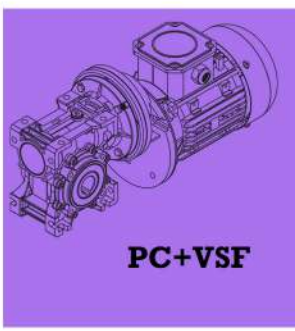


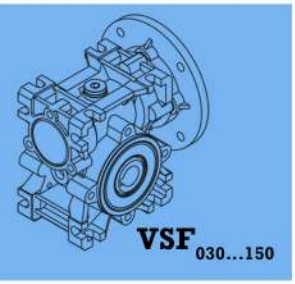
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.37	4.7 3.5	413 503	1.1 0.7	300 400	7380 7380	**VSF 040/075 - 71M/4B**	73
	18.0 15.0 11.3 9.0	135 153 189 216	3.2 2.5 1.8 1.4	50 60 80 100	6720 7140 7860 8180	**VSF 090 - 80M/6A**	63
	7.8 5.8 4.7	273 327 378	1.6 1.2 0.9	180 240 300	8180 8180 8180	**PC71/VSF 090 - 71M/4B**	70
	6.0 5.0 3.8	354 397 480	1.7 1.4 1.1	150 180 240	8180 8180 8180	**PC80/VSF 090 - 80M/6A**	71
	4.7 3.5 2.8 2.3	410 533 623 772	1.6 1.3 0.9 0.8	300 400 500 600	8180 8180 8180 8180	**VSF 040/090 - 71M/4B**	72
	3.8 3.0	519 589	1.6 1.3	240 300	10320 10320	**PC80/VSF 105 - 80M/6A**	71
	1.9 1.6 1.2	969 1101 1424	1.3 1.1 0.7	750 900 1200	10320 10320 10320	**VSF 050/105 - 71M/4B**	74
	11.3 9.0	201 232	2.8 2.2	80 100	9930 10320	**VSF 110 - 80M/6A**	65
	3.8 3.0	519 589	1.7 1.4	240 300	10320 10320	**PC080/VSF 110 - 80M/6A**	71
	1.9 1.6 1.2	969 1101 1424	1.4 1.3 0.8	750 900 1200	10320 10320 10320	**VSF 050/110 - 71M/4B**	74
	0.9 0.78	1707 1925	1.2 0.9	1500 1800	13500 13500	**VSF 063/130 - 71M/4B**	74
	0.8 0.6 0.5	1811 2184 2586	1.3 1.3 0.9	1800 2400 3000	18000 18000 18000	**VSF 063/150 - 71M/4B**	74
0.55	560.0 373.3 280.0 186.7 140.0 112.0	8.6 13 17 24 32 38	2.9 2.3 1.9 1.4 0.9 0.8	5 7.5 10 15 20 25	910 1040 1150 1320 1450 1560	**VSF 040 - 71M/2B**	59
	280.0 186.7 140.0 93.3	17 24 33 47	2.1 1.7 1.4 0.9	5 7.5 10 15	1150 1320 1450 1660	**VSF 040 - 71M/4C**	59
	140.0 112.0 93.3 70.0 56.0 46.7	32 39 44 56 66 75	1.8 1.5 1.6 1.2 0.8 0.7	20 25 30 40 50 60	1990 2140 2270 2500 2700 2870	**VSF 050 - 71M/2B**	60
	280.0 186.7 140.0 93.3 70.0 56.0 46.7	17 25 33 47 60 72 83	3.9 3.0 2.3 1.7 1.3 1.1 1.1	5 7.5 10 15 20 25 30	1580 1810 1990 2270 2500 2700 2870	**VSF 050 - 80M/4A**	60
	120.0 90.0 60.0 45.0	39 50 70 91	2.3 1.8 1.3 0.9	7.5 10 15 20	2090 2300 2640 2900	**VSF 050 - 80M/6B**	60

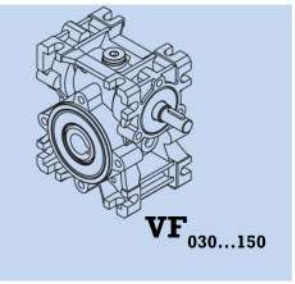
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.55	140.0	32	3.3	20	2600	VSF 063 - 71M/2B	61
	112.0	39	2.5	25	2800		
	93.3	44	2.7	30	2970		
	70.0	57	2.0	40	3270		
	56.0	68	1.6	50	3520		
	46.7	79	1.3	60	3750		
	35.0	97	0.9	80	4120		
	28.0	111	0.7	100	4440		
	93.3	47	3.2	15	2970	VSF 063 - 80M/4A	61
	70.0	62	2.3	20	3270		
	56.0	74	1.9	25	3520		
	46.7	85	2.0	30	3550		
	35.0	107	1.5	40	4120		
	28.0	126	1.2	50	4440		
	23.3	143	0.9	60	4720		
	17.5	174	0.7	80	5190		
	90.0	50	3.1	10	3010	VSF 063 - 80M/6B	61
	60.0	72	2.3	15	3440		
	45.0	92	1.7	20	3790		
	36.0	111	1.4	25	4080		
	30.0	125	1.5	30	4340		
	22.5	155	1.2	40	4780		
	18.0	181	0.9	50	5150		
	15.0	207	0.7	60	5470		
	18.7	204	0.8	75	5080	PC071/VSF 063 - 71M/4C	69
	15.6	223	0.9	90	5400		
	70.0	59	3.1	40	3860	VSF 075 - 71M/2B	62
	56.0	70	2.3	50	4160		
	46.7	81	2.0	60	4420		
	35.0	101	1.4	80	4870		
	28.0	116	1.1	100	5240		
	56.0	76	2.8	25	4160	VSF 075 - 80M/4A	62
	46.7	87	2.9	30	4420		
	35.0	110	2.1	40	4870		
	28.0	132	1.7	50	5240		
	23.3	149	1.5	60	5570		
	17.5	184	1.2	80	6130		
	14.0	210	0.9	100	6600		
	45.0	93	2.9	20	4470	VSF 075 - 80M/6B	62
	36.0	114	2.1	25	4820		
	30.0	131	2.1	30	5120		
	22.5	162	1.6	40	5640		
	18.0	191	1.3	50	6070		
	15.0	218	1.1	60	6450		
	11.3	261	0.8	80	7100		
	18.7	209	1.3	75	6000	PC071/VSF 075 - 71M/4C	70
	15.6	235	1.4	90	6380		
	11.7	290	1.1	120	7020		
	18.7	209	1.3	75	6000	PC080/VSF 075 - 80M/4A	70
	15.6	235	1.4	90	6380		
	11.7	290	1.1	120	7020		
	9.3	339	0.8	150	7380		
	12.0	312	1.2	75	6950	PC080/VSF 075 - 80M/6B	70
	10.0	348	1.2	90	7380		
	17.5	193	1.6	80	6780	VSF 090 - 80M/4A	63
	14.0	225	1.3	100	7310		
	36.0	117	3.5	25	5330	VSF 090 - 80M/6B	63
	22.5	168	2.7	40	6240		
	18.0	202	2.1	50	6720		
	15.0	228	1.7	60	7140		
	11.3	281	1.2	80	7860		
	9.0	321	0.9	100	8180		

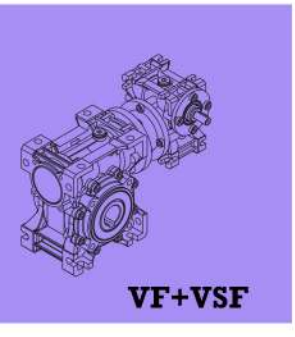


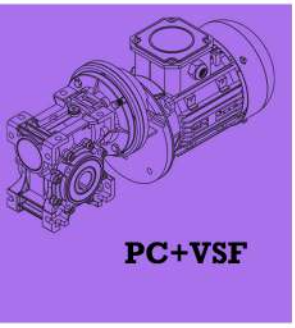






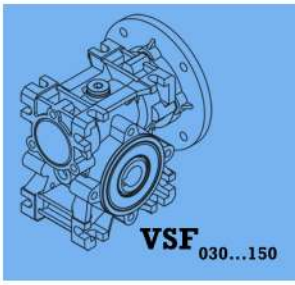


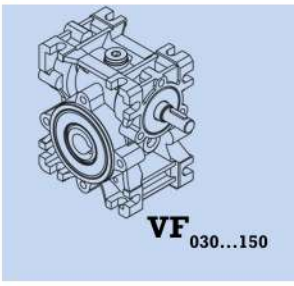


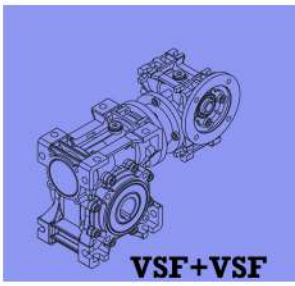


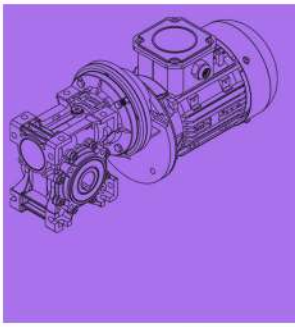
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.55	15.6	245	2.4	90	7050	PC080/VSF 090 - 80M/4A	71
	11.7	303	1.7	120	7760		
	9.3	362	1.4	150	8180		
	7.8	406	1.1	180	8180		
	10.0	364	2.1	90	8170	PC080/VSF 090 - 80M/6B	71
	7.5	450	1.5	120	8180		
	6.0	526	1.2	150	8180		
	5.0	590	0.9	180	8180		
	9.3	312	2.1	300	8180	VSF 040/090 - 71M/2B	73
	7.0	411	1.6	400	8180		
	5.6	479	1.3	500	8180		
	17.5	205	2.5	80	8570	VSF 105 - 80M/4A	64
	14.0	241	2.0	100	9230		
	11.3	300	1.9	80	9930	VSF 105 - 80M/6B	64
	9.0	345	1.5	100	10320		
	7.8	434	1.8	180	10320	PC080/VSF 105 - 80M/4A	71
	5.8	523	1.3	240	10320		
	4.7	609	1.1	300	10320		
	7.5	741	2.3	120	10320	PC080/VSF 105 - 80M/6B	71
	6.0	563	1.9	150	10320		
	5.0	632	1.6	180	10320		
	3.8	771	1.1	240	10320		
	4.7	652	1.8	300	10320	VSF 050/105 - 80M/4A	74
	3.5	843	1.3	400	10320		
	2.8	1004	1.1	500	10320		
	2.3	1205	0.9	600	10320		
	1.9	1439	0.8	750	10320		
	17.5	205	2.7	80	8570	VSF 110 - 80M/4A	65
	14.0	241	2.1	100	9230		
	15.0	242	2.8	60	9020	VSF 110 - 80M/6B	65
	11.3	300	2.0	80	9930		
	9.0	345	1.6	100	10320		
	7.8	434	1.9	180	10320	PC080/VSF 110 - 80M/4A	71
	5.8	523	1.4	240	10320		
	4.7	609	1.1	300	10320		
	7.5	471	2.7	120	10320	PC080/VSF 110 - 80M/6B	71
	6.0	563	2.1	150	10320		
	5.0	632	1.7	180	10320		
	3.8	771	1.2	240	10320		
	4.7	652	2.1	300	10320	VSF 050/110 - 80M/4A	74
	3.5	843	1.5	400	10320		
	2.8	1004	1.2	500	10320		
	2.3	1205	1.1	600	10320		
	1.9	1439	0.9	750	10320		
	3.8	771	1.7	240	13500	PC080/VSF 130 - 80M/6B	71
	3.0	875	1.4	300	13500		
	2.8	1016	1.7	500	13500	VSF 063/110 - 80M/4A	74
	1.9	1500	1.3	750	13500		
	1.2	2175	0.8	1200	13500		
	0.6	3246	0.8	2400	18000	VSF 063/150 - 80M/4A	74
0.75	560.0	12	2.2	5	910	VSF 040 - 71M/2C	59
	373.3	17	1.7	7.5	1040		
	280.0	23	1.4	10	1150		
	186.7	33	1.1	15	1320		
	560.0	12	4.1	5	1250	VSF 050 - 80M/2A	60
	373.3	17	3.2	7.5	1430		
	280.0	23	2.5	10	1580		
	186.7	34	1.8	15	1800		
	140.0	43	1.4	20	1990		
	112.0	52	1.1	25	2140		
	93.3	59	1.2	30	2270		

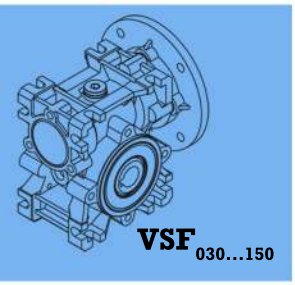
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.75	280.0	23	2.8	5	1580		
	186.7	34	2.2	7.5	1810		
	140.0	45	1.7	10	1990	**VSF 050 - 80M/4B**	60
	93.3	64	1.3	15	2270		
	70.0	83	0.9	20	2500		
	186.7	33	3.3	15	2360		
	140.0	44	2.4	20	2600		
	112.0	53	1.9	25	2800		
	93.3	61	2.1	30	2970	**VSF 063 - 80M/2A**	61
	70.0	79	1.5	40	3270		
	56.0	93	1.2	50	3520		
	46.7	106	0.9	60	3750		
	140.0	45	3.0	10	2600		
	93.3	65	2.3	15	2970		
	70.0	85	1.7	20	3270		
	56.0	102	1.4	25	3520	**VSF 063 - 80M/4B**	61
	46.7	116	1.5	30	3750		
	35.0	146	1.1	40	4120		
	28.0	171	0.8	50	4440		
	120.0	53	3.0	7.5	2730		
	90.0	69	2.4	10	3010		
	60.0	99	1.7	15	3440		
	45.0	125	1.3	20	3790	**VSF 063 - 90S/6A**	61
	36.0	152	0.9	25	4080		
	30.0	170	1.1	30	4340		
	22.5	210	0.8	40	4780		
	112.0	54	3.0	25	3300		
	93.3	62	3.0	30	3510		
	70.0	80	2.3	40	3860		
	56.0	96	1.7	50	4160	**VSF 075 - 80M/2A**	62
	46.7	111	1.4	60	4420		
	35.0	158	0.9	80	4870		
	28.0	159	0.8	100	5240		
	93.3	66	3.5	15	3510		
	70.0	85	2.8	20	3860		
	56.0	104	2.1	25	4160		
	46.7	119	2.1	30	4420		
	35.0	150	1.6	40	4870	**VSF 075 - 80M/4B**	62
	28.0	181	1.3	50	5240		
	23.3	204	1.1	60	5570		
	17.5	250	0.8	80	6130		
	90.0	68	3.4	10	3550		
	60.0	100	2.5	15	4070		
	45.0	129	2.0	20	4470		
	36.0	156	1.5	25	4820		
	30.0	177	1.6	30	5120	**VSF 075 - 90S/6A**	62
	22.5	220	1.2	40	5640		
	18.0	255	1.0	50	6070		
	15.0	296	0.8	60	6450		
	18.7	286	0.9	75	6000		
	15.6	319	1.0	90	6380	**PC080/VSF 075 - 80M/4B**	70
	70.0	82	3.4	40	4270		
	56.0	98	2.7	50	4600		
	46.7	115	2.1	60	4890	**VSF 090 - 80M/2A**	63
	35.0	144	1.7	80	5380		
	28.0	169	1.3	100	5800		
	35.0	156	2.5	40	5380		
	28.0	188	1.9	50	5800		
	23.3	216	1.6	60	6160	**VSF 090 - 80M/4B**	63
	17.5	263	1.2	80	6780		
	14.0	308	0.9	100	7310		

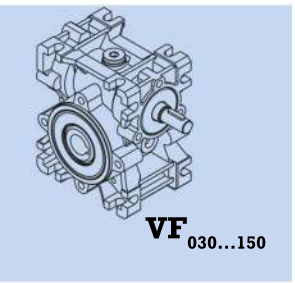


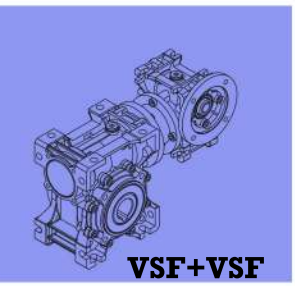


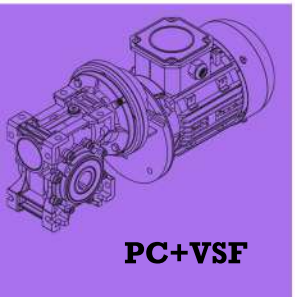






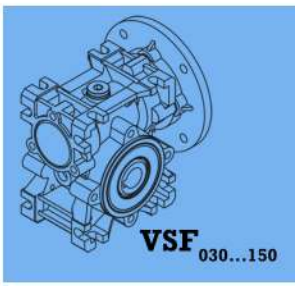


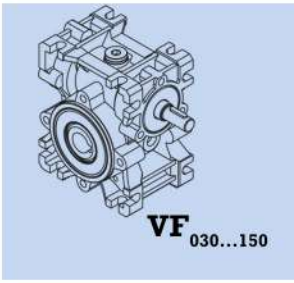


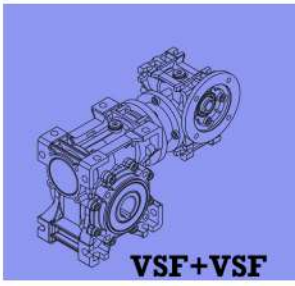


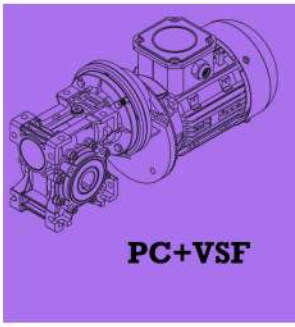
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.75	45.0 36.0 30.0 22.5 18.0 15.0 11.3	131 159 183 231 276 312 382	3.3 2.6 2.7 1.9 1.5 1.2 0.8	20 25 30 40 50 60 80	4950 5330 5670 6240 6720 7140 7860	**VSF 090 - 90S/6A**	63
	15.6 11.7 9.3 7.8	334 413 493 554	1.8 1.3 0.9 0.7	90 120 150 180	7050 7760 8180 8180	**PC080/VSF 090 - 80M/4B**	71
	7.0 5.6	560 655	1.2 0.9	400 500	8180 8180	**VSF 040/090 - 71M/2C**	73
	17.5 14.0	279 328	1.9 1.5	80 100	8570 9230	**VSF 105 - 80M/4B**	64
	15.0 11.3 9.0	332 409 471	2.0 1.4 1.2	60 80 100	9020 9930 10320	**VSF 105 - 90M/6A**	64
	11.7 9.3 7.8 5.8	439 516 592 714	2.0 1.7 1.3 0.9	120 150 180 240	9810 10320 10320 10320	**PC080/VSF 105 - 80M/4B**	71
	10.0 7.5 6.0 5.0 3.75	497 634 767 862 1052	2.4 1.7 1.4 1.2 0.7	90 120 150 180 240	9610 10320 10320 10320 10320	**PC090/VSF 105 - 90S/6A**	71
	9.3 7.0 5.6	455 574 701	2.6 1.9 1.6	300 400 500	10320 10320 10320	**VSF 050/105 - 80M/2A**	74
	4.7 3.5	888 1149	1.4 0.9	300 400	10320 10320	**VSF 050/105 - 80M/4B**	74
	35.0 28.0	151 179	2.6 2.1	80 100	6800 7330	**VSF 110 - 80M/2A**	65
	28.0 23.3 17.5 14.0	220 227 279 328	3.0 2.7 2.0 1.6	50 60 80 100	7330 7790 8570 9230	**VSF 110 - 80M/4B**	65
	22.5 18.0 15.0 11.3 9.0	239 287 332 409 471	3.3 2.6 2.2 1.5 1.2	40 50 60 80 100	7880 8490 9020 9930 10320	**VSF 110 - 90S/6A**	65
	11.7 9.3 7.8 5.8	439 516 592 714	2.3 1.8 1.4 0.9	120 150 180 240	9810 10320 10320 10320	**PC080/VSF 110 - 80M/4B**	71
	10.0 7.5 6.0 5.0 3.8	497 643 767 862 1052	2.7 2.0 1.6 1.3 0.8	90 120 150 180 240	9610 10320 10320 10320 10320	**PC090/VSF 110 - 90S/6A**	71
	9.3 7.0 5.6	455 574 701	2.9 2.2 1.7	300 400 500	10320 10320 10320	**VSF 050/110 - 80M/2A**	74
	4.7 3.5	888 1149	1.6 1.2	300 400	10320 10320	**VSF 050/110 - 80M/4B**	74
	11.3 9.0	415 479	2.2 1.8	80 100	12990 13500	**VSF 130 - 90S/6A**	66
	5.8 4.7	726 829	1.5 1.2	240 300	13500 13500	**PC080/VSF 130 - 80M/4B**	71

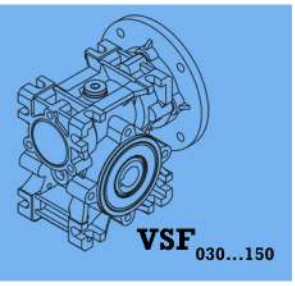
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
0.75	10.0	504	3.8	90	12580	PC090/VSF 130 - 90S/6A	71
	7.5	643	2.7	120	13500		
	6.0	767	2.2	150	13500		
	5.0	862	1.8	180	13500		
	3.8	1052	1.3	240	13500		
	3.0	1193	1.1	300	13500		
	2.8	1385	1.2	500	13500	VSF 063/130 - 80M/4B	74
	2.3	1664	1.1	600	13500		
	1.9	2045	0.9	750	13500		
	1.6	2329	0.8	900	13500		
	2.8	1317	1.9	500	18000	VSF 063/150 - 80M/4B	74
	2.3	1560	1.8	600	18000		
	1.9	1819	1.4	750	18000		
	1.6	2259	0.9	900	18000		
	1.2	2734	1.1	1200	18000		
0.92	280.0	29	2.3	5	1580	VSF 050- 80M/4	60
	186.7	42	1.8	7.5	1810		
	140.0	55	1.4	10	1990		
	93.3	79	1.1	15	2270		
	186.7	42	3.1	7.5	2360	VSF 063- 80M/4	61
	140.0	56	2.5	10	2600		
	93.3	80	1.9	15	2970		
	70.0	104	1.4	20	3270		
	56.0	124	1.2	25	3520		
	46.7	142	1.2	30	3750		
	35.0	180	0.8	40	4120		
	93.3	81	2.8	15	3510	VSF 075- 80M/4	62
	70.0	105	2.1	20	3860		
	56.0	129	1.7	25	4160		
	46.7	146	1.7	30	4420		
	35.0	185	1.3	40	4870		
	28.0	221	1.1	50	5240		
	23.3	250	0.8	60	5570		
	18.7	351	0.7	75	6000	PC080/VSF 075- 80M/4	70
	15.6	392	0.8	90	6380		
	56.0	130	2.9	25	4600	VSF 090- 80M/4	63
	46.7	149	2.9	30	4890		
	35.0	191	2.1	40	5380		
	28.0	231	1.6	50	5800		
	23.3	265	1.3	60	6160		
	17.5	322	0.9	80	6780		
	14.0	377	0.7	100	7300		
	15.6	409	1.5	90	7050	PC080/VSF 090- 80M/4	71
	11.7	507	1.1	120	7760		
	9.3	605	0.8	150	8180		
	17.5	343	1.6	80	8570	VSF 105- 80M/4	64
	14.0	403	1.3	100	9230		
	18.7	374	2.3	75	8390	PC080/VSF 105- 80M/4	71
	11.7	538	1.6	120	9810		
	9.3	633	1.4	150	10320		
	7.8	726	1.1	180	10320		
	4.7	1090	1.1	300	10320	VSF 050/105 - 80M/4	74
	3.5	1410	0.7	400	10320		
	28.0	270	2.4	50	7330	VSF 110- 80M/4	65
	23.3	279	2.2	60	7790		
	17.5	343	1.6	80	8570		
	14.0	403	1.3	100	9230		
	18.7	374	2.6	75	8390	PC080/VSF 110- 80M/4	71
	11.7	538	1.9	120	9810		
	9.3	633	1.5	150	10320		
	7.8	726	1.2	180	10320		

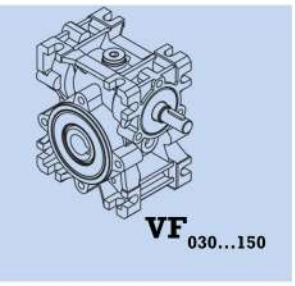


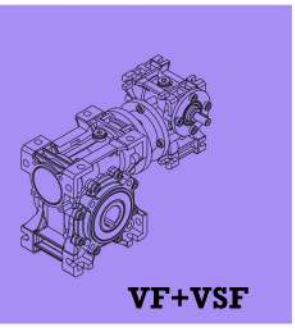


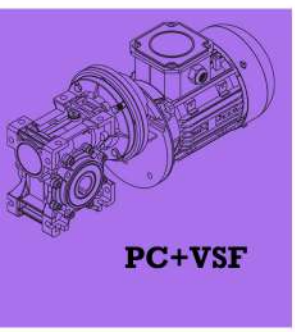






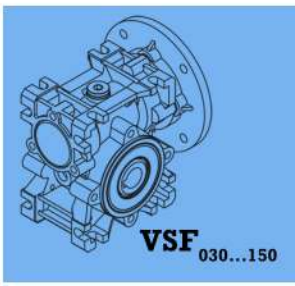


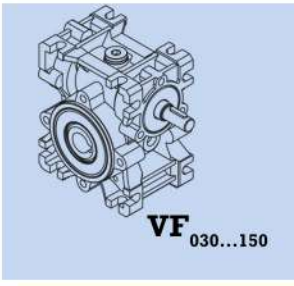


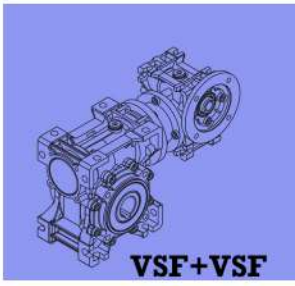


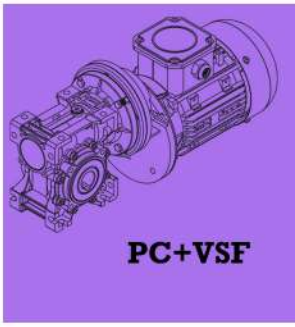
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
0.92	4.7	1090	1.3	300	10320	VSF 050/110 - 80M/4	74
	3.5	1410	0.9	400	10320		
	3.5	1426	1.3	400	13500	VSF 063/130- 80M/4	74
	2.8	1698	0.9	500	13500		
	7.8	726	1.6	180	13500	PC080/VSF 130- 80M/4	71
	5.8	891	1.5	240	13500		
	4.7	1018	1.2	300	13500		
	2.8	1615	1.6	500	18000	VSF 063/150- 80M/4	74
	2.3	1913	1.5	600	18000		
	1.9	2232	1.2	750	18000		
	1.2	3354	0.8	1200	18000		
1.10	560.0	17	2.7	5	1250	VSF 050- 80M/2B	60
	373.3	26	2.2	7.5	1430		
	280.0	34	1.7	10	1580		
	186.7	49	1.3	15	1800		
	140.0	63	0.9	20	1990		
	280.0	33	3.0	10	2060	VSF 063- 80M/2B	61
	186.7	49	2.2	15	2360		
	140.0	64	1.7	20	2600		
	112.0	79	1.3	25	2800		
	93.3	90	1.5	30	2970		
	70.0	115	1.1	40	3270		
	56.0	135	0.8	50	3520		
	120.0	78	2.1	7.5	2730	VSF 063- 90L/6B	61
	90.0	101	1.6	10	3010		
	60.0	145	1.2	15	3440		
	45.0	184	0.8	20	3790		
	30.0	249	0.7	30	4340		
	186.7	51	2.7	7.5	2360	VSF 063- 90S/4A	61
	140.0	66	2.1	10	2600		
	93.3	95	1.6	15	2970		
	70.0	124	1.2	20	3270		
	56.0	149	0.9	25	3520		
	46.7	170	1.1	30	3750		
	186.7	50	3.3	15	2790	VSF 075- 80M/2B	62
	140.0	65	2.7	20	3070		
	112.0	80	2.0	25	3300		
	93.3	92	2.0	30	3510		
	70.0	118	1.5	40	3860		
	56.0	142	1.2	50	4160		
	46.7	163	0.9	60	4420		
	120.0	77	2.8	7.5	3230	VSF 075- 90L/6B	62
	90.0	102	2.4	10	3550		
	60.0	147	1.7	15	4070		
	45.0	188	1.4	20	4470		
	36.0	230	1.1	25	4820		
	30.0	261	1.1	30	5120		
	22.5	322	0.9	40	5640		
	140.0	66	3.0	10	3070	VSF 075- 90S/4A	62
	93.3	98	2.2	15	3510		
	70.0	125	1.8	20	3860		
	56.0	153	1.4	25	4160		
	46.7	174	1.4	30	4420		
	35.0	220	1.1	40	4870		
	28.0	263	0.9	50	5240		
	23.3	297	0.7	60	5570		
	112.0	81	3.1	25	3650	VSF 090- 80M/2B	63
	93.3	93	3.3	30	3880		
	70.0	120	2.3	40	4270		
	56.0	144	1.8	50	4600		
	46.7	169	1.5	60	4890		
	35.0	211	1.2	80	5380		
	28.0	249	0.8	100	5800		

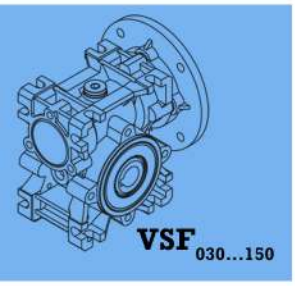
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
1.10	60.0	149	3.1	15	4500	VSF 090 - 90L/6B	63
	45.0	191	2.2	20	4950		
	36.0	236	1.7	25	5330		
	30.0	268	1.9	30	5670		
	22.5	338	1.3	40	6240		
	18.0	405	1.1	50	6720		
	15.0	457	0.8	60	7140		
	70.0	128	3.1	20	4270	VSF 090 - 90S/4A	63
	56.0	156	2.4	25	4600		
	46.7	178	2.4	30	4890		
	35.0	230	1.7	40	5380		
	28.0	275	1.4	50	5800		
	23.3	317	1.1	60	6160		
	17.5	384	0.7	80	6780		
	22.5	352	2.1	40	7880	VSF 105 - 90L/6B	64
	18.0	422	1.7	50	8490		
	15.0	486	1.4	60	9020		
	11.3	600	0.9	80	9930		
	28.0	287	2.2	50	7330	VSF 105 - 90S/4A	64
	23.3	330	1.8	60	7790		
	17.5	410	1.3	80	8570		
	14.0	482	1.1	100	9230		
	10.0	728	1.6	90	9610	PC090/VSF 105 - 90L/6B	71
	7.5	942	1.2	120	10320		
	6.0	1125	0.9	150	10320		
	5.0	1265	0.7	180	10320		
	15.56	496	1.9	90	8300	PC090/VSF 105 - 90S/4A	71
	11.67	643	1.4	120	9130		
	9.33	769	1.1	150	9840		
	7.78	868	0.8	180	10320		
	5.83	1066	0.6	240	10320		
	9.3	667	1.8	300	10320	VSF 050/105 - 80M/2B	74
	7.0	862	1.3	400	10320		
	5.6	1027	1.1	500	10320		
	36.0	239	3.2	25	6740	VSF 110 - 90L/6B	65
	30.0	270	3.1	30	7160		
	22.5	352	2.4	40	7880		
	18.0	422	1.9	50	8490		
	15.0	486	1.5	60	9020		
	11.3	600	1.1	80	9930		
	9.0	689	0.7	100	10320		
	56.0	150	3.3	50	5820	VSF 110 - 80M/2B	65
	46.7	176	2.7	60	6180		
	35.0	222	1.8	80	6800		
	28.0	263	1.4	100	7330		
	35.0	237	3.0	40	6800	VSF 110 - 90S/4A	65
	28.0	287	2.4	50	7330		
	23.3	330	2.0	60	7790		
	17.5	410	1.4	80	8570		
	14.0	482	1.1	100	9230		
	10,0	728	1.9	90	9610	PPC090/VSF 110 - 90L/6B	71
	7.5	942	1.4	120	10320		
	6.0	1125	1.1	150	10320		
	5.0	1265	0.8	180	10320		
	15.56	496	2.1	90	8300	PPC090/VSF 110 - 90S/4A	71
	11.67	643	1.6	120	9130		
	9.33	769	1.3	150	9840		
	7.78	868	0.9	180	10320		
	5.83	1066	0.6	240	10320		
	9.3	667	2.0	300	10320	VSF 050/110 - 80M/2B	74
	7.0	862	1.5	400	10320		
	5.6	1027	1.2	500	10320		
	11.3	610	1.5	80	12990	VSF 130 - 90L/6B	66
	9.0	703	1.1	100	13500		

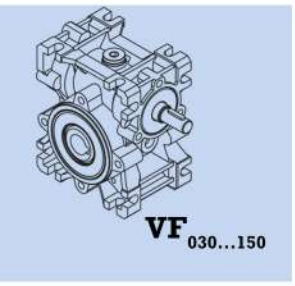


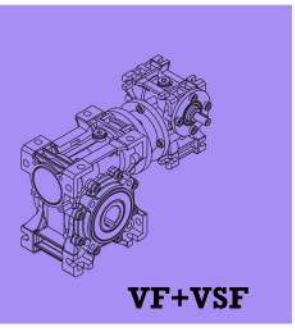


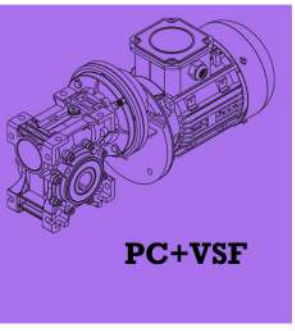






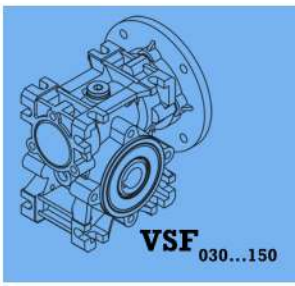


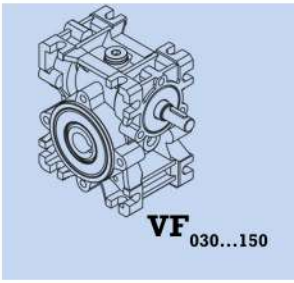


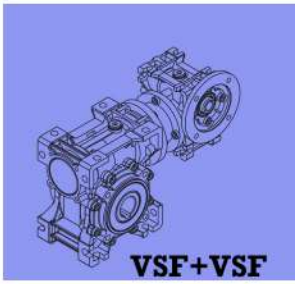


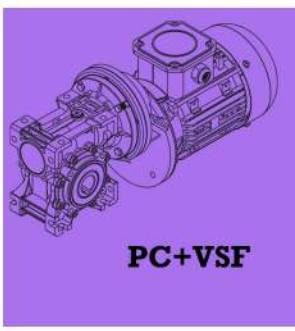
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
1.10	17.5	416	2.2	80	11210	**VSF 130 - 90S/4A**	66
	14.0	490	1.6	100	12080		
	10.0	740	2.5	90	12580	**PC090/VSF 130 - 90L/6B**	71
	7.5	942	1.9	120	13500		
	6.0	1120	1.5	150	13500		
	5.0	1265	1.2	180	13500		
	3.8	1523	0.8	240	13500		
	15.56	503	2.9	90	10850	**PC090/VSF 130 - 90S/4A**	71
	11.67	643	2.2	120	11950		
	9.33	769	1.7	150	12870		
	7.78	868	1.4	180	13500		
	5.83	1066	1.1	240	13500		
	4.67	1216	0.7	300	13500		
	4.7	1338	1.4	300	13500	**VSF 063/130 - 90S/4A**	74
	3.5	1704	1.1	400	13500		
	2.8	2031	0.8	500	13500		
	9.3	768	3.3	150	18000	**VSF 063/150 - 90S/4A**	74
	7.0	985	2.5	200	18000		
	5.6	1199	1.8	250	18000		
	4.7	1391	1.8	300	18000		
	3.5	1651	1.7	400	18000		
	2.8	1931	1.3	500	18000		
	2.3	2287	1.3	600	18000		
	1.9	2668	0.9	750	18000		
1.50	560.0	23	2.0	5	1250	**VSF 050 - 80M/2C**	60
	373.3	36	1.6	7.5	1430		
	280.0	46	1.3	10	1580		
	186.7	66	0.9	15	1810		
	186.7	69	2.0	7.5	2360	**VSF 063 - 90L/4A**	61
	140.0	91	1.6	10	2600		
	93.3	130	1.2	15	2970		
	70.0	169	0.8	20	3270		
	373.3	36	2.8	7.5	1870	**VSF 063 - 90S/2A**	61
	280.0	47	2.2	10	2060		
	186.7	67	1.7	15	2360		
	140.0	88	1.3	20	2600		
	112.0	107	0.9	25	2800		
	93.3	122	1.1	30	2970		
	70.0	156	0.7	40	3270		
	120.0	107	2.1	7.5	3230	**VSF 075 - 100L/6A**	62
	90.0	140	1.8	10	3550		
	60.0	200	1.3	15	4070		
	45.0	255	1.1	20	4470		
	36.0	310	0.8	25	4820		
	30.0	353	0.8	30	5120		
	186.7	68	2.7	7.5	2790	**VSF 075 - 90L/4A**	62
	140.0	92	2.3	10	3070		
	93.3	133	1.6	15	3510		
	70.0	171	1.4	20	3860		
	56.0	209	1.1	25	4160		
	46.7	238	1.1	30	4420		
	35.0	299	0.8	40	4870		
	280.0	47	3.3	10	2430	**VSF 075 - 90S/2A**	62
	186.7	68	2.3	15	2790		
	140.0	89	1.9	20	3070		
	112.0	108	1.5	25	3300		
	93.3	125	1.5	30	3510		
	70.0	161	1.1	40	3860		
	56.0	193	0.8	50	4160		
	46.7	222	0.7	60	4420		

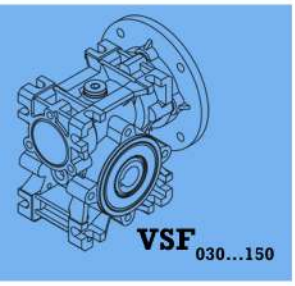
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
1.50	90.0	141	2.8	10	3930		
	60.0	205	2.2	15	4500		
	45.0	263	1.6	20	4950		
	36.0	320	1.3	25	5330	**VSF 090 - 100L/6A**	63
	30.0	365	1.4	30	5670		
	22.5	458	1.0	40	6240		
	18.0	549	0.8	50	6740		
	93.3	134	3.0	15	3880		
	70.0	175	2.2	20	4270		
	56.0	214	1.7	25	4600		
	46.7	244	1.8	30	4890	**VSF 090 - 90L/4A**	63
	35.0	313	1.3	40	5380		
	28.0	375	0.9	50	5800		
	23.3	432	0.8	60	6160		
	140.0	90	2.9	20	3390		
	112.0	110	2.3	25	3650		
	93.3	127	2.4	30	3880		
	70.0	164	1.7	40	4270	**VSF 090 - 90S/2A**	63
	56.0	198	1.5	50	4600		
	46.7	232	1.2	60	4890		
	35.0	287	0.8	80	5380		
	45.0	269	2.5	20	6260		
	36.0	328	2.1	25	6740		
	30.0	370	2.1	30	7160		
	22.5	480	1.6	40	7880	**VSF 105 - 100L/6A**	64
	18.0	576	1.3	50	8490		
	15.0	662	1.1	60	9020		
	35.0	325	2.0	40	6800		
	28.0	392	1.7	50	7330		
	23.3	451	1.4	60	7780	**VSF 105 - 90L/4A**	64
	17.5	559	0.9	80	8570		
	46.7	241	1.9	60	6180		
	35.0	305	1.4	80	6800	**VSF 105 - 90S/2A**	64
	28.0	360	1.1	100	7330		
	15.56	676	1.4	90	8300		
	11.67	876	1.1	120	9130		
	9.33	1033	0.8	150	9840	**PC090/VSF 105 - 90L/4A**	71
	7.78	1183	0.7	180	10320		
	9.3	909	1.3	300	10320		
	7.0	1176	0.9	400	10320	**VSF 050/105 - 80M/2C**	74
	5.6	1400	0.7	500	10320		
	45.0	269	2.8	20	6260		
	36.0	328	2.5	25	6740		
	30.0	370	2.4	30	7160	**VSF 110 - 100L/6A**	65
	22.5	480	1.8	40	7880		
	18.0	576	1.4	50	8490		
	15.0	662	1.2	60	9020		
	56.0	217	3.1	25	5820		
	46.7	246	3.0	30	6180		
	35.0	325	2.3	40	6800		
	28.0	392	1.8	50	7330	**VSF 110 - 90L/4A**	65
	23.3	451	1.5	60	7790		
	17.5	559	0.9	80	8770		
	14.0	655	0.7	100	9230		
	70.0	170	3.1	40	5400		
	56.0	205	2.4	50	5820		
	46.7	241	2.1	60	6180	**VSF 110 - 90S/2A**	65
	35.0	305	1.4	80	6800		
	28.0	360	1.1	100	7330		
	15.56	676	1.6	90	8300		
	11.67	876	1.2	120	9130		
	9.33	1033	0.9	150	9840	**PC090/VSF 110 - 90L/4A**	71
	7.78	1183	0.7	180	10320		

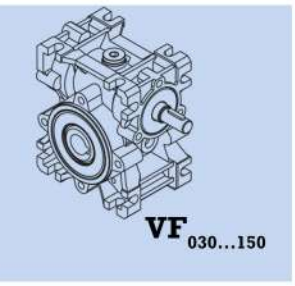


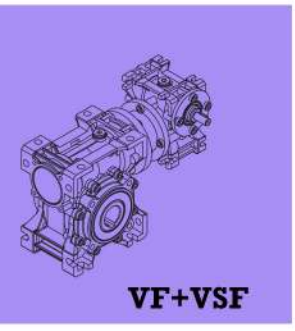


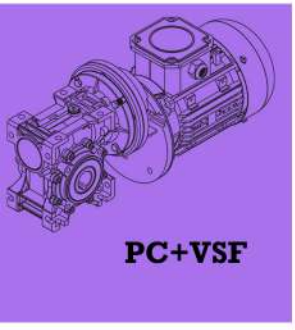






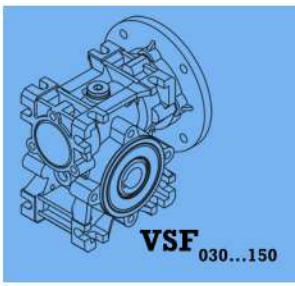


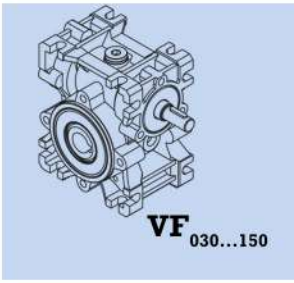


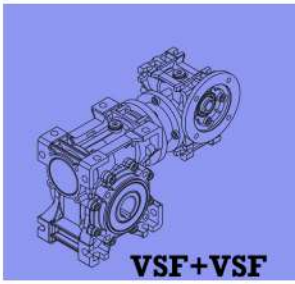


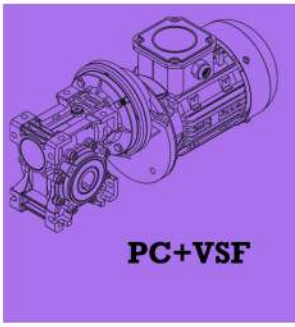
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^{F}R [N]	Tipo Type	Pag Pag
1.50	9.3 7.0 5.6	909 1176 1400	1.5 1.1 0.8	300 400 500	10320 10320 10320	**VSF 050/110 - 80M/2C**	74
	22.5 18.0 15.0 11.3	488 584 672 831	2.4 1.9 1.5 1.2	40 50 60 80	10310 11110 11800 12990	**VSF 130 - 100L/6A**	66
	17.5 14.0	568 668	1.6 1.2	80 100	11210 12080	**VSF 130 - 90L/4A**	66
	15.56 11.67 9.33 7.78 5.83	685 876 1033 1183 1454	2.2 1.6 1.3 0.9 0.7	90 120 150 180 240	10850 11950 12870 13500 13500	**PC090/VSF 130 - 90L/4A**	71
	9.3 7.0 5.6	933 1189 1417	2.0 1.5 1.2	300 400 500	13500 13500 13500	**VSF 063/130 - 90S/2A**	74
	4.7 3.5	1825 2325	1.1 0.7	300 400	13500 13500	**VSF 063/130 - 90L/4A**	74
	9.3 7.0 5.6 4.7 3.5 2.8 2.3	1047 1343 1634 1897 2252 2634 3118	2.4 1.9 1.4 1.4 1.3 0.9 0.9	150 200 250 300 400 500 600	18000 18000 18000 18000 18000 18000 18000	**VSF 063/150 - 90L/4A**	74
1.84	186.7 140.0 93.3 70.0	85 111 159 206	1.6 1.3 0.9 0.7	7.5 10 15 20	2360 2600 2970 3270	**VSF 063/150 - 90L/4**	61
	186.7 140.0 93.3 70.0 56.0 46.7	86 112 163 210 256 292	2.3 1.9 1.3 1.1 0.8 0.8	7.5 10 15 20 25 30	2790 3070 3510 3860 4160 4420	**VSF 075 - 90L/4**	62
	140.0 93.3 70.0 56.0 46.7 35.0 28.0	112 164 215 262 300 385 461	3.1 2.4 1.8 1.4 1.5 1.1 0.8	10 15 20 25 30 40 50	3390 3880 4270 4600 4890 5380 5800	**VSF 090 - 90L/4**	63
	56.0 35.0 28.0 23.3	269 400 480 553	2.3 1.7 1.4 1.1	25 40 50 60	5820 6800 7330 7790	**VSF 105 - 90L/4**	64
	15.56 11.67 9.33	829 1075 1268	1.2 0.8 0.7	90 120 150	8300 9130 9840	**PC090/VSF 105 - 90L/4**	71
	70.0 56.0 46.7 35.0 28.0 23.3 17.5	216 269 301 400 480 553 683	3.0 2.7 2.4 1.9 1.5 1.2 0.8	20 25 30 40 50 60 80	5400 5820 6180 6800 7330 7790 8570	**VSF 110 - 90L/4**	65
	15.56 11.67 9.33	829 1075 1268	1.3 0.9 0.7	90 120 150	8300 9130 9840	**PC090/VSF 110 - 90L/4**	71
	17.5 14.0	697 819	1.3 0.9	80 100	11210 12080	**VSF 130 - 90L/4**	66

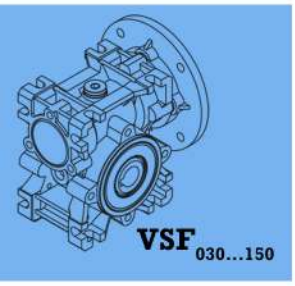
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
1.84	15.56	840	1.8	90	10850	VSF 050/110 - 80M/2C	71
	11.67	1075	1.3	120	11950		
	9.33	1287	1.1	150	12870		
	7.78	1451	0.7	180	13500		
	9.3	1284	2.0	150	18000	VSF 063/150 - 90L/4	74
	7.0	1648	1.5	200	18000		
	5.6	2005	1.1	250	18000		
	4.7	2327	1.1	300	18000		
	3.5	2762	1.1	400	18000		
	120.0	130	1.7	7.5	3230	VSF 075 - 100L/6	62
	90.0	169	1.4	10	3550		
	60.0	244	1.1	15	4070		
	45.0	314	0.9	20	4470		
	120.0	131	2.9	7.5	3570	VSF 090 - 100L/6	63
	90.0	171	2.4	10	3930		
	60.0	250	1.8	15	4500		
	45.0	322	1.3	20	4950		
	36.0	393	1.0	25	5330		
	30.0	448	1.1	30	5670		
	22.5	565	0.8	40	6240		
	60.0	253	3.0	15	5680	VSF 110 - 100L/6	65
	45.0	330	2.2	20	6260		
	36.0	402	1.9	25	6740		
	30.0	453	1.9	30	7160		
	22.5	589	1.3	40	7880		
	18.0	707	1.1	50	8490		
	15.0	813	0.8	60	9020		
2.20	373.3	52	1.9	7.5	1870	VSF 063 - 90L/2A	61
	280.0	68	1.6	10	2060		
	186.7	69	1.2	15	2360		
	140.0	128	0.8	20	2600		
	186.7	102	1.9	7.5	2790	VSF 075 - 100L/4A	62
	140.0	135	1.6	10	3070		
	93.3	195	1.1	15	3510		
	70.0	249	0.9	20	3860		
	56.0	304	0.7	25	4160		
	46.7	347	0.7	30	4420		
	120.0	154	1.4	7.5	3230	VSF 075 - 112M/6A	62
	90.0	201	1.1	10	3550		
	60.0	291	0.9	15	4070		
	45.0	374	0.7	20	4470		
	373.3	52	2.6	7.5	2210	VSF 075 - 90L/2A	62
	280.0	69	2.2	10	2430		
	186.7	100	1.6	15	2790		
	140.0	131	1.4	20	3070		
	112.0	159	1.1	25	3300		
	93.3	184	0.9	30	3510		
	70.0	234	0.8	40	3860		
	186.7	103	3.0	7.5	3080	VSF 090 - 100L/4A	63
	140.0	137	2.4	10	3390		
	93.3	198	2.0	15	3880		
	70.0	257	1.5	20	4270		
	56.0	214	1.2	25	4600		
	46.7	358	1.3	30	4890		
	35.0	456	0.9	40	5380		
	120.0	159	2.3	7.5	3570	VSF 090 - 112M/6A	63
	90.0	207	1.9	10	3930		
	60.0	300	1.5	15	4500		
	45.0	386	1.1	20	4950		
	36.0	467	0.9	25	5330		
	30.0	532	0.9	30	5670		

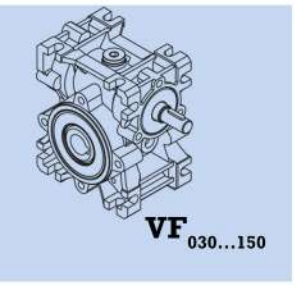


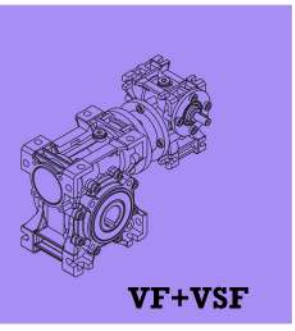


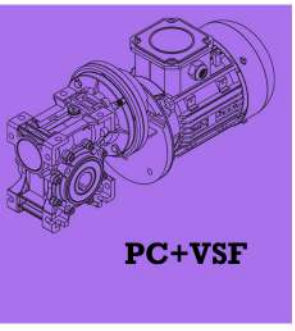






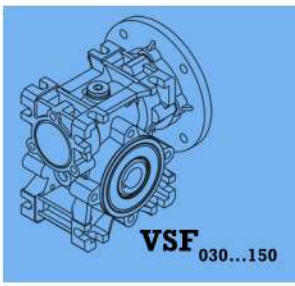


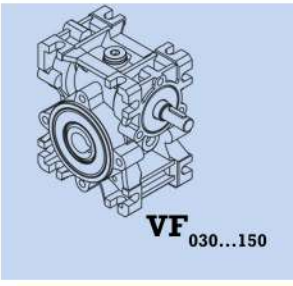


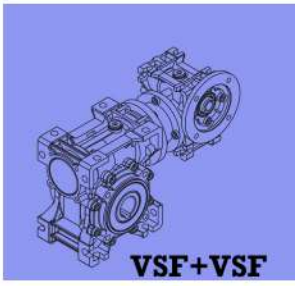


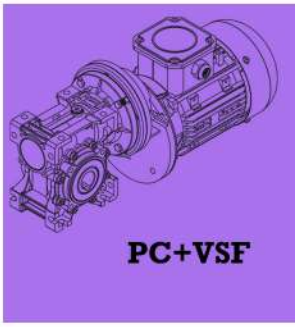
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
2.20	280.0	68	3.5	10	2690	VSF 090- 90L/2A	63
	186.7	100	2.7	15	3080		
	140.0	134	2.1	20	3390		
	112.0	162	1.7	25	3650		
	93.3	189	1.8	30	3880		
	70.0	242	1.3	40	4270		
	56.0	291	0.9	50	4600		
	46.7	345	0.7	60	4890		
	70.0	260	2.3	20	5400	VSF 105- 100L/4A	64
	56.0	321	2.0	25	5820		
	46.7	363	1.9	30	6180		
	35.0	477	1.4	40	6800		
	28.0	574	1.2	50	7330		
	23.3	661	0.9	60	7790		
	90.0	209	3.2	10	4970	VSF 105- 112M/6A	64
	60.0	304	2.3	15	5680		
	45.0	396	1.7	20	6260		
	36.0	482	1.5	25	6740		
	30.0	543	1.5	30	7160		
	112.0	166	2.8	25	4620	VSF 105- 90L/2A	64
	93.3	191	2.7	30	4910		
	70.0	251	2.0	40	5400		
	56.0	302	1.6	50	5820		
	46.7	354	1.3	60	6180		
	31.11	503	1.6	90	6590	PC090/VSF 105- 90L	71
	23.33	652	1.2	120	7250		
	18.67	780	0.9	150	7810		
	93.3	196	3.3	15	4910	VSF 110- 100L/4A	65
	70.0	260	2.6	20	5400		
	56.0	321	2.3	25	5820		
	46.7	363	2.1	30	6180		
	35.0	477	1.6	40	6800		
	28.0	574	1.3	50	7330		
	23.3	661	1.1	60	7790		
	90.0	209	3.7	10	4970	VSF 110- 112M/6A	65
	60.0	304	2.7	15	5680		
	45.0	396	2.0	20	6260		
	36.0	482	1.7	25	6740		
	30.0	543	1.7	30	7160		
	22.5	700	1.1	40	7880		
	18.0	840	0.9	50	8490		
	15.0	966	0.7	60	9020		
	112.0	166	3.3	25	4620	VSF 110- 90L/2A	65
	93.3	191	3.2	30	4910		
	70.0	251	2.2	40	5400		
	56.0	302	1.8	50	5820		
	46.7	354	1.5	60	6180		
	35.0	444	0.9	80	6800		
	28.0	525	0.7	100	7330		
	31.11	503	1.8	90	6590	PC090/VSF 110- 90L	71
	23.33	652	1.3	120	7250		
	18.67	780	1.1	150	7810		
	35.0	477	2.3	40	8900	VSF 130- 100L/4A	66
	28.0	574	1.8	50	9580		
	23.3	661	1.5	60	10190		
	17.5	832	1.1	80	11210		
	36.0	489	2.3	25	8810	VSF 130- 112M/6A	66
	30.0	557	2.2	30	9370		
	22.5	714	1.7	40	10310		
	18.0	857	1.3	50	11110		
	15.0	985	1.1	60	11800		
	35.0	447	1.4	80	8900	VSF 130- 90L/2A	66
	28.0	536	1.1	100	9580		

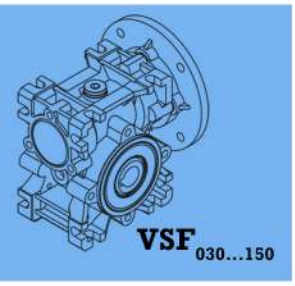
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
2.20	31.11	517	2.4	90	8610	PPC090/VSF 130- 90L/2A	71
	23.33	689	1.7	120	9480		
	18.67	826	1.4	150	10210		
	15.56	951	1.2	180	10850		
	28.0	581	2.6	50	13100	VSF 150- 100L/4A	67
	23.3	670	2.0	60	13920		
	17.5	832	1.5	80	15330		
	14.0	979	1.1	100	16510		
3.00	373.3	71	2.0	7.5	2210	VSF 075- 100L/2A	62
	280.0	94	1.7	10	2430		
	186.7	135	1.2	15	2790		
	140.0	176	1.0	20	3070		
	112.0	215	0.7	25	3300		
	93.3	249	0.7	30	3510		
	120.0	210	1.0	7.5	3230	VSF 075- 112M/6	62
	90.0	274	0.8	10	3550		
	186.7	140	1.5	7.5	2790	VSF 075- 100L/4B	62
	140.0	184	1.2	10	3070		
	93.3	266	0.8	15	3510		
	373.3	72	3.2	7.5	2450	VSF 090- 100L/2A	63
	280.0	94	2.7	10	2690		
	186.7	137	2.0	15	3080		
	140.0	180	1.4	20	3390		
	112.0	220	1.1	25	3650		
	93.3	255	1.2	30	3880		
	70.0	327	0.8	40	4270		
	186.7	141	2.2	7.5	3080	VSF 090- 100L/4B	63
	140.0	186	1.8	10	3390		
	93.3	269	1.5	15	3880		
	70.0	351	1.1	20	4270		
	56.0	428	0.8	25	4600		
	46.7	489	0.9	30	4890		
	120.0	212	1.8	7.5	3570	VSF 090- 112M/6	63
	90.0	277	1.5	10	3930		
	60.0	406	1.1	15	4500		
	45.0	522	0.8	20	4950		
	93.3	269	2.3	15	4910	VSF 105- 100L/4B	64
	70.0	355	1.7	20	5400		
	56.0	439	1.5	25	5820		
	46.7	495	1.4	30	6180		
	35.0	651	1.1	40	6800		
	28.0	782	0.8	50	7330		
	120.0	216	2.8	7.5	4510	VSF 105- 132S/6B	64
	90.0	286	2.3	10	4970		
	60.0	414	1.7	15	5680		
	45.0	539	1.3	20	6260		
	140.0	182	2.7	20	4290	VSF 110- 100L/2A	65
	112.0	225	2.2	25	4620		
	93.3	258	2.1	30	4910		
	70.0	340	1.6	40	5400		
	56.0	409	1.2	50	5820		
	46.7	479	1.0	60	6180		
	140.0	182	3.3	10	4290	VSF 110- 100L/4B	65
	93.3	269	2.6	15	4910		
	70.0	355	2.0	20	5400		
	56.0	439	1.7	25	5820		
	46.7	495	1.6	30	6180		
	35.0	651	1.2	40	6800		
	28.0	782	0.9	50	7330		
	120.0	216	3.3	7.5	4510	VSF 110- 132S/6B	65
	90.0	286	2.6	10	4970		
	60.0	414	2.0	15	5680		
	45.0	539	1.5	20	6260		
	36.0	653	1.2	25	6740		
	30.0	735	1.1	30	7160		
	22.5	955	0.8	40	7880		

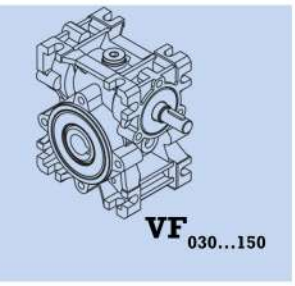


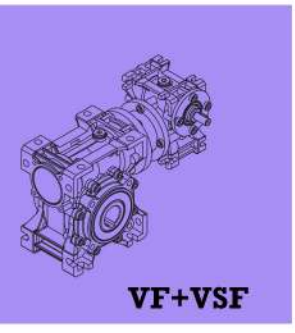


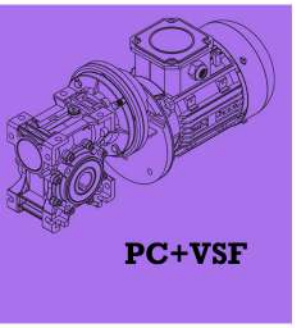






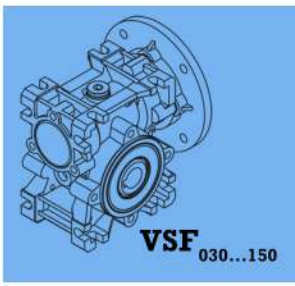


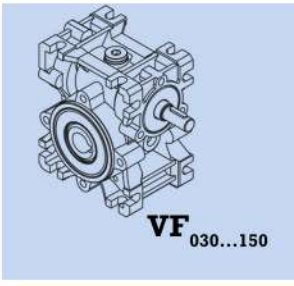


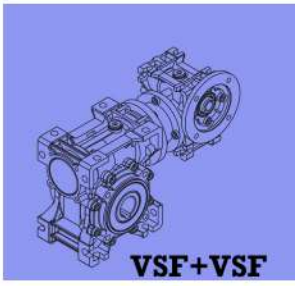


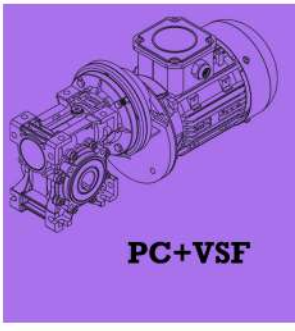
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^{i}ges	^FR [N]	Tipo Type	Pag Pag
3.00	56.0 46.7 35.0 28.0 23.3 17.5	439 501 651 782 902 1135	2.3 2.2 1.7 1.4 1.1 0.8	25 30 40 50 60 80	7610 8080 8900 9580 10190 11210	**VSF 130- 100L/4B**	66
	90.0 60.0 45.0 36.0 30.0 22.5	286 414 546 666 760 974	3.6 2.7 2.0 1.7 1.7 1.3	10 15 20 25 30 40	6490 7430 8180 8810 9370 10310	**VSF 130- 132S/6B**	66
	28.0 23.3 17.5 14.0	794 914 1135 1336	1.9 1.5 1.1 0.8	50 60 80 100	13100 13920 15330 16510	**VSF 150- 100L/4B**	67
4.00	373.3 280.0 186.7 140.0	95 125 180 235	1.5 1.3 0.9 0.7	7.5 10 15 20	2210 2430 2790 3070	**VSF 075- 112M/2A**	62
	186.7 140.0	186 245	1.1 0.8	7.5 10	2790 3070	**VSF 075- 112M/4B**	62
	373.3 280.0 186.7 140.0 112.0 93.3	96 125 182 240 293 340	2.3 2.0 1.5 1.1 0.9 0.9	7.5 10 15 20 25 30	2450 2690 3080 3390 3650 3880	**VSF 090- 112M/2A**	63
	186.7 140.0 93.3 70.0	188 248 359 467	1.7 1.4 1.1 0.8	7.5 10 15 20	3080 3390 3880 4270	**VSF 090- 112M/4B**	63
	140.0 93.3 70.0 56.0 46.7	248 359 473 584 660	2.2 1.7 1.3 1.1 1.1	10 15 20 25 30	4290 4910 5400 5820 6180	**VSF 105- 112M/4B**	64
	120.0 90.0 60.0	289 381 552	2.1 1.8 1.3	7.5 10 15	4510 4970 5680	**VSF 105- 132M/6A**	64
	186.7 140.0 112.0 93.3 70.0 56.0 46.7	184 243 300 344 453 546 638	2.7 2.0 1.7 1.6 1.2 0.9 0.7	15 20 25 30 40 50 60	3890 4290 4620 4910 5400 5820 6180	**VSF 110 - 112M/2A**	65
	186.7 140.0 93.3 70.0 56.0 46.7 35.0	184 248 359 473 584 660 879	3.0 2.6 2.0 1.5 1.3 1.2 0.8	7.5 10 15 20 25 30 40	3890 4290 4910 5400 5820 6180 6800	**VSF 110 - 112M/4B**	65
	120.0 90.0 60.0 45.0 36.0 30.0	283 374 548 713 870 980	2.3 1.9 1.4 1.0 0.9 0.9	7.5 10 15 20 25 30	4510 4970 5680 6260 6740 7160	**VSF 110 - 132M/6A**	65
	120.0 90.0 60.0	289 381 552	2.4 2.0 1.5	7.5 10 15	4510 4970 5680	**VSF 110 - 132M/6A**	65

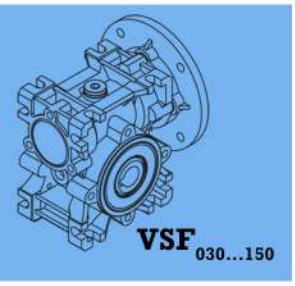
P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	^iges	^FR [N]	Tipo Type	Pag Pag
3.00	56.0	439	2.3	25	7610	VSF 130- 100L/4B	66
	46.7	501	2.2	30	8080		
	35.0	651	1.7	40	8900		
	28.0	782	1.4	50	9580		
	23.3	902	1.1	60	10190		
	17.5	1135	0.8	80	11210		
	90.0	286	3.6	10	6490	VSF 130- 132S/6B	66
	60.0	414	2.7	15	7430		
	45.0	546	2.0	20	8180		
	36.0	666	1.7	25	8810		
	30.0	760	1.7	30	9370		
	22.5	974	1.3	40	10310		
	28.0	794	1.9	50	13100	VSF 150- 100L/4B	67
	23.3	914	1.5	60	13920		
	17.5	1135	1.1	80	15330		
	14.0	1336	0.8	100	16510		
4.00	373.3	95	1.5	7.5	2210	VSF 075- 112M/2A	62
	280.0	125	1.3	10	2430		
	186.7	180	0.9	15	2790		
	140.0	235	0.7	20	3070		
	186.7	186	1.1	7.5	2790	VSF 075- 112M/4B	62
	140.0	245	0.8	10	3070		
	373.3	96	2.3	7.5	2450	VSF 090- 112M/2A	63
	280.0	125	2.0	10	2690		
	186.7	182	1.5	15	3080		
	140.0	240	1.1	20	3390		
	112.0	293	0.9	25	3650		
	93.3	340	0.9	30	3880		
	186.7	188	1.7	7.5	3080	VSF 090- 112M/4B	63
	140.0	248	1.4	10	3390		
	93.3	359	1.1	15	3880		
	70.0	467	0.8	20	4270		
	140.0	248	2.2	10	4290	VSF 105- 112M/4B	64
	93.3	359	1.7	15	4910		
	70.0	473	1.3	20	5400		
	56.0	584	1.1	25	5820		
	46.7	660	1.1	30	6180		
	120.0	289	2.1	7.5	4510	VSF 105- 132M/6A	64
	90.0	381	1.8	10	4970		
	60.0	552	1.3	15	5680		
	186.7	184	2.7	15	3890	VSF 110- 112M/2A	65
	140.0	243	2.0	20	4290		
	112.0	300	1.7	25	4620		
	93.3	344	1.6	30	4910		
	70.0	453	1.2	40	5400		
	56.0	546	0.9	50	5820		
	46.7	638	0.7	60	6180		
	186.7	184	3.0	7.5	3890	VSF 110- 112M/4B	65
	140.0	248	2.6	10	4290		
	93.3	359	2.0	15	4910		
	70.0	473	1.5	20	5400		
	56.0	584	1.3	25	5820		
	46.7	660	1.2	30	6180		
	35.0	879	0.8	40	6800		
	120.0	283	2.3	7.5	4510	VSF 110- 132M/6A	65
	90.0	374	1.9	10	4970		
	60.0	548	1.4	15	5680		
	45.0	713	1.0	20	6260		
	36.0	870	0.9	25	6740		
	30.0	980	0.9	30	7160		
	120.0	289	2.4	7.5	4510	VSF 110- 132M/6A	65
	90.0	381	2.0	10	4970		
	60.0	552	1.5	15	5680		

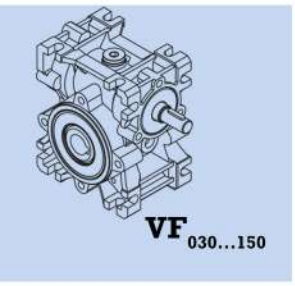


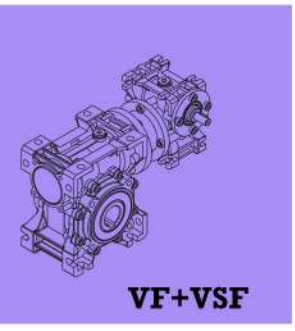


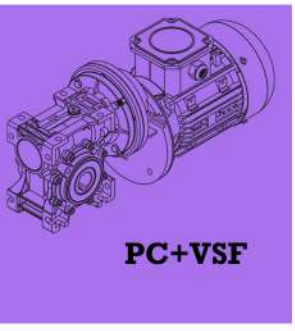












P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	^fB	$^i ges$	$^F R$ [N]	Tipo Type	Pag Pag
5.50	140.0	341	2.6	10	5610	VSF 130- 132S/4C	66
	93.3	500	2.0	15	6420		
	70.0	658	1.5	20	7060		
	56.0	804	1.3	25	7610		
	46.7	918	1.3	30	8080		
	35.0	1194	0.9	40	8900		
	70.0	658	2.1	20	9650	VSF 150- 132S/4C	67
	56.0	804	1.6	25	10400		
	46.7	953	1.4	30	11050		
	35.0	1194	1.4	40	12160		
	28.0	1455	1.1	50	13100		
	23.3	1676	0.8	60	13920		
7.50	186.7	352	1.5	7.5	3890	VSF 105- 132M/4B	64
	140.0	464	1.2	10	4290		
	93.3	673	0.9	15	4910		
	373.3	177	2.2	7.5	3090	VSF 110 - 132S/2C	65
	280.0	233	1.9	10	3400		
	186.7	345	1.4	15	3890		
	140.0	455	1.1	20	4290		
	112.0	563	0.9	25	4620		
	93.3	645	0.9	30	4910		
	186.7	352	1.7	7.5	3890	VSF 110 - 132M/4B	65
	140.0	464	1.4	10	4290		
	93.3	673	1.1	15	4910		
	70.0	880	0.7	20	5400		
	186.7	356	2.2	7.5	5090	VSF 130 - 132M/4B	66
	140.0	464	1.9	10	5610		
	93.3	681	1.5	15	6420		
	70.0	898	1.1	20	7060		
	56.0	1095	0.9	25	7610		
	46.7	1253	0.8	30	8080		
	35.0	1628	0.7	40	8900		
	70.0	898	1.6	20	9650	VSF 150 - 132M/4B	67
	56.0	1095	1.2	25	10400		
	46.7	1299	0.9	30	11050		
	35.0	1628	1.1	40	12160		
9.20	373.3	217	1.8	7.5	3090	VSF 110 - 132M/2	65
	280.0	286	1.5	10	3400		
	186.7	424	1.2	15	3890		
	140.0	559	0.9	20	4290		
	112.0	690	0.7	25	4620		
	186.7	424	1.3	7.5	3890	VSF 110 - 132M/4	65
	140.0	559	1.1	10	4290		
	93.3	835	0.8	15	4910		
	186.7	437	1.9	7.5	5090	VSF 130 - 132M/4	66
	140.0	570	1.6	10	5610		
	93.3	835	1.2	15	6420		
	70.0	1101	0.8	20	7060		
	56.0	1344	0.7	25	7610		
	70.0	1101	1.3	20	9650	VSF 150 - 132M/4	67
	56.0	1344	0.9	25	10400		
	46.7	1594	0.8	30	11050		
	35.0	1997	0.8	40	12160		
11.0	353.3	259	1.5	7.5	3090	VSF 110 - 132M/2A	65
	280.0	341	1.3	10	3400		
	186.7	506	1.0	15	3890		
	140.0	668	0.7	20	4290		
	186.7	522	2.4	7.5	6960	VSF 150 - 160M/4B	67
	140.0	689	1.9	10	7660		
	93.3	1010	1.4	15	8770		
	70.0	1317	1.1	20	9650		
	56.0	1608	0.8	25	10400		
15.0	186.7	712	1.8	7.5	6960	VSF 150 - 160L/4A	67
	140.0	939	1.4	10	7660		
	93.3	1378	0.9	15	8770		
	70.0	1795	0.7	20	9650		

RENDIMIENTO/ PERFORMANCE
(n1=2800 min^{-1})

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
0.85	560.0	13	5	120	470		
0.62	373.3	14	7.5	120	540		
0.48	280.0	14	10	140	600		
0.33	186.7	14	15	140	680		
0.25	140.0	13	20	150	750		
0.27	112.0	17	25	210	810	**VSF 030**	73
0.22	93.3	16	30	210	860		
0.17	70.0	15	40	130	950		
0.13	56.0	14	50	130	1020		
0.11	46.7	13	60	130	1090		
0.09	35.0	12	80	130	1190		
1.71	560.0	26	5	200	910		
1.28	373.3	30	7.5	230	1040		
1.07	280.0	31	10	270	1150		
0.77	186.7	33	15	290	1320		
0.56	140.0	31	20	200	1450		
0.45	112.0	30	25	240	1560	**VSF 040**	73
0.47	93.3	36	30	350	1660		
0.34	70.0	33	40	350	1820		
0.28	56.0	32	50	350	1960		
0.22	46.7	30	60	350	2090		
0.17	35.0	27	80	350	2300		
0.13	28.0	25	100	350	2480		
3.10	560.0	48	5	280	1250		
2.46	373.3	56	7.5	320	1430		
1.93	280.0	58	10	380	1580		
1.39	186.7	61	15	400	1810		
1.02	140.0	57	20	420	1990		
0.80	112.0	55	25	480	2140		
0.88	93.3	68	30	490	2270	**VSF 050**	73
0.63	70.0	63	40	490	2500		
0.48	56.0	57	50	490	2700		
0.40	46.7	54	60	490	2870		
0.29	35.0	48	80	490	3150		
0.22	28.0	43	100	490	3400		
4.28	373.3	100	7.5	400	1870		
3.42	280.0	104	10	460	2060		
2.46	186.7	110	15	490	2360		
1.82	140.0	107	20	540	2600		
1.39	112.0	98	25	590	2800		
1.61	93.3	128	30	700	2970	**VSF 063**	73
1.18	70.0	116	40	700	3270		
0.89	56.0	107	50	700	3520		
0.73	46.7	102	60	700	3750		
0.52	35.0	91	80	700	4120		
0.40	28.0	79	100	700	4440		
5.99	373.3	139	7.5	560	2210		
5.03	280.0	155	10	700	2430		
3.64	186.7	161	15	730	2790		
3.00	140.0	171	20	870	3070		
2.25	112.0	161	25	980	3300		
2.25	93.3	182	30	980	3510	**VSF 075**	73
1.71	70.0	177	40	980	3860		
1.28	56.0	161	50	980	4160		
1.07	46.7	155	60	980	4420		
0.77	35.0	139	80	980	4870		
0.62	28.0	128	100	980	5240		

RENDIMIENTO/ PERFORMANCE

(n1=2800 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	$i$ges	Fr1 [N]	Fr2 [N]	Tipo Type	Pag Pag
9.52	373.3	**225**	7.5	720	2450		
8.24	280.0	**251**	10	900	2690		
6.42	186.7	**289**	15	1030	3080		
4.71	140.0	**278**	20	1120	3390		
3.64	112.0	**268**	25	1270	3650	**VSF 090**	73
3.96	93.3	**332**	30	1270	3880		
2.78	70.0	**294**	40	1270	4270		
2.14	56.0	**284**	50	1270	4600		
1.71	46.7	**262**	60	1270	4890		
1.28	35.0	**241**	80	1270	5380		
0.96	28.0	**214**	100	1270	5800		
15.41	373.3	**364**	7.5	950	3090		
13.05	280.0	**407**	10	1190	3400		
9.95	186.7	**455**	15	1340	3890		
7.49	140.0	**449**	20	1490	4290		
6.31	112.0	**471**	25	1700	4620	**VSF 105**	73
6.10	93.3	**514**	30	1700	4910		
4.39	70.0	**492**	40	1700	5400		
3.53	56.0	**482**	50	1700	5820		
2.89	46.7	**460**	60	1700	6180		
2.03	35.0	**407**	80	1700	6800		
1.61	28.0	**375**	100	1700	7330		
17.76	373.3	**418**	7.5	950	3090		
15.09	280.0	**468**	10	1190	3400		
11.45	186.7	**523**	15	1340	3890		
8.56	140.0	**517**	20	1490	4290		
7.28	112.0	**541**	25	1700	4620		
6.96	93.3	**591**	30	1700	4910	**VSF 110**	73
5.03	70.0	**566**	40	1700	5400		
3.96	56.0	**530**	50	1700	5820		
3.21	46.7	**506**	60	1700	6180		
2.14	35.0	**427**	80	1700	6800		
1.71	28.0	**394**	100	1700	7330		
23.65	373.3	**556**	7.5	1190	4040		
20.01	280.0	**621**	10	1490	4450		
15.73	186.7	**717**	15	1730	5090		
11.77	140.0	**706**	20	1910	5610		
9.63	112.0	**717**	25	2100	6040		
9.63	93.3	**824**	30	2100	6420	**VSF 130**	73
6.96	70.0	**781**	40	2100	7060		
5.46	56.0	**749**	50	2100	7610		
4.28	46.7	**685**	60	2100	8080		
3.21	35.0	**631**	80	2100	8900		
2.35	28.0	**556**	100	2100	9580		
38.20	373.3	**899**	7.5	1550	5530		
30.39	280.0	**952**	10	1850	6080		
21.19	186.7	**974**	15	1890	6960		
17.23	140.0	**1049**	20	2290	7660		
12.84	112.0	**952**	25	2490	8250		
11.24	93.3	**984**	30	2800	8770	**VSF 150**	73
11.34	70.0	**1284**	40	2800	9650		
8.67	56.0	**1177**	50	2800	10400		
6.63	46.7	**1059**	60	2800	11050		
4.92	35.0	**984**	80	2800	12160		
3.53	28.0	**867**	100	2800	13100		

RENDIMIENTO/ PERFORMANCE

(n1=1400 min^{-1})

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
0.65	280.0	**19**	5	150	600		
0.44	186.7	**19**	7.5	150	680		
0.34	140.0	**19**	10	170	750		
0.25	93.3	**19**	15	170	860		
0.19	70.0	**19**	20	190	950		
0.19	56.0	**22**	25	210	1020	**VSF 030**	73
0.16	46.7	**21**	30	210	1090		
0.12	35.0	**19**	40	210	1190		
0.10	28.0	**18**	50	210	1290		
0.09	23.3	**17**	60	210	1370		
0.05	17.5	**14**	80	210	1500		
1.18	280.0	**36**	5	250	1150		
0.96	186.7	**43**	7.5	290	1320		
0.74	140.0	**43**	10	330	1450		
0.51	93.3	**43**	15	330	1660		
0.40	70.0	**42**	20	350	1820		
0.32	56.0	**41**	25	350	1960	**VSF 040**	73
0.33	46.7	**48**	30	350	2090		
0.25	35.0	**44**	40	350	2300		
0.19	28.0	**42**	50	350	2480		
0.16	23.3	**39**	60	350	2630		
0.13	17.5	**35**	80	350	2900		
0.10	14.0	**31**	100	350	3120		
2.14	280.0	**66**	5	350	1580		
1.71	186.7	**76**	7.5	400	1810		
1.28	140.0	**77**	10	490	1990		
0.94	93.3	**79**	15	490	2270		
0.73	70.0	**78**	20	490	2500		
0.58	56.0	**75**	25	490	2700	**VSF 050**	73
0.61	46.7	**90**	30	490	2870		
0.45	35.0	**81**	40	490	3150		
0.36	28.0	**78**	50	490	3400		
0.30	23.3	**73**	60	490	3610		
0.24	17.5	**70**	80	490	3970		
0.17	14.0	**59**	100	490	4280		
3.00	186.7	**137**	7.5	500	2360		
2.35	140.0	**139**	10	570	2600		
1.71	93.3	**150**	15	620	2970		
1.28	70.0	**144**	20	670	3270		
1.07	56.0	**139**	25	700	3520		
1.18	46.7	**171**	30	700	3750	**VSF 063**	73
0.81	35.0	**155**	40	700	4120		
0.64	28.0	**144**	50	700	4440		
0.55	23.3	**139**	60	700	4720		
0.42	17.5	**131**	80	700	5190		
0.36	14.0	**126**	100	700	5600		
4.39	186.7	**198**	7.5	700	2790		
3.42	140.0	**209**	10	830	3070		
2.46	93.3	**214**	15	850	3510		
2.03	70.0	**225**	20	980	3860		
1.61	56.0	**214**	25	980	4160	**VSF 075**	73
1.61	46.7	**246**	30	980	4420		
1.18	35.0	**235**	40	980	4870		
0.95	28.0	**225**	50	980	5240		
0.80	23.3	**214**	60	980	5570		
0.62	17.5	**203**	80	980	6130		
0.51	14.0	**193**	100	980	6600		

RENDIMIENTO/ PERFORMANCE

(n1=1400 min^{-1})

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
6.74	186.7	**310**	7.5	900	3080		
5.46	140.0	**332**	10	1080	3390		
4.39	93.3	**385**	15	1260	3880		
3.32	70.0	**380**	20	1270	4270		
2.57	56.0	**364**	25	1270	4600	**VSF 090**	73
2.78	46.7	**439**	30	1270	4890		
1.93	35.0	**385**	40	1270	5380		
1.50	28.0	**364**	50	1270	5800		
1.18	23.3	**342**	60	1270	6160		
0.89	17.5	**305**	80	1270	6780		
0.72	14.0	**289**	100	1270	7310		
11.13	186.7	**514**	7.5	1200	3890		
9.20	140.0	**556**	10	1460	4290		
6.96	93.3	**610**	15	1600	4910		
5.14	70.0	**599**	20	1700	5400		
4.39	56.0	**631**	25	1700	5820	**VSF 105**	73
4.17	46.7	**674**	30	1700	6180		
3.10	35.0	**653**	40	1700	6800		
2.46	28.0	**642**	50	1700	7330		
2.03	23.3	**599**	60	1700	7790		
1.39	17.5	**524**	80	1700	8570		
1.18	14.0	**492**	100	1700	9230		
12.84	186.7	**591**	7.5	1200	3890		
10.49	140.0	**640**	10	1460	4290		
8.03	93.3	**702**	15	1600	4910		
5.99	70.0	**689**	20	1700	5400		
5.03	56.0	**727**	25	1700	5820		
4.82	46.7	**776**	30	1700	6180	**VSF 110**	73
3.53	35.0	**751**	40	1700	6800		
2.78	28.0	**706**	50	1700	7330		
2.25	23.3	**659**	60	1700	7790		
1.50	17.5	**551**	80	1700	8570		
1.18	14.0	**517**	100	1700	9230		
17.23	186.7	**803**	7.5	1500	5090		
14.45	140.0	**877**	10	1850	5610		
11.02	93.3	**984**	15	2070	6420		
8.35	70.0	**974**	20	2100	7060		
6.96	56.0	**995**	25	2100	7610		
6.85	46.7	**1113**	30	2100	8080		
5.24	35.0	**1124**	40	2100	8900	**VSF 130**	73
4.07	28.0	**1049**	50	2100	9580		
3.32	23.3	**963**	60	2100	10190		
2.46	17.5	**899**	80	2100	11210		
1.82	14.0	**792**	100	2100	12080		
27.61	186.7	**1284**	7.5	1950	6960		
21.61	140.0	**1327**	10	2270	7660		
14.87	93.3	**1338**	15	2290	8770		
11.88	70.0	**1391**	20	2670	9650		
8.99	56.0	**1284**	25	2800	10400		
7.60	46.7	**1284**	30	2800	11050	**VSF 150**	73
7.81	35.0	**1659**	40	2800	12160		
5.78	28.0	**1498**	50	2800	13100		
4.49	23.3	**1348**	60	2800	13920		
3.32	17.5	**1231**	80	2800	15330		
2.46	14.0	**1070**	100	2800	16510		

RENDIMIENTO/ PERFORMANCE

(n1=900 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	$i$ges	Fr1 [N]	Fr2 [N]	Tipo Type	Pag Pag
0.47	180.0	**21**	5	180	690		
0.32	120.0	**21**	7.5	180	790		
0.26	90.0	**21**	10	200	870		
0.18	60.0	**21**	15	200	1000	**VSF 030**	73
0.14	45.0	**21**	20	210	1100		
0.15	36.0	**25**	25	210	1180		
0.12	30.0	**22**	30	210	1260		
0.10	22.5	**21**	40	210	1380		
0.07	18.0	**19**	50	210	1490		
0.06	15.0	**18**	60	210	1580		
0.04	11.3	**16**	80	210	1740		
0.93	180.0	**43**	5	290	1330		
0.70	120.0	**47**	7.5	320	1520		
0.54	90.0	**47**	10	350	1680		
0.39	60.0	**48**	15	350	1920	**VSF 040**	73
0.30	45.0	**47**	20	350	2110		
0.25	36.0	**46**	25	350	2280		
0.25	30.0	**52**	30	350	2420		
0.18	22.5	**48**	40	350	2660		
0.15	18.0	**45**	50	350	2870		
0.12	15.0	**42**	60	350	3050		
0.10	11.3	**37**	80	350	3350		
0.07	9.0	**34**	100	350	3490		
1.71	180.0	**80**	5	400	1830		
1.28	120.0	**90**	7.5	450	2090		
1.01	90.0	**90**	10	490	2300		
0.72	60.0	**90**	15	490	2640		
0.51	45.0	**82**	20	490	2900	**VSF 050**	73
0.42	36.0	**80**	25	490	3120		
0.45	30.0	**96**	30	490	3320		
0.33	22.5	**88**	40	490	3650		
0.27	18.0	**82**	50	490	3940		
0.22	15.0	**77**	60	490	4180		
0.17	11.3	**73**	80	490	4600		
0.13	9.0	**60**	100	490	4840		
2.35	120.0	**162**	7.5	580	2730		
1.82	90.0	**164**	10	660	3010		
1.28	60.0	**166**	15	670	3440		
0.97	45.0	**158**	20	700	3790		
0.74	36.0	**147**	25	700	4080	**VSF 063**	73
0.85	30.0	**187**	30	700	4340		
0.62	22.5	**171**	40	700	4780		
0.48	18.0	**155**	50	700	5150		
0.40	15.0	**148**	60	700	5470		
0.31	11.3	**137**	80	700	6020		
0.27	9.0	**133**	100	700	6270		
3.32	120.0	**230**	7.5	810	3230		
2.68	90.0	**246**	10	980	3550		
1.93	60.0	**251**	15	980	4070		
1.50	45.0	**251**	20	980	4470		
1.18	36.0	**230**	25	980	4820	**VSF 075**	73
1.18	30.0	**278**	30	980	5120		
0.89	22.5	**257**	40	980	5640		
0.70	18.0	**235**	50	980	6070		
0.58	15.0	**225**	60	980	6450		
0.46	11.3	**214**	80	980	7100		
0.39	9.0	**203**	100	980	7380		

RENDIMIENTO/ PERFORMANCE

(n1=900 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
5.14	120.0	**364**	7.5	1040	5370		
4.28	90.0	**396**	10	1270	3930		
3.32	60.0	**449**	15	1270	4500		
2.46	45.0	**417**	20	1270	4950	**VSF 090**	73
1.93	36.0	**396**	25	1270	5330		
2.03	30.0	**492**	30	1270	5670		
1.50	22.5	**439**	40	1270	6240		
1.18	18.0	**417**	50	1270	6720		
0.92	15.0	**375**	60	1270	7140		
0.67	11.3	**337**	80	1270	7860		
0.52	9.0	**300**	100	1270	8180		
8.56	120.0	**605**	7.5	1390	4510		
7.06	90.0	**663**	10	1700	4970		
5.24	60.0	**706**	15	1700	5680		
3.85	45.0	**674**	20	1700	6260		
3.32	36.0	**706**	25	1700	6740	**VSF 105**	73
3.21	30.0	**781**	30	1700	7160		
2.35	22.5	**738**	40	1700	7880		
1.93	18.0	**728**	50	1700	8490		
1.50	15.0	**663**	60	1700	9020		
1.07	11.3	**578**	80	1700	9930		
0.86	9.0	**524**	100	1700	10320		
9.84	120.0	**696**	7.5	1390	4510		
8.13	90.0	**763**	10	1700	4970		
5.99	60.0	**812**	15	1700	5680		
4.39	45.0	**776**	20	1700	6260		
3.75	36.0	**812**	25	1700	6740		
3.75	30.0	**899**	30	1700	7160	**VSF 110**	73
2.68	22.5	**850**	40	1700	7880		
2.14	18.0	**800**	50	1700	8490		
1.71	15.0	**730**	60	1700	9020		
1.18	11.3	**607**	80	1700	9930		
0.90	9.0	**551**	100	1700	10320		
13.16	120.0	**942**	7.5	1740	5900		
11.02	90.0	**1027**	10	2100	6490		
8.35	60.0	**1134**	15	2100	7430		
6.21	45.0	**1113**	20	2100	8180		
5.14	36.0	**1124**	25	2100	8810		
5.03	30.0	**1252**	30	2100	9370		
3.75	22.5	**1177**	40	2100	10310	**VSF 130**	73
2.89	18.0	**1124**	50	2100	11110		
2.25	15.0	**1006**	60	2100	11800		
1.71	11.3	**920**	80	2100	12990		
1.28	9.0	**835**	100	2100	13500		
20.87	120.0	**1498**	7.5	2270	8070		
16.80	90.0	**1584**	10	2700	8880		
11.24	60.0	**1552**	15	2650	10160		
8.99	45.0	**1605**	20	2800	11190		
6.74	36.0	**1477**	25	2800	12050		
5.78	30.0	**1498**	30	2800	12810		
6.10	22.5	**1926**	40	2800	14090	**VSF 150**	73
4.39	18.0	**1712**	50	2800	15180		
3.42	15.0	**1541**	60	2800	16130		
2.57	11.3	**1391**	80	2800	17760		
1.93	9.0	**1231**	100	2800	18000		

RENDIMIENTO/ PERFORMANCE

(n1=500 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	$i$ges	Fr1 [N]	Fr2 [N]	Tipo Type	Pag Pag
0.32	100.0	**26**	5	210	840		
0.22	66.7	**26**	7.5	210	960		
0.17	50.0	**26**	10	210	1060		
0.13	33.3	**26**	15	210	1210	**VSF 030**	73
0.10	25.0	**25**	20	210	1340		
0.11	20.0	**31**	25	210	1440		
0.09	16.7	**28**	30	210	1530		
0.06	12.5	**25**	40	210	1680		
0.05	10.0	**22**	50	210	1810		
0.04	8.3	**20**	60	210	1830		
0.03	6.3	**18**	80	210	1830		
0.64	100.0	**52**	5	350	1620		
0.48	66.7	**58**	7.5	350	1850		
0.37	50.0	**58**	10	350	2040		
0.28	33.3	**59**	15	350	2340		
0.20	25.0	**56**	20	350	2570	**VSF 040**	73
0.16	20.0	**52**	25	350	2770		
0.17	16.7	**62**	30	350	2940		
0.13	12.5	**57**	40	350	3240		
0.11	10.0	**52**	50	350	3490		
0.09	8.3	**49**	60	350	3490		
0.06	6.3	**43**	80	350	3490		
0.05	5.0	**39**	100	350	3490		
1.18	100.0	**98**	5	490	2220		
0.92	66.7	**110**	7.5	490	2540		
0.72	50.0	**110**	10	490	2800		
0.50	33.3	**110**	15	490	3210		
0.35	25.0	**100**	20	490	3530	**VSF 050**	73
0.30	20.0	**97**	25	490	3800		
0.31	16.7	**116**	30	490	4040		
0.24	12.5	**105**	40	490	4450		
0.18	10.0	**97**	50	490	4790		
0.15	8.3	**89**	60	490	4840		
0.12	6.3	**80**	80	490	4840		
0.10	5.0	**70**	100	490	4840		
1.61	66.7	**197**	7.5	700	3330		
1.28	50.0	**198**	10	700	3660		
0.91	33.3	**200**	15	700	4190		
0.67	25.0	**190**	20	700	4610		
0.51	20.0	**175**	25	700	4970	**VSF 063**	73
0.58	16.7	**214**	30	700	5280		
0.43	12.5	**198**	40	700	5810		
0.34	10.0	**185**	50	700	6260		
0.28	8.3	**171**	60	700	6270		
0.20	6.3	**147**	80	700	6270		
0.17	5.0	**137**	100	700	6270		
2.25	66.7	**278**	7.5	980	3930		
1.82	50.0	**289**	10	980	4320		
1.28	33.3	**300**	15	980	4950		
1.05	25.0	**305**	20	980	5440		
0.78	20.0	**273**	25	980	5860	**VSF 075**	73
0.82	16.7	**321**	30	980	6230		
0.62	12.5	**300**	40	980	6860		
0.47	10.0	**268**	50	980	7380		
0.40	8.3	**257**	60	980	7380		
0.31	6.3	**230**	80	980	7380		
0.26	5.0	**225**	100	980	7380		

RENDIMIENTO/ PERFORMANCE

(n1=500 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	$i$ges	Fr1 [N]	Fr2 [N]	Tipo Type	Pag Pag
3.53	66.7	**439**	7.5	1270	4340		
2.89	50.0	**465**	10	1270	4780		
2.25	33.3	**524**	15	1270	5470		
1.71	25.0	**503**	20	1270	6020		
1.28	20.0	**471**	25	1270	6490	**VSF 090**	73
1.50	16.7	**589**	30	1270	6890		
1.02	12.5	**514**	40	1270	7590		
0.80	10.0	**482**	50	1270	8170		
0.63	8.3	**428**	60	1270	8180		
0.48	6.3	**391**	80	1270	8180		
0.37	5.0	**353**	100	1270	8180		
5.89	66.7	**738**	7.5	1700	5490		
4.92	50.0	**792**	10	1700	6040		
3.64	33.3	**845**	15	1700	6910		
2.68	25.0	**803**	20	1700	7610		
2.25	20.0	**845**	25	1700	8200	**VSF 105**	73
2.25	16.7	**931**	30	1700	8710		
1.61	12.5	**867**	40	1700	9590		
1.39	10.0	**856**	50	1700	10320		
1.05	8.3	**760**	60	1700	10320		
0.77	6.3	**674**	80	1700	10320		
0.60	5.0	**610**	100	1700	10320		
6.85	66.7	**850**	7.5	1700	5490		
5.56	50.0	**911**	10	1700	6040		
4.17	33.3	**973**	15	1700	6910		
3.00	25.0	**923**	20	1700	7610		
2.57	20.0	**973**	25	1700	8200		
2.57	16.7	**1070**	30	1700	8710	**VSF 110**	73
1.82	12.5	**997**	40	1700	9590		
1.50	10.0	**942**	50	1700	10320		
1.18	8.3	**836**	60	1700	10320		
0.81	6.3	**708**	80	1700	10320		
0.63	5.0	**641**	100	1700	10320		
9.20	66.7	**1156**	7.5	2100	7180		
7.60	50.0	**1241**	10	2100	7900		
5.89	33.3	**1391**	15	2100	9040		
4.28	25.0	**1316**	20	2100	9950		
3.42	20.0	**1284**	25	2100	10720		
3.53	16.7	**1498**	30	2100	11390		
2.57	12.5	**1391**	40	2100	12540	**VSF 130**	73
2.03	10.0	**1305**	50	2100	13500		
1.61	8.3	**1145**	60	2100	13500		
1.18	6.3	**1038**	80	2100	13500		
0.91	5.0	**920**	100	2100	13500		
14.45	66.7	**1819**	7.5	2800	9810		
11.45	50.0	**1905**	10	2800	10800		
7.70	33.3	**1851**	15	2800	12360		
6.31	25.0	**1947**	20	2800	13610		
4.60	20.0	**1744**	25	2800	14660		
4.07	16.7	**1787**	30	2800	15580		
4.17	12.5	**2268**	40	2800	17140	**VSF 150**	73
3.10	10.0	**2001**	50	2800	18000		
2.46	8.3	**1798**	60	2800	18000		
1.82	6.3	**1637**	80	2800	18000		
1.39	5.0	**1445**	100	2800	18000		

RENDIMIENTO/ PERFORMANCE

(n1=400 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
0.09	4.7	78	300	210	3490		
0.06	3.5	70	400	210	3490		
0.04	2.8	65	500	210	3490		
0.04	2.3	78	600	210	3490		
0.04	1.9	78	750	210	3490		
0.03	1.6	78	900	210	3490	**VSF 030/040**	68
0.02	1.2	70	1200	210	3490		
0.02	0.9	78	1500	210	3490		
0.02	0.8	78	1800	210	3490		
0.01	0.58	70	2400	210	3490		
0.01	0.4	70	3200	210	3490		
0.01	0.4	35	4000	210	3490		
0.01	0.28	31	5000	210	3490		
0.16	4.7	155	300	210	4840		
0.11	3.5	133	400	210	4840		
0.10	2.8	128	500	210	4840		
0.09	2.3	155	600	210	4840		
0.07	1.9	155	750	210	4840		
0.06	1.6	155	900	210	4840	**VSF 030/050**	68
0.04	1.2	133	1200	210	4840		
0.04	0.93	155	1500	210	4840		
0.04	0.78	155	1800	210	4840		
0.03	0.6	133	2400	210	4840		
0.02	0.5	128	3000	210	4840		
0.02	0.35	88	4000	210	4840		
0.02	0.29	88	4800	210	4840		
0.26	4.7	246	300	210	6270		
0.20	3.5	246	400	210	6270		
0.16	2.8	231	500	210	6270		
0.14	2.3	246	600	210	6270		
0.12	1.9	231	750	210	6270		
0.10	1.6	212	900	210	6270	**VSF 030/063**	69
0.09	1.2	246	1200	210	6270		
0.06	0.93	231	1500	210	6270		
0.05	0.78	212	1800	210	6270		
0.05	0.58	246	2400	210	6270		
0.04	0.47	231	3000	210	6270		
0.03	0.35	184	4000	210	6270		
0.02	0.28	161	5000	210	6270		
0.39	4.7	417	300	350	7380		
0.29	3.5	385	400	350	7380		
0.22	2.8	342	500	350	7380		
0.20	2.3	417	600	350	7380		
0.17	1.9	417	750	350	7380		
0.15	1.6	417	900	350	7380	**VSF 040/075**	69
0.12	1.2	385	1200	350	7380		
0.11	0.93	417	1500	350	7380		
0.10	0.78	417	1800	350	7380		
0.07	0.58	385	2400	350	7380		
0.05	0.47	342	3000	350	7380		
0.04	0.35	268	4000	350	7380		
0.03	0.28	246	5000	350	7380		
0.60	4.7	653	300	350	8180		
0.46	3.5	653	400	350	8180		
0.36	2.8	599	500	350	8180		
0.32	2.3	653	600	350	8180		
0.25	1.9	599	750	350	8180	**VSF 040/090**	69
0.20	1.6	540	900	350	8180		
0.18	1.2	653	1200	350	8180		
0.15	0.93	599	1500	350	8180		
0.12	0.78	540	1800	350	8180		
0.12	0.58	653	2400	350	8180		
0.09	0.47	599	3000	350	8180		
0.09	0.35	492	4000	350	8180		
0.06	0.28	439	5000	350	8180		

RENDIMIENTO/ PERFORMANCE

(n1=400 min $^{-1}$)

P_1 [kW]	n_2 [Min^{-1}]	M_2 [Nm]	i_{ges}	F_{r1} [N]	F_{r2} [N]	Tipo Type	Pag Pag
1.02	4.7	**1177**	300	490	10320		
0.74	3.5	**1102**	400	490	10320		
0.60	2.8	**1070**	500	490	10320		
0.51	2.3	**1102**	600	490	10320		
0.46	1.9	**1177**	750	490	10320		
0.41	1.6	**1177**	900	490	10320		
0.29	1.2	**1102**	1200	490	10320	**VSF 050/105**	70
0.28	0.93	**1177**	1500	490	10320		
0.25	0.78	**1177**	1800	490	10320		
0.18	0.58	**1102**	2400	490	10320		
0.15	0.47	**1070**	3000	490	10320		
0.13	0.35	**835**	4000	490	10320		
0.10	0.28	**760**	5000	490	10320		
1.18	4.7	**1354**	300	490	10320		
0.85	3.5	**1268**	400	490	10320		
0.65	2.8	**1177**	500	490	10320		
0.59	2.3	**1268**	600	490	10320		
0.52	1.9	**1354**	750	490	10320		
0.46	1.6	**1354**	900	490	10320		
0.33	1.2	**1268**	1200	490	10320	**VSF 050/110**	70
0.32	0.93	**1354**	1500	490	10320		
0.28	0.78	**1354**	1800	490	10320		
0.20	0.58	**1268**	2400	490	10320		
0.16	0.47	**1177**	3000	490	10320		
0.14	0.35	**876**	4000	490	10320		
0.11	0.28	**798**	5000	490	10320		
1.61	4.7	**1883**	300	700	13500		
1.18	3.5	**1766**	400	700	13500		
0.92	2.8	**1659**	500	700	13500		
0.81	2.3	**1766**	600	700	13500		
0.71	1.9	**1883**	750	700	13500		
0.62	1.6	**1883**	900	700	13500		
0.46	1.2	**1766**	1200	700	13500	**VSF 063/130**	70
0.42	0.93	**1883**	1500	700	13500		
0.37	0.78	**1883**	1800	700	13500		
0.27	0.58	**1766**	2400	700	13500		
0.21	0.47	**1659**	3000	700	13500		
0.16	0.35	**1305**	4000	700	13500		
0.12	0.28	**1177**	5000	700	13500		
3.64	9.3	**2504**	150	700	18000		
2.89	7.0	**2504**	200	700	18000		
2.03	5.6	**2194**	250	700	18000		
2.03	4.7	**2504**	300	700	18000		
1.93	3.5	**2857**	400	700	18000		
1.50	2.8	**2493**	500	700	18000	**VSF 063/150**	71
1.39	2.3	**2857**	600	700	18000		
1.05	1.9	**2493**	750	700	18000		
0.76	1.6	**2247**	900	700	18000		
0.80	1.2	**2857**	1200	700	18000		
0.47	0.8	**2247**	1800	700	18000		
0.49	0.6	**2857**	2400	700	18000		
0.36	0.5	**2493**	3000	700	18000		
0.25	0.4	**2012**	4000	700	18000		
0.19	0.3	**1766**	5000	700	18000		

030 040

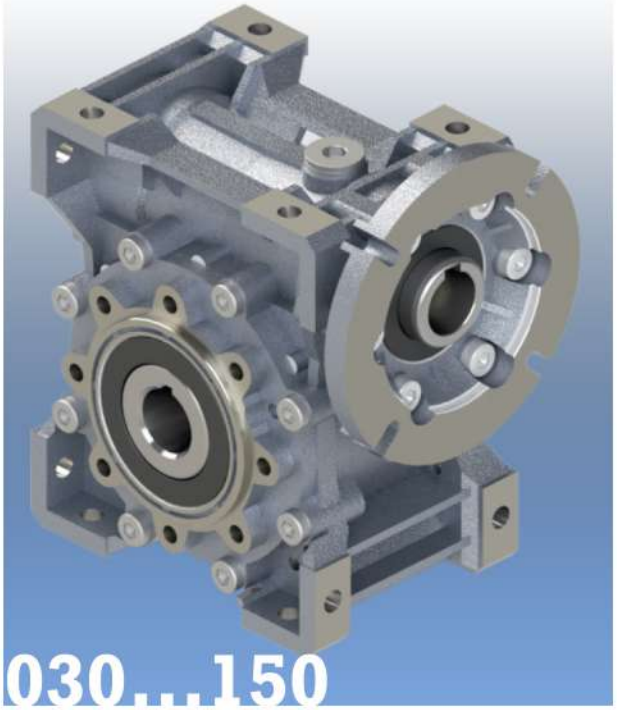
050 063

075 090

105 110

130 150

VSF



030...150

DIMENSIONES
DIMENSIONS

030 040

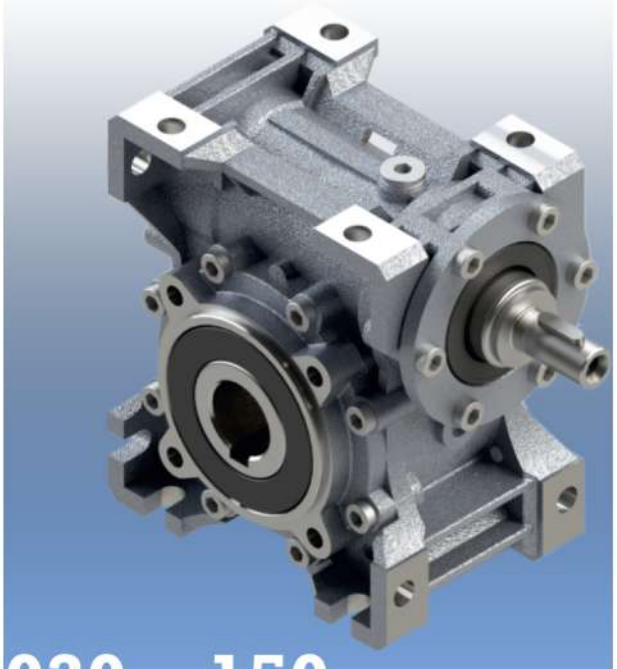
050 063

075 090

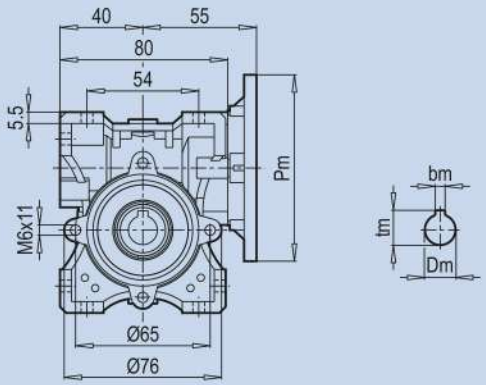
105 110

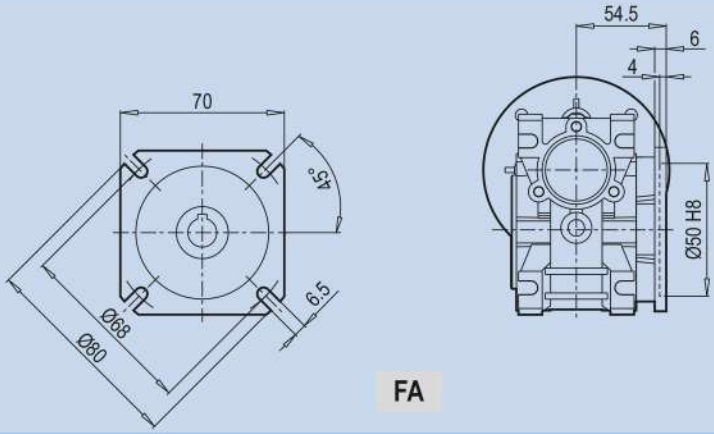
130 150

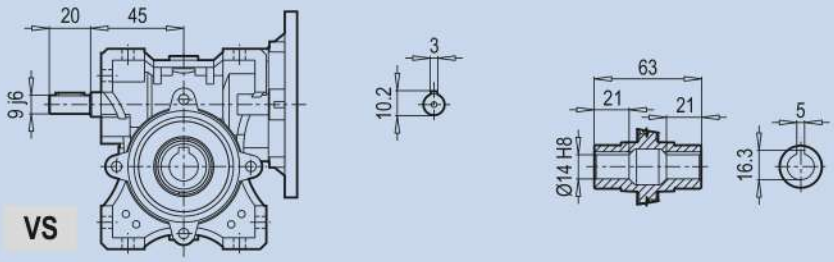
VF



030...150



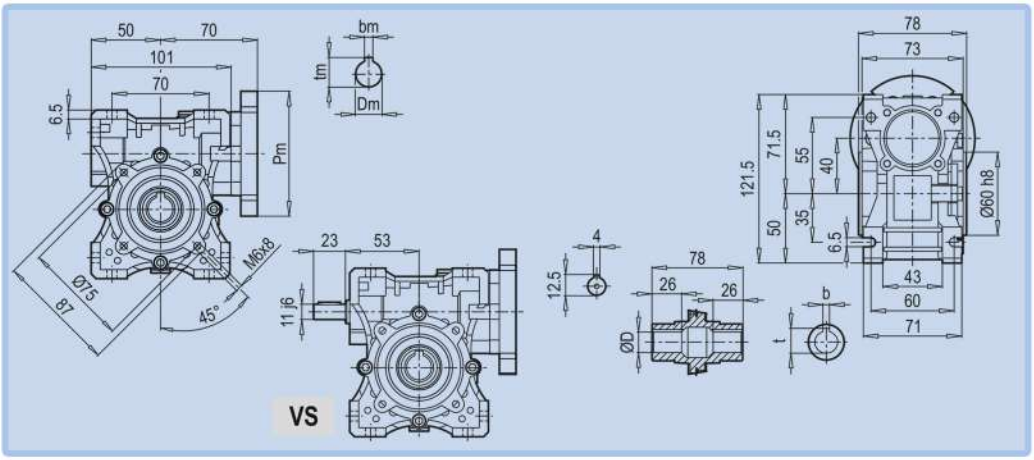


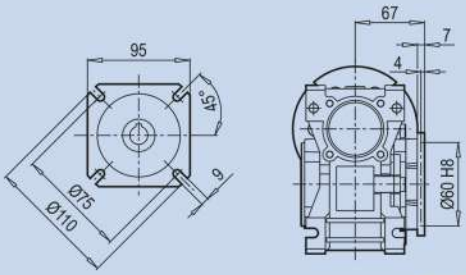


VSF 030

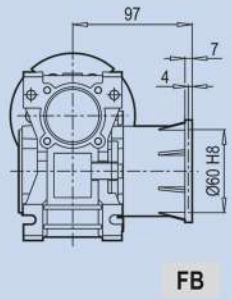
Peso sin motor
~ 1.2 kg
Weight withuot motor
~1.2kg

Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



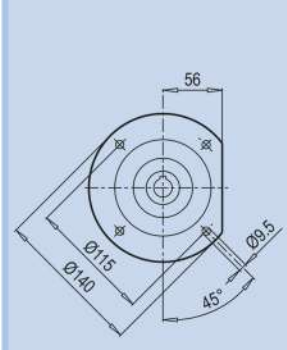


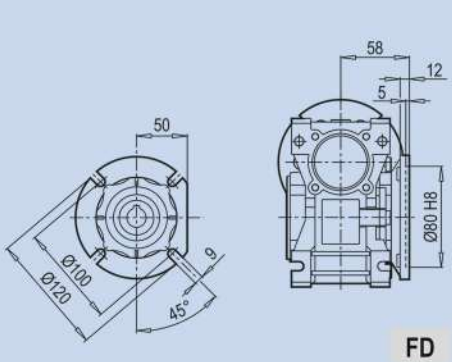
D H7	b	t
18	6	20,8
(19)	(6)	(21,8)



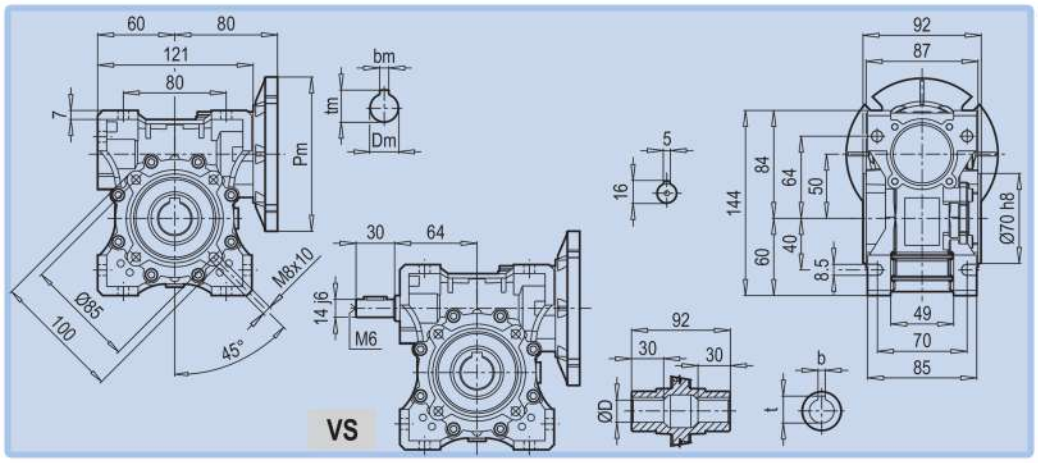
VSF040

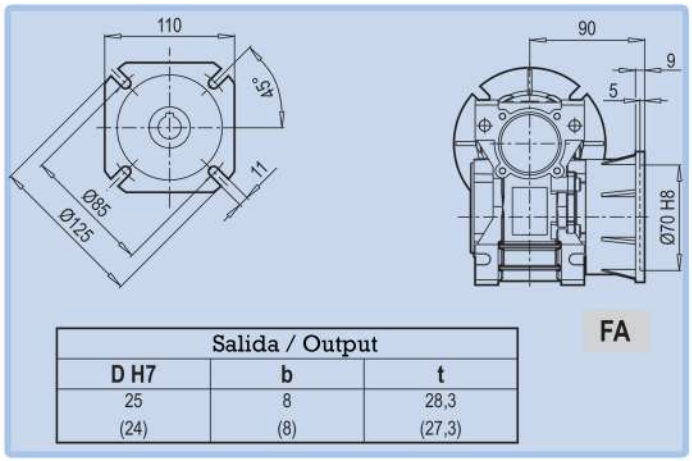
Peso sin motor
~ 2.3 kg
Weight withuot motor
~2.3 kg



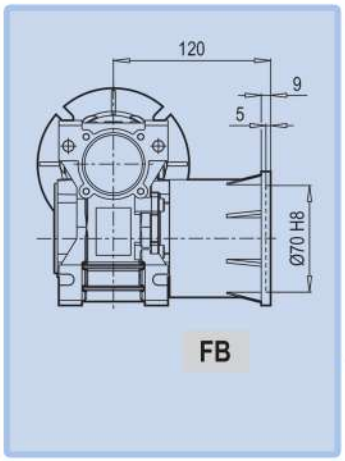


Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



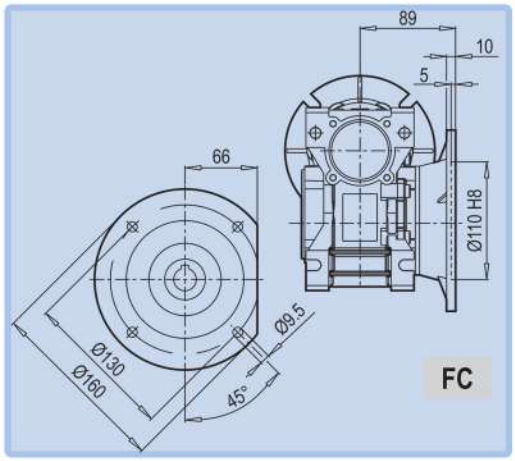


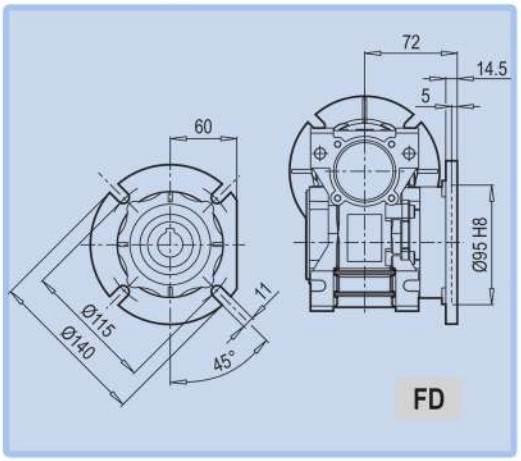
Salida / Output		
D H7	b	t
25	8	28,3
(24)	(8)	(27,3)



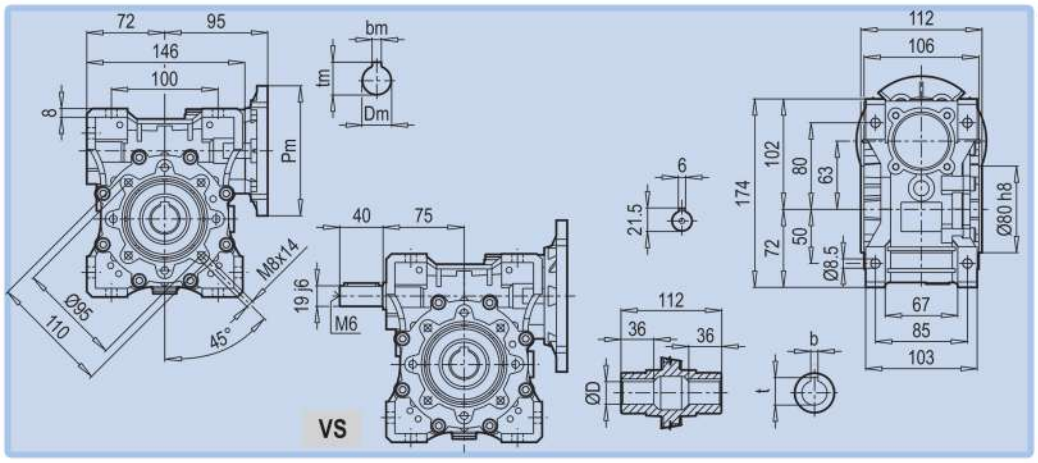
VSF 050

Peso sin motor
~ 3.5 kg
Weight withuot motor
~3.5 kg

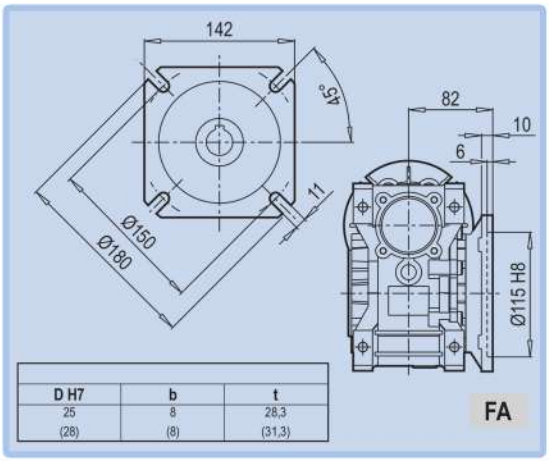




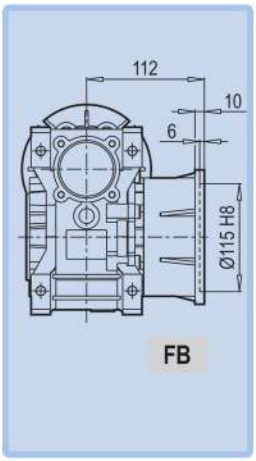
Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.

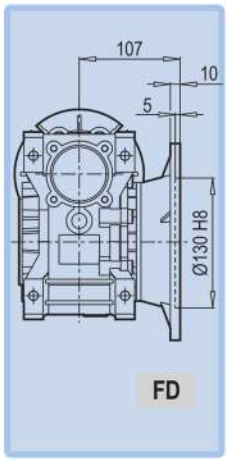


VSF063

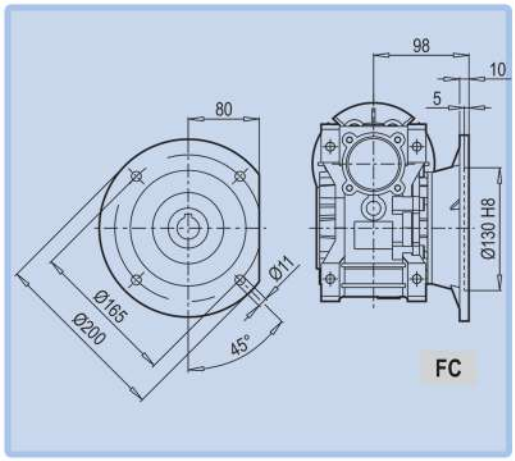


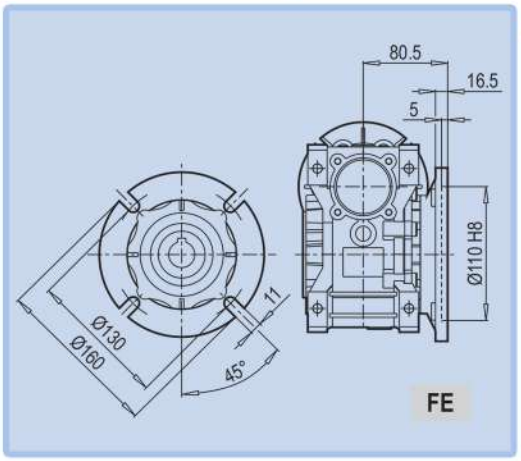
D H7	b	t
25	8	28,3
(28)	(8)	(31,3)



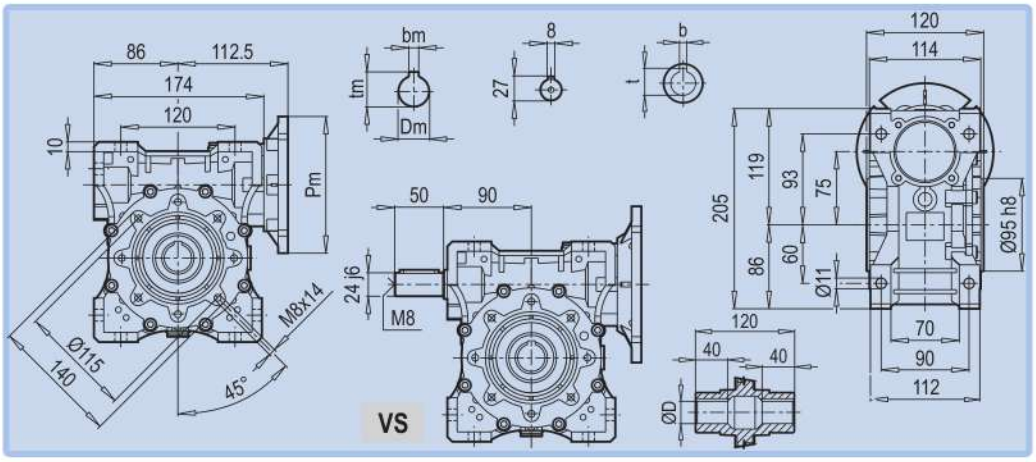


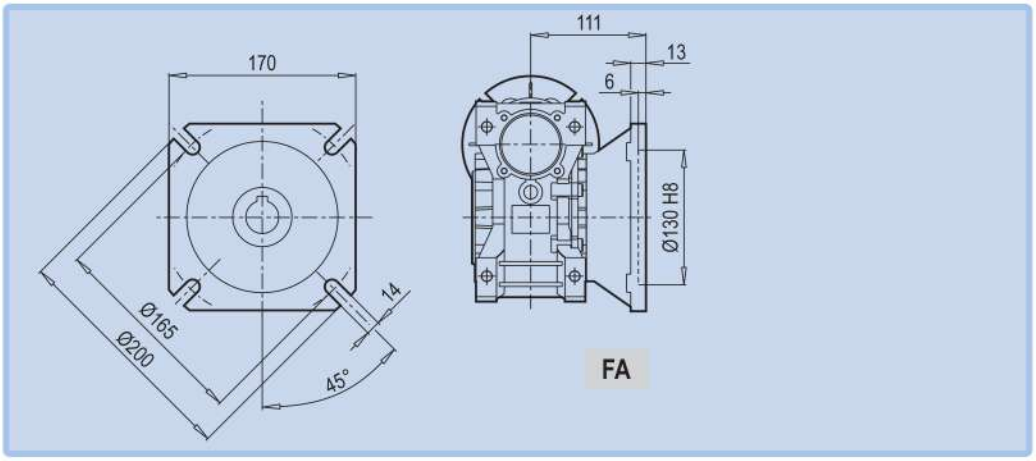
Peso sin motor
~ 3.5 kg
Weight withuot motor
~3.5 kg





Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.

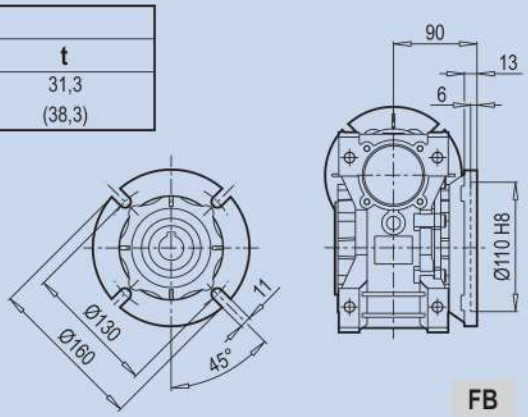




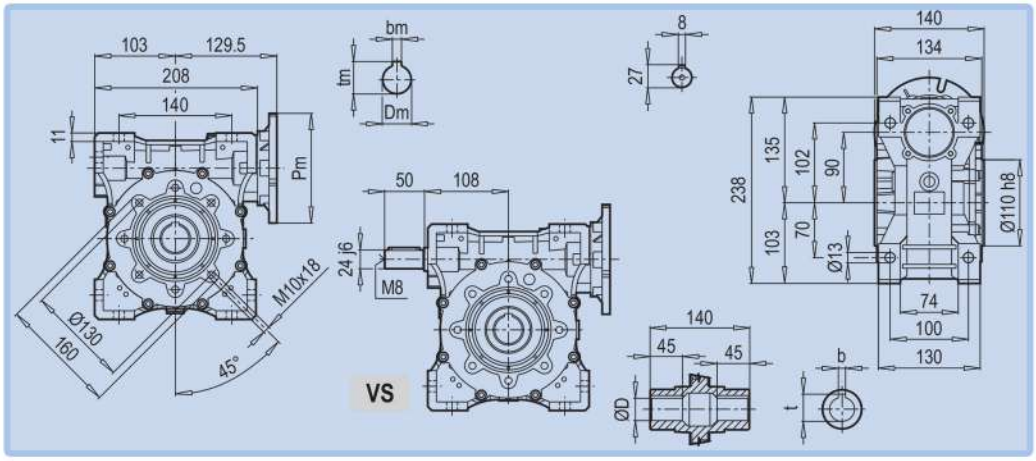
VSF 075

Peso sin motor
~ 9 kg
Weight withuot motor
~9 kg

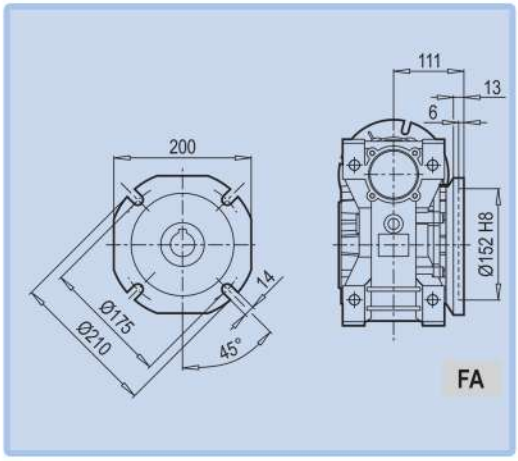
Salida / Output		
D H7	b	t
28	8	31,3
(35)	(10)	(38,3)

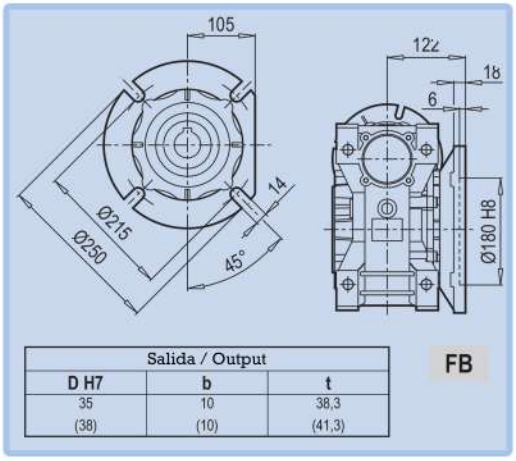


Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



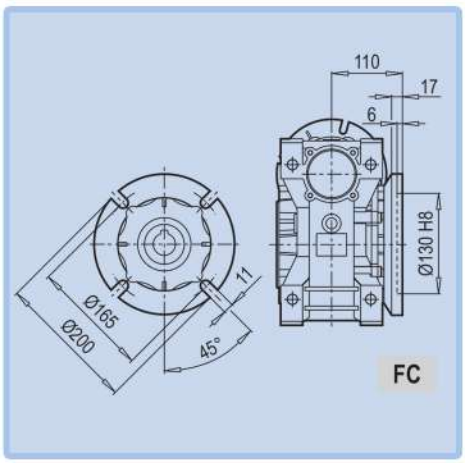
VSF090

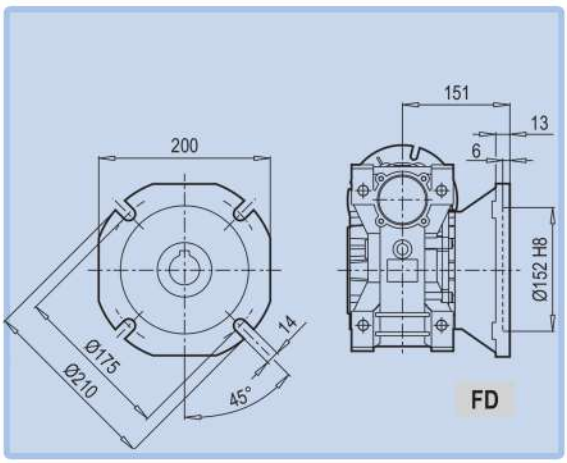




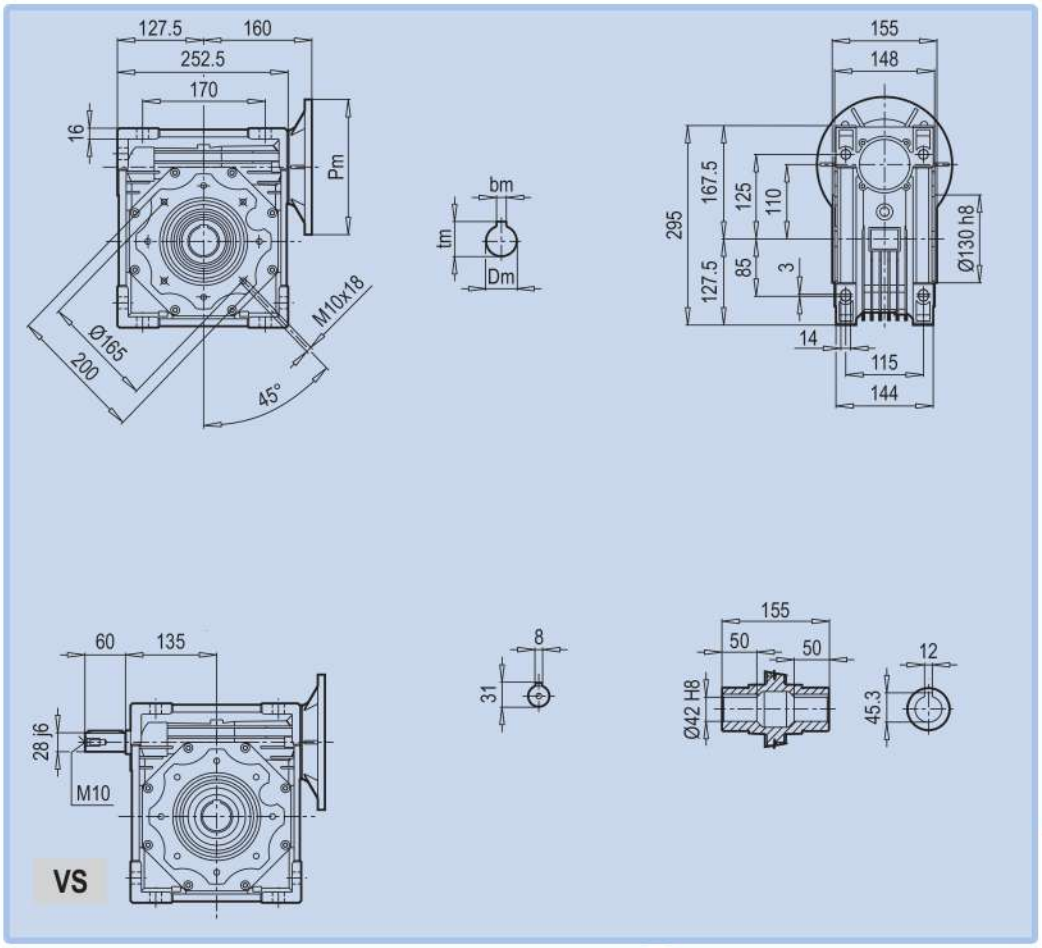
Salida / Output		
D H7	b	t
35	10	38,3
(38)	(10)	(41,3)

Peso sin motor
~ 13 kg
Weight withuot motor
~13 kg



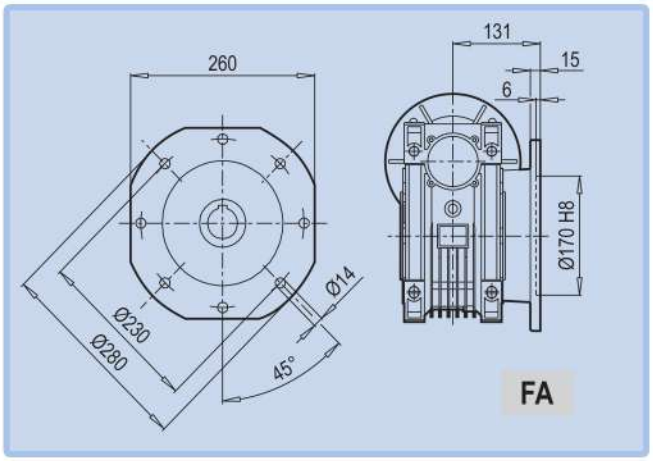


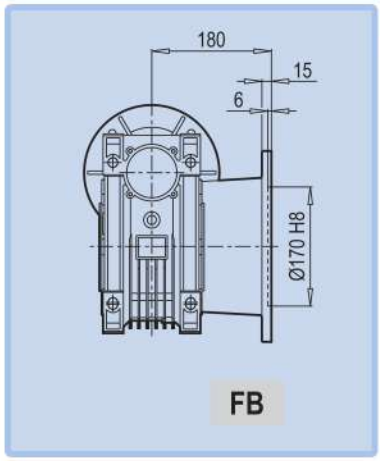
Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



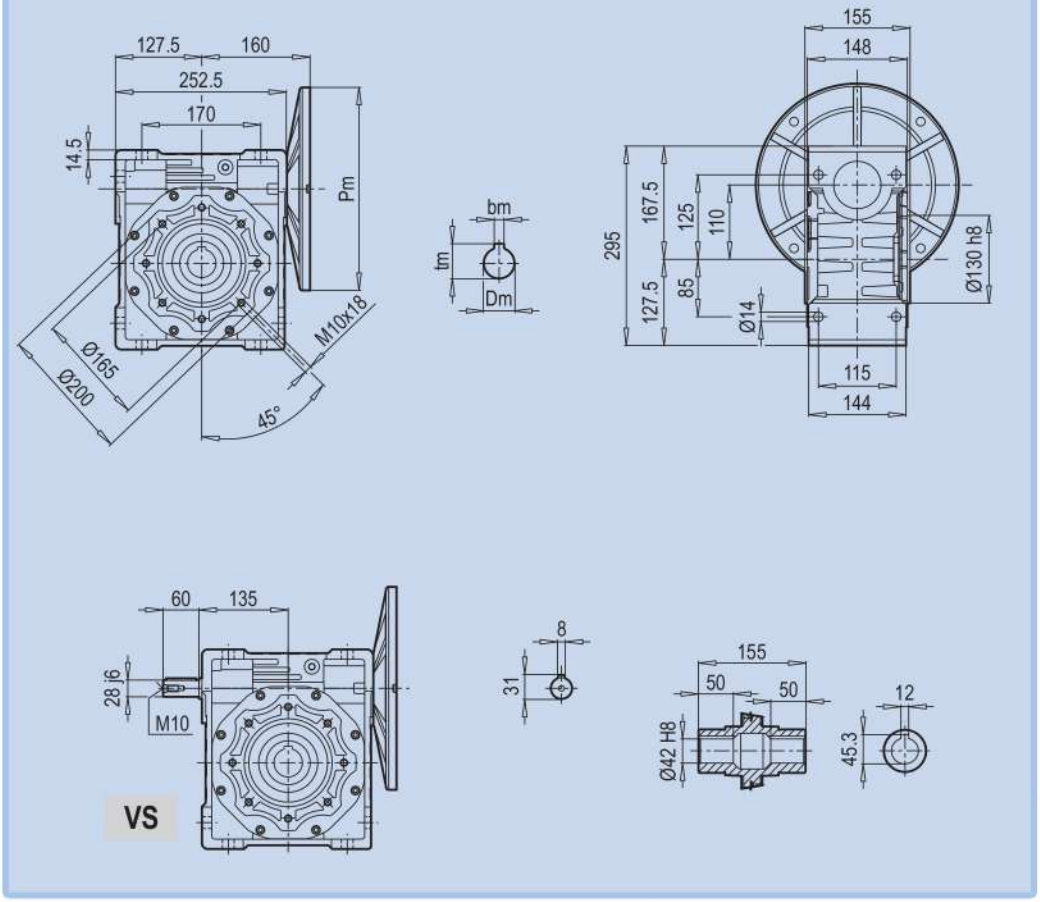
VSF105

Peso sin motor
~ 21 kg
Weight withuot motor
~21 kg



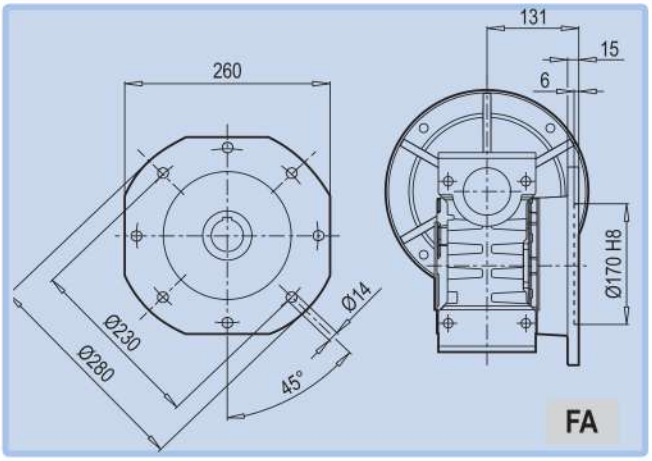


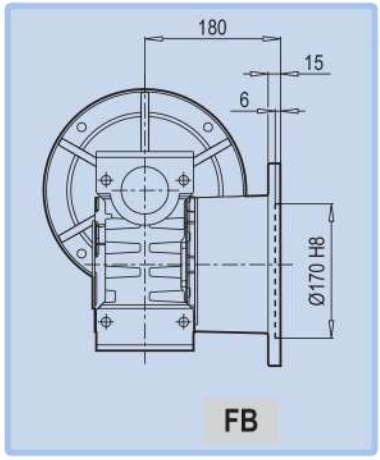
Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



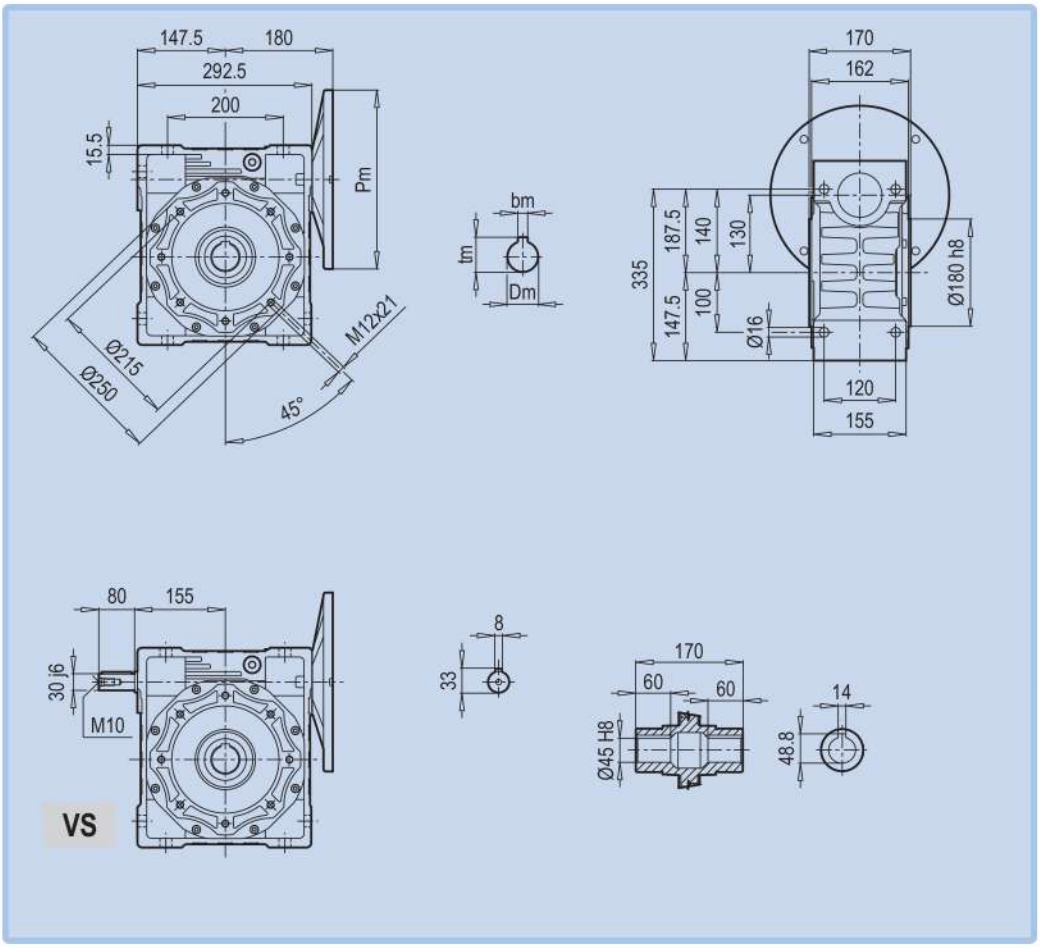
VSF 110

Peso sin motor
~ 35 kg
Weight withuot motor
~35 kg



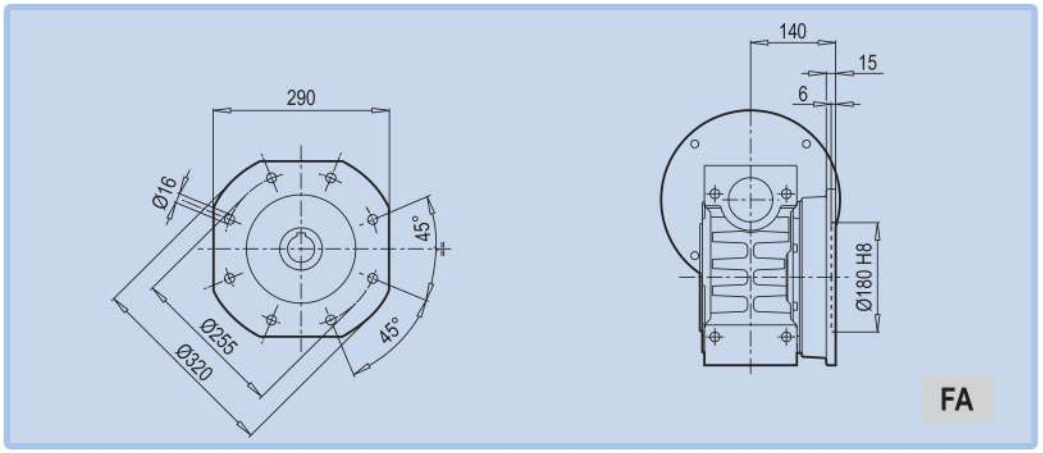


Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.

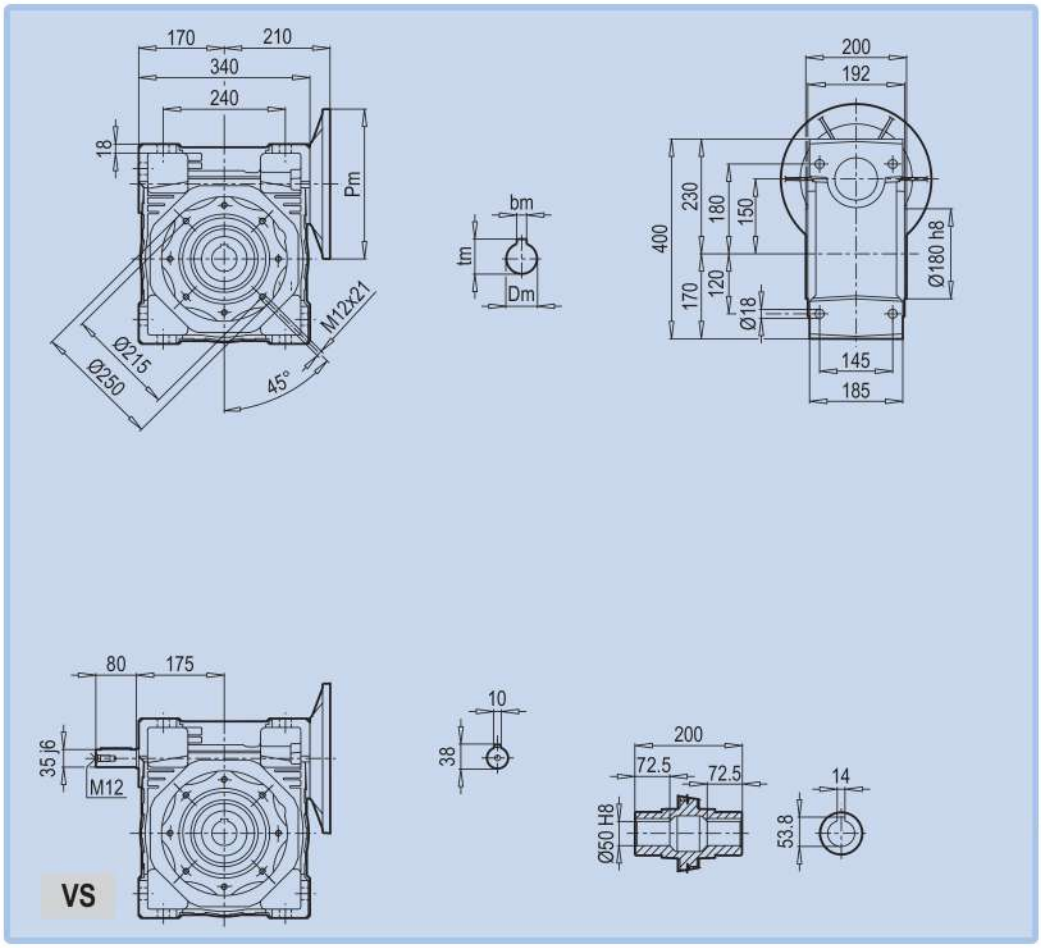


VSF 130

Peso sin motor
~ 48 kg
Weight withuot motor
~48 kg

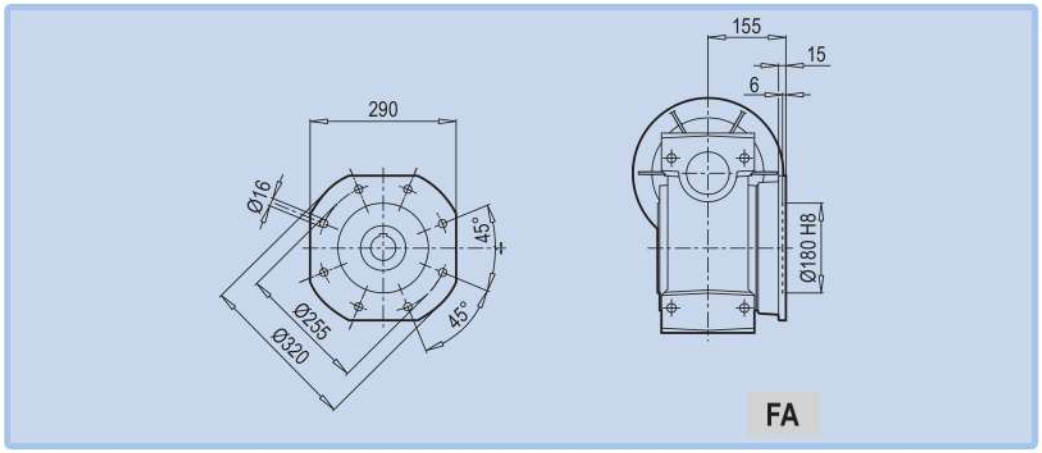


Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.



VSF 150

Peso sin motor
~ 84 kg
Weight withuot motor
~84 kg



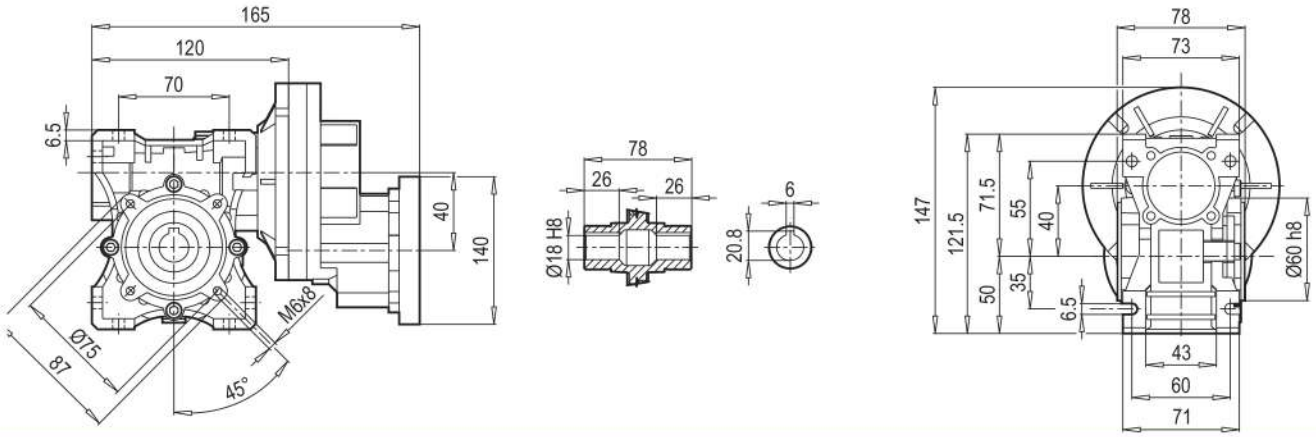
Para las magnitudes correspondientes a la zona del motor (Pm, Dm, bm, tm) consulte las tablas de la página 77.
For the dimensions concerning the motor connection area (Pm, Dm, bm, tm) please refer to the table shown at page 77.

For the dimensions of the output flanges, please consider the drawing of relevant **VSF** size.
Paras las cotas correspondientes a la brida de salida, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

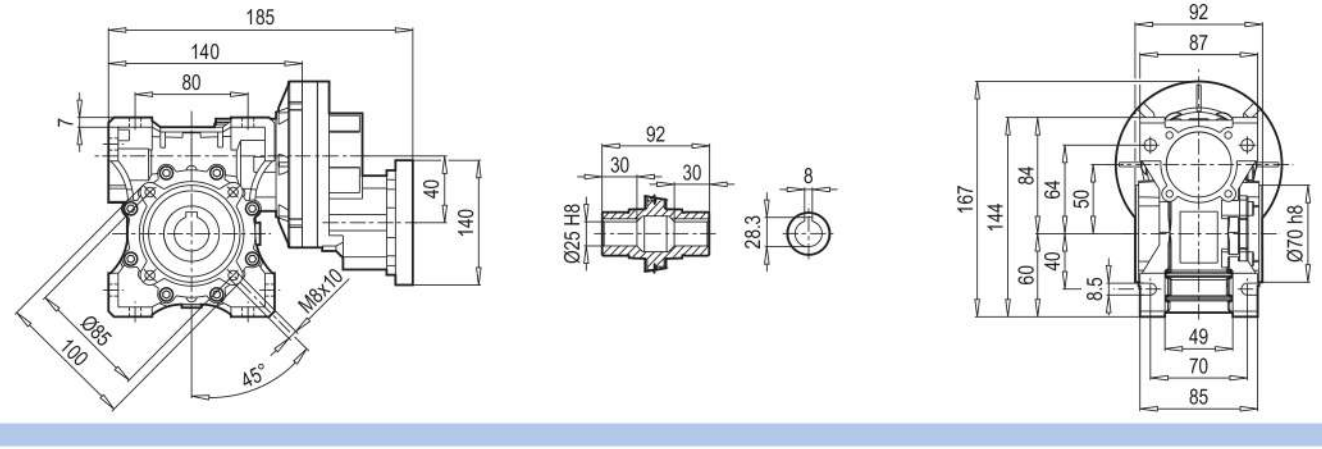
For the dimensions of the hollow shafts in option, please consider the drawing of relevant **VSF** size.
Paras las cotas correspondientes a los ejes huecos en la version opcional, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

For the dimensions of the double extention worm shafts, please consider the drawing of relevant **VSF** size.
Para las cotas correspondientes al tornillo sinfin prolongado, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

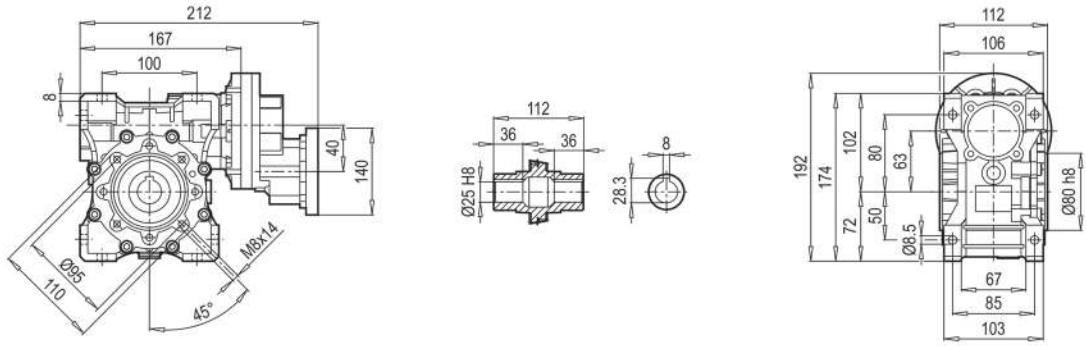
PC 063/VSF 040



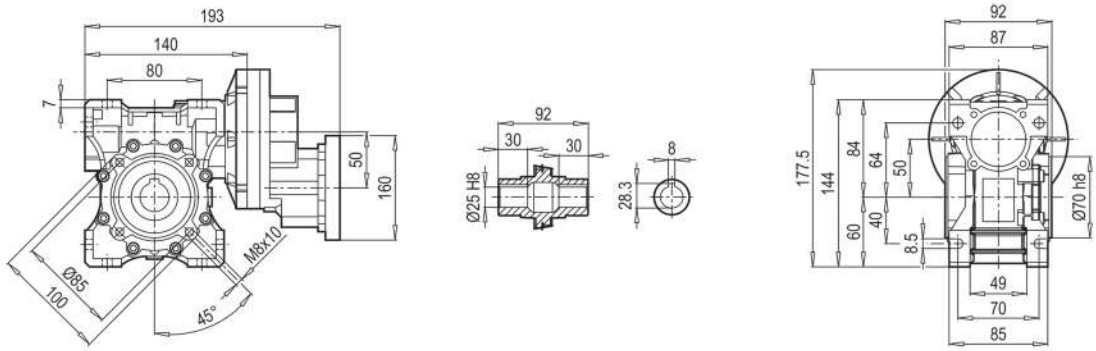
PC 063/VSF 050



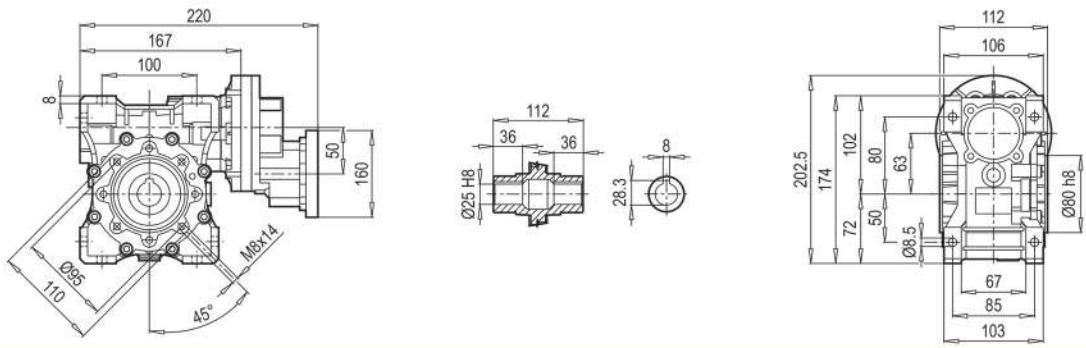
PC 063/VSF 063



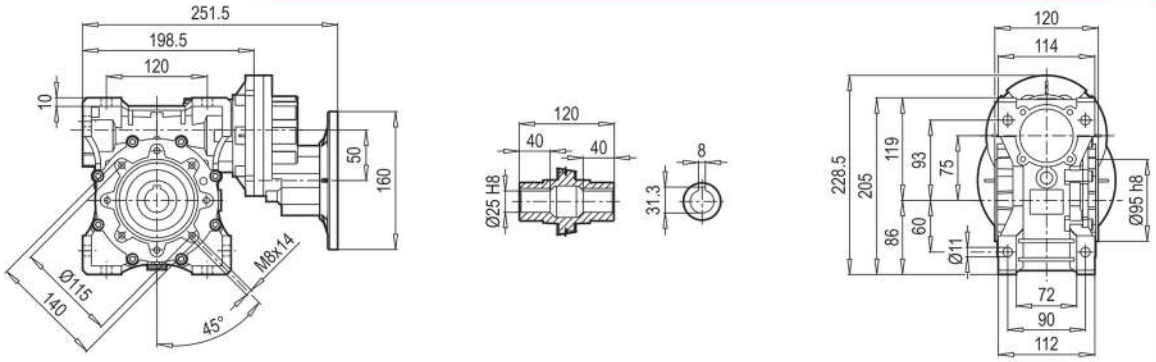
PC 071/VSF 050



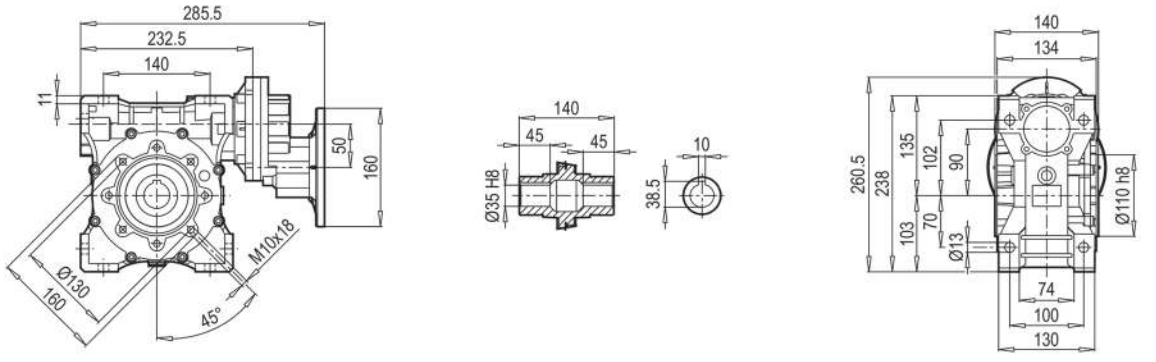
PC 071/VSF 063



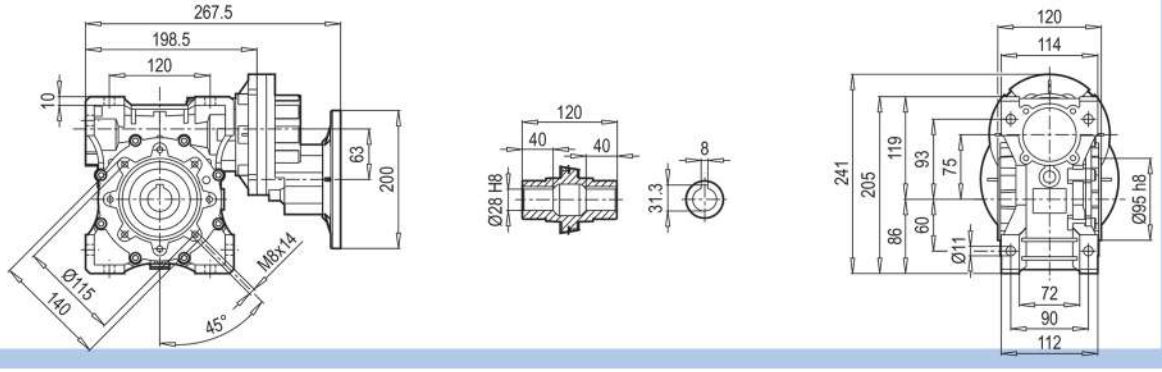
PC 071/VSF 075



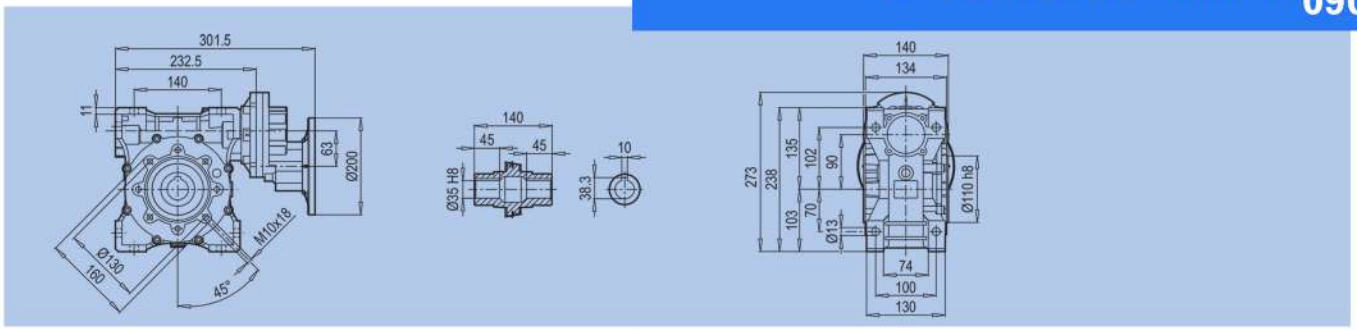
PC 071/VSF 090



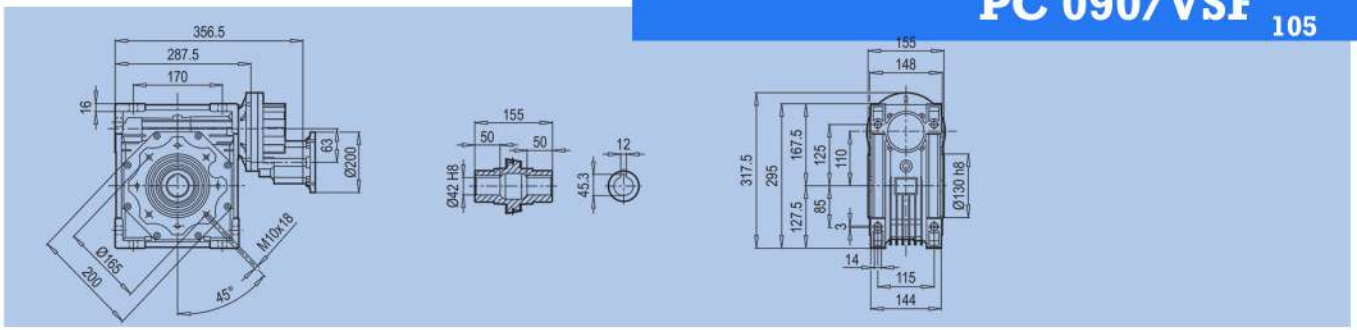
PC 080/VSF 075



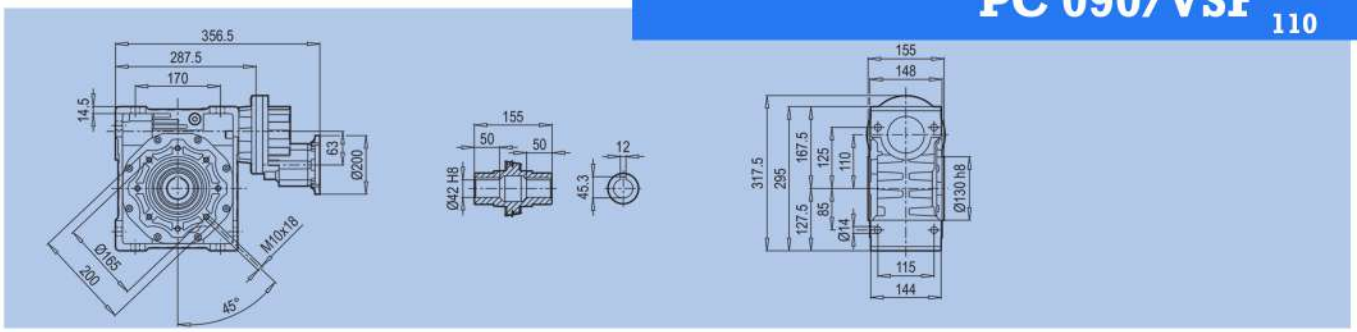
PC 080/VSF 090



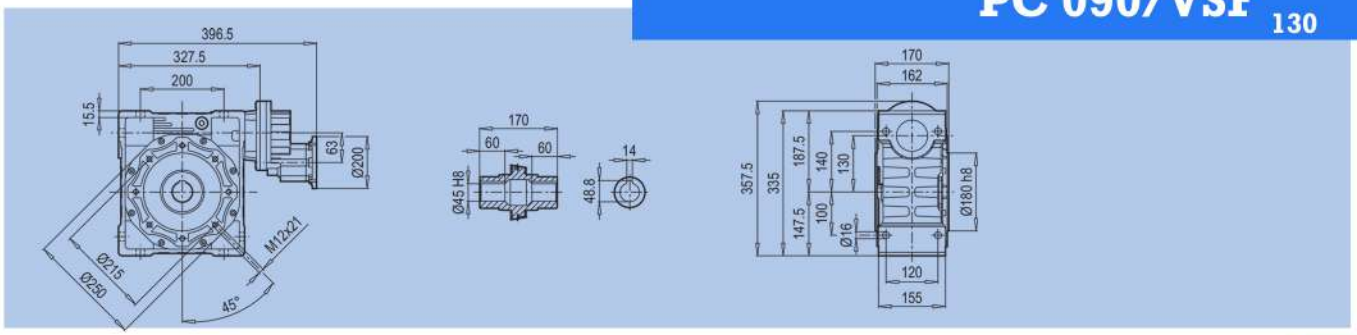
PC 080/VSF 105
PC 090/VSF 105



PC 080/VSF 110
PC 090/VSF 110



PC 080/VSF 130
PC 090/VSF 130

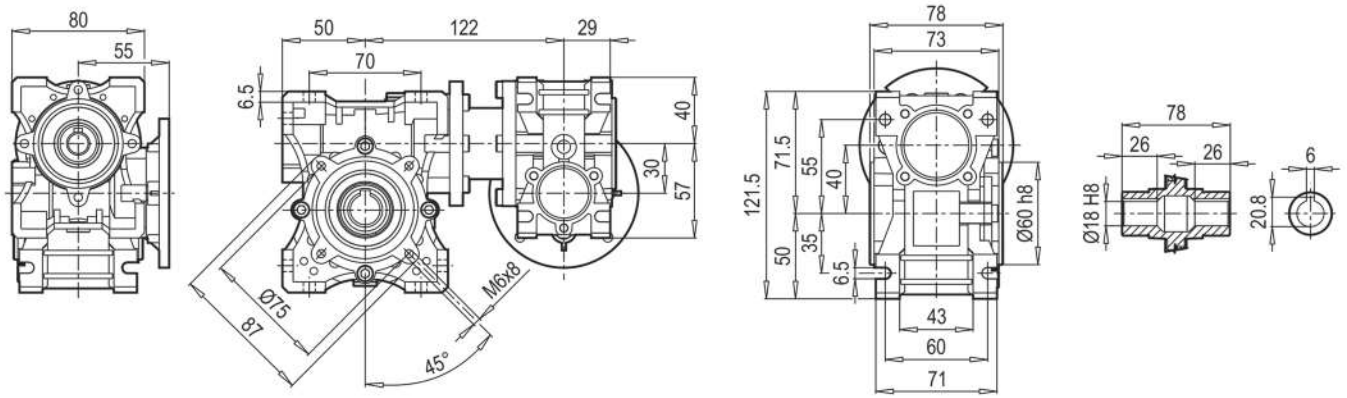


For the dimensions of the output flanges, please consider the drawing of relevant **VSF** size.
Paras las cotas correspondientes a la brida de salida, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

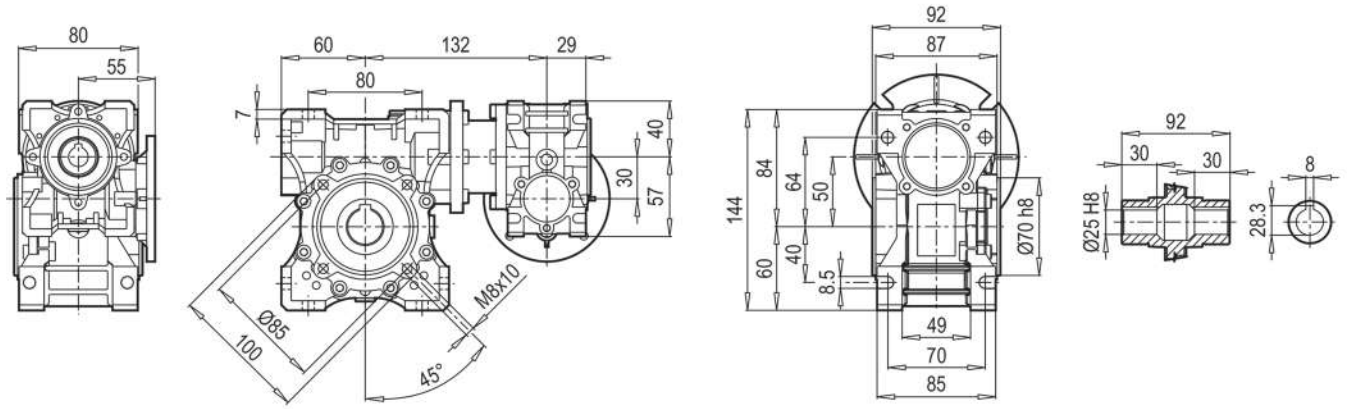
For the dimensions of the hollow shafts in option, please consider the drawing of relevant **VSF** size.
Paras las cotas correspondientes a los ejes huecos en la version opcional, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

For the dimensions of the double extention worm shafts, please consider the drawing of relevant **VSF** size.
Para las cotas correspondientes al tornillo sinfin prolongado, hacer referencia a las dimensiones **VSF** del tamaño correspondiente.

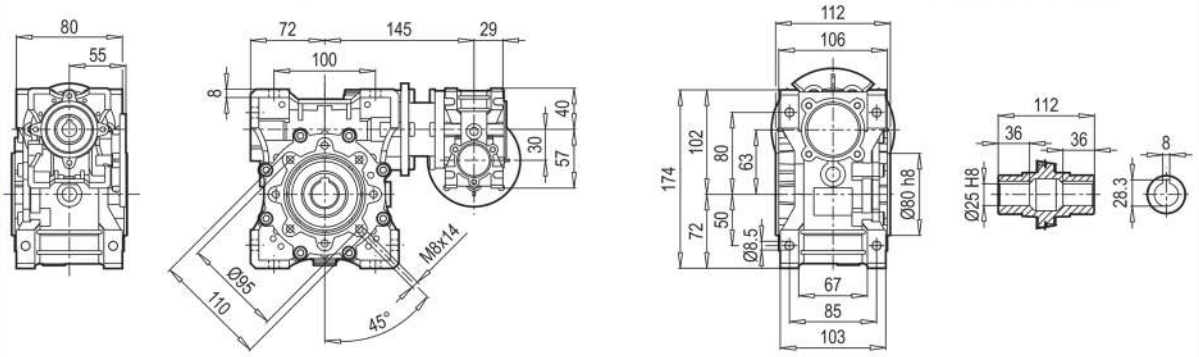
VSF 030-040



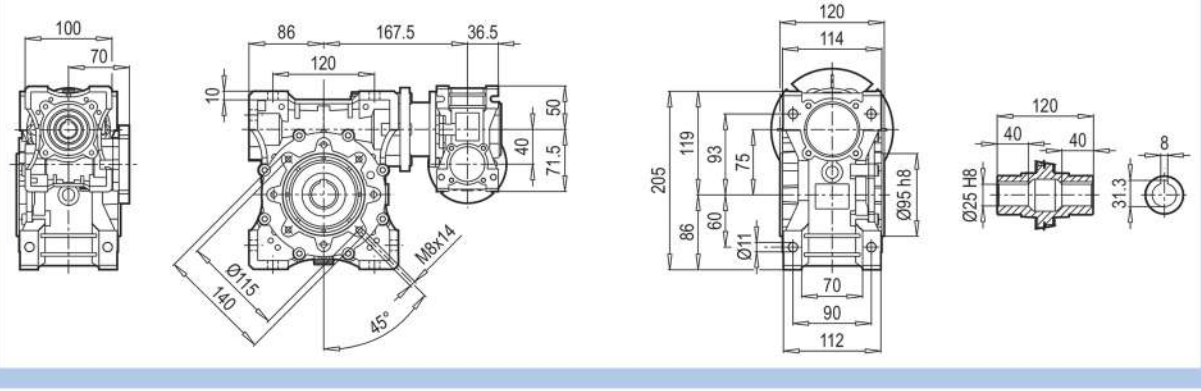
VSF 030-050



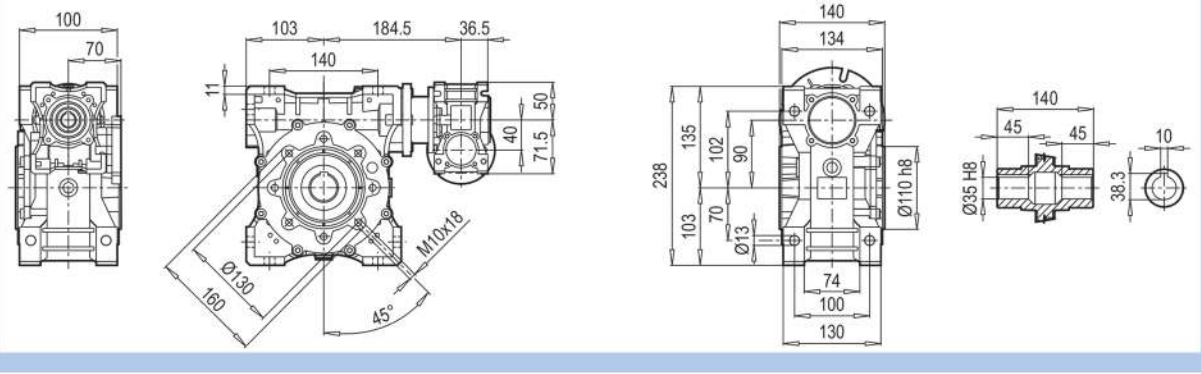
VSF 030-063



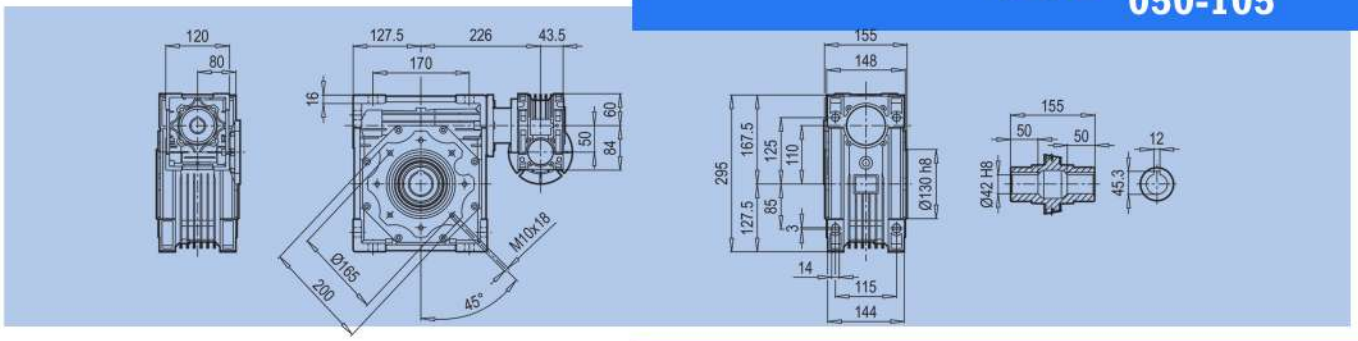
VSF 040-075



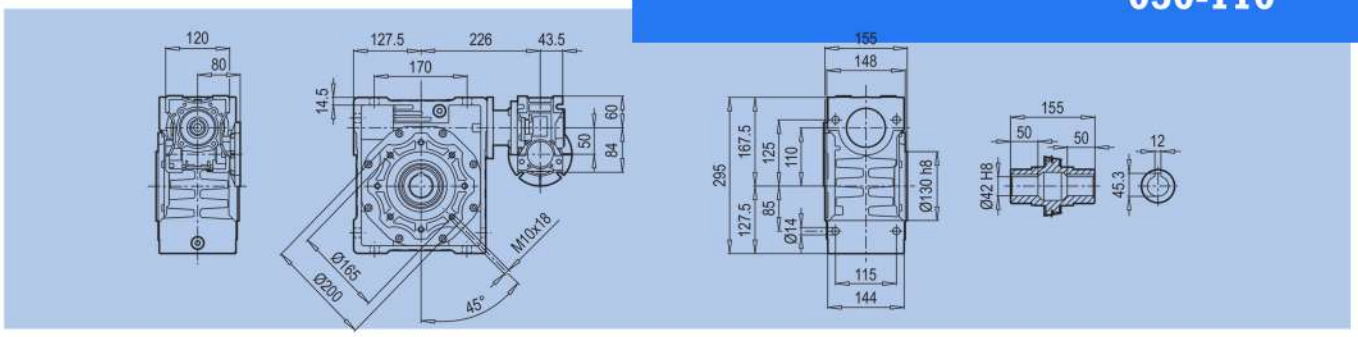
VSF 040-090



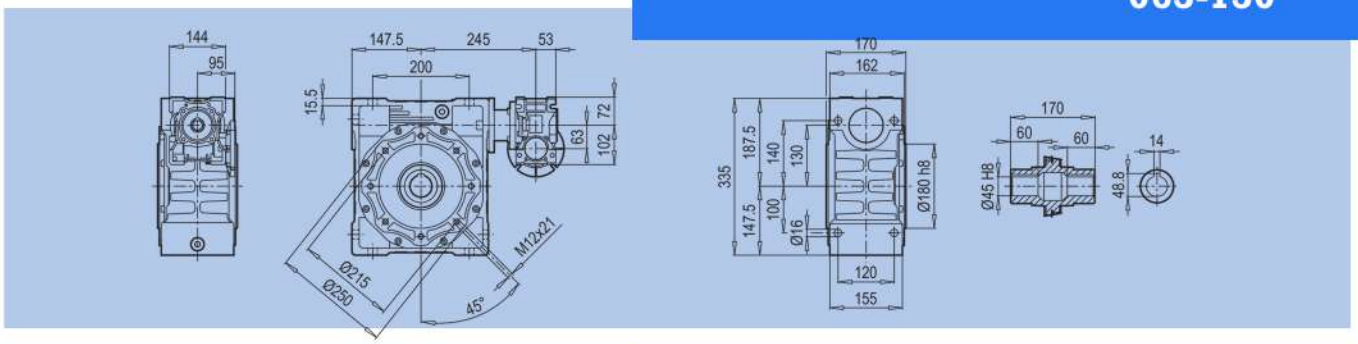
VSF 050-105



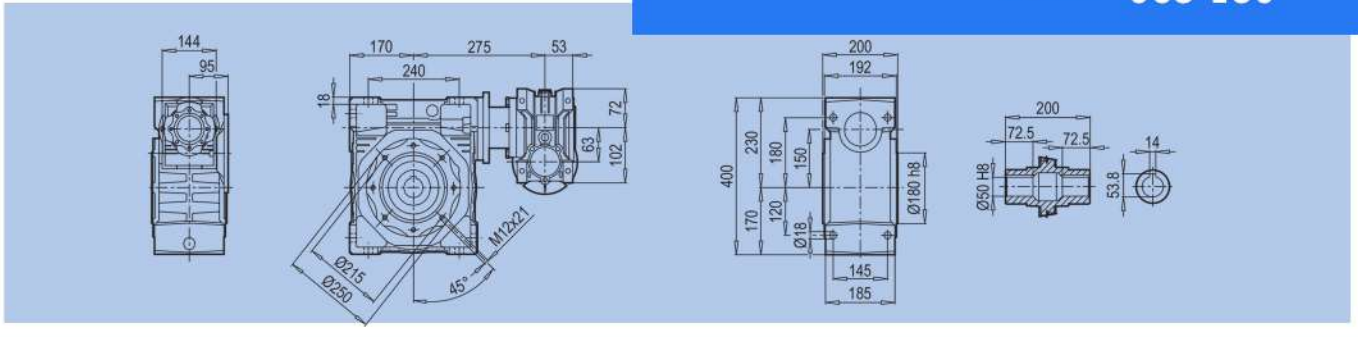
VSF 050-110



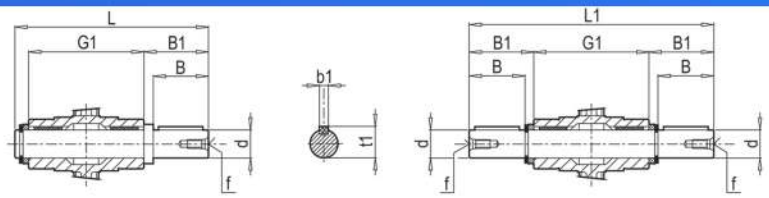
VSF 063-130



VSF 063-150



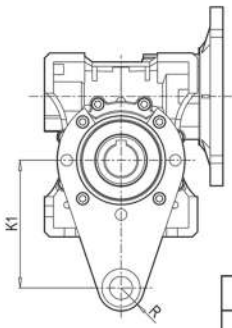
EJES LENTOS
LOW SPEED SHAFTS

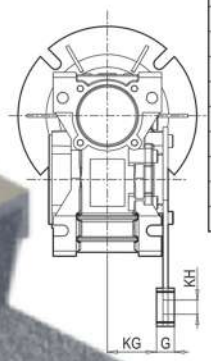


AS AB

	d	B	B1	G1	L	L1	f	b1	t1
030	14h6	30	32,5	63	102	128	M6	5	16
040	18h6	40	43	78	128	164	M6	6	20,5
050	25h6	50	53,5	92	153	199	M10	8	28
063	25h6	50	53,5	112	173	219	M10	8	28
075	28h6	60	63,5	120	192	247	M10	8	31
090	35h6	80	84,5	140	234	309	M12	10	38
105	42h6	80	84,5	155	249	324	M16	12	45
110	42h6	80	84,5	155	249	324	M16	12	45
130	45h6	80	85	170	265	340	M16	14	48,5
150	50h6	82	87	200	297	374	M16	14	53,5

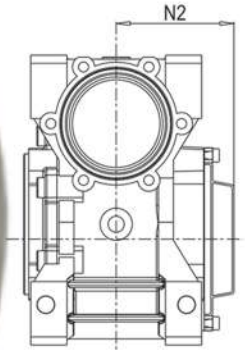
BRAZO DE REACCIÓN
TORQUE ARM





	K1	G	KG	KH	R
030	85	14	24	8	15
040	100	14	31,5	10	18
050	100	14	38,5	10	18
063	150	14	49	10	18
075	200	25	47,5	20	30
090	200	25	57,5	20	30
105	250	30	62	25	35
110	250	30	62	25	35
130	250	30	69	25	35
150	250	30	84	25	35

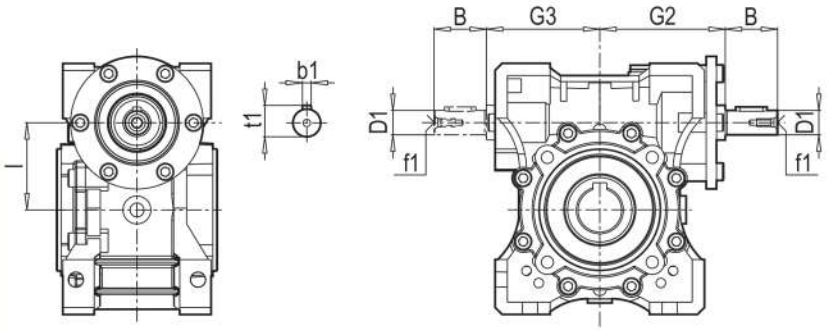
TAPA
COVER



	N2
030	42
040	50
050	58
063	69
075	74
090	86
105	94
110	94
130	102
150	117

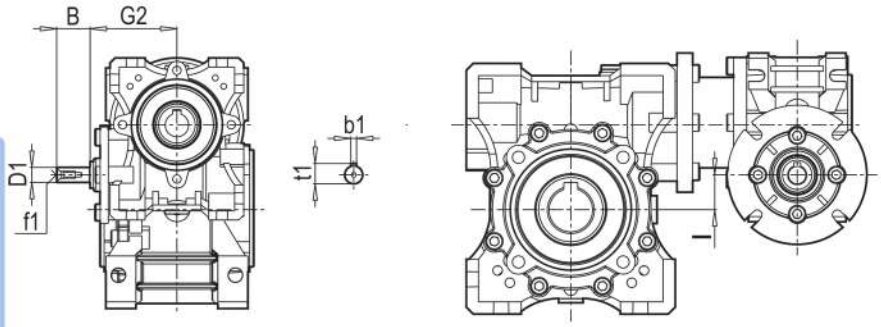
DIMENSIONES/DIMENSIONS

VSF-ECE



VSF-ECE	030	040	050	063	075	090	105	110	130	150
B	20	23	30	40	50	50	60	60	80	80
D1	9 j6	11 j6	14 j6	19 j6	24 j6	24 j6	28 j6	28 j6	30 j6	35 j6
G2	51	60	74	90	105	125	142	142	162	195
G3	45	53	64	75	90	108	135	135	155	175
l	30	40	50	63	75	90	110	110	130	150
b1	3	4	5	6	8	8	8	8	8	10
f1	-	-	M6	M6	M8	M8	M10	M10	M10	M12
t1	10,2	12,5	16	21,5	27	27	31	31	33	38

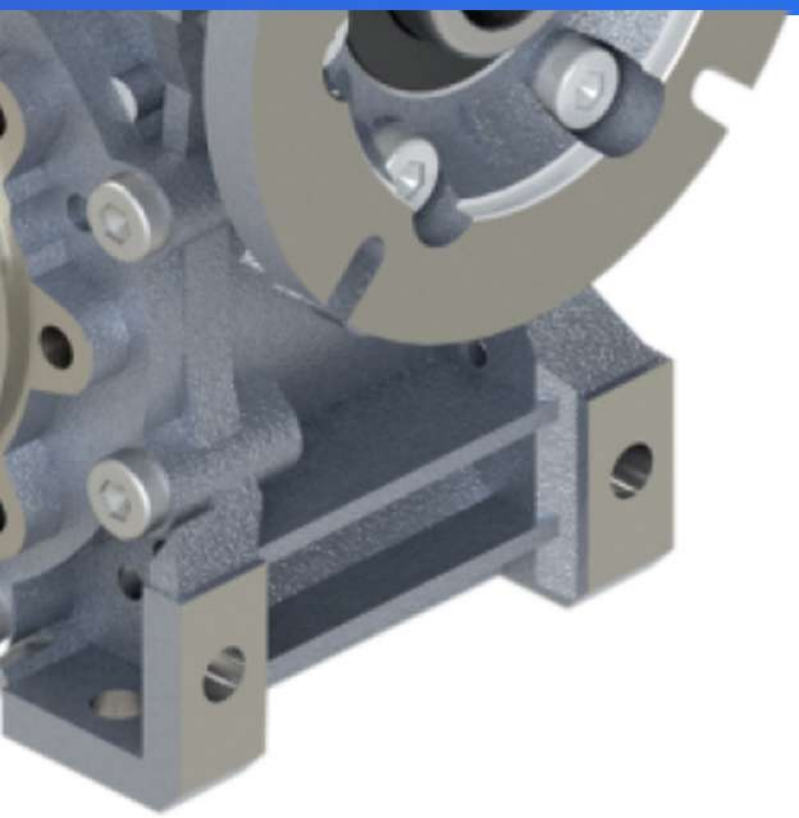
VSF-ECE/VSF

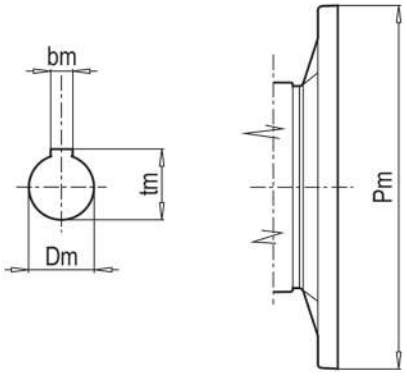


VF VSF	030-040	030-050	030-063	040-075	040-090	050-105	050-110	063-130	063-150
B	20	20	20	23	23	30	30	40	40
D1	9 j6	9 j6	9 j6	11 j6	11 j6	14 j6	14 j6	19 j6	19 j6
G2	51	51	51	60	60	74	74	90	90
l	10	20	33	35	50	60	60	67	87
b1	3	3	3	4	4	5	5	6	6
f1	-	-	-	-	-	M6	M6	M6	M6
t1	10,2	10,2	10,2	12,5	12,5	16	16	21,5	21,5

Para las cotas no contempladas hacer referencia a las dimensiones **VSF** de los tamaños correspondientes.
For the missing dimensions, please consider the drawing of relevant **VSF** size.

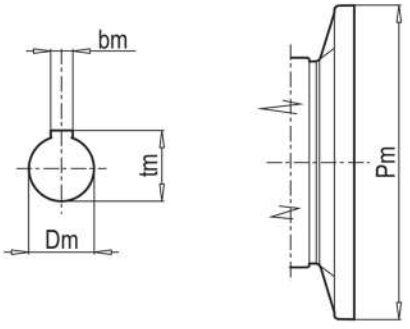
DIMENSIONES/DIMENSIONS





B5	IEC										
	056	063	071	080	090	100	112	132	160	180	200
Pm	120	140	160	200	200	250	250	300	350	350	400
Dm	9	11	14	19	24	28	28	38	42	48	55
bm	3	4	5	6	8	8	8	10	12	14	16
tm	10,4	12,8	16,3	21,8	27,3	31,3	31,3	41,3	45,3	51,8	59,3

PMRV (110 - 130) tm= 40,3 (IEC 132)



B14	IEC							
	056	063	071	080	090	100	112	132
Pm	80	90	105	120	140	160	160	200
Dm	9	11	14	19	24	28	28	38
bm	3	4	5	6	8	8	8	10
tm	10,4	12,8	16,3	21,8	27,3	31,3	31,3	41,3

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