



CHM WORM GEARED MOTORS AND WORM GEAR UNITS



CHM



CHME



CHMRE



CHMR



INTRODUCTION

The worm gears made by Chiaravalli Group S.p.A. are square and are considerably versatile for mounting. The machining of the components, carried out using numeric control machines, guarantees maximum precision for the restricted tolerances, producing a product that will remain reliable over time.

The groups are constructed with aluminium casings from sizes 025 to 090, while the sizes 110, 130 and 150 are made from cast iron.

All of the bodies are painted with RAL 9022 aluminium colour to protect the parts from aging and to give better protection against microblowholes that may be present in the aluminium.

The gears are supplied with at least one filling plug that is also used during testing to check for possible leaks.

A connection flange allows two gears to be combined in order to obtain high gear ratios.

Four sizes of CHPC pre-stage gears are available to pair with the gears; these are also constructed in aluminium and are painted like the worm gears.

All of the groups are supplied with a lubricant whose characteristics are described in the following table.

LUBRICATION

	CHM 025/090	CHM 110/150			CHPC
Lubricant	Synthetic	Mineral	Mineral	Mineral	Synthetic
°C ambient	-25°C/+50°C	-25°C/+50°C	-5°C/+40°C	-15°C/+25°C	-25°C/+50°C
ISO	VG320	VG320	VG460	VG220	VG320
AGIP	TELIUM VSF 320	BLASIA 320	BLASIA 460	BLASIA 220	TELIUM VSF 320
SHELL	TIVELA OIL S 320	OMALA OIL 320	OMALA OIL 460	OMALA OIL 220	TIVELA OIL SC 320
IP	TELIUM VSF	MELLANA OIL 320	MELLANA OIL 460	MELLANA OIL 220	TELIUM VSF



LUBRICATION

The size 025 to 090 gears are supplied complete with synthetic oil and therefore do not require any maintenance.

The size 110, 130 and 150 gears are supplied with the quantity of mineral oil foreseen for the B3 assembly position. It is the client's responsibility to adapt the quantity of oil to the assembly position and in addition, to substitute the filling plug, supplied closed for transport reasons, with the one equipped with a hole attached to the gear.

If the breather plug is not installed it may create internal pressure with a consequent leakage of oil from the oil seals.

For the sizes 110, 130 and 150 we recommend that the oil is changed after the running in period, approx. 300 working hours.

2D and 3D drawings available on the web site www.chiaravalli.com

Quantity, availability and prices with Chiaravalli B2B



QUANTITY OF OIL IN LITRES

CHM	025	030	040	050	063	075	090	110	130	150	CHPC	63	71	80	90
B3	0.02	0.04	0.08	0.15	0.30	0.55	1	3	4.5	7		0.05	0.07	0.15	0.16
B8	0.02	0.04	0.08	0.15	0.30	0.55	1	1.4	1.7	5.1		0.05	0.07	0.15	0.16
B6/B7	0.02	0.04	0.08	0.15	0.30	0.55	1	2.2	3.3	5.4		0.05	0.07	0.15	0.16
V5	0.02	0.04	0.08	0.15	0.30	0.55	1	3	4.5	7		0.05	0.07	0.15	0.16
V6	0.02	0.04	0.08	0.15	0.30	0.55	1	2.2	3.3	5.1		0.05	0.07	0.15	0.16



MOTOR MOUNTING FLANGES

Gears that are supplied with mounting flanges must be assembled with motors whose shaft and flange tolerances correspond to a "normal class" of quality in order to avoid vibration and forcing of the input bearing. Motors supplied by Chiaravalli Group S.p.A. guarantee that this requirement is fulfilled.

For ease of consultation, the correspondence of the size of the B5 and B14 motor with the sizes of the shaft and the motor connection flange are shown in the following table.

Remember that, as the motor connection flanges are separate from the body it is also possible to have a shaft / flange combination that does not correspond to the table, e.g. 19/140, thereby offering adaptability for other non-unified models such as the brushless or direct current types.

MMF	056	063	071	080	090	100	112	132
B5	9/120	11/140	14/160	19/200	24/200	28/250	28/250	38/300
B14	9/80	11/90	14/105	19/120	24/140	28/160	28/160	38/200



CHM/CHMR/CHME/CHMRE DESIGNATION

TYPE (1)	SIZE (2)	VERSION (3)	FLANGE POS. (4)	i	M.M.F.	MOUNT. POS. (4)
CHM	025	FA	1	7.5	SEE FROM PAGE 31 TO 40	U UNIVERSALE
	030	FB	2	10		B3
CHMR	040	FC		15		B8
	050	FD		20		B6
CHME	063	FE		25		B7
	075			30		V5
CHMRE	090			40		V6
	110			50		
	130			60		
	150			80 100		



ORDER EXAMPLE

CHM	090	FA (5)	2 (5)	30	90 B14	V5
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If the motor is also required, please specify:

- Size es. 90 L4
- Power es. Kw 1.5
- Poles es. 4
- Voltage es. V230/400
- Frequency es. 50 Hz
- Flange es. B14

N.B. From size 25 to 63 the gears are always supplied in the Universal position and can therefore be mounted in any position, from size 75 to size 130 if the position required differs from B3 it must be specified.

In particular, in the event that a gear in position B3 is to be mounted in positions V5 or V6, the bearing positioned in the upper side must be lubricated using suitable grease that ensures proper lubrication.

We have tested TecnoLubeseal POLYMER 400/2 grease.

- 1) see page 26
- 2) see from page 31 to page 40
- 3) see from page 31 to page 40
- 4) see page 30
- 5) lack of instructions indicates that the gear is not equipped with an output flange.



SYMBOLS

P = Power (Kw)
i = Ratio
T = Torque (Nm)
n = Speed (RPM)
Fr = Radial Load (N)
Fa = Axial Load (N)
f.s. = Service Factor
D = Diameter (mm)

1 Kw = 1,36 HP

9,81 N = 1 Kp

1 Input
 2 Output



GENERAL INFORMATION

POWER P

$P_1 \cdot \eta = P_2$
 P_1 = Input power
 P_2 = Output power
 η = Transmission efficiency

2

VELOCITA' DI ROTAZIONE n

n_1 = Input speed
 n_2 = Output speed

An output speed ≤ 1400 rpm is suggested so as to optimize the working condition and extend the service life.

TRANSMISSION RATIO i

$$i = \frac{n_1}{n_2}$$

TORQUE T

$$T_2 = \frac{9550 \cdot P_1 \cdot \eta}{n_2} \quad [\text{Nm}]$$

$$T_{2n} \geq T_2 \cdot f_s \quad [\text{Nm}]$$

T_2 = Output torque
 T_{2n} = Rated output torque
 P_1 = Input power
 η = Transmission efficiency
 f_s = Service factor

2D and 3D drawings available on the web site www.chiaravalli.com
 Quantity, availability and prices with Chiaravalli B2B



RADIAL LOADS F_R

The radial loads is proportional to the requested torque and inversely proportional to the transmission member diameter following this formula.

$$F_R = \frac{2000 \cdot T \cdot \text{T.e.f.}}{D} \left[\text{N} \right]$$

F_R = Radial load
 T = Nm (Torque)
T.e.f. = Transmission element factor
T.e.f. = 1,15 gear
= 1,4 chain spocket
= 1,75 v-pulley
= 2,5 flat-pulley
 D = Transmission element diameter

When the radial loads is not applied on the centre line of the shaft it is necessary to use the following formula.

$$F_{R_x} \leq \frac{F_R \cdot a}{(b+x)} \left[\text{N} \right]$$

F_R = Radial load on the centre line
 a, b, x = see tables page 9-46-47-77-78



LUBRICATION

All, gearboxes and variators are supplied, CHA type excluded, complete with lubricant. The gearboxes maintenance free are lubricated with synthetic oil the others with mineral oil. It is very important to verify the mounting position because sometimes adding some oil is enough, in other case to lubricate bearings with special grease would be necessary. Use only recommended oils.

Warning in case of heavy work it is better to install, where possible, breather plug.



PAINTING

All the gearboxes and electrical motors are painted Grey RAL 9022 with epoxy resins powder. Big gearboxes and motors are cast iron made, aluminium all the others.

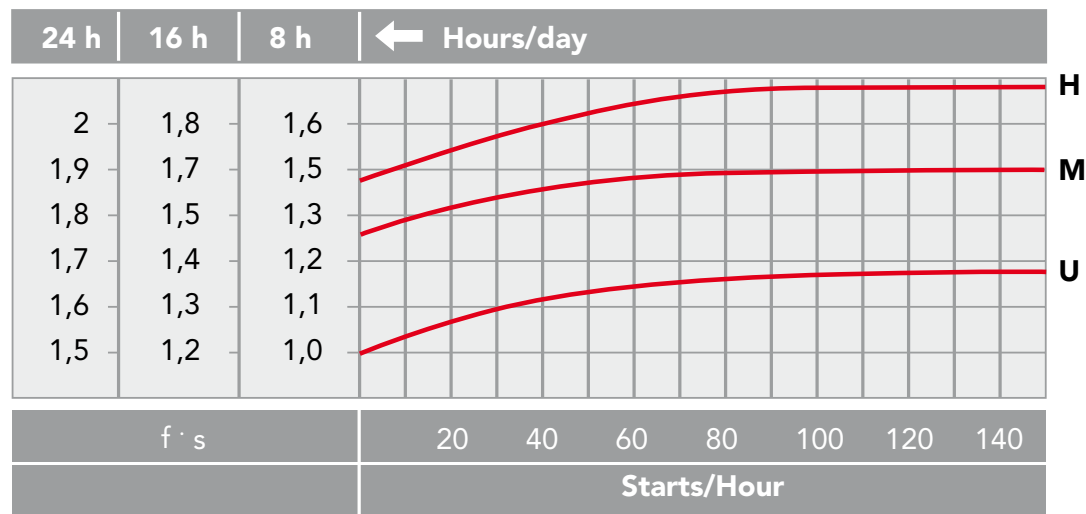


SERVICE FACTOR F_s

The service factor mainly depends on three parameters:

- type to load: U - M - H
- run time: h/day
- start-up frequency: na/h

U = uniform
M = moderate
H = heavy
na/h = starts/hour



4

LOAD TYPE - APPLICATION

- U** Conveyor belts for light weights - centrifugal pumps - lifts - bottling machines
- M** Conveyor belts for heavy weights - packing machines - wood working machines - gear pumps
- H** Mixers - bucket elevators - tooling machines - machinery for bricks - vibrators



V6/B8 MOUNTING POSITION

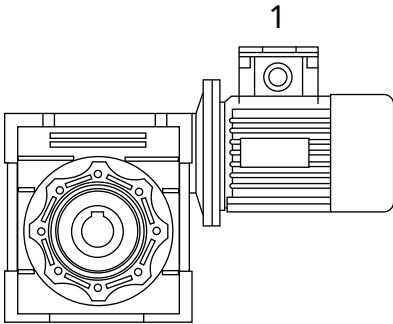
When the worm gearboxes mounting position is V6 or B8, with continuous work or input speed >1400 p.p.m, it is necessary to call our technical service.

2D and 3D drawings available on the web site www.chiaravalli.com
 Quantity, availability and prices with Chiaravalli B2B

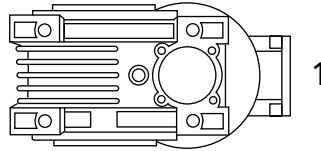


MOUNTING POSITION

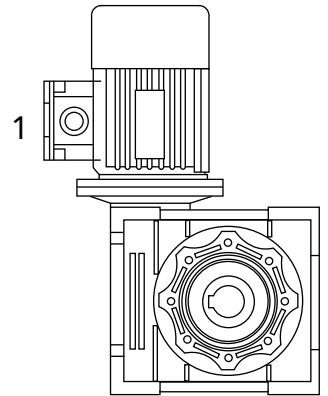
B3



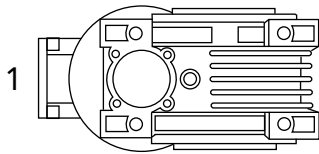
B6



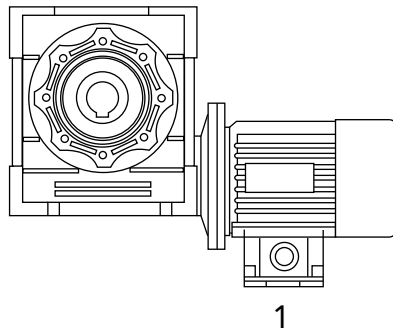
V5



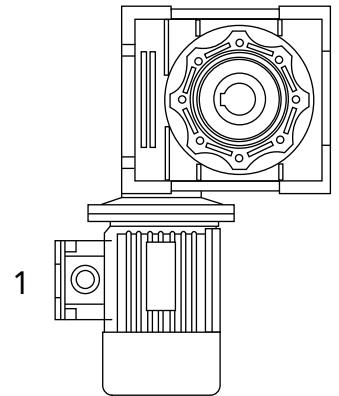
B7



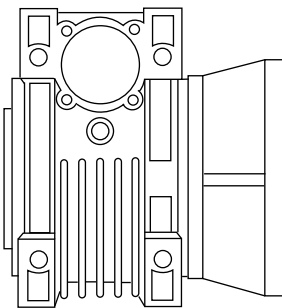
B8



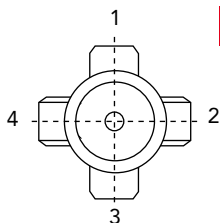
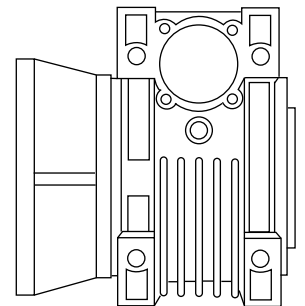
V6



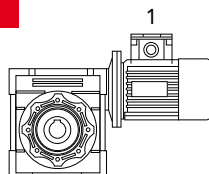
F..1



F..2



B3



TERMINAL BOX POSITION

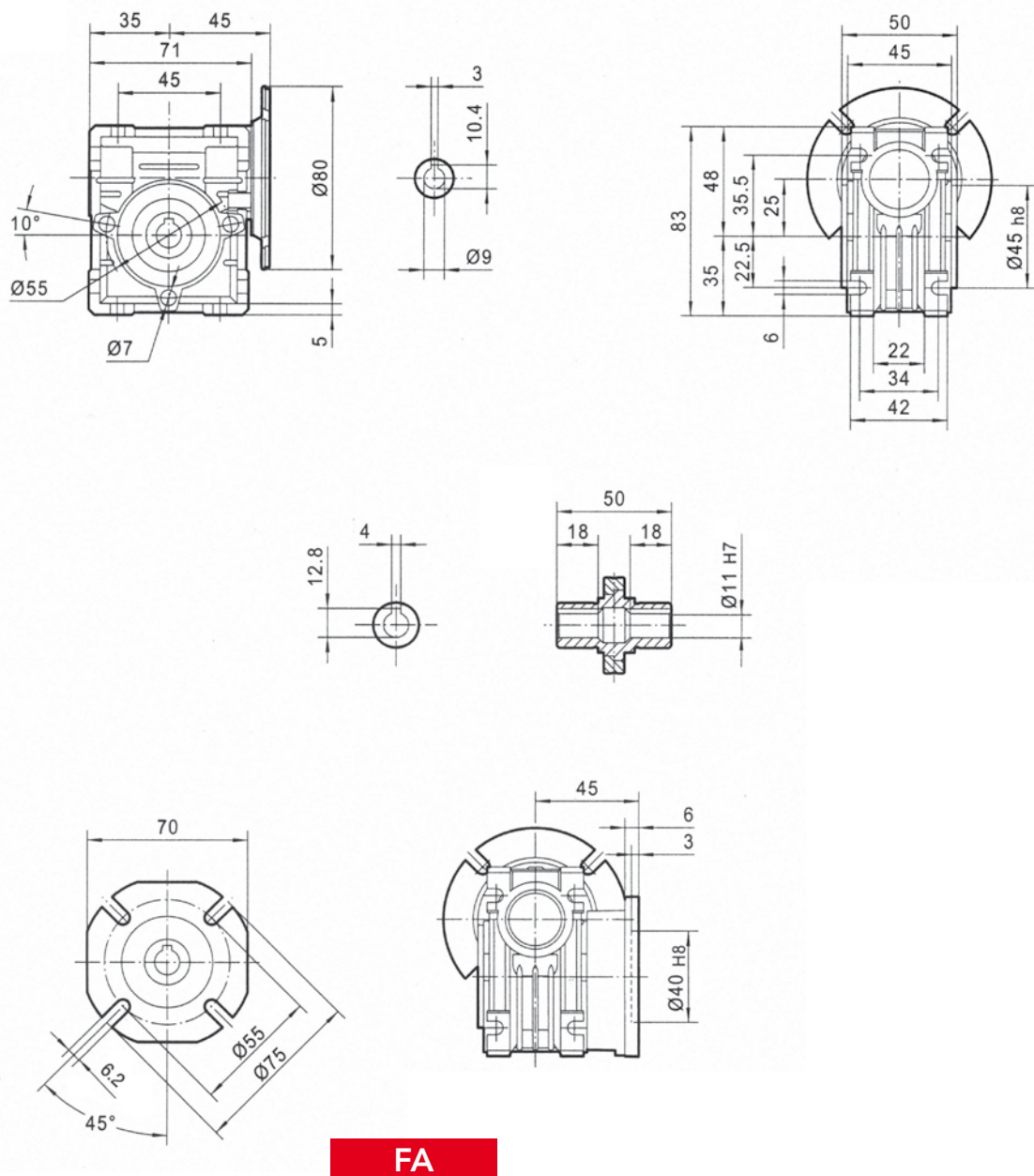
N.B. The position of the terminal box always refers to the B3 position.



CHM 025 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 025	7.5	186.7	0.09	3.8	2.8	56	B14
	10	140.0	0.09	5	2.4	56	B14
	15	93.3	0.09	7.2	1.6	56	B14
	20	70.0	0.09	9	1.3	56	B14
	25	56.0	0.09	10	1.0	56	B14
	30	46.7	0.09	12.3	1.1	56	B14
	40	35.0	0.09	13	1.0	56	B14
	50	28.0	0.09	14	0.7	56	B14
	60	23.3	0.09	14	0.6	56	B14

DIMENSIONS



Weight 0.7 Kg excluding motor

2D and 3D drawings available on the web site www.chiaravalli.com

Quantity, availability and prices with Chiaravalli B2B

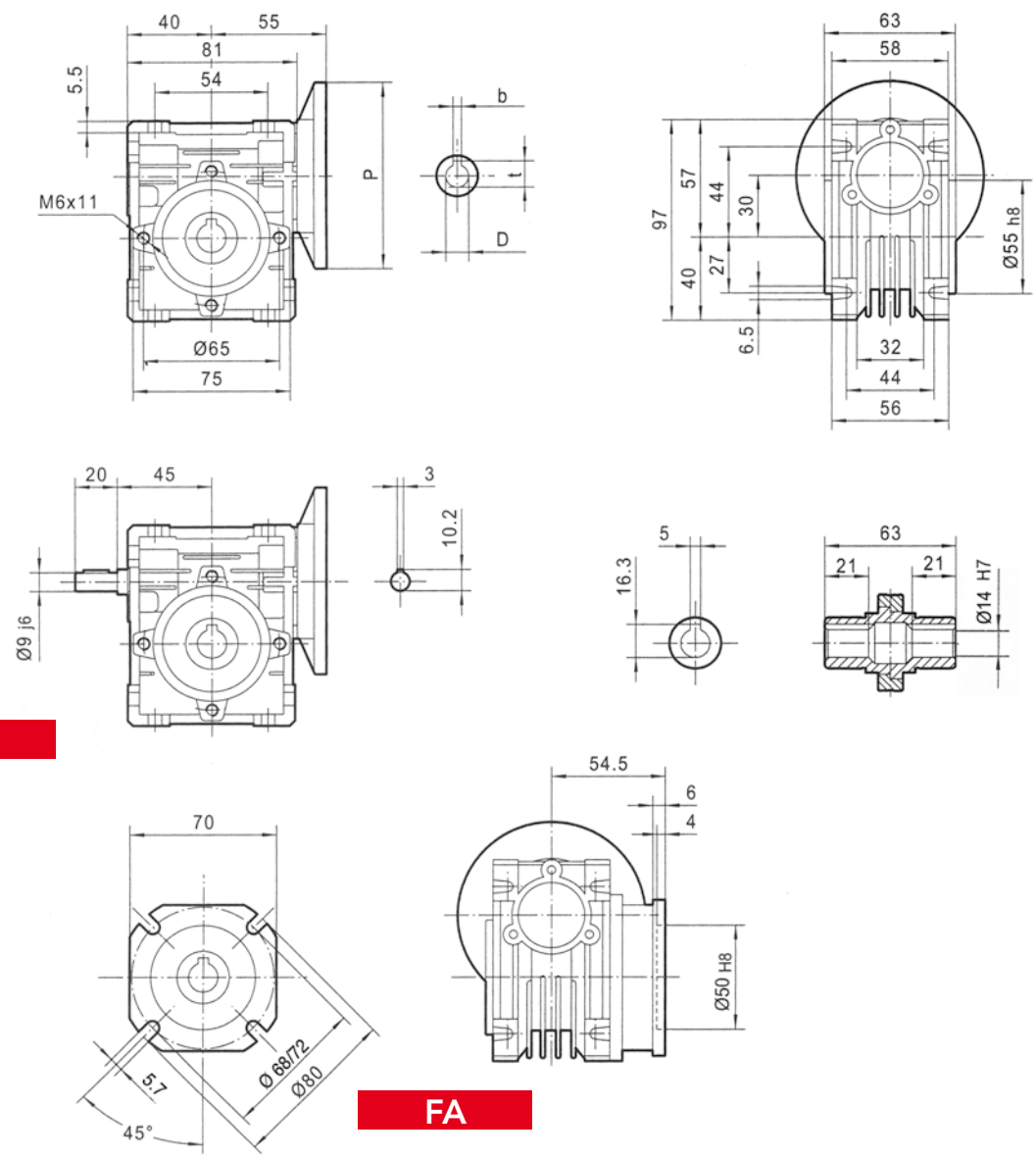


CHM 030 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

CHM 030

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
	7.5	186.7	0.22	9	2.1	63/56	B5/B14
	10	140.0	0.22	11	1.6	63/56	B5/B14
	15	93.3	0.22	16	1.0	63/56	B5/B14
	20	70.0	0.22	20	0.9	63/56	B5/B14
	25	56.0	0.18	20	1.0	63/56	B5/B14
	30	46.7	0.18	22	0.9	63/56	B5/B14
	40	35.0	0.18	21	0.8	63/56	B5/B14
	50	28.0	0.18	19	0.8	63/56	B5/B14
	60	23.3	0.09	18	0.9	56	B5/B14
	80	17.5	0.09	13	0.9	56	B5/B14

DIMENSIONS



E

FA

Weight 1.2 Kg excluding motor

PAM IEC	P	DE8	b	t
63B5	140	11	4	12.8
56B5	120	9	3	10.4

PAM IEC	P	DE8	b	t
63B14	90	11	4	12.8
56B14	80	9	3	10.4



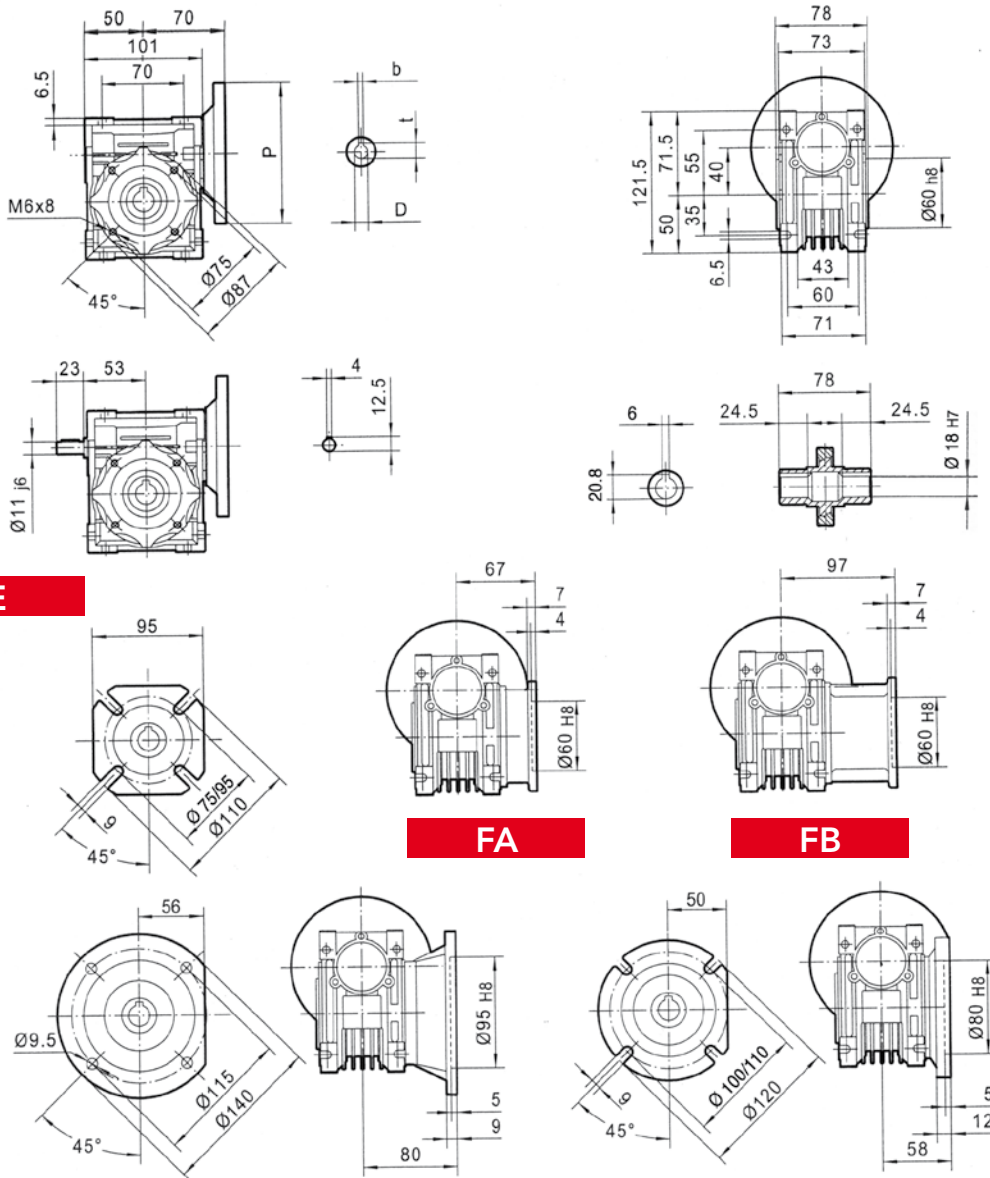
CHM 040 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 040	7.5	186.7	0.55**	22	1.6	71/63	B5/B14
	10	140.0	0.55**	30	1.4	71/63	B5/B14
	15	93.3	0.55**	44	0.9	71/63	B5/B14
	20	70.0	0.55**	38	1.0	71/63	B5/B14
	25	56.0	0.37	45	0.9	71/63	B5/B14
	30	46.7	0.37	52	0.8	71/63	B5/B14
	40	35.0	0.25	43	0.9	71/63	B5/B14
	50	28.0	0.22	44	0.9	63/56	B5/B14*
	60	23.3	0.18	42	0.8	63/56	B5/B14*
	80	17.5	0.18	36	0.8	63/56	B5/B14*
100	14.0	0.18	35	0.8	63/56	B5/B14*	

* 56 only B5

** Size 71 Motors

DIMENSIONS



PAM IEC	P	DE8	b	t
71B5	160	14	5	16.3
63B5	140	11	4	12.8
56B5	120	9	3	10.4

PAM IEC	P	DE8	b	t
71B14	105	14	5	16.3
63B14	90	11	4	12.8

Weight 2.3 Kg excluding motor

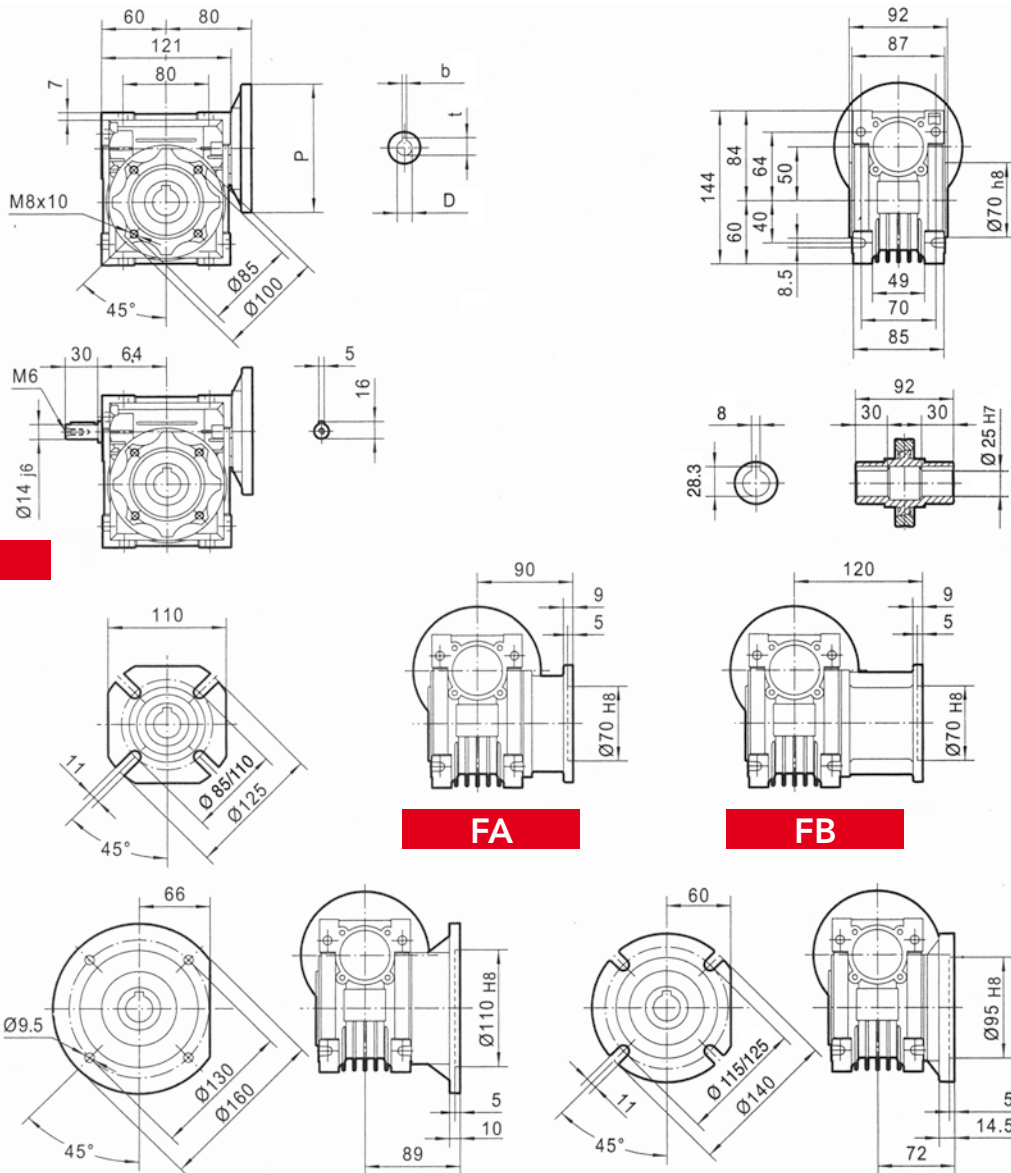


CHM 050 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 050	7.5	186.7	0.75	33.3	2.0	80/71	B5/B14
	10	140.0	0.75	43.9	1.6	80/71	B5/B14
	15	93.3	0.75	62.6	1.2	80/71	B5/B14
	20	70.0	0.75	80	0.9	80/71	B5/B14
	25	56.0	0.55	70	1.0	80/71	B5/B14
	30	46.7	0.55	80	1.0	80/71	B5/B14
	40	35.0	0.37	67	1.1	80/71/63	B5/B14*
	50	28.0	0.37	78	0.9	71/63	B5/B14*
	60	23.3	0.37	87	0.8	71/63	B5/B14*
	80	17.5	0.25	70	0.9	71/63	B5/B14*
100	14.0	0.18	59	0.9	71/63	B5/B14*	

* 63 only B5

DIMENSIONS



FC

FA

FB

FD

PAM IEC	P	DE8	b	t	PAM IEC	P	DE8	b	t
80B5	200	19	6	21.8	80B14	120	19	6	21.8
71B5	160	14	5	16.3	71B14	105	14	5	16.3
63B5	140	11	4	12.8					

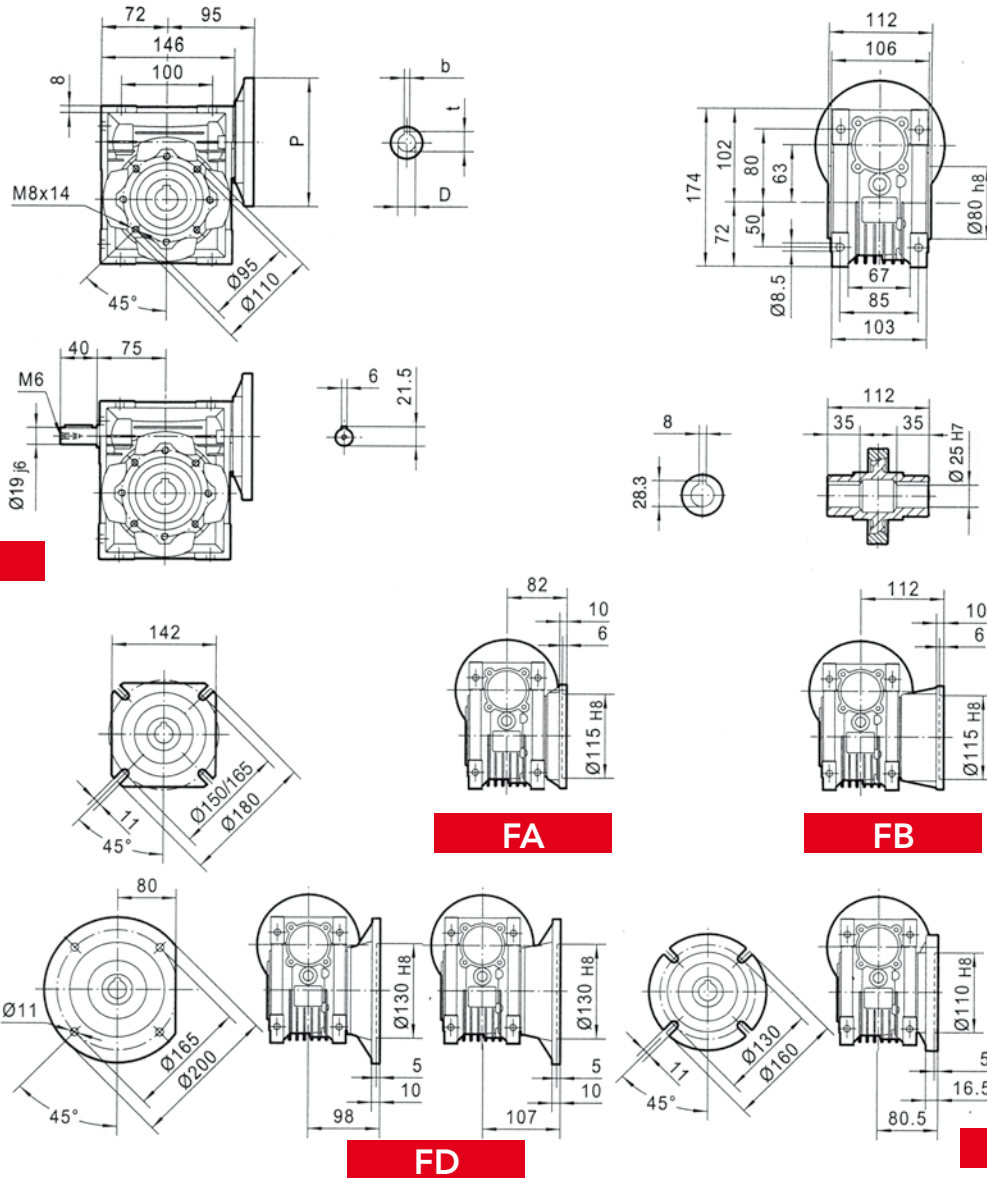
Weight 3.5 Kg excluding motor



CHM 063 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 063	7.5	186.7	1.50	67.4	1.8	90/80	B5/B14
	10	140.0	1.50	88.6	1.4	90/80	B5/B14
	15	93.3	1.50	126	1.19	90/80	B5/B14
	20	70.0	1.50	164	0.8	90/80	B5/B14
	25	56.0	1.10	145	0.9	90/80	B5/B14
	30	46.7	1.10	165	1.0	90/80	B5/B14
	40	35.0	0.75	143	1.0	80/71	B5/B14
	50	28.0	0.55	122	1.1	80/71	B5/B14
	60	23.3	0.55	138	0.9	80/71	B5/B14
	80	17.5	0.37	114	1.1	80/71	B5/B14
100	14.0	0.37	127	0.9	71	B5/B14	

DIMENSIONS



PAM IEC	P	DE8	b	t	PAM IEC	P	DE8	b	t
90B5	200	24	8	27.3	90B14	140	24	8	27.3
80B5	200	19	6	21.8	80B14	120	19	6	21.8
71B5	160	14	5	16.3	71B14	105	14	5	16.3

Weight 6.2 Kg excluding motor



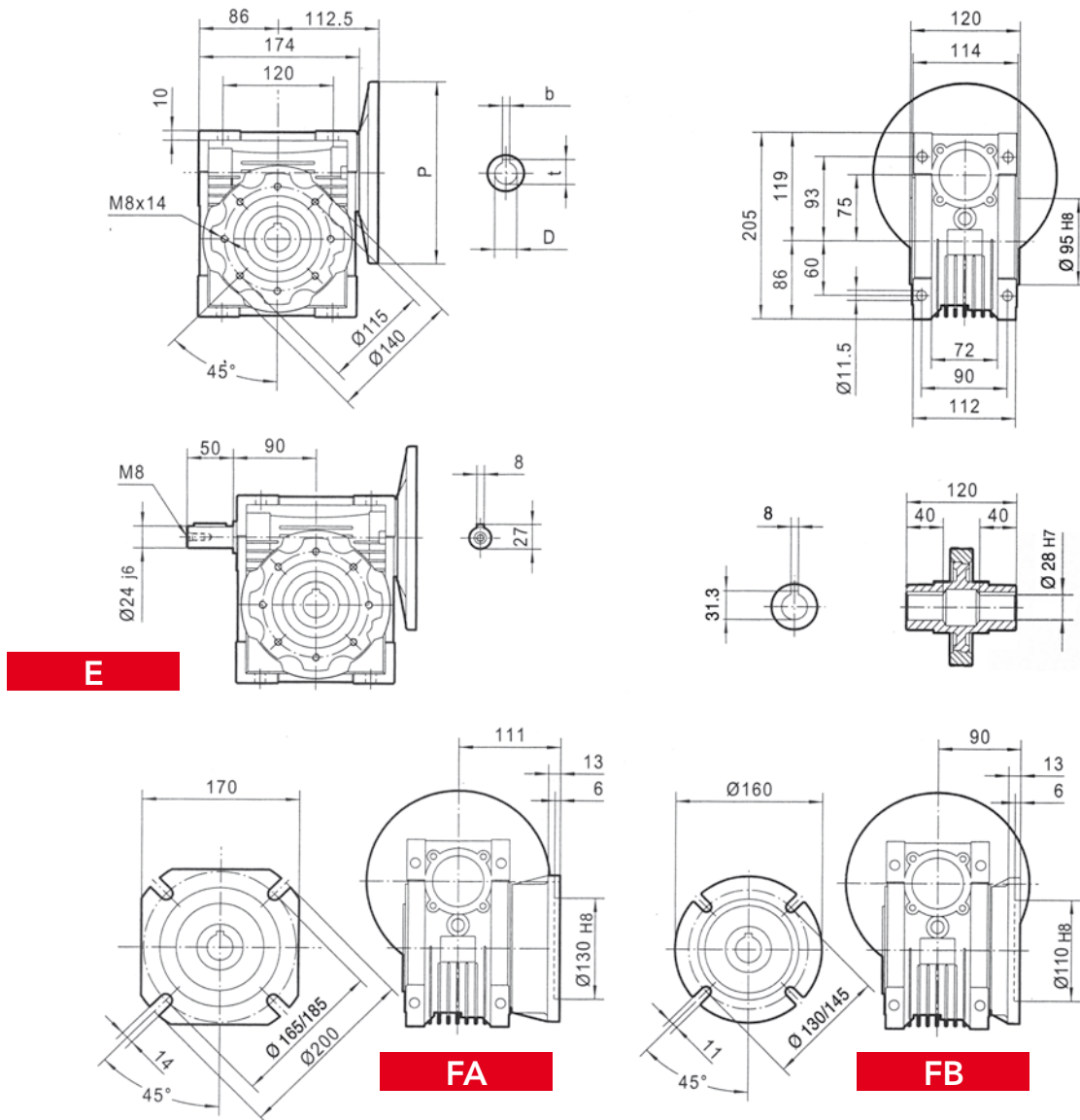
CHM 075 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

CHM 075

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections
	7.5	186.7	4.00	180	1.0	100/90 B5/B14
	10	140.0	4.00	237	0.8	100/90 B5/B14
	15	93.3	3.00	260	0.8	100/90 B5/B14
	20	70.0	1.50	167	1.2	90/80 B5/B14
	25	56.0	1.50	204	1.0	90/80 B5/B14
	30	46.7	1.50	232	1.0	90/80 B5/B14
	40	35.0	1.10	214	1.0	90/80 B5/B14
	50	28.0	0.75	176	1.2	90/80/71 B5/B14*
	60	23.3	0.75	199	1.0	80/71 B5/B14*
	80	17.5	0.55	178	1.1	80/71 B5/B14*
	100	14.0	0.55	203	0.9	80/71 B5/B14*

* 71 only B5

DIMENSIONS



Weight 9 Kg excluding motor

PAM IEC	P	DE8	b	t	PAM IEC	P	DE8	b	t
100/112B5	250	28	8	31.3	100/112B14	160	28	8	31.3
90B5	200	24	8	27.3	90B14	140	24	8	27.3
80B5	200	19	6	21.8	80B14	120	19	6	21.8
71B5	160	14	5	16.3					

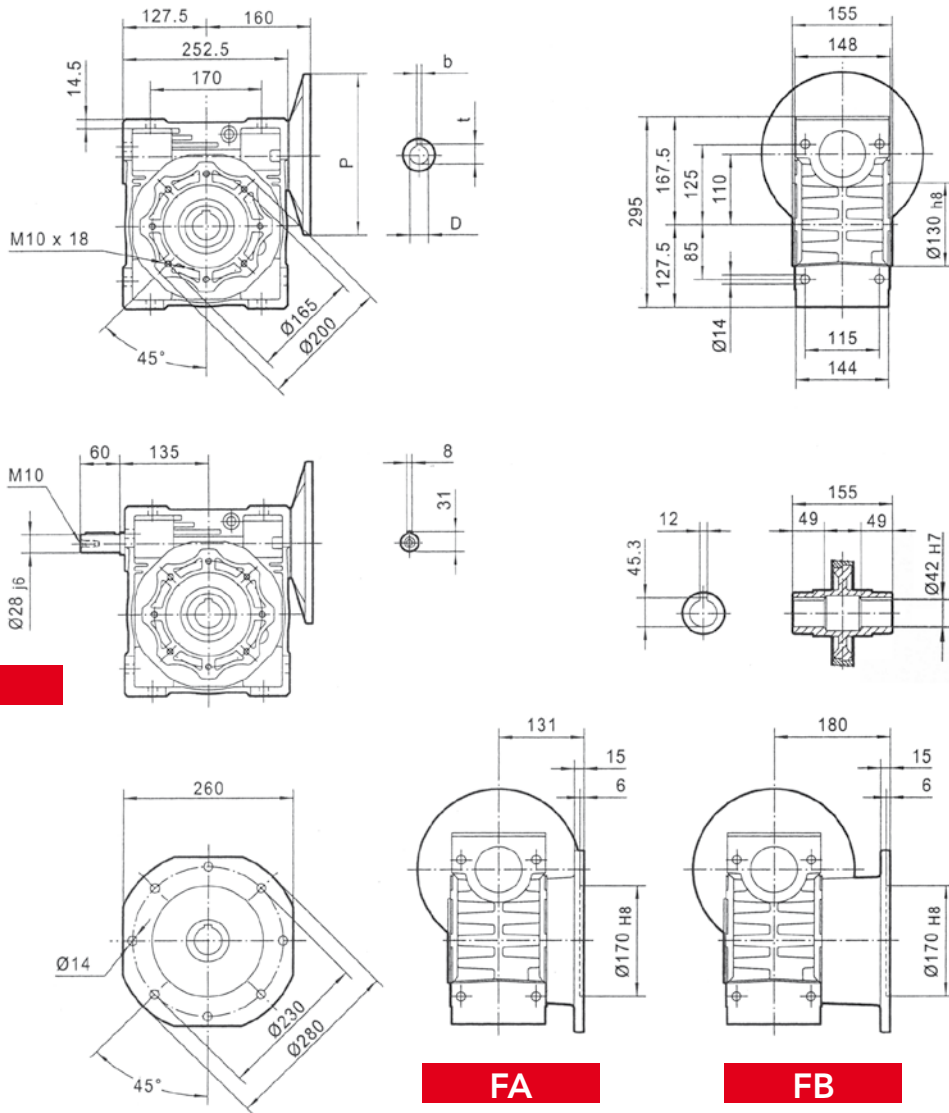


CHM 110 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 110	7.5	186.7	7.50	344	1.6	132/112/100	B5/B14
	10	140.0	7.50	453	1.3	132/112/100	B5/B14
	15	93.3	7.50	659	1.0	132/112/100	B5/B14
	20	70.0	5.50	635	1.0	132/112/100	B5/B14
	25	56.0	4.00	573	1.2	112/100	B5/B14
	30	46.7	4.00	645	1.1	112/100	B5/B14
	40	35.0	3.00	636	1.1	112/100/90	B5/B14*
	50	28.0	3.00	764	0.9	112/100/90	B5/B14*
	60	23.3	2.20	645	1.0	112/100/90	B5/B14*
	80	17.5	1.50	546	0.9	90	B5/B14*
100	14.0	1.10	470	1.0	90	B5/B14*	

* 90 only B5

DIMENSIONS



E

FA

FB

PAM IEC	P	DE8	b	t
132B5	300	38	10	41.3
112B5	250	28	8	31.3
100B5	250	28	8	31.3
90B5	200	24	8	27.3
80B5	200	19	6	21.8

PAM IEC	P	DE8	b	t
132B14	200	38	10	41.3
112B14	160	28	8	31.3
100B14	160	28	8	31.3

Weight 35 Kg excluding motor

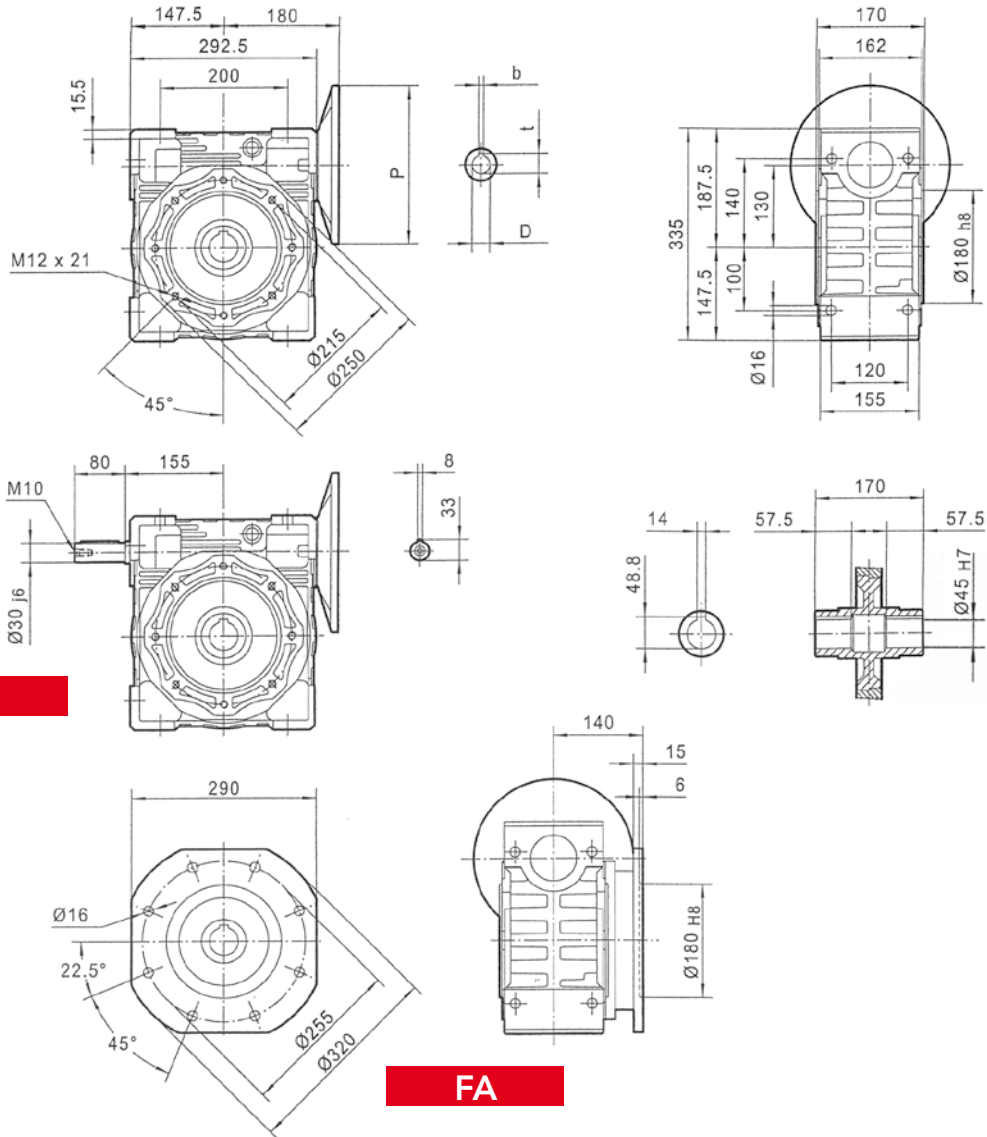


CHM 130 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 130	7.5	186.7	7.50	348	2.2	132	B5/B14
	10	140.0	7.50	455	1.8	132	B5/B14
	15	93.3	7.50	660	1.2	132	B5/B14
	20	70.0	7.50	877	1.0	132	B5/B14
	25	56.0	7.50	1071	0.9	132	B5/B14
	30	46.7	7.50	1225	0.8	132/112/100	B5/B14
	40	35.0	5.50	1173	0.9	132/112/100	B5/B14
	50	28.0	4.00	1023	0.9	100	B5/B14
	60	23.3	3.00	886	1.1	100	B5/B14
	80	17.5	3.00	1112	0.8	100/90	B5/B14*
100	14.0	1.50	652	1.1	100/90	B5/B14*	

* 90 only B5

DIMENSIONS



PAM IEC	P	DE8	b	t	PAM IEC	P	DE8	b	t
132B5	300	38	10	41.3	132B14	200	38	10	41.3
112B5	250	28	8	31.3	112B14	160	28	8	31.3
100B5	250	28	8	31.3	100B14	160	28	8	31.3
90B5	200	24	8	27.3					

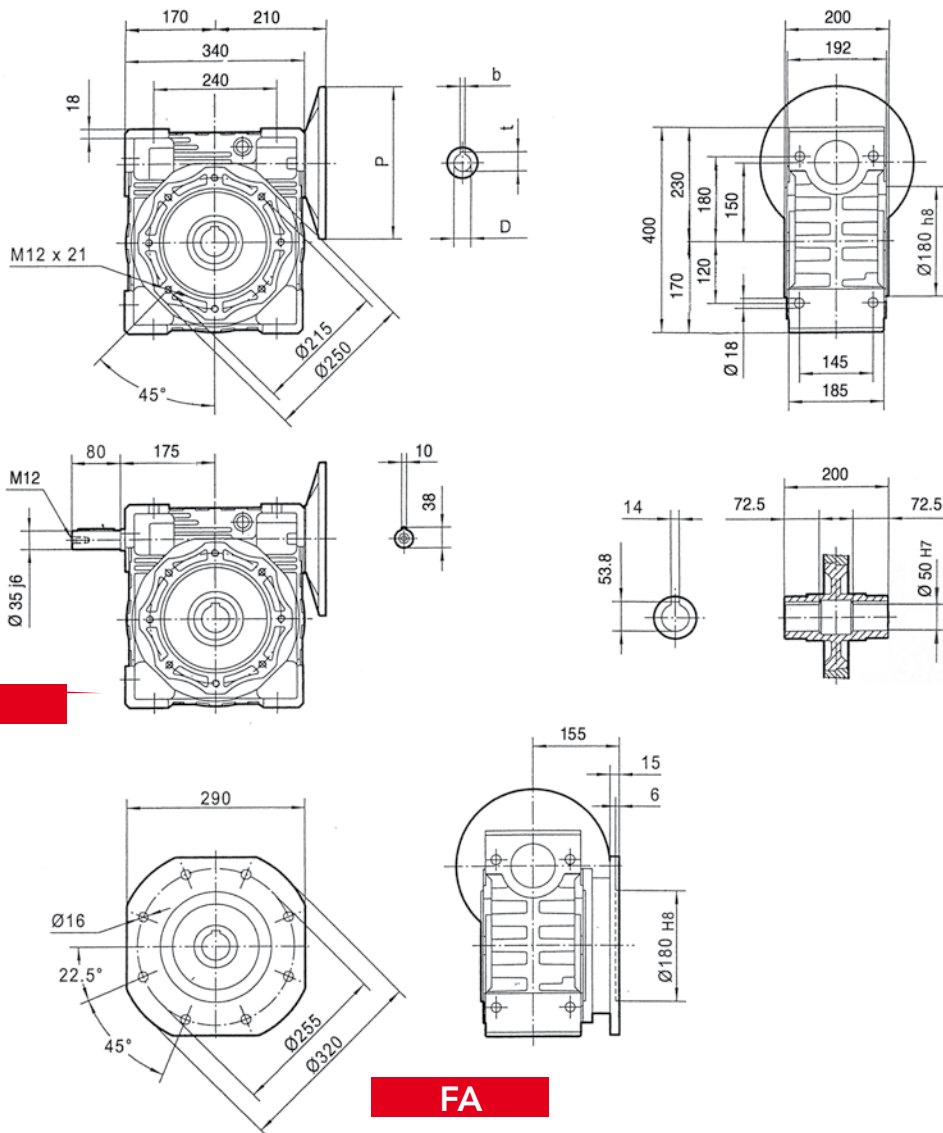
Weight 48 Kg excluding motor



CHM 150 - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2	f.s.	Possible types of motor connections	
CHM 150	7.5	186.7	15	680	1.6	160	B5
	10	140.0	15	905	1.2	160	B5
	15	93.3	15	1310	0.9	160	B5
	20	70.0	11	1270	1.0	160	B5
	25	56.0	11	1520	0.8	160	B5
	30	46.7	7.50	1240	0.8	132	B5
	40	35.0	7.50	1560	0.9	132	B5
	50	28.0	5.50	1405	0.9	132	B5
	60	23.3	5.50	1610	0.8	132	B5
	80	17.5	4	1430	0.8	112/100	B5
100	14.0	3	1300	0.8	112/100	B5	

DIMENSIONS

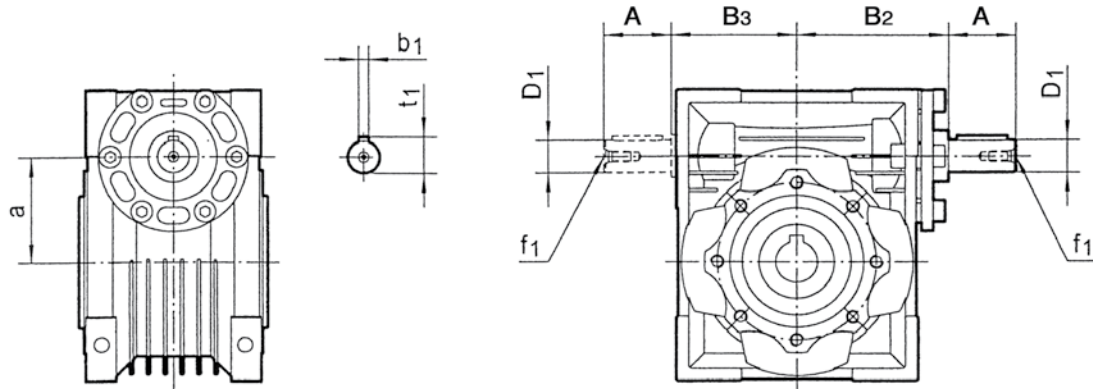


PAM IEC	P	D _{E8}	b	t
160B5	350	42	12	45.3
132B5	300	38	10	41.3
112B5	250	28	8	31.3
100B5	250	28	8	31.3

Weight 84 Kg excluding motor



CHMR	030	040	050	063	075	090	110	130	150
A	20	23	30	40	50	50	60	80	80
D1 j6	9	11	14	19	24	24	28	30	35
B2	51	60	74	90	105	125	142	162	195
B3	45	53	64	75	90	108	135	155	175
a	30	40	50	63	75	90	110	130	150
b1	3	4	5	6	8	8	8	8	10
f1	-	-	M6	M6	M8	M8	M10	M10	M12
t1	10.2	12.5	16	21.5	27	27	31	33	38



For the missing dimensions, please refer to the CHM correspondent



CHPC/CHM - WORM GEAR WITH PRE-STAGE MODULE



DESIGNATION CHPC/CHM - CHME

TYPE	SIZE	i =	M.M.F.	MOUNT. POS
CHPC	63	3	63B5	If supplied coupled with CHM or CHME types specify the position of these, when the pre-stage module is supplied by itself it is prepared for universal assembly.
	71	3	71B5	
	80	3	80B5	
	90	2.45	90B5	

ORDER EXAMPLE FOR A CHPC COUPLED TO A CHM OR CHME GEAR

CHPC	90	CHM	110	i=245 (2.45x100)	M.M.F.	90B5	POS. B3
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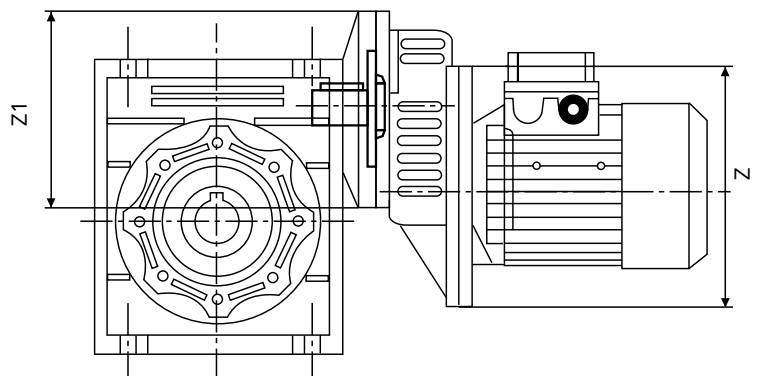
If the motor is also required, please specify:

Size es. 90 L4
 Power es. Kw 1.5
 Poles es. 4
 Voltage es. V230/400
 Frequency es. 50 Hz
 Flange es. B5

N.B. From size 25 to 63 the gears are always supplied in the Universal position and can therefore be mounted in any position, from size 75 to size 130 if the position required differs from B3 it must be specified.
 In particular, in the event that a gear in position B3 is to be mounted in positions V5 or V6, the bearing positioned in the upper side must be lubricated using suitable grease that ensures proper lubrication.
 We have tested TecnoLubeseal POLYMER 400/2 grease.

	Z	Z1
CHPC 63	11/140	11/105
CHPC 71	14/160	14/120
CHPC 80	19/200	19/160
CHPC 90	24/200	24/160

ATTENZIONE: The gearbox connected with the pre-stage must have input dimension Z1





CHPC/CHM - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.18	61
	120	11.7	0.18	52
CHPC63	150	9.3	0.18	46
CHM040	180	7.8	0.18	46
	240	5.8	0.18	40
	300	4.7	0.18	36

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.37	153
	120	11.7	0.37	190
CHPC71	150	9.3	0.37	220
CHM075	180	7.8	0.37	236
	240	5.8	0.25	208
	300	4.7	0.25	210

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.18	69
	120	11.7	0.18	85
CHPC63	150	9.3	0.18	89
CHM050	180	7.8	0.18	88
	240	5.8	0.18	76
	300	4.7	0.18	65

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.75	307
	120	11.7	0.55	278
CHPC80	150	9.3	0.55	260
CHM075				

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.25	97
	120	11.7	0.25	110
CHPC71	150	9.3	0.25	112
CHM050				

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	180	7.8	0.37	260
CHPC71	240	5.8	0.37	320
CHM090	300	4.7	0.37	345

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	150	9.3	0.18	101
CHPC63	180	7.8	0.18	115
CHM063	240	5.8	0.18	136
	300	4.7	0.18	121

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.75	320
CHPC80	120	11.7	0.75	397
CHM090	150	9.3	0.75	426
	180	7.8	0.75	425
	240	5.8	0.55	374

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	90	15.6	0.37	145
	90	15.6	0.25	98
CHPC71	120	11.7	0.37	184
CHM063	120	11.7	0.25	124
	150	9.3	0.37	192
	150	9.3	0.25	129
	180	7.8	0.25	164
	240	5.8	0.25	139
	300	4.7	0.25	128

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	120	11.7	0.75	421
CHPC80	150	9.3	0.75	496
CHM110	180	7.8	0.75	569
	240	5.8	0.75	617
	300	4.7	0.55	585

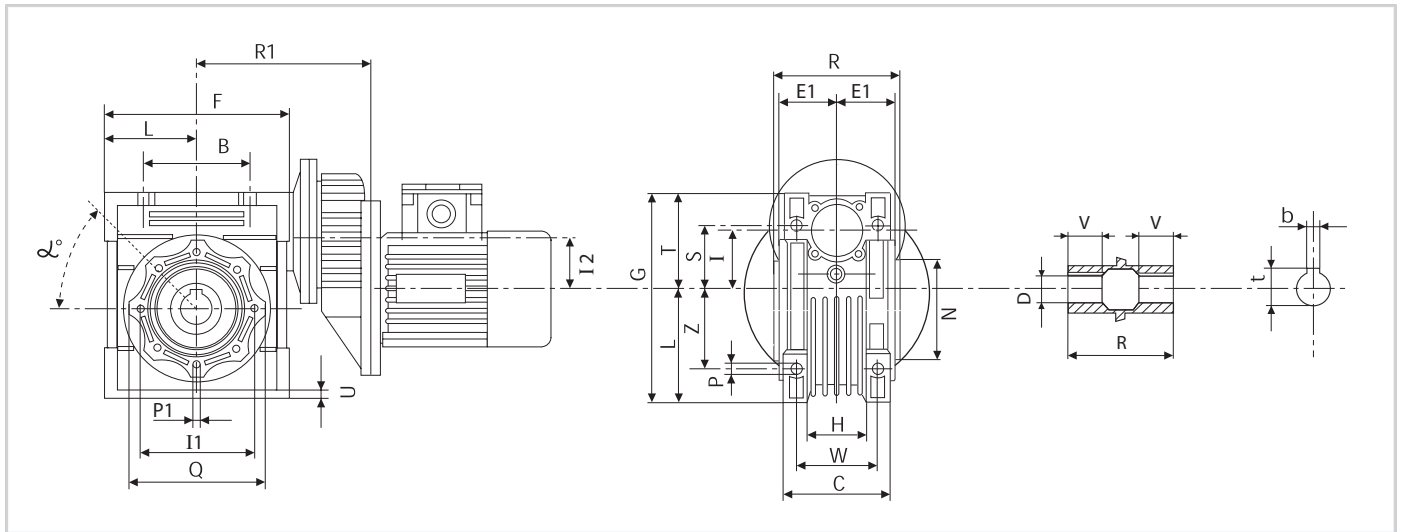
TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	98	14.3	1.50	679
CHPC90	122.5	11.4	1.50	801
CHM110	147	9.5	1.50	810
	147	9.5	1.10	595
	196	7.1	1.10	660

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	98	14.3	1.50	679
CHPC90	122.5	11.4	1.50	813
CHM130	147	9.5	1.50	917
	196	7.1	1.50	1013
	245	5.7	1.10	848

The choice of power installed is tied to the unification of the motors, therefore it is sometimes in exuberance compared to the gear; always verify the maximum torque indicated when making the selection and if in doubt please contact our technical office.



CHPC/CHM - DIMENSIONS



CHPC CHM	B	F	D(H7)	G	H	R1	R	L	I	I2	C	I1	N(h8)	E1	P	Q	S	T
63+040	70	100	18	121.5	43	117	78	50	40	40	71	75	60	36.5	6.5	87	55	71.5
63+050	80	120	25	144	49	127	92	60	50	40	85	85	70	43.5	8.5	100	64	84
71+050	80	120	25	144	49	135	92	60	50	50	85	85	70	43.5	8.5	100	64	84
63+063	100	144	25	174	67	142	112	72	63	40	103	95	80	53	8.5	110	80	102
71+063	100	144	25	174	67	150	112	72	63	50	103	95	80	53	8.5	110	80	102
71+075	120	172	28	205	72	167,5	120	86	75	50	112	115	95	57	11	140	93	119
80+075	120	172	28	205	72	187,5	120	86	75	63	112	115	95	57	11	140	93	119
71+090	140	208	35	238	74	184,5	140	103	90	50	130	130	110	67	13	160	102	135
80+090	140	208	35	238	74	204,5	140	103	90	63	130	130	110	67	13	160	102	135
80(90)+110	170	252.5	42	295	-	235	155	127.5	110	63	144	165	130	74	14	200	125	167.5
80(90)+130	200	292.5	45	335	-	255	170	147.5	130	63	155	215	180	81	16	250	140	187.5

CHPC CHM	U	V	Z	W	P1	α	b	t	Weight in kg. excluding motor
63+040	6.5	26	35	60	M6x8n.4	45°	6	20.8	3.9
63+050	7	30	40	70	M8x10n.4	45°	8	28.3	5.2
71+050	7	30	40	70	M8x10n.4	45°	8	28.3	5.8
63+063	8	36	50	85	M8x14n.8	45°	8	28.3	7.9
71+063	8	36	50	85	M8x14n.8	45°	8	28.3	8.5
71+075	10	40	60	90	M8x14n.8	45°	8	31.3	11
80+075	10	40	60	90	M8x14n.8	45°	8	31.3	12.6
71+090	11	45	70	100	M10x18n.8	45°	10	38.3	14.3
80+090	11	45	70	100	M10x18n.8	45°	10	38.3	16.2
80(90)+110	14	50	85	115	M10x18n.8	45°	12	45.3	39
80(90)+130	15	60	100	120	M12x21n.8	45°	14	48.8	67.2

N.B. For the side flange and double extended input worm dimensions see the corresponding size of the CHM series. See pages 34 and 35.

2D and 3D drawings available on the web site www.chiaravalli.com

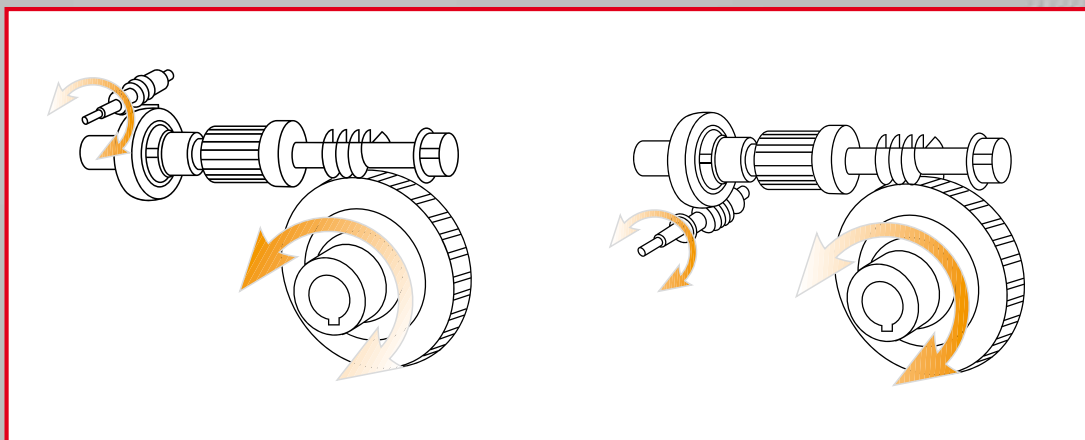
Quantity, availability and prices with Chiaravalli B2B



CHM/CHM-CHME - CHMR/CHM-CHME DOUBLE WORM GEAR



DIRECTION OF ROTATION





CHM/CHMR/CHME/CHMRE DESIGNATION

TYPE	SIZE (1)	VERSION (2)	FLANGE POS. (3)	i	EXEC. (4)	M.M.F.	MOUNT. POS. (3)
CHM/CHM	025/030	FA	1	300	OAD		U
CHM/CHME	030/040	FB	2	400	OAS		B3
CHMR/CHM	030/050	FC		500	OBD		B8
CHMR/CHME	030/063	FD		600	OBS	SEE FROM PAGE 31 TO PAGE 35	B6
	040/075	FE		750	VAD		B7
	040/090			900	VAS		V5
	050/110			1200	VBD		V6
	063/130			1500	VBS		
				1800			
				2400			

For the motor mounting flanges (M.M.F.) see the table showing the types available. For the executions see the table with drawings, if not specified OBS would be supplied. The mounting position refers to the second gear.



ORDER EXAMPLE

CHM/CHM	040/090	FA(5)	2(5)	500	OAD	63 B14	V5
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If the motor is also required, please specify:

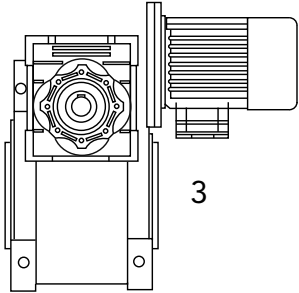
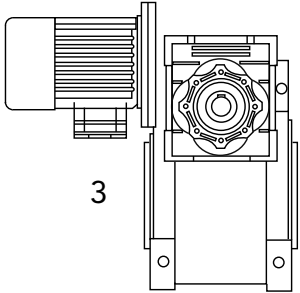
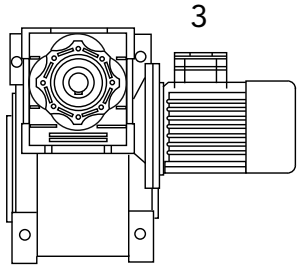
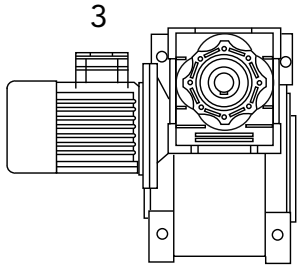
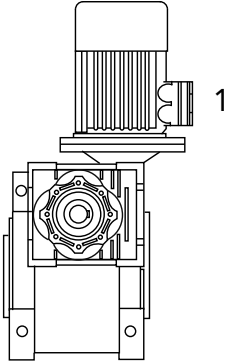
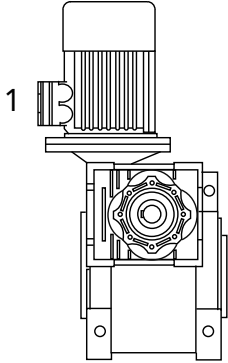
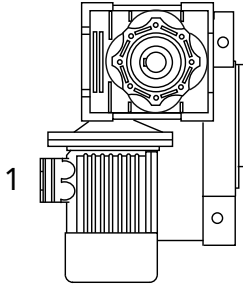
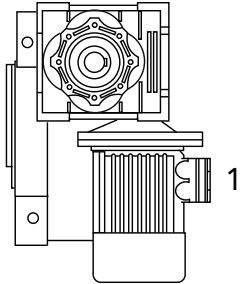
Size es. 63 B4
 Power es. Kw 0.18
 Poles es. 4
 Voltage es. V230/400
 Frequency es. 50 Hz
 Flange es. B14

N.B. From size 25 to 63 the gears are always supplied in the Universal position and can therefore be mounted in any position, from size 75 to size 130 if the position required differs from B3 it must be specified. In particular, in the event that a gear in position B3 is to be mounted in positions V5 or V6, the bearing positioned in the upper side must be lubricated using suitable grease that ensures proper lubrication. We have tested Tecnolubeseal POLYMER 400/2 grease.

- 1) see page 48
- 2) see from page 31 to page 40
- 3) see page 30
- 4) see page 47
- 5) lack of instructions indicates that the gear is not equipped with an output flange.

2D and 3D drawings available on the web site www.chiaravalli.com
 Quantity, availability and prices with Chiaravalli B2B



 <p>OAD</p>	 <p>OAS</p>
 <p>OBD</p>	 <p>OBS</p>
 <p>VAD</p>	 <p>VAS</p>
 <p>VBS</p>	 <p>VBD</p>

The execution determines the mounting position of the first gear in relation to the second gear. If not otherwise specified at the time of order, the group will be supplied in the OBS execution. The placing position refers to the second gear.



CHM/CHM - PERFORMANCE WITH 4-POLE MOTORS 1400 REVS. INPUT

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.09*	31
	400	3.5	0.09*	28
	500	2.8	0.09*	34
	600	2.3	0.09*	31
CHM 025/030	750	1.9	0.09*	34
	900	1.6	0.09*	31
	1200	1.2	0.09*	31
	1500	0.9	0.09*	26
	1800	0.8	0.09*	23
	2400	0.6	0.09*	23

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.37	405
	400	3.5	0.25	336
	500	2.8	0.25	307
	600	2.3	0.18	362
CHM 040/075	750	1.9	0.18	391
	900	1.6	0.18*	325
	1200	1.2	0.18*	359
	1500	0.9	0.09	360
	1800	0.8	0.09	404
	2400	0.6	0.09*	330

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.09*	70
	400	3.5	0.09*	63
	500	2.8	0.09*	57
	600	2.3	0.09*	72
CHM 030/040	750	1.9	0.09*	72
	900	1.6	0.09*	73
	1200	1.2	0.09*	65
	1500	0.9	0.09*	73
	1800	0.8	0.09*	73
	2400	0.6	0.09*	65

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.37	405
	400	3.5	0.37	523
	500	2.8	0.37	550
	600	2.3	0.37	605
CHM 040/090	750	1.9	0.25	538
	900	1.6	0.25	533
	1200	1.2	0.18	629
	1500	0.9	0.18	588
	1800	0.8	0.18*	492
	2400	0.6	0.18*	625

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.18	142
	400	3.5	0.18	127
	500	2.8	0.09	123
	600	2.3	0.09	143
CHM 030/050	750	1.9	0.09	148
	900	1.6	0.09*	141
	1200	1.2	0.09*	118
	1500	0.9	0.09*	139
	1800	0.8	0.09*	155
	2400	0.6	0.09*	124

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.75	871
	400	3.5	0.75	1013
	500	2.8	0.55	984
	600	2.3	0.55	1062
CHM 050/110	750	1.9	0.55	1128
	900	1.6	0.37	1079
	1200	1.2	0.25	943
	1500	0.9	0.25	1064
	1800	0.8	0.25	1075
	2400	0.6	0.18	1001

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	0.22	210
	400	3.5	0.18	222
	500	2.8	0.18	205
	600	2.3	0.18*	208
CHM 030/063	750	1.9	0.18*	216
	900	1.6	0.09	200
	1200	1.2	0.09	236
	1500	0.9	0.09*	204
	1800	0.8	0.09*	202
	2400	0.6	0.09*	220

TYPE	i=ratio	n2 r/min	Kw=P1	Nm=T2
	300	4.7	1.50	1789
	400	3.5	1.10	1519
	500	2.8	1.10	1629
	600	2.3	0.75	1631
CHM 063/130	750	1.9	0.75	1804
	900	1.6	0.75	1826
	1200	1.2	0.55	1705
	1500	0.9	0.37	1674
	1800	0.8	0.37	1698
	2400	0.6	0.25	1624

N.B. The powers marked with an asterisk are higher than those that the gear allows, therefore the applicative choice must be made in accordance with the torque and not the power. The gear ratios are those most frequently requested. It is possible to obtain multiple combinations using the various ratios of the two single gears.
CHM 63/150 on request

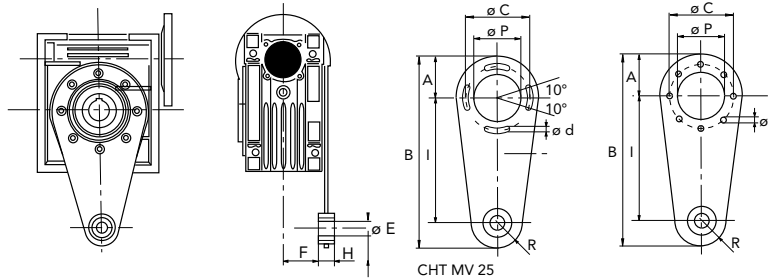


TORQUE ARM

TYPE	I	R	F	H	Ø E	A	B	Ø C	Ø d	Ø P	N°	Weight for kit kg
CHT MV 25*	70	15	17.5	14	8	33.5	118.5	55	7	45	4	0.17
CHT MV 30*	85	15	24	14	8	38	138	65	7	55	8	0.18
CHT MV 40	100	18	31.5	14	10	44	162	75	7	60	8	0.24
CHT MV 50	100	18	38.5	14	10	50	168	85	9	70	8	0.27
CHT MV 63	150	18	49	14	10	55	223	95	9	80	8	0.57
CHT MV 75	200	30	47.5	25	20	70	300	115	9	95	8	1.10
CHT MV 90	200	30	57.5	25	20	80	310	130	11	110	8	1.26
CHT MV 110	250	35	62	30	25	100	385	165	11	130	8	1.92
CHT MV 130	250	35	69	30	25	125	410	215	14	180	8	2.23
CHT MV 150	250	35	84	30	25	125	410	215	14	180	8	2.23

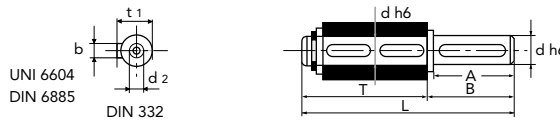
* Without vibration resistant bushing

The anchoring point of the torque arm is equipped with a vibration resistant bushing.



SINGLE OUTPUT SHAFT KIT

TYPE	A	Ø d	B	b	t 1	T	L	d 2	Weight for kit kg
CHT MVS 25	23	11	25.5	4	12.5	55.5	81	-	0.07
CHT MVS 30	30	14	32.5	5	16	69.5	102	M6x16	0.14
CHT MVS 40	40	18	43	6	20.5	85	128	M6x16	0.27
CHT MVS 50	50	25	53.5	8	28	99.5	153	M10x22	0.60
CHT MVS 63	50	25	53.5	8	28	119.5	173	M10x22	0.67
CHT MVS 75	60	28	63.5	8	31	128.5	192	M10x22	0.94
CHT MVS 90	80	35	84.5	10	38	149.5	234	M12x28	1.79
CHT MVS 110	80	42	84.5	12	45	164.5	249	M16x35	2.70
CHT MVS 130	80	45	85	14	48.5	180	265	M16x35	3.60
CHT MVS 150	82	50	87	14	53.5	210	297	M16x35	5.00



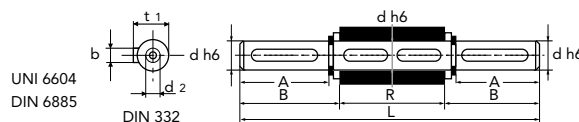
50

CHM - TORQUE ARM - SINGLE/ DOUBLE OUTPUT SHAFT KIT



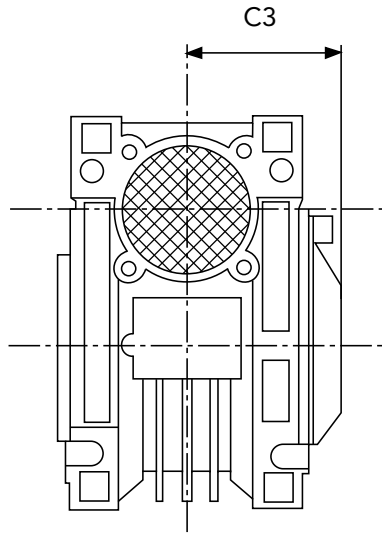
DOUBLE OUTPUT SHAFT KIT

TYPE	A	Ø d	B	R	b	t 1	L	d 2	Weight for kit kg
CHT MVD 25	23	11	25.5	50	4	12.5	101	-	0.11
CHT MVD 30	30	14	32.5	63	5	16	128	M6x16	0.16
CHT MVD 40	40	18	43	78	6	20.5	164	M6x16	0.34
CHT MVD 50	50	25	53.5	92	8	28	199	M10x22	0.75
CHT MVD 63	50	25	53.5	112	8	28	219	M10x22	0.84
CHT MVD 75	60	28	63.5	120	8	31	247	M10x22	1.20
CHT MVD 90	80	35	84.5	140	10	38	309	M12x28	2.50
CHT MVD 110	80	42	84.5	155	12	45	324	M16x35	3.44
CHT MVD 130	80	45	85	170	14	48.5	340	M16x35	4.25





COVER



TYPE	C3
030	43
040	50
050	59
063	70
075	75
090	87
110	95
130	103
150	117



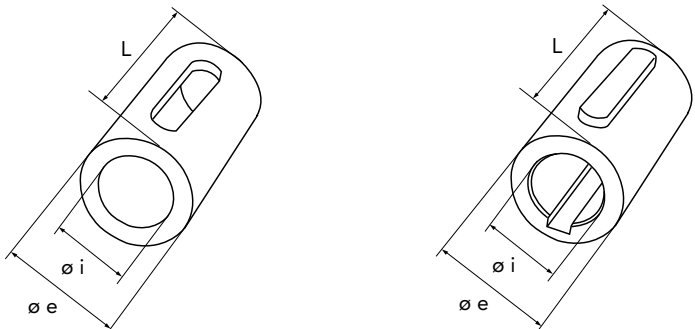
REDUCTION BUSHINGS KIT

SINGLE				
TYPE	$\phi i / \phi e$	L	Key	Weight for kit kg
CHT BRM-S	9/11	20	4/3x4x11 RB*	0.006
CHT BRM-S	11/14	30	5/4x6x10 RB*	0.015
CHT BRM-S	14/19	40	6x5x30 *	0.045
CHT BRM-S	19/24	50	6x5.5x20 * 8x5.5x40 *	0.07
CHT BRM-S	24/28	60	8x9x40 *	0.08
CHT BRM-S	28/38	80	10x7x60 *	0.33
CHT BRM-S	38/42	110	12/10x10x48 RB*	0.22

DOUBLE				
TYPE	$\phi i / \phi e$	L	Key	Weight for kit kg
CHT BRM-D	11/19	40	6x6x30 *	0.06
CHT BRM-D	14/24	50	8x7x40 A	0.12
CHT BRM-D	19/28	60	8x7x50 A	0.16
CHT BRM-D	24/38	80	10x8x60 A	0.44

* to drawing

Tongue acc. to UNI 6604 - DIN 6885
Quenched



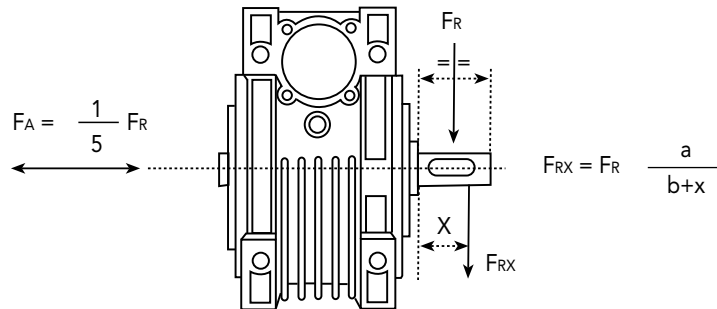
2D and 3D drawings available on the web site www.chiaravalli.com
Quantity, availability and prices with Chiaravalli B2B



RADIAL LOADS ON THE OUTPUT SHAFT

The loads indicated are valid for all application directions.
 The maximum allowable axial loads are equal to 1/5 of the radial load value shown in the table when applied with the same radial load; if this is not the case, please contact our technical office. If double output shafts are used, the sum of radial loads applicable to the centre lines of the two ends of the shaft must not exceed the value shown in the table below.
 The radial loads related to the output speed (n2)=10 are the maximum loads supported by the gear.

- a | GEAR CONSTANT
- b | GEAR CONSTANT
- x | LOAD DISTANCE FROM SHAFT SHOULDER IN MM.
- F_{RX} | RADIAL LOAD IN POSITION X (IN N)
- F_R | RADIAL LOAD (N)
- F_A | AXIAL LOAD (N)



SIZES

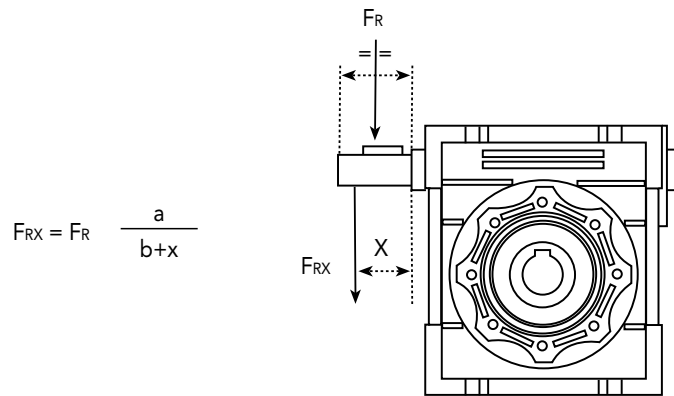
Output speed (n2)	025	030	040	050	063	075	090	110	130	150
400	390	530	1020	1400	1830	2160	2390	3530	3950	5290
250	460	620	1200	1650	2150	2520	2800	4130	4610	6140
150	550	740	1420	1960	2540	2990	3310	4890	5470	7300
100	630	850	1620	2250	2910	3430	3800	5600	6260	8330
60	740	1000	1920	2660	3450	4060	4500	6640	7420	9800
40	850	1150	2200	3050	3950	4650	5150	7600	8500	11330
25	990	1350	2570	3570	4620	5440	6020	8890	9940	13250
10	1350	1830	3490	4840	6270	7380	8180	12000	13500	18000

CONSTANTS' VALUES

a	50	65	84	101	120	131	162	176	188	215
b	38	50	64	76	95	101	122	136	148	174



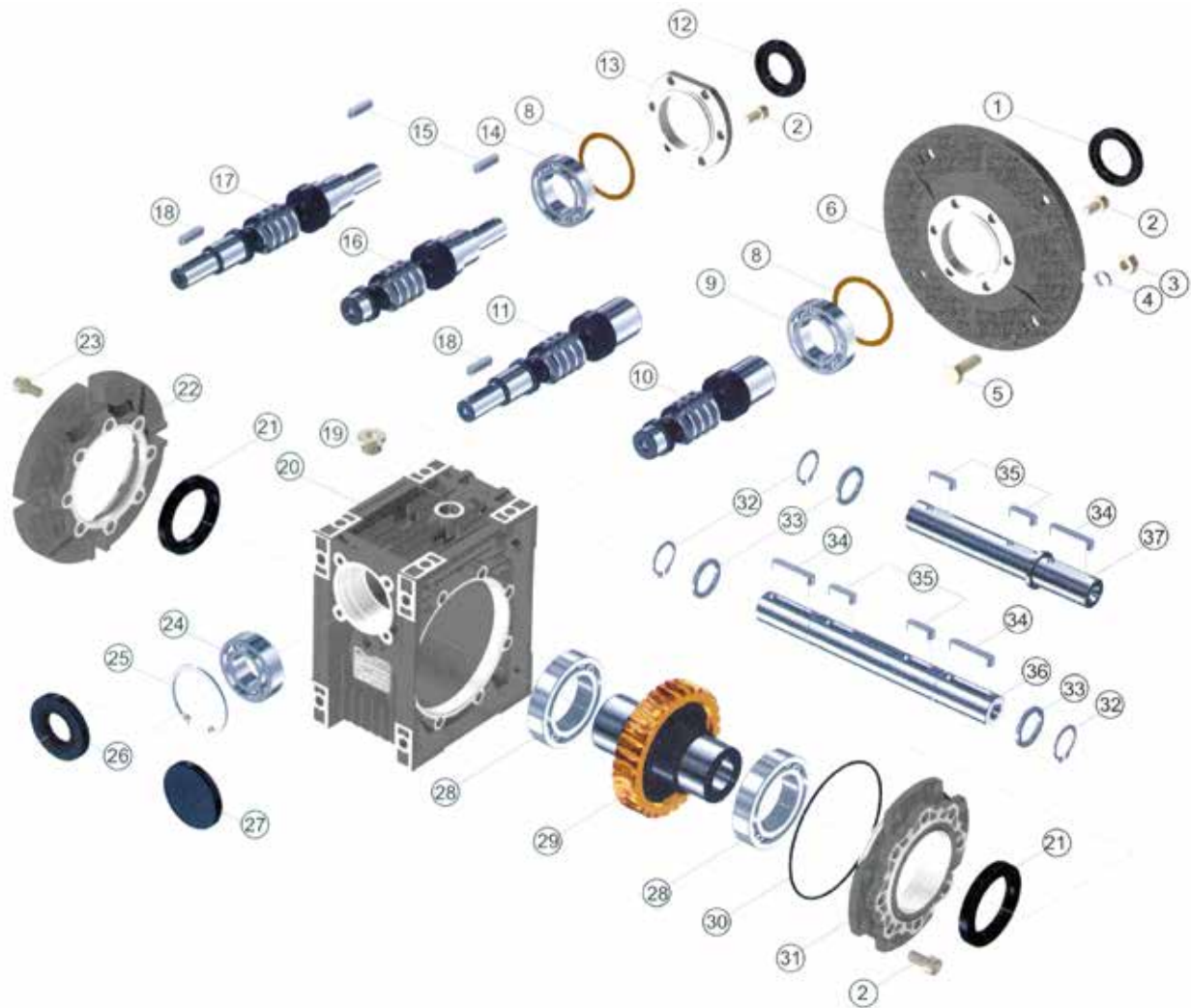
RADIAL LOADS ON THE CENTRE LINE OF THE INPUT SHAFT



SIZES									
	030	040	050	063	075	090	110	130	150
CONSTANTS' VALUES									
a	86	106	129	159	192	227	266	314	350
b	76	94	114	139	167	202	236	274	310
Fr max	210	350	490	700	980	1270	1700	2100	2800



EXPLODED DRAWING AND SPARE PARTS LIST



1	OIL SEAL	20	CASING
2	TORX SCREW	21	OIL SEAL
3	NUT	22	OUTPUT FLANGE
4	WASHER	23	EMBEDDED HEXAGONAL-HEAD SCREW
5	HEXAGONAL-HEAD SCREW	24	BEARING
6	MOTOR CONNECTION FLANGE	25	SEEGER
8	ADJUST SPACER	26	OIL SEAL
9	BEARING	27	CAP
10	HOLE INPUT WORM	28	BEARING
11	HOLE INPUT AND SHAFT OUTPUT WORM	29	WORM WHEEL
12	OIL SEAL	30	O-RING
13	INPUT COVER	31	OUTPUT COVER
14	BEARING	32	SEEGER
15	KEY	33	SPACER
16	SHAFT INPUT WORM	34	KEY
17	DOUBLE EXTENDED INPUT SHAFT WORM	35	KEY
18	KEY	36	DOUBLE OUTPUT SHAFT
19	OIL PLUG	37	SINGLE OUTPUT SHAFT

2D and 3D drawings available on the web site www.chiaravalli.com
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INSTALLATION

- The data shown on the identification name plate must correspond to the gear ordered.
- The oil level, for the sizes 110 and 130 equipped with filling, draining and level plug, must correspond to the quantity foreseen for the assembly position requested (see catalogue), in addition, always for the sizes indicated, it will be the client's responsibility to substitute the blind plug, supplied for transport, with the corresponding plug equipped with a bleed hole included in the supply with the gear.
- All of the other gears are supplied complete with permanent synthetic oil in a quantity that is sufficient for any assembly position.
- The gear must be fixed on a flat surface that is sufficiently rigid in order to avoid any vibration.
- The gear and the axis of the machine to be driven must be perfectly aligned.
- In the event that knocks, overloading or blockage of the machine are foreseen, the client must install a limiting device, joints, overload cut-out etc.
- Coupling with pinions, joints, pulleys and other parts must be done after the parts have been cleaned and knocks should be avoided while assembling as they could damage the bearings and other internal parts.
- In the event that the motor is supplied by the client, he must check that the flange and shaft tolerances correspond to a "normal" class; our motors satisfy this requirement.
- Check that the fixing screws for the gear and the related accessories are correctly tightened.
- Take suitable measures to protect the groups from any aggressive atmospheric agents.
- Where foreseen, protect rotating parts from any possible contact with the operators.
- If the gears are painted, protect the oil seals and the machined surfaces.
- All of the gears are painted RAL 9022 grey.

OPERATION AND RUNNING-IN

- To obtain the best performance the gears must first be run in by gradually increasing the power in the first few hours of operation, in this phase an increase in temperature is considered normal.
- In the event of defective operation, noise, oil leakage, etc. stop the gear immediately and, when possible, remove the cause. Alternatively, send the piece to our factory to be controlled.

MAINTENANCE

- The worm gears from size 25 to size 90 and the pre-stage modules are lubricated with permanent synthetic oil and therefore do not require any maintenance.
- The gears size 110 and 130 are lubricated with mineral oil and are equipped with a breather plug, therefore the oil level must be checked periodically and if necessary topped up with the same oil or one that is compatible with those indicated in our catalogue.
- For the gears size 110 and 130 proceed with the substitution of the oil after the first 300 working hours, replacing it with the correct quantity in accordance with the assembly position, as detailed in our catalogue, after the inside of the gear has been thoroughly washed.

WAREHOUSE STORAGE

- If the warehouse storage will be for a long time, more than 3 months, the shafts and machined surfaces should be protected using antioxidants and the oil seals should be greased.

HANDLING

- Care must be taken not to damage the oil seals and the machined surfaces when handling the groups.

DISPOSAL OF PACKAGING

- The packaging in which our gears are delivered should be sent to specialised companies for recycling if possible.



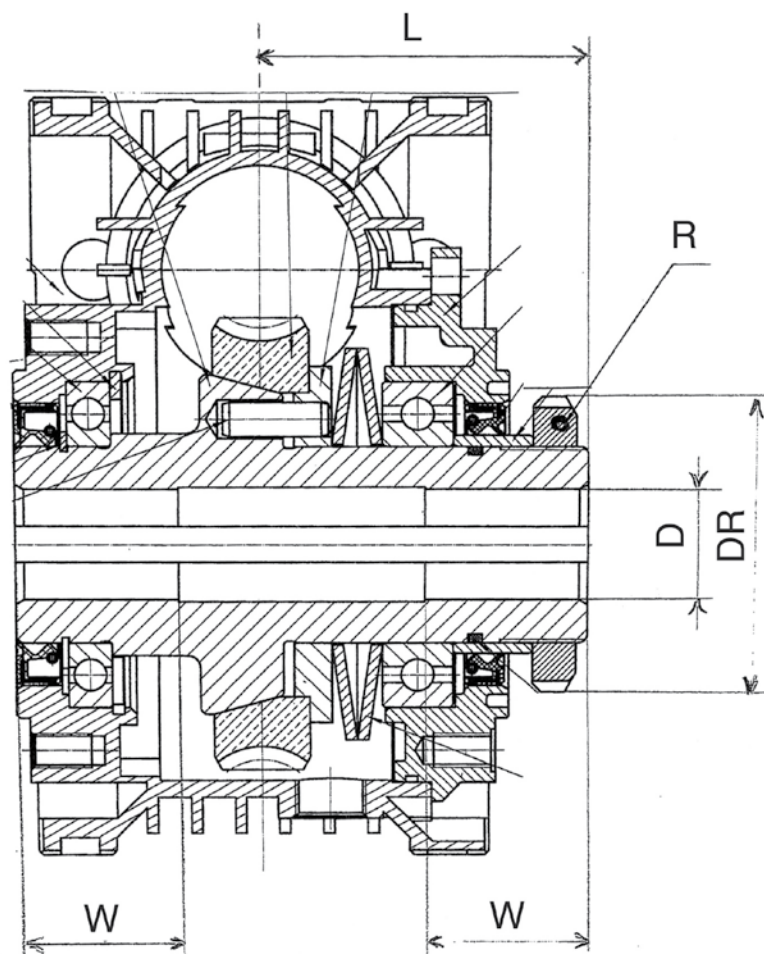
**CHML WORM GEARBOXES WITH
TORQUE LIMITER**



DESIGN FEATURES

CHML worm gearboxes are manufactured in three sizes 40-50-63.
The torque limiter assures protection of the gearbox from overloads.
The torque limiter, in oil bath, is maintenance free.
The hollow output shaft diameter is the same of standard gearboxes.
Gearbox dimensions, external ring nut excluded, are unchanged.
Adjusted the torque limiter with the ring nut in accordance to application request.

DIMENSIONS



	040	050	063
L	55	63,5	74
DR	45	56	62
R	M30x1,5	M40x1,5	M45x1,5
D	18	25	25
W	26	33	37

2D and 3D drawings available on the web site www.chiaravalli.com
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