

RINVII ANGOLARI DI PRECISIONE

*RIGHT-ANGLE
PRECISION BEVEL
GEAR DRIVES*



SPECIAL



SPECIAL



SPECIAL



INOX



ZP



SPECIAL



DZ

 **trasmissioni**

RINGSPANN AG

SERIE **DZ** E **ZP**
DZ AND ZP SERIES



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AZIENDA

La DZ Trasmissioni, con la sua oltre ventennale esperienza, risolve con i rinvii angolari di serie, ma anche specifici, qualsiasi problema di trasmissione di potenza di un moto rotatorio tra due assi disposti a 90°.

La gamma standard comprende 9 diverse grandezze, alberi da 8 a 35 mm, potenze fino a 15 Kw e una velocità di rotazione fino a 3000 giri/minuto.

La dimensione aziendale e la sua struttura, consentono lo studio e la costruzione di trasmissioni speciali in tempi ristretti.

Un qualificato servizio tecnico-commerciale è a disposizione per risolvere, nel modo più affidabile ed economico, i problemi del cliente.

Esponeteci il Vostro problema, forse è possibile che tra i tanti "speciali" che già costruiamo per i nostri clienti, ve ne sia uno adeguato alle Vostre esigenze.

COMPANY

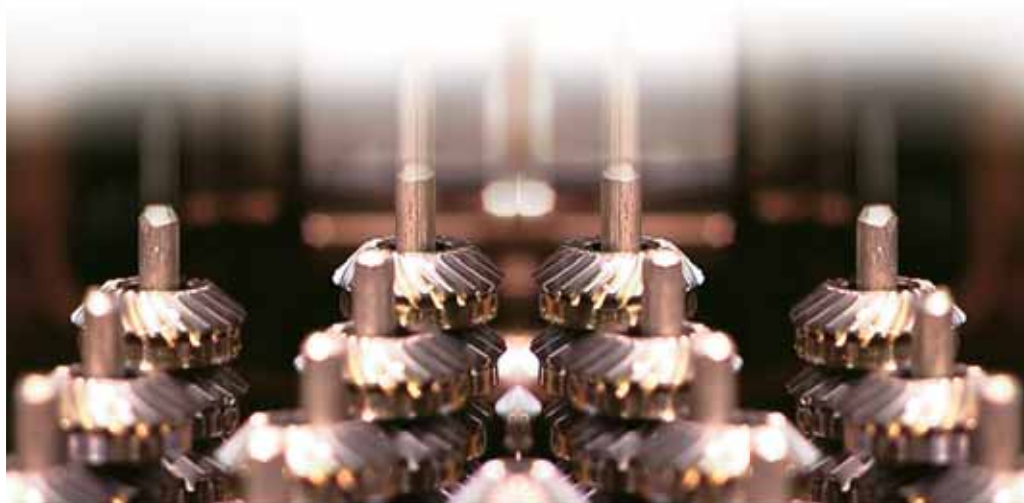
Thanks to its 20 year experience in the manufacture of standard and special bevel gears, DZ TRASMISSIONI is able to solve any problem connected with the power transmission of a rotary motion between two axes arranged at 90°.

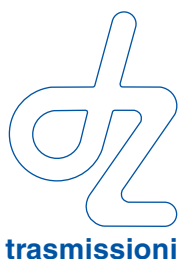
The standard range includes 9 different sizes, shafts from 8 to 35 mm, powers up to 15 kW and speeds of rotation up to 3000 revolutions/minute.

The company capacity and its organization enable the study and manufacture of special gearboxes in very short times.

A qualified technical and sales service is at customer's disposal to solve his problem in the most reliable and cost-saving way.

Let us know your requirements, a suitable solution to your problem perhaps exists among the various special units we already manufacture for our customers.





trasmissioni

PRESENTAZIONE

I rinvii angolari serie DZ e ZP sono stati progettati per applicazioni industriali ove occorre trasmettere un moto rotatorio di potenza tra alberi disposti perpendicolarmente tra loro. Sono disponibili in 9 diverse misure. Possono essere a 2 o 3 uscite con rapporto di trasmissione 1/1 o 1/2 o 1/3. Oltre alla serie standard è disponibile una vasta gamma di speciali su disegno del cliente. Le ultime 8 pagine del catalogo riportano alcuni esempi. Per ulteriori notizie, interpellare il nostro servizio tecnico commerciale.

CARATTERISTICHE

CARTER

Monoblocco rigido in lega d'alluminio 4 o 6 piani di attacco 3/4 condizioni di centraggio. La serie inox utilizza acciaio inossidabile.



INGRANAGGI

Conici tagliati su macchine GLEASON dentatura spiroidale che assicura la massima capacità di carico. Sono costruiti in acciaio al Nikel-Cromo; il trattamento superficiale di cementazione-tempra garantisce una lunga durata all'usura pur lasciando tenace ed elastico il cuore del dente per sopprimere agli urti meccanici.

Il gioco angolare fra gli ingranaggi è regolato per garantire un ingranamento ed una silenziosità ottimali; qualora espressamente richiesto può essere ridotto a 5' con condizioni speciali di consegna e prezzo.



ALBERI

Sono costruiti in acciaio, trattato a 80Kg/mm² protetti superficialmente contro la corrosione. L'attacco esterno, per l'utilizzatore è previsto con un trascinalento a chiavetta a norma UNI (ad eccezione della misura 1 e 201). Le scanalature delle chiavette possono assumere qualsiasi posizione angolare. La serie inox utilizza acciaio inossidabile.



CUSCINETTI

Sono a sfere largamente dimensionati a gola profonda. In casi particolari sono utilizzati rulli conici e/o contatti obliqui.



TENUTE LUBRIFICANTE INTERNO

Con anelli di tenuta su tutti i modelli. Su richiesta sono disponibili anelli speciali per alte e basse temperature (la serie inox utilizza anelli in silicone).



LUBRIFICAZIONE

I rinvii vengono forniti già equipaggiati di lubrificante, le grandezze 1 con grasso permanente, tutte le altre grandezze con olio. Sono disponibili olii e grassi speciali per applicazioni specifiche.



PRESENTATION

DZ and ZP right-angle drivers are designed for industrial applications where rotary power must be transferred between two shafts at right-angles to each other. Dz and ZP series units are available in 9 different sizes with 2 or 3 outputs with: 1:1 and 1:2 and 1:3 transmission ratios. Besides the standard series we also manufacture a special range of angle bevel gears to customer's specifications. For some examples, please refer to the last 8 pages of the catalogue. For further information, contact our Technical Sales Office.

FEATURES

HOUSING

Single-piece aluminium alloy casting with 4 or 6 mounting points and 3 or 4 centering conditions. A stainless steel version is also available.

GEARS

SPIRAL bevel gears cut on GLEASON hobbing machines to ensure maximum load capacity.

Nickel-chrome steel gears with surface case-hardened gear teeth; this ensures maximum service life while leaving the tooth core tough and flexible to resist mechanical shocks.

Units are manufactured with backlash tolerances to ensure perfect gear engagement and silent operation. Backlash tolerances can be reduced to a minimum of 5' if specifically requested; ask for details of special prices and delivery conditions on these orders.

SHAFTS

Manufactured in steel with 80 Kg/mm² surface treatment for corrosion protection.

Shaft coupling on the power take-off is by ISO standard keyways (except for Size 1 and 201).

Keyways can be made at any angle.

A stainless steel version is also available.

BEARING

Large bearings in deep races. In specific cases, tapered rollers and/or bias bearings are used.

OIL SEALS

Oil seal rings are fitted to all models.

Special seal rings for high and low temperatures are available upon request (Silicon rings are used in the stainless steel version).

LUBRICATION

Units are supplied already filled with lubricant. Size 1 units are filled with long-life grease; all other sizes are oil filled. For specific applications, special oils and greases are available.





IDENTIFICAZIONE

Le tabelle 1 a seguito riportate per ogni modello indicano: il diametro dell'albero, il rapporto di trasmissione, **l'albero di entrata A**, gli alberi di uscita B, C o D il senso di rotazione (guardando frontalmente l'albero). **L'albero A per convenzione è considerato come albero di entrata**, nei modelli con rapporto 1/2 1/3 è l'albero veloce.

IDENTIFICATION

Table 1 shows the following information for each model; the shaft diameter, the transmission ratio, **the input shaft A**, the output shaft B, C or D and the direction of rotation (front view to the shaft). **In accordance with accepted usage, shaft A is the input shaft**; on models with a 1:2 and 1:3 ratio, shaft A is the fast shaft.

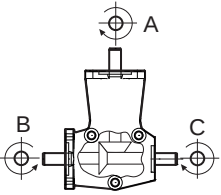
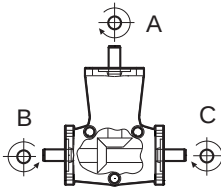
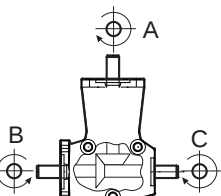
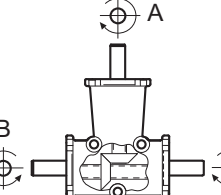
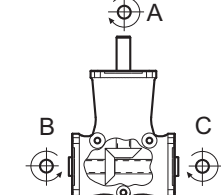
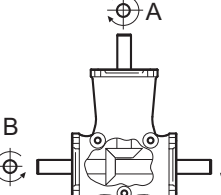
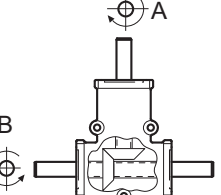
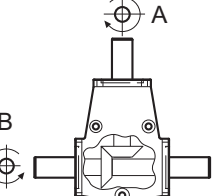
TABELLA TABLE	1	mod. DZ	Albero	Rapp.	Entrata	Uscita	Modello	Peso
			Shaft	Ratio	In	Out	Model	Weight
1 			Ø 8	1/1	A	B	DZ 10S-2FAB-	Kg 0.3
			Ø 8	1/1	A	C	DZ 10FS2FAC-	
			Ø 8	1/2	A	B	DZ 12S-2FAB-	
			Ø 8	1/2	A	C	DZ 12FS2FAC-	
			Ø 8	1/1	A	B - C	DZ 11-2FABC	
			Ø 8	1/2	A	B - C	DZ 13-2FABC	
1 			Ø 8	1/1	A	B	DZ 10S-3FAB-	Kg 0.3
			Ø 8	1/1	A	C	DZ 10FS3FAC-	
			Ø 8	1/2	A	B	DZ 12S-3FAB-	
			Ø 8	1/2	A	C	DZ 12FS3FAC-	
			Ø 8	1/1	A	B - C	DZ 11-3FABC	
			Ø 8	1/2	A	B - C	DZ 13-3FABC	
2 			Ø 15	1/1	A	B	DZ 20S-2FAB-	Kg 1.1
			Ø 15	1/1	A	C	DZ 20FS2FAC-	
			Ø 15	1/2	A	B	DZ 22S-2FAB-	
			Ø 15	1/2	A	C	DZ 22FS2FAC-	
			Ø 15	1/1	A	B - C	DZ 21-2FABC	Kg 1.2
			Ø 15	1/2	A	B - C	DZ 23-2FABC	
2 			Ø 15	1/1	A	B	DZ 20S-3FAB-	Kg 1.1
			Ø 15	1/1	A	C	DZ 20FS3FAC-	
			Ø 15	1/2	A	B	DZ 22S-3FAB-	
			Ø 15	1/2	A	C	DZ 22FS3FAC-	
			Ø 15	1/1	A	B - C	DZ 21-3FABC	Kg 1.2
			Ø 15	1/2	A	B - C	DZ 23-3FABC	
3 			Ø 19-20	1/1	A	B - C	DZ 311-3FABC	Kg 3.3
3 			Ø 20	1/1	A	B	DZ 30S-3FAB-	Kg 3.4
			Ø 20	1/1	A	C	DZ 30FS3FAC-	
			Ø 20	1/2	A	B	DZ 32S-3FAB-	
			Ø 20	1/2	A	C	DZ 32FS3FAC-	
			Ø 20	1/1	A	B - C	DZ 31-3FABC	Kg 3.5
			Ø 20	1/2	A	B - C	DZ 33-3FABC	
4 			Ø 25	1/1	A	B	DZ 40S-3FAB-	Kg 5.5
			Ø 25	1/1	A	C	DZ 40FS3FAC-	
			Ø 25	1/2	A	B	DZ 42S-3FAB-	
			Ø 25	1/2	A	C	DZ 42FS3FAC-	
			Ø 25	1/1	A	B - C	DZ 41-3FABC	Kg 5.8
			Ø 25	1/2	A	B - C	DZ 43-3FABC	
5 			Ø 35	1/1	A	B	DZ 50S-3FAB-	Kg 8.1
			Ø 35	1/1	A	C	DZ 50FS3FAC-	
			Ø 35	1/2	A	B	DZ 52S-3FAB-	
			Ø 35	1/2	A	C	DZ 52FS3FAC-	
			Ø 35	1/1	A	B - C	DZ 51-3FABC	Kg 8.8
			Ø 35	1/2	A	B - C	DZ 53-3FABC	

TABELLA TABLE		mod. ZP	Albero	Rapp.	Entrata	Uscita	Modello		Peso
1			Shaft	Ratio	In	Out	Model		Weight
1			Ø 8	1/1	A	B	ZP	10S-4PAB-	Kg 0.6
			Ø 8	1/1	A	C	ZP	10FS4PAC-	
			Ø 8	1/2	A	B	ZP	12S-4PAB-	
			Ø 8	1/2	A	C	ZP	12FS4PAC-	
			Ø 8	1/1	A	B - C	ZP	11-4PABC	
			Ø 8	1/2	A	B - C	ZP	13-4PABC	
2			Ø 14	1/1	A	B	ZP	20S-4PAB-	Kg 2
			Ø 14	1/1	A	C	ZP	20FS4PAC-	
			Ø 14	1/2	A	B	ZP	22S-4PAB-	
			Ø 14	1/2	A	C	ZP	22FS4PAC-	
			Ø 14	1/3	A	B	ZP	24S-4PAB	
			Ø 14	1/3	A	C	ZP	24FS4PAC-	
			Ø 14	1/1	A	B - C	ZP	21-4PABC	
			Ø 14	1/2	A	B - C	ZP	23-4PABC	
2			Ø 14	1/3	A	B - C	ZP	25-4PABC	Kg 1.9
			Ø 14	1/1	A	B - C	ZP	211-4P3V-	
			Ø 14	1/2	A	B - C	ZP	213-4P3V-	
			Ø 14	1/3	A	B - C	ZP	215-4P3V-	
2			Ø 14	1/1	A	B - C	ZP	220S-4PABC	Kg 3.2
			Ø 14	1/1	A	C - D	ZP	220FS4PACD	
			Ø 14	1/2	A	B - C	ZP	222S-4PABC	
			Ø 14	1/2	A	C - D	ZP	222FS4PACD	
			Ø 14	1/3	A	B - C	ZP	224S-4PABC	
			Ø 14	1/3	A	C - D	ZP	224FS4PACD	
			Ø 14	1/1	A	B - C - D	ZP	221-4PABCD	
			Ø 14	1/2	A	B - C - D	ZP	223-4PABCD	
			Ø 14	1/3	A	B - C - D	ZP	225-4PABCD	
2			Ø 14	1/1	A	B - C - D	ZP	211-4P4V-	Kg 3.1
			Ø 14	1/2	A	B - C - D	ZP	213-4P4V-	
			Ø 14	1/3	A	B - C - D	ZP	215-4P4V-	
3			Ø 19	1/1	A	B	ZP	30S-4PAB-	Kg 4.5
			Ø 19	1/1	A	C	ZP	30FS4PAC-	
			Ø 19	1/2	A	B	ZP	32S-4PAB-	
			Ø 19	1/2	A	C	ZP	32FS4PAC-	
			Ø 19	1/3	A	B	ZP	34S-4PAB-	
			Ø 19	1/3	A	C	ZP	34FS4PAC-	
			Ø 19	1/1	A	B - C	ZP	31-4PABC	
			Ø 19	1/2	A	B - C	ZP	33-4PABC	
			Ø 19	1/3	A	B - C	ZP	35-4PABC	
			Ø 19	1/1	A	B - C	ZP	311-4P3V-	
			Ø 19	1/2	A	B - C	ZP	313-4P3V-	
3			Ø 19	1/3	A	B - C	ZP	315-4P3V-	Kg 4.4
3			Ø 19	1/1	A	B	ZP	30 - INVERT	Kg 4.6
			Ø 19	1/1	A	B - C	ZP	31 - INVERT	
4			Ø 24	1/1	A	B	ZP	40S-4PAB-	Kg 4.6
			Ø 24	1/1	A	C	ZP	40FS4PAC-	
			Ø 24	1/2	A	B	ZP	42S-4PAB-	
			Ø 24	1/2	A	C	ZP	42FS4PAC-	
			Ø 24	1/3	A	B	ZP	44S-4PAB-	
			Ø 24	1/3	A	C	ZP	44FS4PAC-	
			Ø 24	1/1	A	B - C	ZP	41-4PABC	
			Ø 24	1/2	A	B - C	ZP	43-4PABC	
			Ø 24	1/3	A	B - C	ZP	45-4PABC	



DETERMINAZIONE DEL RINVIO DA IMPIEGARE

AVVERTENZE DATI TECNICI

Nella determinazione del rinvio da impiegare oltre alle esigenze puramente tecniche delle potenze in funzione del numero di giri e delle coppie da trasmettere, bisogna tenere conto della gravosità dell'impiego che dipende da molteplici fattori: Ciclo di funzionamento (intermittente, costante, ecc. ecc.), carichi radiali e assiali gravanti sulla estremità degli alberi, temperature max. e min., ambiente (polveroso ecc. ecc.) tipo di lubrificante.

- 1) Determinare il fattore di servizio FS indicato nella tabella 2.
- 2) Calcolare la potenza nominale $P_n = \text{Potenza effettiva } P_e \times F_s$.
- 3) Con la velocità in uscita e la potenza effettiva P_n scegliere a tab. 3 la dimensione ed il rapporto del rinvio da ordinare.
- 4) Controllare che i carichi radiali F_r e assiali F_a , applicati al centro della sporgenza di ogni singolo albero o al centro della cavità, non superino i valori riportati in Tabella 4.
- 5) Verificare che la temperatura di esercizio non superi i valori da $-20^\circ\text{C} \div +80^\circ\text{C}$.
- 6) Nel caso di rapporto 1/2 o 1/3 non usare il rinvio in moltiplicazione entrando oltre 750 giri/1' nel rapporto 1:2 e 500 giri/1' nel rapporto 1:3.
- 7) In presenza di ambienti particolarmente polverosi e conseguentemente abrasivi evitare l'esposizione diretta del paraolio onde preservarlo per consentire una durata maggiore dello stesso.

HOW TO SELECT THE CORRECT RIGHT-ANGLE BEVEL GEAR DRIVE FOR YOUR APPLICATION

TECHNICAL NOTES

Selecting the correct type of angle bevel gear is not simply a question of defining the power required in relation to R.P.M. and the torque to be transmitted. It also involves defining the conditions under which the angle bevel gear will be used. Defining operating conditions involves taking into consideration a number of factor such as the type of operating cycle (intermittent, continuous), radial and axial loads on the shaft ends, maximum and minimum temperatures, ambient conditions (e.g. dust and dirt levels) and the type of lubricant used. To decide the type and size of angle bevel gear required, proceed as follows.

- 1) Use Table 2 to define the Service Factor for your application.
- 2) Calculate the Rated Power (P_n);
 $P_n = P_e (\text{Horsepower}) \times F_s$.
- 3) On Table 3, use the output speed and the rated power (P_n) to select the angle gear size and transmission ratio required for your application.
- 4) Check that the radial F_r and axial F_a loads applied at the centre of the protusion of every single shaft or at the centre of the hollow shaft does not exceed the values shown in table 4.
- 5) Check that the operating temperature does not exceed $-20^\circ\text{C} \div +80^\circ\text{C}$.
- 6) If you require a 1/2 or 1/3 ratio, do not use a speed multiplier with an input more than 750 R.P.M. and 500 R.P.M. in ratio 1/2 and 1/3, respectively.
- 7) If the unit is to be used in very dusty conditions, protect the oil seal against direct exposure to dust to prevent abrasive damage which might shorten the working life of the unit.

TABELLA
TABLE

2

FATTORE DI SERVIZIO
SERVICE FACTOR F_s



	ore di funzionamento al giorno hours of operation per day			
	3	8	12	24
carico uniforme / uniform load	0.7	0.9	1	1.3
carico con urti modesti / load with moderate shocks	0.9	1	1.3	1.8
carico con urti / load with shocks	1.3	1.6	1.8	2.3



TABELLA TABLE		3		POTENZE APPLICABILI (Pn) APPLICABLE POWERS (Pn)		Momento torcente max in uscita Mt (albero entrata contrassegnato A) Max output torque Mt (input shaft sign A)											
Giri in uscita Output round		50 rpm		100 rpm		200 rpm		400 rpm		800 rpm		1400 rpm		2000 rpm		3000 rpm	
Coppia in uscita Output torque		Mt	potenza power	Mt	potenza power	Mt	potenza power	Mt	potenza power	Mt	potenza power	Mt	potenza power	Mt	potenza power	Mt	potenza power
Modello Model	Rapp. Ratio	Nm	Kw	Nm	Kw	Nm	Kw	Nm	Kw	Nm	Kw	Nm	Kw	Nm	Kw	Nm	Kw
Dz 10 - Dz 11	R 1:1	4,7	0,02	3,9	0,04	3,3	0,07	2,8	0,12	2,3	0,19	2,0	0,30	1,8	0,39	1,7	0,53
Dz 600-61		7,6	0,04	6,4	0,07	5,4	0,11	4,5	0,19	3,8	0,32	3,3	0,49	3,0	0,63	2,7	0,86
Dz 150-01		8,0	0,04	6,8	0,07	5,7	0,12	4,8	0,20	4,0	0,34	3,5	0,51	3,2	0,67	2,9	0,91
Zp 10 - Zp 11		9,1	0,05	7,6	0,08	6,4	0,13	5,4	0,23	4,5	0,38	4,0	0,58	3,6	0,76	3,3	1,03
Dz 20 - Dz 21		16,5	0,09	13,9	0,15	11,7	0,24	9,8	0,41	8,2	0,69	7,2	1,05	6,6	1,37	5,9	1,86
Dz 200-01 - Dz 200-21 Dz 505-60 Dz 505-70 - Dz 201-01		27,5	0,14	23,1	0,24	19,4	0,41	16,3	0,68	13,7	1,15	12,0	1,75	10,9	2,29	9,9	3,10
Zp 211-3V Zp 211-4V		28,8	0,15	24,2	0,25	20,3	0,43	17,1	0,72	14,4	1,20	12,5	1,83	11,4	2,39	10,3	3,25
Zp 20 Zp 220-4V Zp 21 Zp 221-4V Dz 604-50		34,5	0,18	29,0	0,30	24,4	0,51	20,5	0,86	17,2	1,44	15,0	2,20	13,7	2,87	12,4	3,89
512-31		46,9	0,25	39,5	0,41	33,2	0,70	27,9	1,17	23,5	1,97	20,4	2,99	18,7	3,91	16,9	5,30
Dz 930-01 Dz 930-11		48,9	0,26	41,1	0,43	34,5	0,72	29,0	1,22	24,4	2,05	21,2	3,11	19,4	4,07	17,6	5,51
Dz 30 Dz 31 Dz 311		53,1	0,28	44,6	0,47	37,5	0,79	31,6	1,32	26,5	2,22	23,1	3,38	21,1	4,42	19,1	5,99
Zp 311		75,7	0,40	63,7	0,67	53,5	1,12	45,0	1,89	37,9	3,17	32,9	4,82	30,1	6,30	27,2	8,54
Dz 40 - Zp 30 Zp 40 - Dz 41 Zp 31 - Zp 41		87,3	0,46	73,4	0,77	61,8	1,29	51,9	2,17	43,7	3,66	38,0	5,56	34,7	7,27	31,4	9,86
Dz 50 - Dz 51		119,5	0,63	100,5	1,05	84,5	1,77	71,0	2,98	59,7	5,00	51,9	7,61	47,5	9,95	42,9	13,48
Dz 270		4229,5	22,14	3556,6	37,23	2990,7	62,62	2514,9	105,31	2114,7	177,11	1838,6	269,48	1681,8	352,13	1519,7	477,28
Dz 12 - Dz 13	R 1:2	4,0	0,02	3,4	0,04	2,8	0,06	2,4	0,10	2,0	0,17	1,7	0,26	1,6	0,33	1,4	0,45
Zp 12 - Zp 13		8,9	0,05	7,5	0,08	6,3	0,13	5,3	0,22	4,4	0,37	3,9	0,57	3,5	0,74	3,2	1,00
Dz 22 - Dz 23		14,6	0,08	12,3	0,13	10,3	0,22	8,7	0,36	7,3	0,61	6,3	0,93	5,8	1,21	5,2	1,65
Zp 213-3V Zp 213-4V		28,1	0,15	23,7	0,25	19,9	0,42	16,7	0,70	14,1	1,18	12,2	1,79	11,2	2,34	10,1	3,17
Zp 22 Zp 222-4V Zp 23 Zp 223-4V		33,8	0,18	28,5	0,30	23,9	0,50	20,1	0,84	16,9	1,42	14,7	2,16	13,5	2,82	12,2	3,82
Dz 32 - Dz 33		42,5	0,22	35,7	0,37	30,1	0,63	25,3	1,06	21,3	1,78	18,5	2,71	16,9	3,54	15,3	4,80
Zp 313		71,3	0,37	59,9	0,63	50,4	1,06	42,4	1,77	35,6	2,98	31,0	4,54	28,3	5,93	25,6	8,04
Dz 42 - Zp 32 Zp 42 - Dz 43 Zp 33 - Zp 43		82,3	0,43	69,2	0,72	58,2	1,22	48,9	2,05	41,1	3,44	35,8	5,24	32,7	6,85	29,6	9,28
Dz 52 - Dz 53		100,5	0,53	84,5	0,88	71,0	1,49	59,7	2,50	50,2	4,21	43,7	6,40	39,9	8,36	36,1	11,34
Zp 24 Zp 25 Zp 215-3V Zp 215-4V Zp 224-4V Zp 225-4V	R 1:3	27,5	0,14	23,1	0,24	19,4	0,41	16,3	0,68	13,7	1,15	12,0	1,75	10,9	2,29	9,9	3,10
Zp 34 Zp 35 Zp 315 Zp 44 Zp 45		63,4	0,33	53,3	0,56	44,9	0,94	37,7	1,58	31,7	2,66	27,6	4,04	25,2	5,28	22,8	7,16

VALORI NON PREFERENZIALI (Consultare ufficio tecnico) - NON PREFERENTIAL VALUES (please contact our technical dept.)



VALORI NON PREFERENZIALI (Consultare ufficio tecnico) - NON PREFERENTIAL VALUES (please contact our technical dept.)

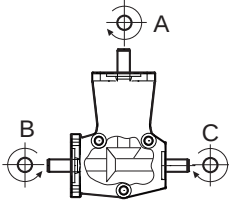
TABELLA TABLE		CARICHI ESTERNI APPLICABILI IN RELAZIONE ALLE VELOCITÀ MAX RADIAL AND AXIAL LOAD RELATION R.P.M.										Fr = forza radiale Fr = radial load		Fa = forza assiale Fa = axila load			
Giri in uscita Output round		50 rpm		100 rpm		200 rpm		400 rpm		800 rpm		1400 rpm		2000 rpm		3000 rpm	
Carichi radiali - assiali Radial - axial load		Fr	Fa	Fr	Fa	Fr	Fa	Fr	Fa	Fr	Fa	Fr	Fa	Fr	Fa	Fr	Fa
Modello Model	Rapp. Ratio	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Dz 10 - Dz 11	R 1:1	139	94	117	79	98	66	83	56	70	47	60	41	55	37	50	34
Dz 600-61		183	148	154	124	129	105	109	88	91	74	80	64	73	59	66	53
Dz 150-01		143	143	120	120	101	101	85	85	72	72	62	62	57	57	51	51
Zp 10 - Zp 11		195	158	164	133	138	112	116	94	98	79	85	69	78	63	70	57
Dz 20 - Dz 21		328	220	276	185	232	156	195	131	164	110	142	96	130	87	118	79
Dz 200-01 - Dz 200-21 Dz 505-60 Dz 505-70 - Dz 201-01		617	412	519	346	436	291	367	245	309	206	268	179	245	164	222	148
Zp 211-3V Zp 211-4V		430	348	361	293	304	246	256	207	215	174	187	151	171	139	154	125
Zp 20 Zp 220-4V Zp 21 Zp 221-4V Dz 604-50		516	418	434	351	365	295	307	248	258	209	224	182	205	166	185	150
512-31		512	362	431	304	362	256	305	215	256	181	223	157	204	144	184	130
Dz 930-01 Dz 930-11		470	331	395	278	332	234	279	197	235	165	204	144	187	132	169	119
Dz 30 Dz 31 Dz 311		684	458	575	385	484	324	407	273	342	229	297	199	272	182	246	165
Zp 311		826	554	695	465	584	391	491	329	413	277	359	241	329	220	297	199
Dz 40 - Zp 30 Zp 40 - Dz 41 Zp 31 - Zp 41		953	639	802	537	674	452	567	380	477	319	414	278	379	254	342	229
Dz 50 - Dz 51		1102	736	927	619	779	520	655	438	551	368	479	320	438	293	396	264
Dz 270		12837	10390	10795	8737	9077	7347	7633	6178	6419	5195	5581	4517	5105	4132	4613	3733
Dz 12 - Dz 13	R 1:2	107	76	90	64	76	54	64	45	54	38	47	33	43	30	39	27
Zp 12 - Zp 13		182	110	153	93	129	78	108	66	91	55	79	48	73	44	66	40
Dz 22 - Dz 23		276	168	232	141	195	119	164	100	138	84	120	73	110	67	99	60
Zp 213-3V Zp 213-4V		370	263	311	221	262	186	220	157	185	132	161	114	147	105	133	95
Zp 22 Zp 222-4V 23 Zp 223-4V		445	316	374	266	315	224	265	188	223	158	194	137	177	126	160	114
Dz 32 - Dz 33		548	361	461	303	387	255	326	214	274	180	238	157	218	143	197	130
Zp 313		696	422	585	355	492	299	414	251	348	211	303	184	277	168	250	152
Dz 42 - Zp 32 Zp 42 - Dz 43 Zp 33 - Zp 43		803	483	675	406	568	341	478	287	402	241	349	210	319	192	289	173
Dz 52 - Dz 53		927	562	779	473	655	397	551	334	463	281	403	244	369	223	333	202
Zp 24 Zp 25 Zp 215-3V Zp 215-4V Zp 224-4V Zp 225-4V	R 1:3	357	199	301	167	253	141	213	118	179	99	155	86	142	79	128	71
Zp 34 Zp 35 Zp 315 Zp 44 Zp 45		619	346	521	291	438	245	368	206	310	173	269	151	246	138	222	124

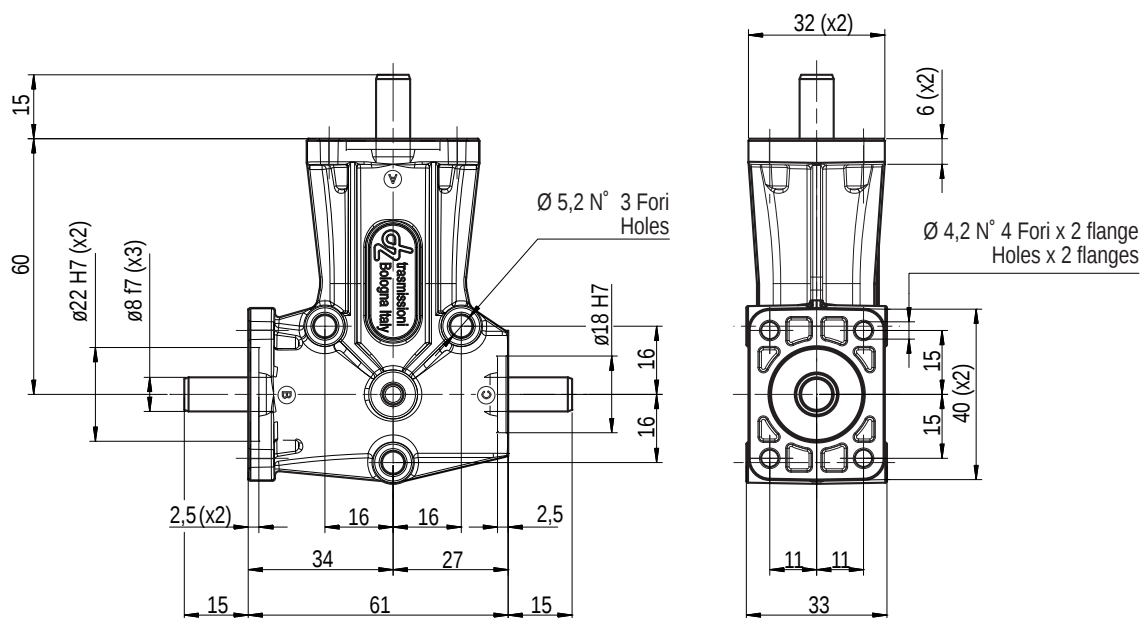
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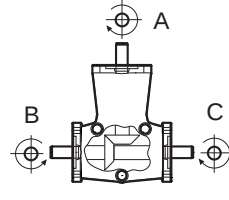


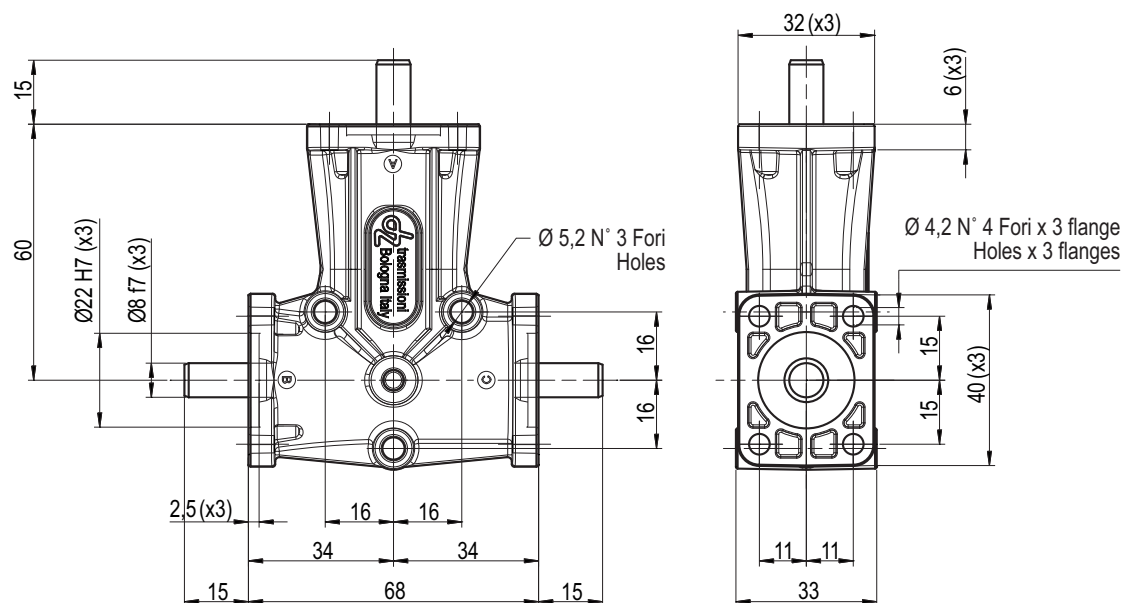
Serie / Series Dz

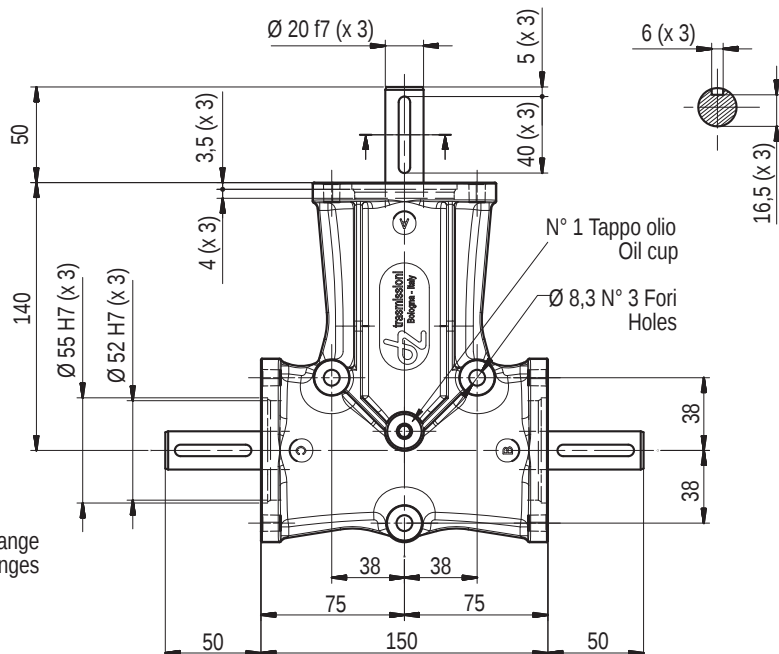
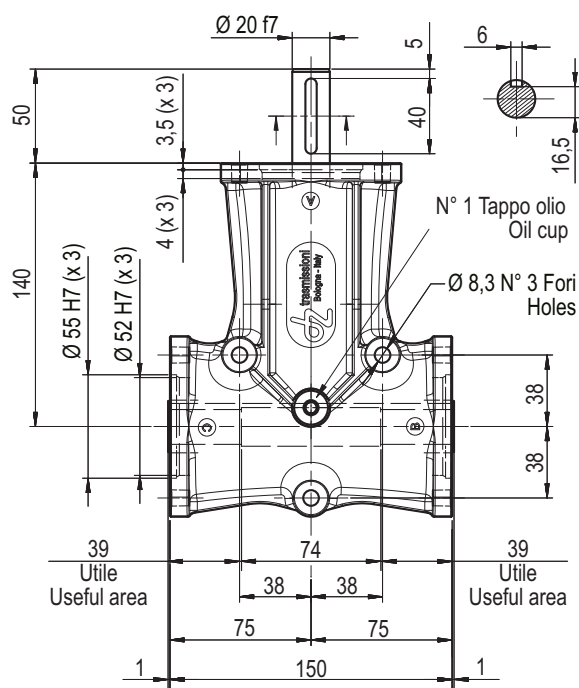


MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	1		Ratio	In	Out	Model	Weight	
FLANGE FLANGES	2		1/1	A	B	DZ 10S – 2FAB –	Kg 0.3	
			1/1	A	C	DZ 10FS2FAC –		
			1/2	A	B	DZ 12S – 2FAB –		
			1/2	A	C	DZ 12FS2FAC –		
			1/1	A	B – C	DZ 11 – – 2FABC		
			1/2	A	B – C	DZ 13 – – 2FABC		

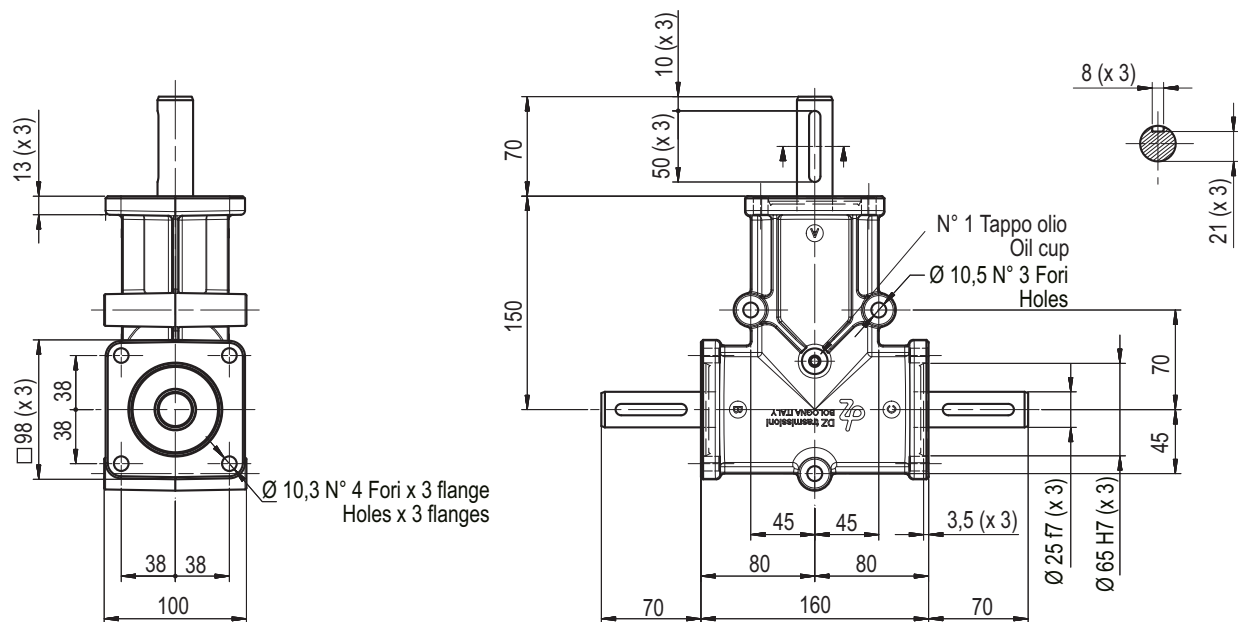


MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	1		Ratio	In	Out	Model	Weight	
FLANGE FLANGES	3		1/1	A	B	DZ 10S – 3FAB –	Kg 0.3	
			1/1	A	C	DZ 10FS3FAC –		
			1/2	A	B	DZ 12S – 3 FAB –		
			1/2	A	C	DZ 12FS3FAC –		
			1/1	A	B – C	DZ 11 – – 3FABC		
			1/2	A	B – C	DZ 13 – – 3FABC		

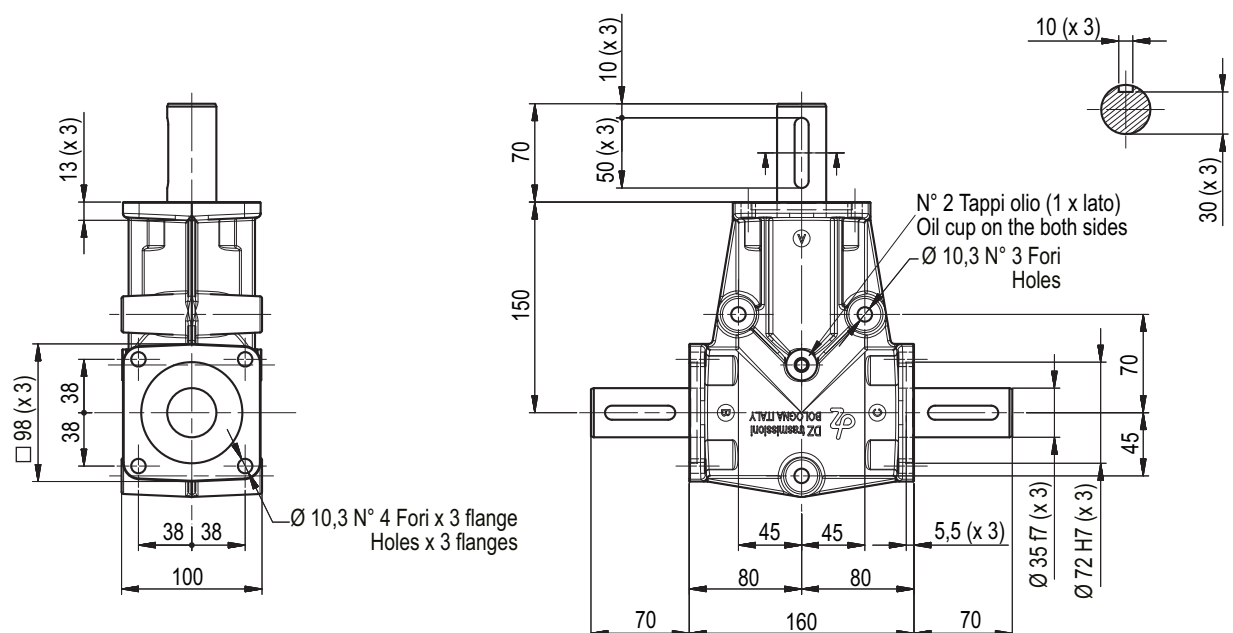




MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	4		Ratio	In	Out	Model	Weight	
			1/1	A	B	DZ 40S-3FAB-	Kg 5.5	
			1/1	A	C	DZ 40FS3FAC-		
			1/2	A	B	DZ 42S-3FAB-		
			1/2	A	C	DZ 42FS3FAC-		
			1/1	A	B - C	DZ 41--3FABC	Kg 5.8	
			1/2	A	B - C	DZ 43--3FABC		



MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	5		Ratio	In	Out	Model	Weight	
			1/1	A	B	DZ 50S-3FAB-	Kg 8.1	
			1/1	A	C	DZ 50FS3FAC-		
			1/2	A	B	DZ 52S-3FAB-		
			1/2	A	C	DZ 52FS3FAC-		
			1/1	A	B - C	DZ 51- -3FABC	Kg 8.8	
			1/2	A	B - C	DZ 53- -3FABC		

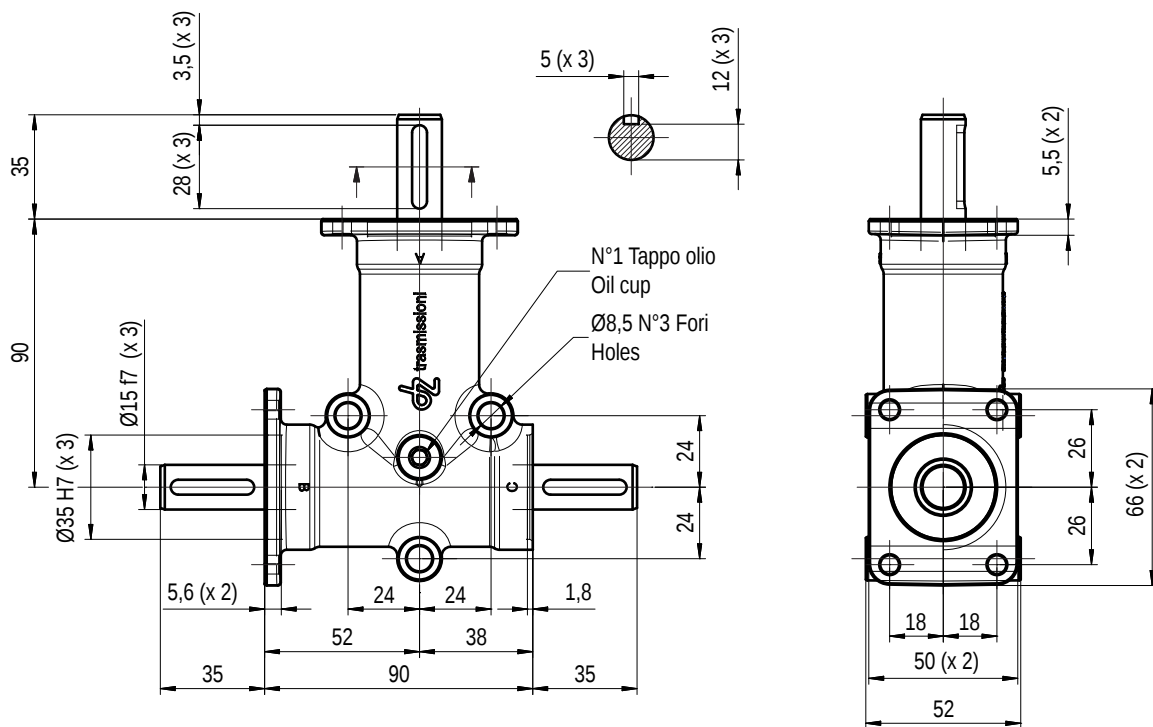
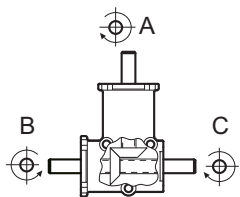




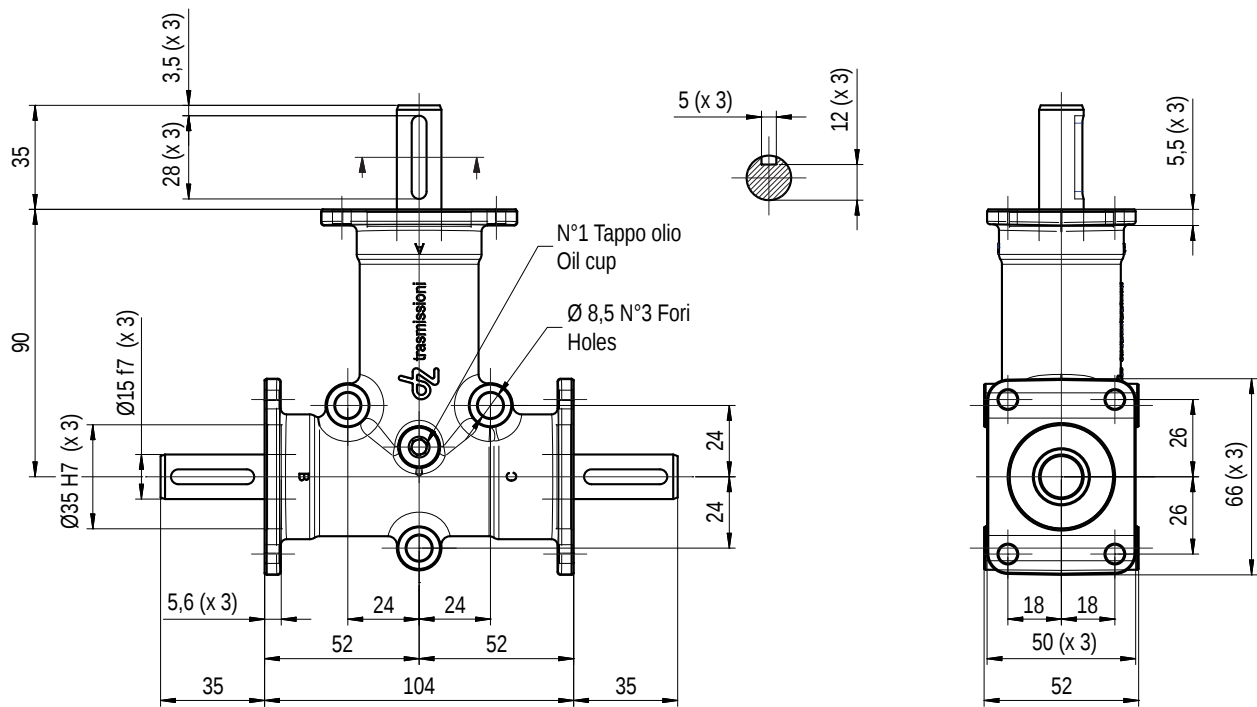
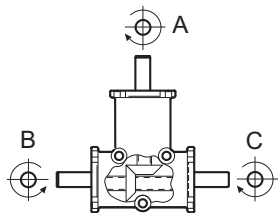
Serie Inox / Inox Series Dz



MOD.	DZ	Rapp.	Entrata	Uscita	Modello	Peso
MISURA SIZE	2	Ratio	In	Out	Model	Weight
FLANGE FLANGES	2	1/1	A	B	DZ 20S-2FAB-INOX	Kg 1.25
		1/1	A	C	DZ 20FS2FAC-INOX	
		1/2	A	B	DZ 22S-2FAB-INOX	
		1/2	A	C	DZ 22FS2FAC-INOX	
		1/1	A	B - C	DZ 21- -2FABC-INOX	Kg 1.35
		1/2	A	B - C	DZ 23- -2FABC-INOX	



MOD.	DZ	Rapp.	Entrata	Uscita	Modello	Peso
MISURA SIZE	2	Ratio	In	Out	Model	Weight
FLANGE FLANGES	3	1/1	A	B	DZ 20S-3FAB-INOX	Kg 1.31
		1/1	A	C	DZ 20FS3FAC-INOX	
		1/2	A	B	DZ 22S-3FAB-INOX	
		1/2	A	C	DZ 22FS3FAC-INOX	
		1/1	A	B - C	DZ 21- -3FABC-INOX	Kg 1.41
		1/2	A	B - C	DZ 23- -3FABC-INOX	

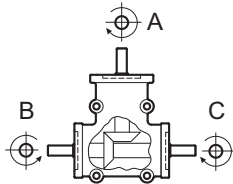


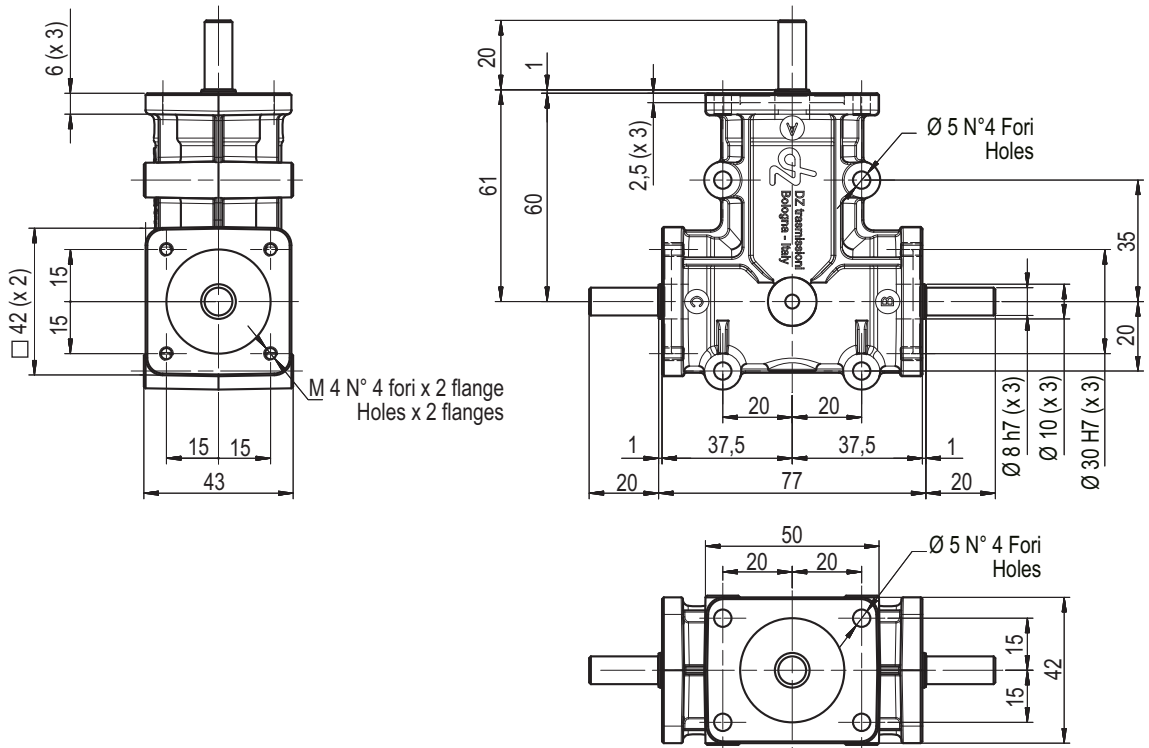
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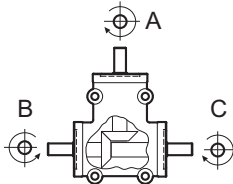


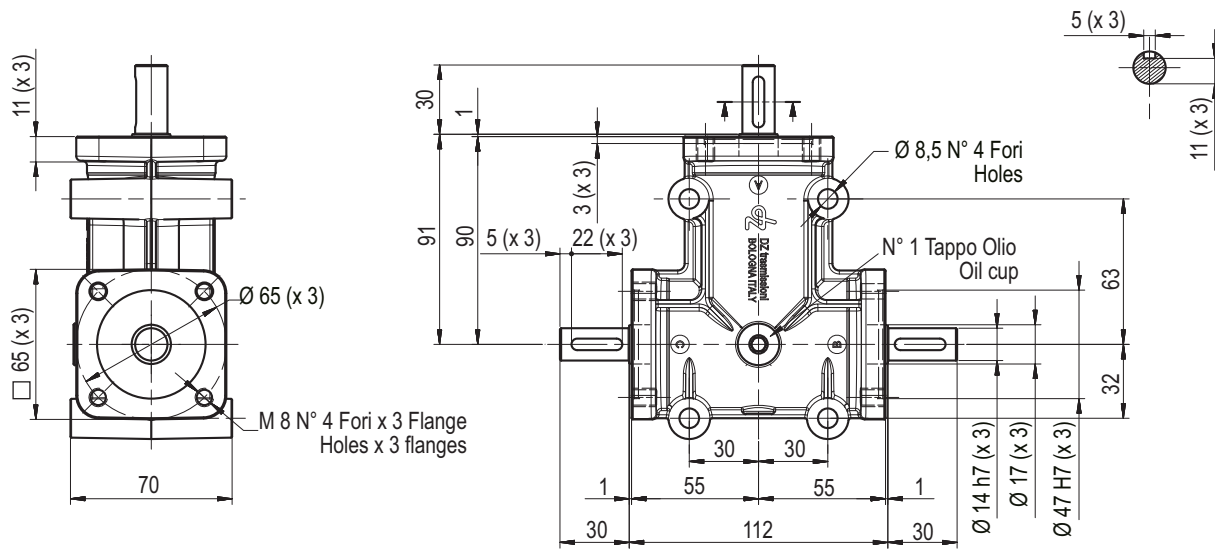
Serie / Series Zp

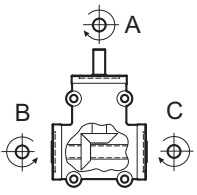


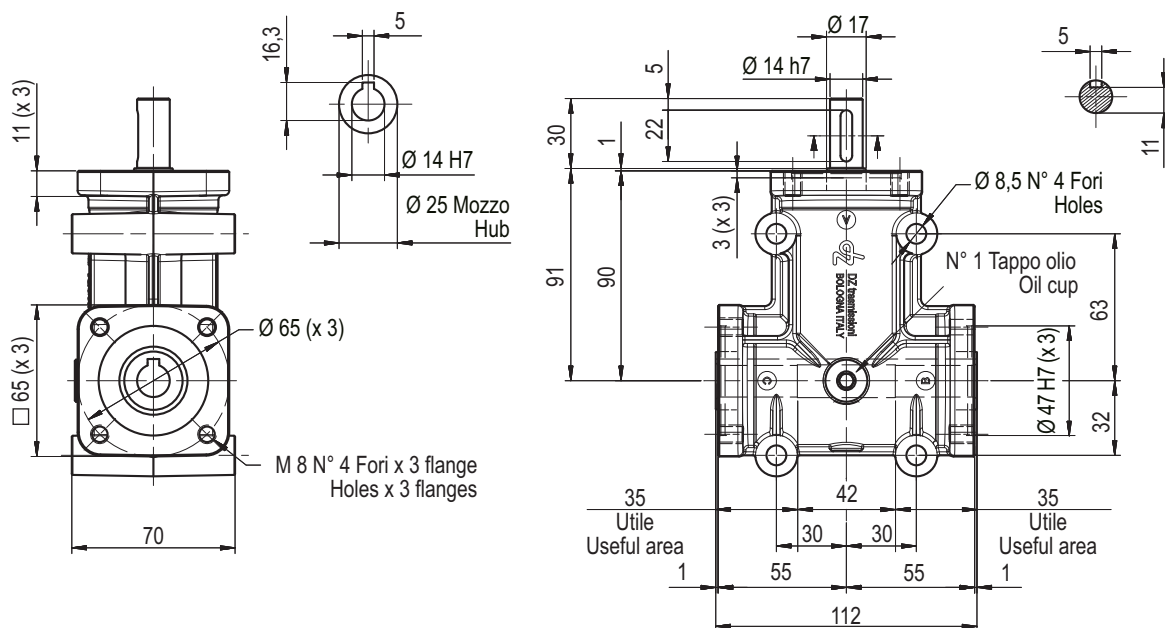
MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	1		Ratio	In	Out	Model	Weight	
			1/1	A	B	ZP 10S-4PAB-	Kg 0.6	
			1/1	A	C	ZP 10FS4PAC-		
			1/2	A	B	ZP 12S-4PAB-		
			1/2	A	C	ZP 12FS4PAC-		
			1/1	A	B - C	ZP 11- -4PABC		
			1/2	A	B - C	ZP 13- -4PABC		

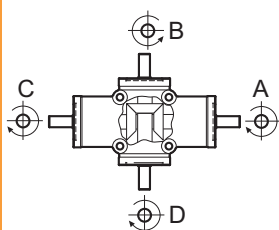


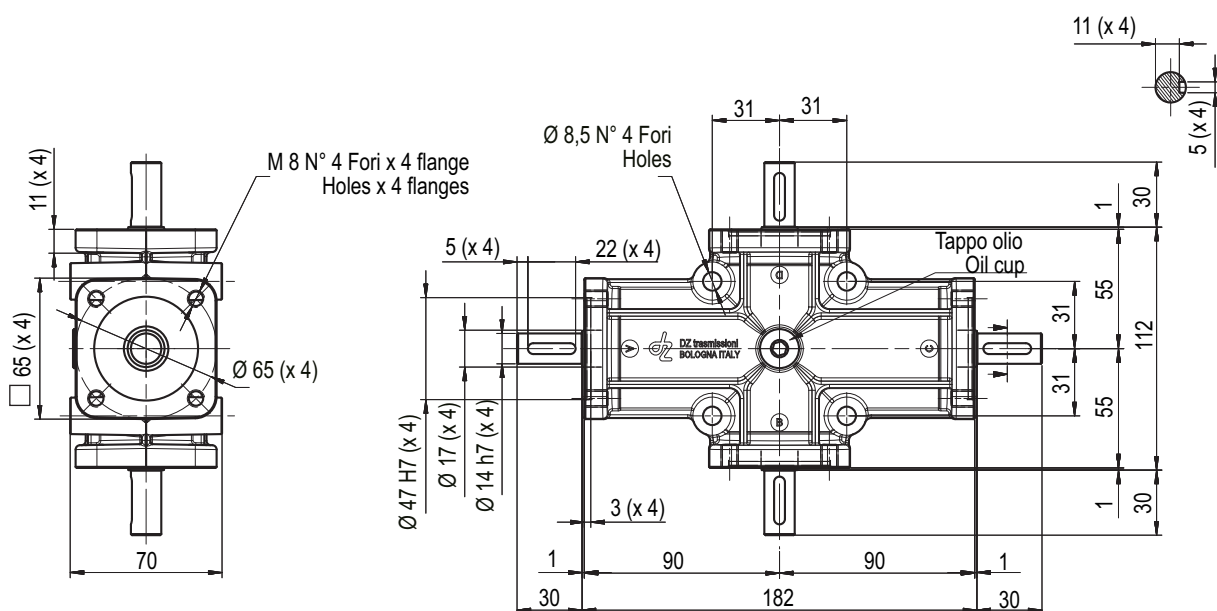
MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
			Ratio	In	Out	Model	Weight	
	1/1		A	B	ZP 20S-4PAB-	Kg 2		
	1/1		A	C	ZP 20FS4PAC-			
	1/2		A	B	ZP 22S-4PAB-			
	1/2		A	C	ZP 22FS4PAC-			
	1/3		A	B	ZP 24S-4PAB-			
	1/3		A	C	ZP 24FS4PAC-			
	1/1		A	B - C	ZP 21- -4PABC			
	1/2		A	B - C	ZP 23- -4PABC			
	1/3		A	B - C	ZP 25- -4PABC			



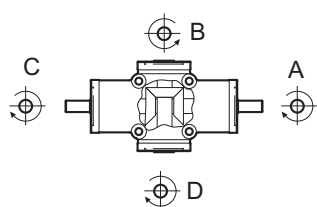
MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	2		Ratio	In	Out	Model	Weight	
			1/1	A	B – C	ZP 211–4P3V–	Kg 2	
			1/2	A	B – C	ZP 213–4P3V–		
			1/3	A	B – C	ZP 215–4P3V–		

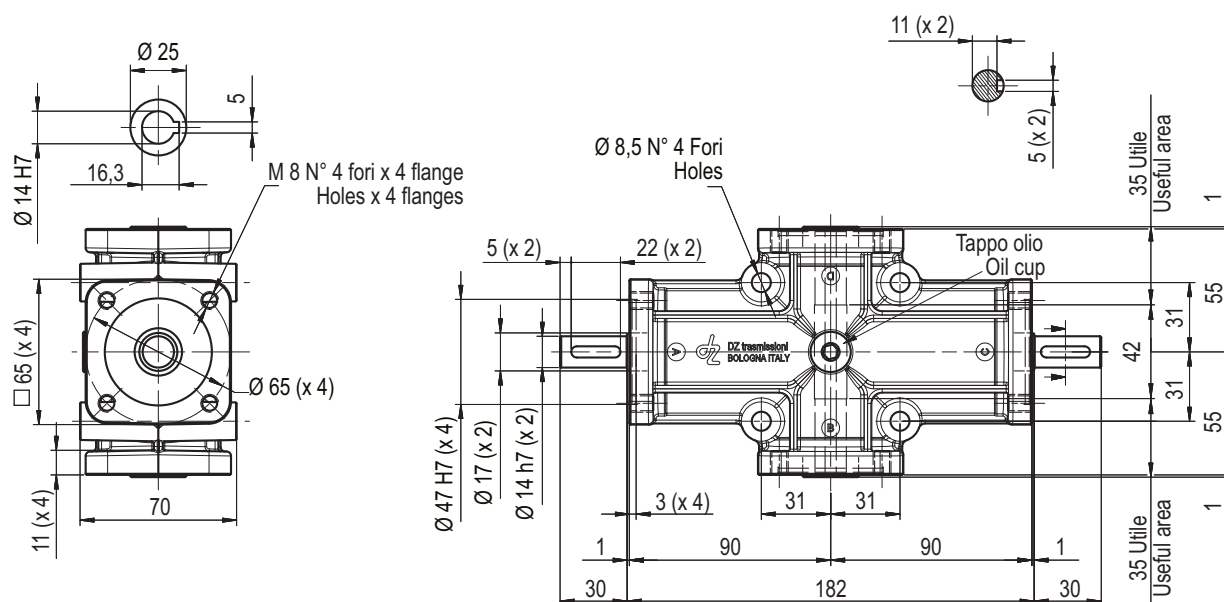


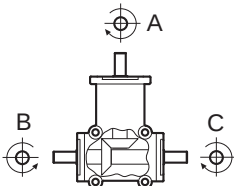
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MISURA SIZE	2		Ratio	In	Out	Model	Weight	
			1/1	A	B - C	ZP 220S-4PABC	Kg 3.2	
			1/1	A	C - D	ZP 220FS4PACD		
			1/2	A	B - C	ZP 222S-4PABC		
			1/2	A	C - D	ZP 222FS4PACD		
			1/3	A	B - C	ZP 224S-4PABC		
			1/3	A	C - D	ZP 224FS4PACD		
			1/1	A	B - C - D	ZP 221-4PABCD		
			1/2	A	B - C - D	ZP 223-4PABCD		
			1/3	A	B - C - D	ZP 225-4PABCD		

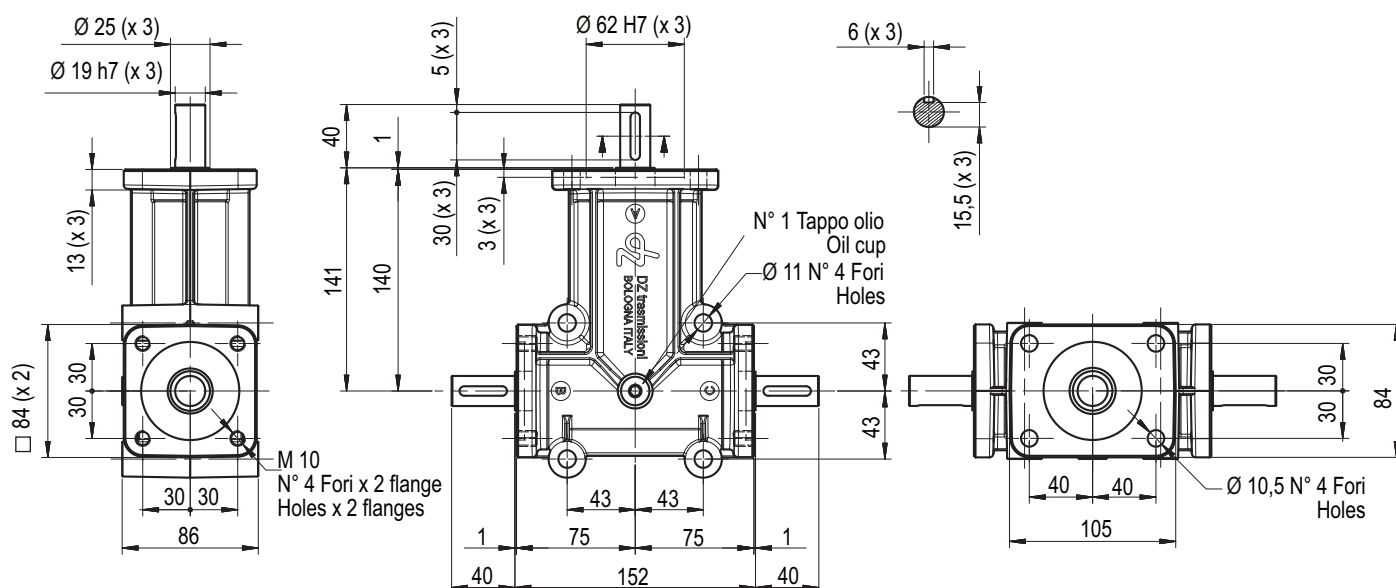


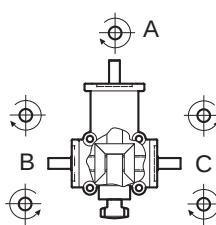


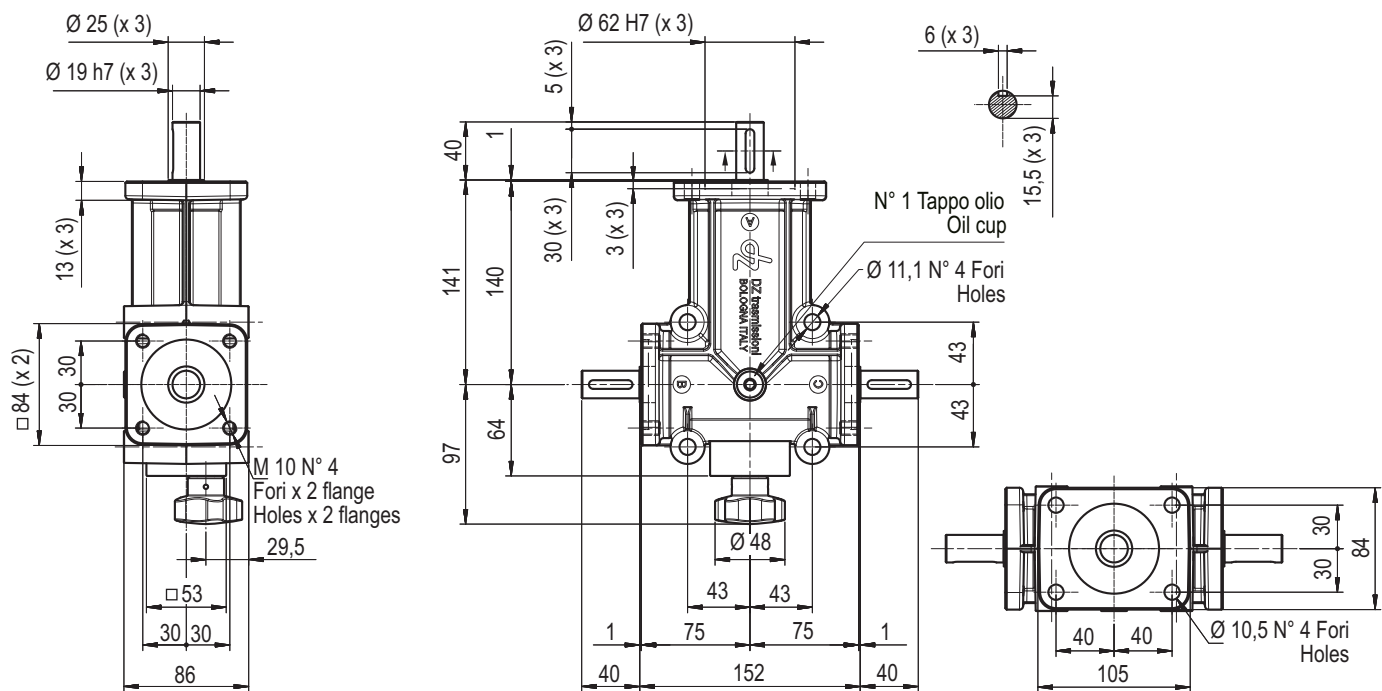
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MISURA SIZE	2		Ratio	In	Out	Model	Weight	
			1/1	A	B – C – D	ZP 211–4P4V–	Kg 3	
			1/2	A	B – C – D	ZP 213–4P4V–		
			1/3	A	B – C – D	ZP 215–4P4V–		

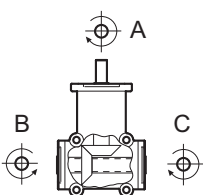


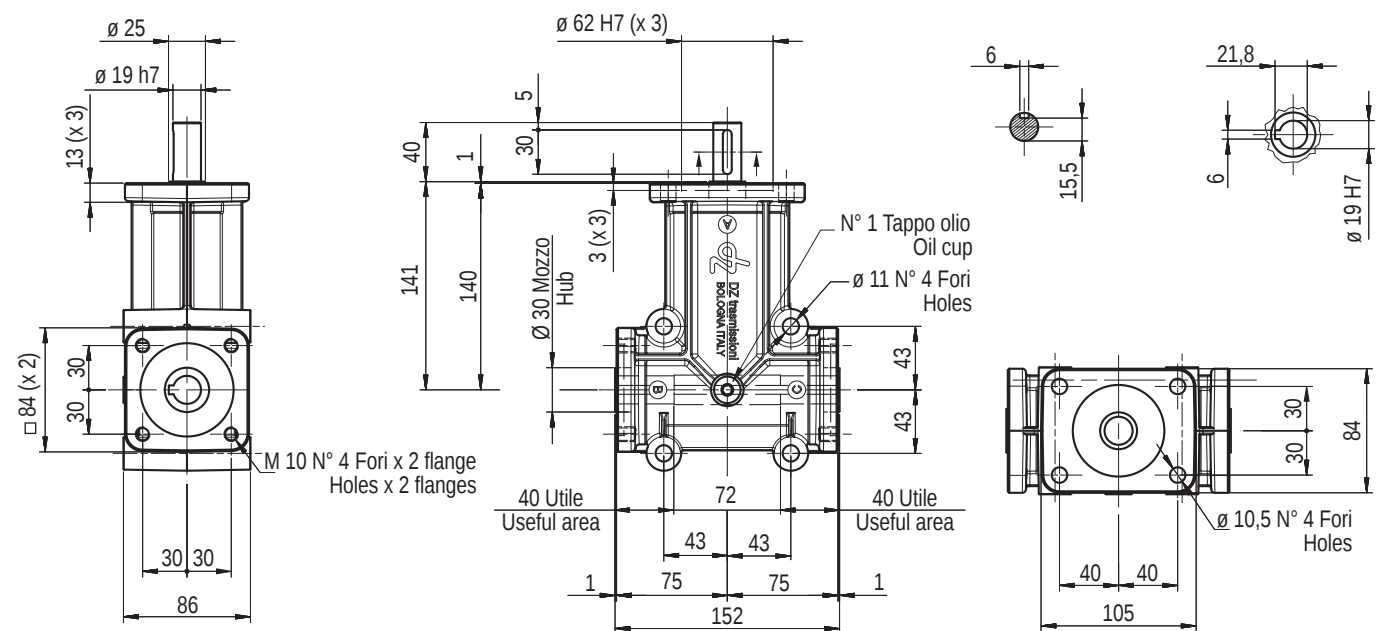
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MISURA SIZE	3		Ratio	In	Out	Model	Weight	
			1/1	A	B	ZP 30S-4PAB-	Kg 4.5	
			1/1	A	C	ZP 30FS4PAC-		
			1/2	A	B	ZP 32S-4PAB-		
			1/2	A	C	ZP 32FS4PAC-		
			1/3	A	B	ZP 34S-4PAB-		
			1/3	A	C	ZP 34FS4PAC-		
			1/1	A	B - C	ZP 31- -4PABC		
			1/2	A	B - C	ZP 33- -4PABC		
			1/3	A	B - C	ZP 35- -4PABC		



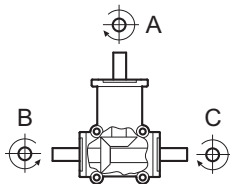
MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	3		Ratio	In	Out	Model	Weight	
INVERTITORE REVERSER			1/1	A	B	ZP 30 – INVERT	Kg 4.5	
			1/1	A	B – C	ZP 31 – INVERT		

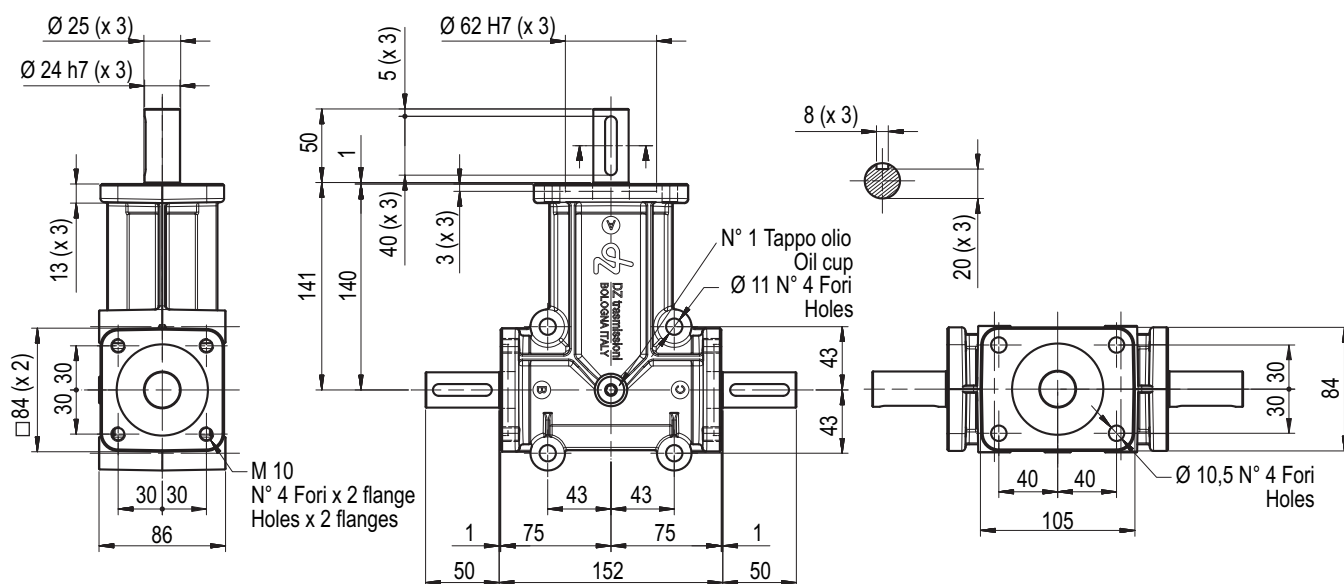


MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	3		Ratio	In	Out	Model	Weight	
			1/1	A	B – C	ZP 311 – 4P3V –	Kg 4.5	
			1/2	A	B – C	ZP 313 – 4P3V –		
			1/3	A	B – C	ZP 315 – 4P3V –		





MOD.	ZP		Rapp.	Entrata	Uscita	Modello	Peso	
MISURA SIZE	4		Ratio	In	Out	Model	Weight	
			1/1	A	B	ZP 40S-4PAB-	Kg 4.5	
			1/1	A	C	ZP 40FS4PAC-		
			1/2	A	B	ZP 42S-4PAB-		
			1/2	A	C	ZP 42FS4PAC-		
			1/3	A	B	ZP 44S-4PAB-		
			1/3	A	C	ZP 44FS4PAC-		
			1/1	A	B - C	ZP 41- -4PABC		
			1/2	A	B - C	ZP 43- -4PABC		
			1/3	A	B - C	ZP 45- -4PABC		
								

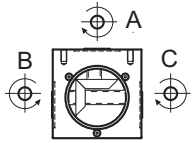


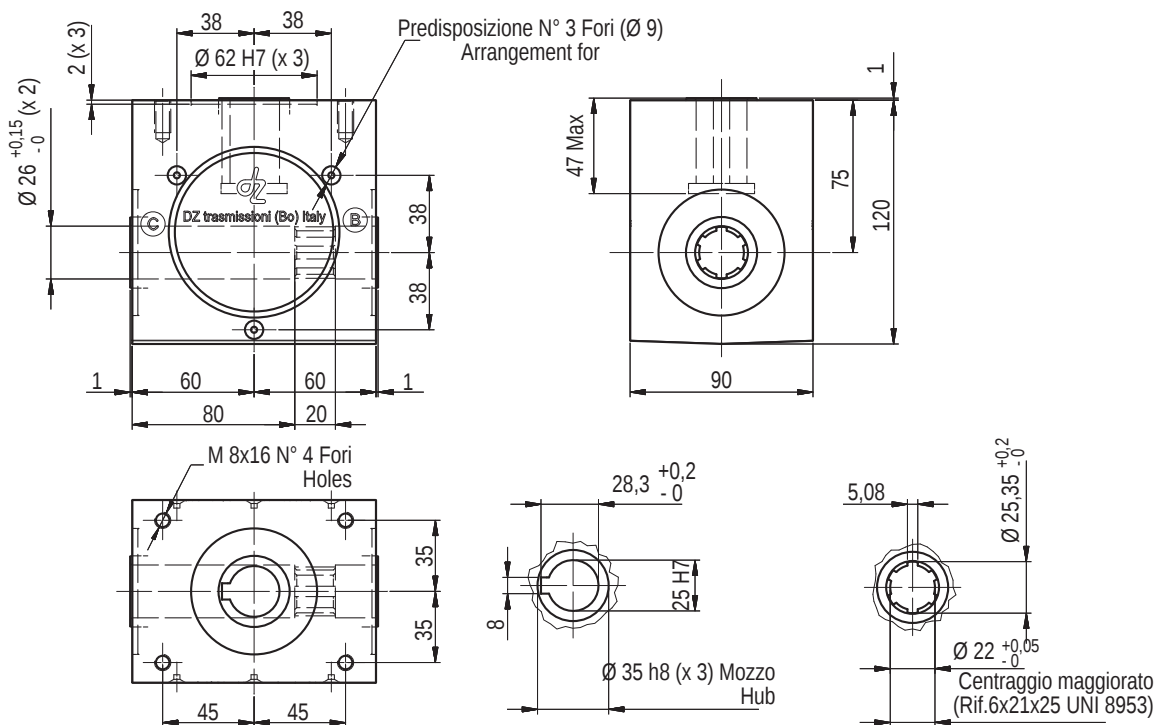
trasmissioni **RINGSPANN AG**

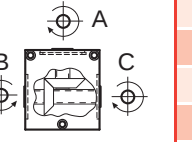


Serie / Series
Speciale / Special

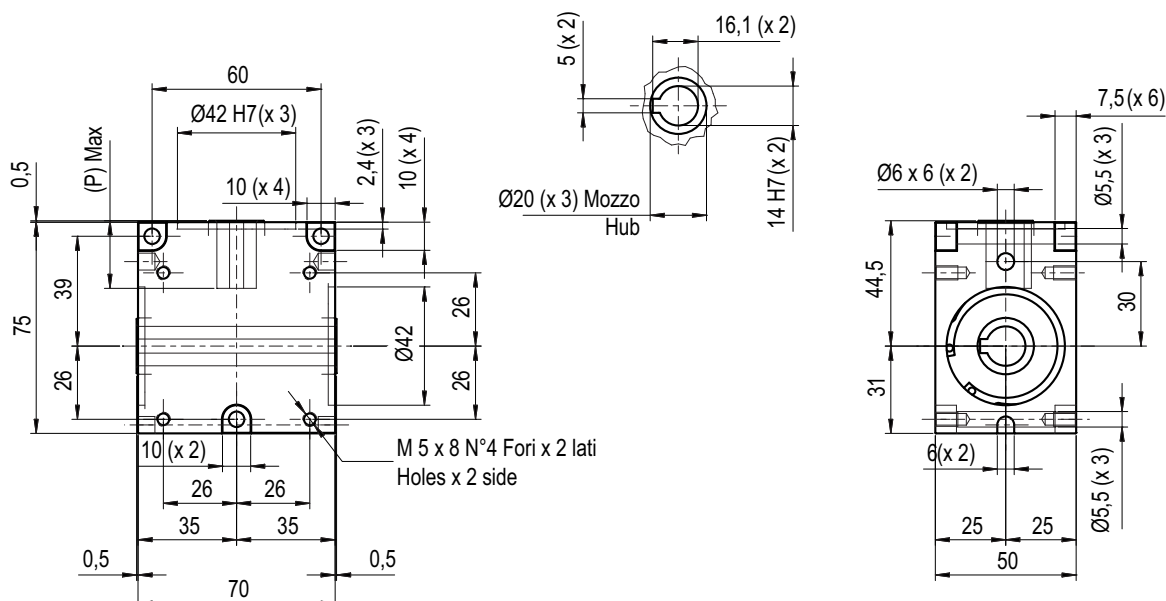


MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso
			Ratio	In	Out	Model	Weight
SPECIALE SPECIAL			1/1	A	B - C	DZ 512 - 31	Kg 4.1

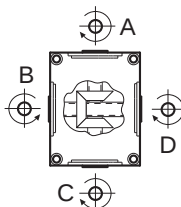


MOD.	DZ		Rapp.	Entrata	Uscita	P	Modello	Peso
			Ratio	In	Out		Model	Weight
SPECIALE SPECIAL			1/1	A	B - C	24	DZ 505 - 60	Kg 0.7
			1/1,5	A	B - C	16	DZ 505 - 51*	

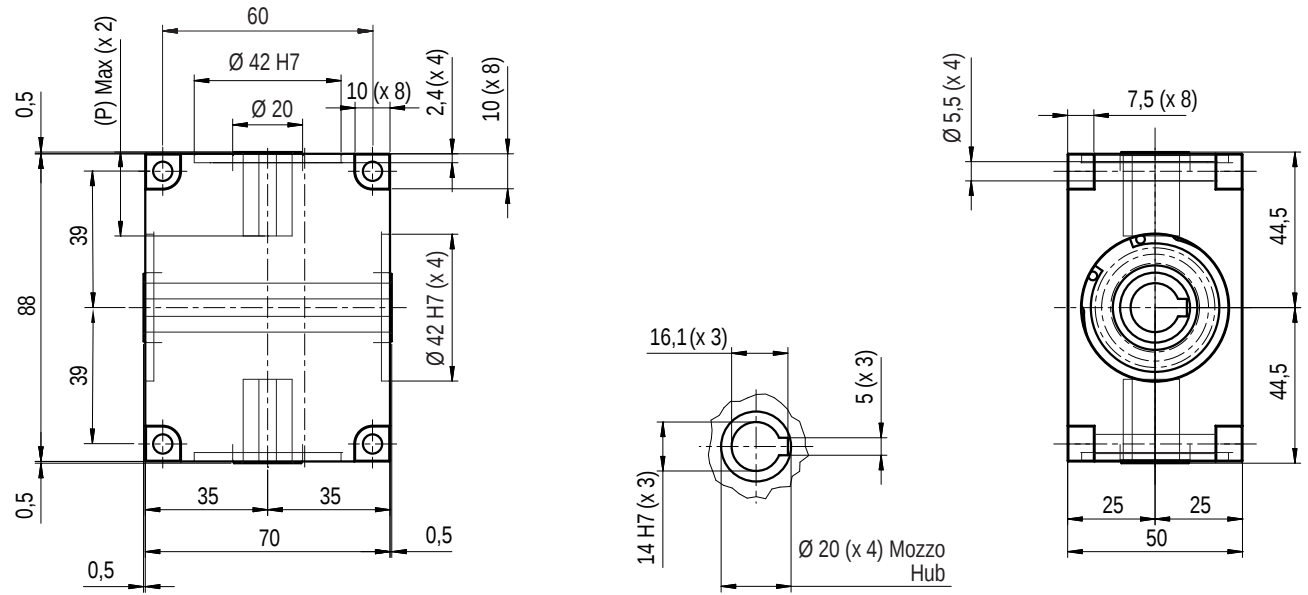
* Modello su ordinazione / Model to order

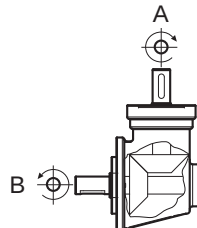


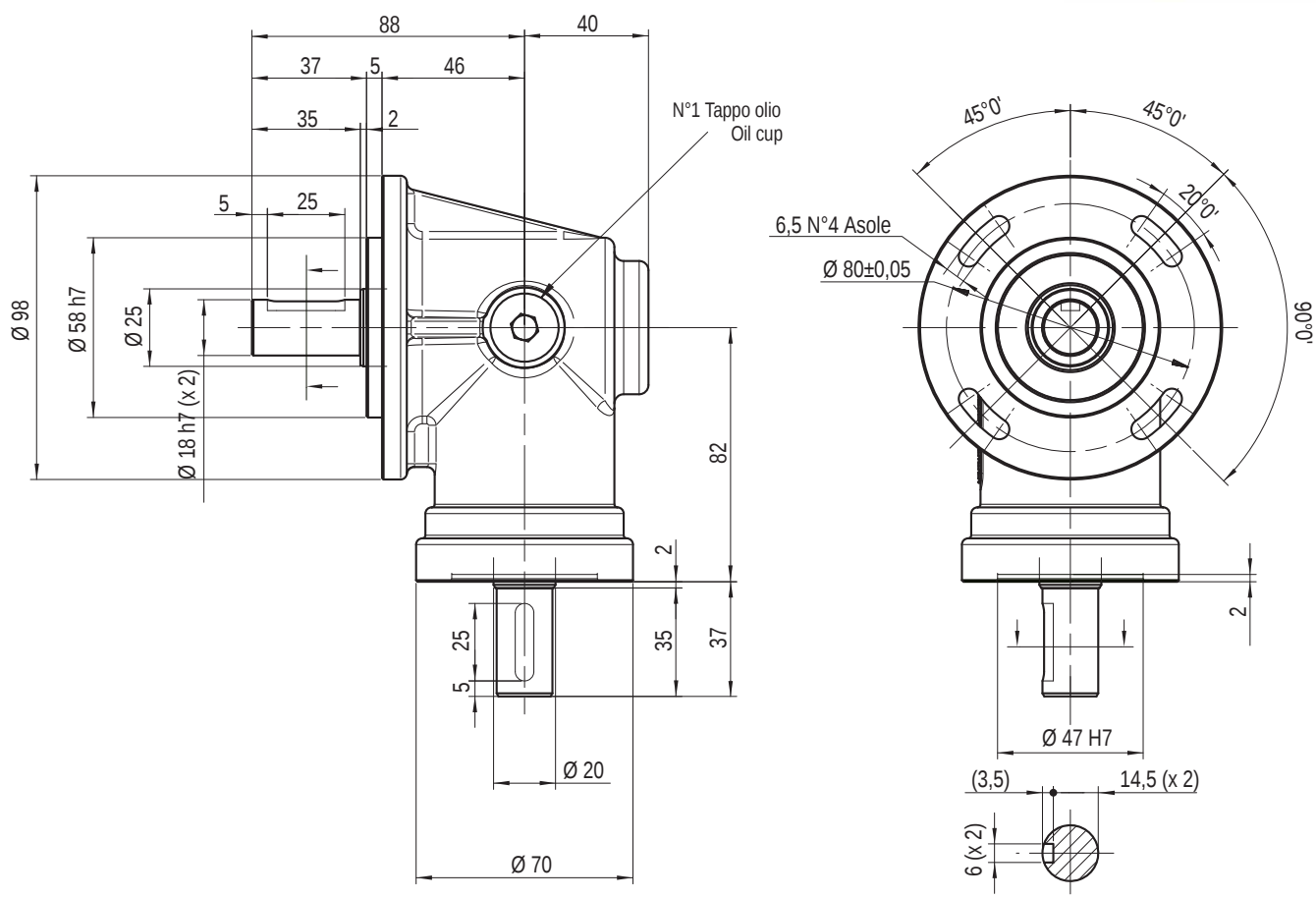


MOD.	DZ		Rapp.	Entrata	Uscita	P	Modello	Peso
SPECIALE SPECIAL			Ratio	In	Out		Model	Weight
			1/1	A	B – C – D	24	DZ 505 – 70	Kg 1
			1/1,5	A	B – C – D	16	DZ 505 – 71*	
* Modello su ordinazione / Model to order								

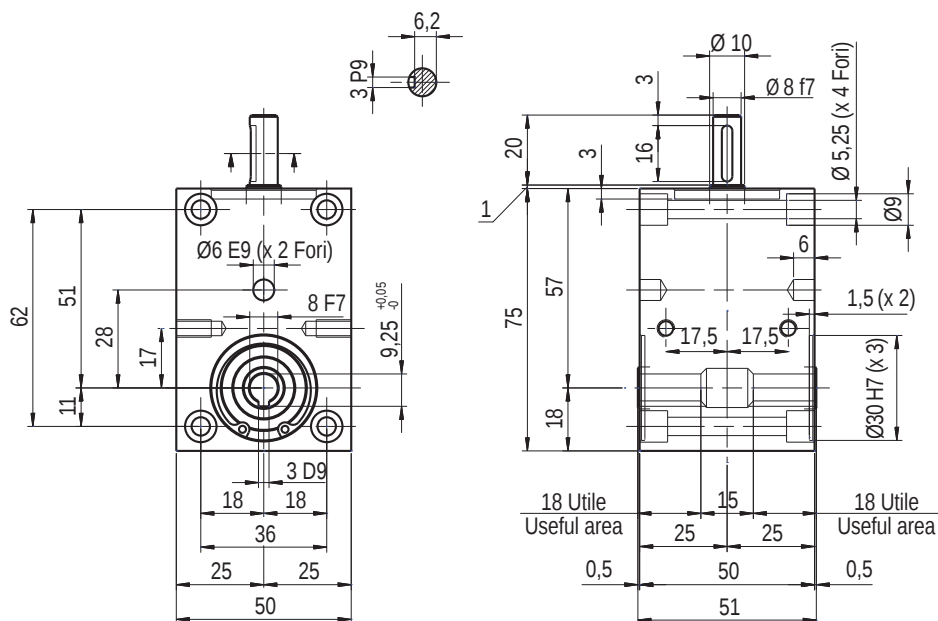




MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso
			Ratio	In	Out	Model	Weight
SPECIALE SPECIAL			1/1	A	B	DZ 604 - 50	1,7



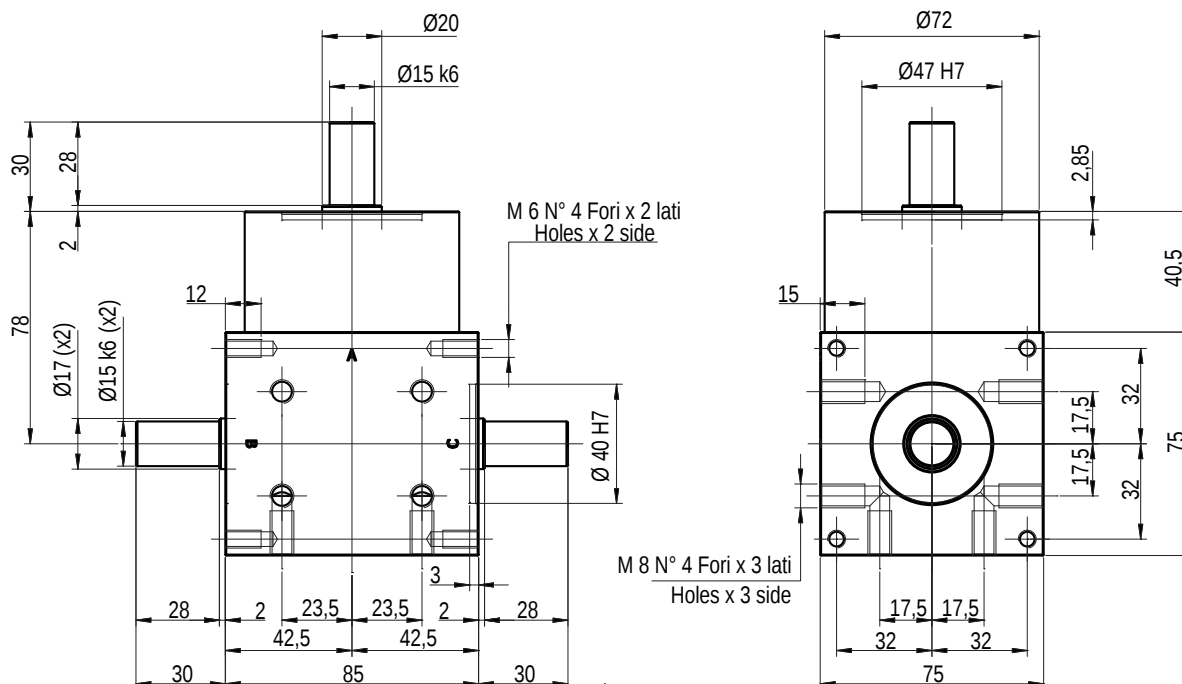
MOD.	DZ		Rapp.	Entrata	Uscita	Modello	Peso
			Ratio	In	Out	Model	Weight
SPECIALE SPECIAL			1/1	A	B - C	DZ 600 – 61	Kg 1

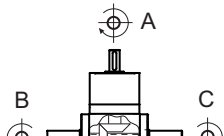


MOD.	DZ		Modello	Versione			Rapp.	Peso
			Model	Version			Ratio	Weight
SPECIALE SPECIAL			DZ 201 – 01	AB	AC	ABC	1/1	Kg 2,4

Altri rapporti su richiesta
Other ratios are available upon request

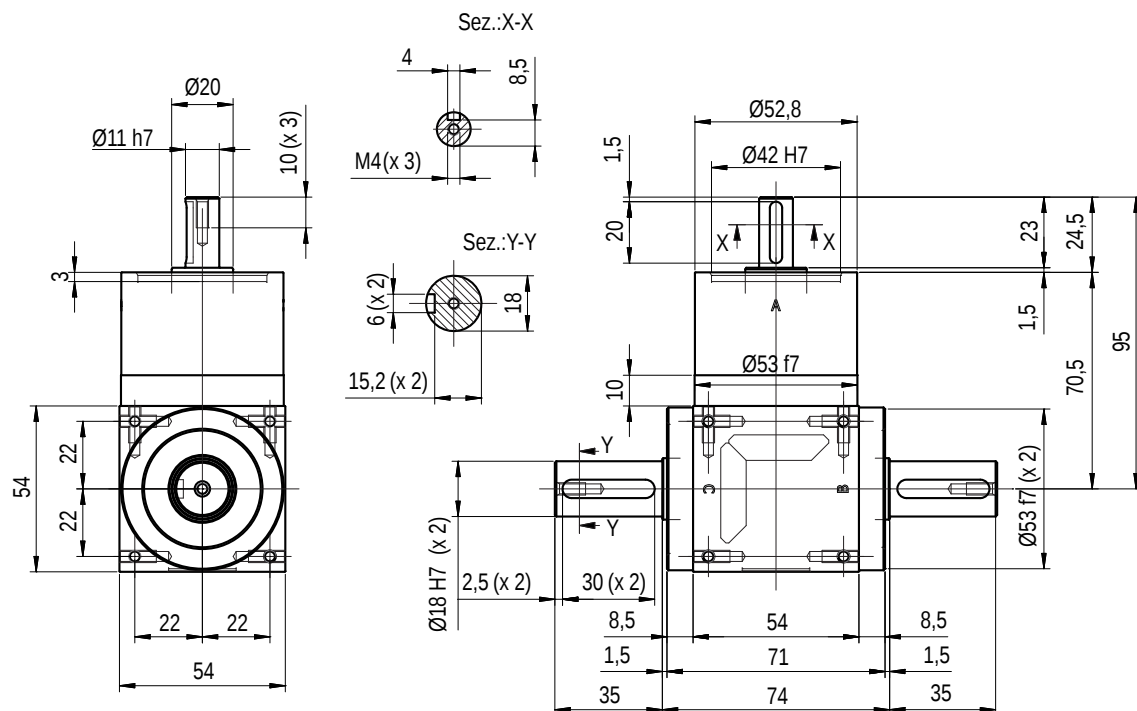
Per ordinativi indicare: modello - versione (alberi presenti) - rapporto / In case of order please state: model - version (shafts) - ratio

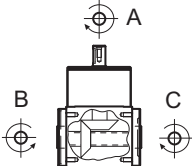


MOD.	DZ		Modello			Versione	Rapp.	Peso
			Model			Version		Ratio
DZ 200 – 21	AB		AC	ABC	1/1	Kg 1,1		
SPECIALE SPECIAL		Altri rapporti su richiesta						
		Other ratios ara available upon request						



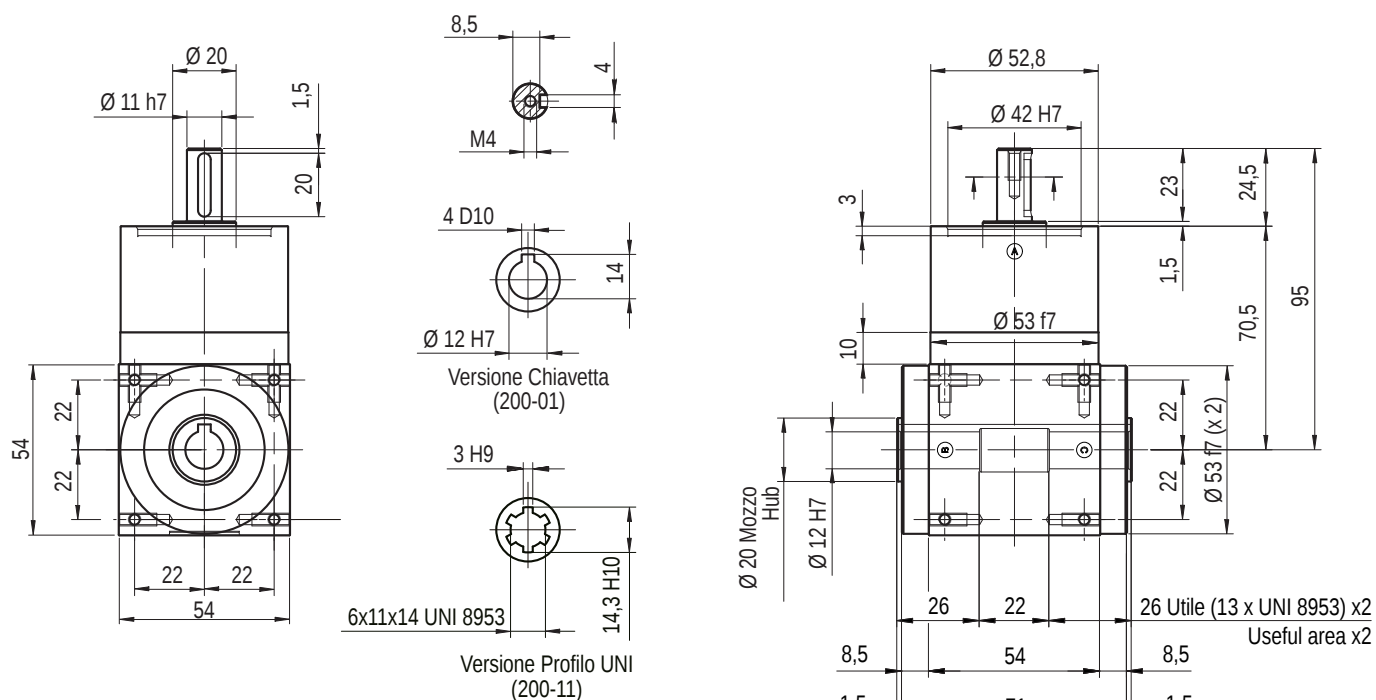
Per ordinativi indicare: modello - versione (alberi presenti) - rapporto / In case of order please state: model - version (shafts) - ratio



MOD.	DZ		Modello	Entrata	Uscita	Rapp.	Peso
			Model	In	Out	Ratio	Weight
SPECIALE SPECIAL	DZ 200 – 01 (chiavetta)		A	B - C	1/1	Kg 1	
	DZ 200 – 11 (UNI)		A	B - C	1/1		
	Altri rapporti su richiesta Other ratios ara available upon request						



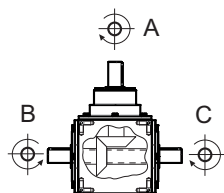
Per ordinativi indicare: modello - versione (alberi presenti) - rapporto / In case of order please state: model - version (shafts) - ratio





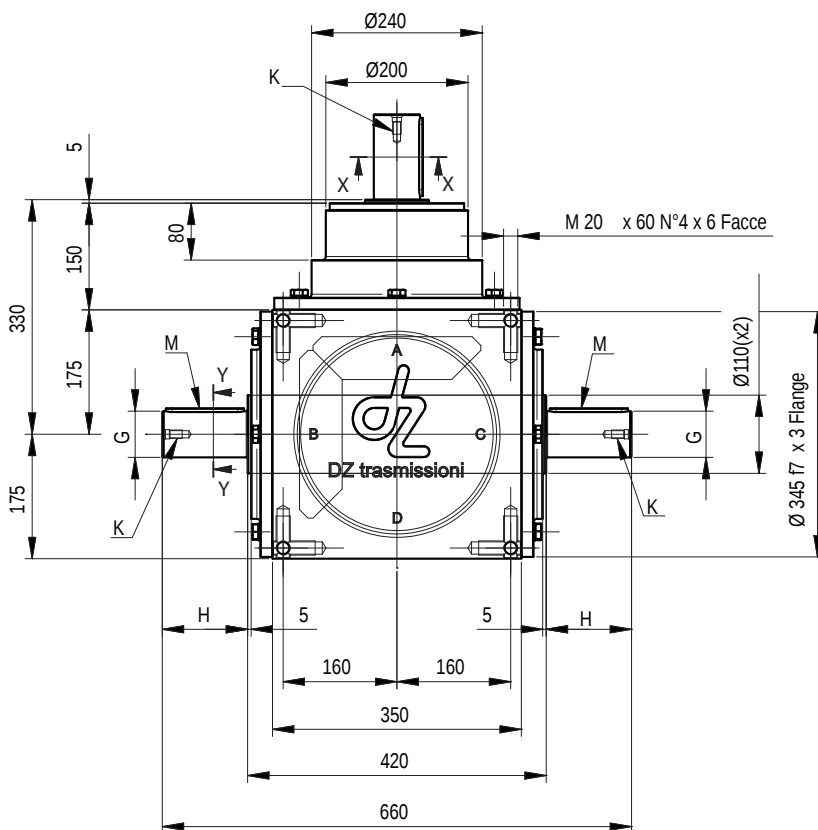
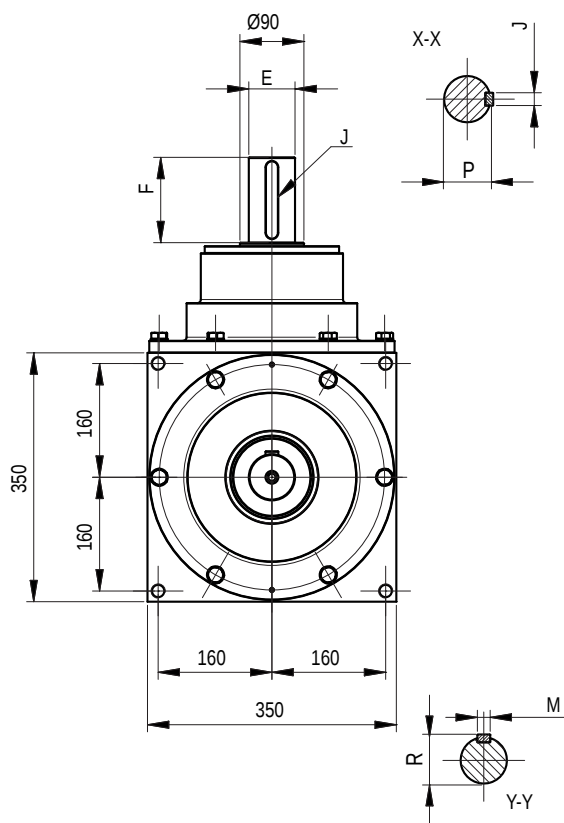
MOD.

DZ

SPECIALE
SPECIAL

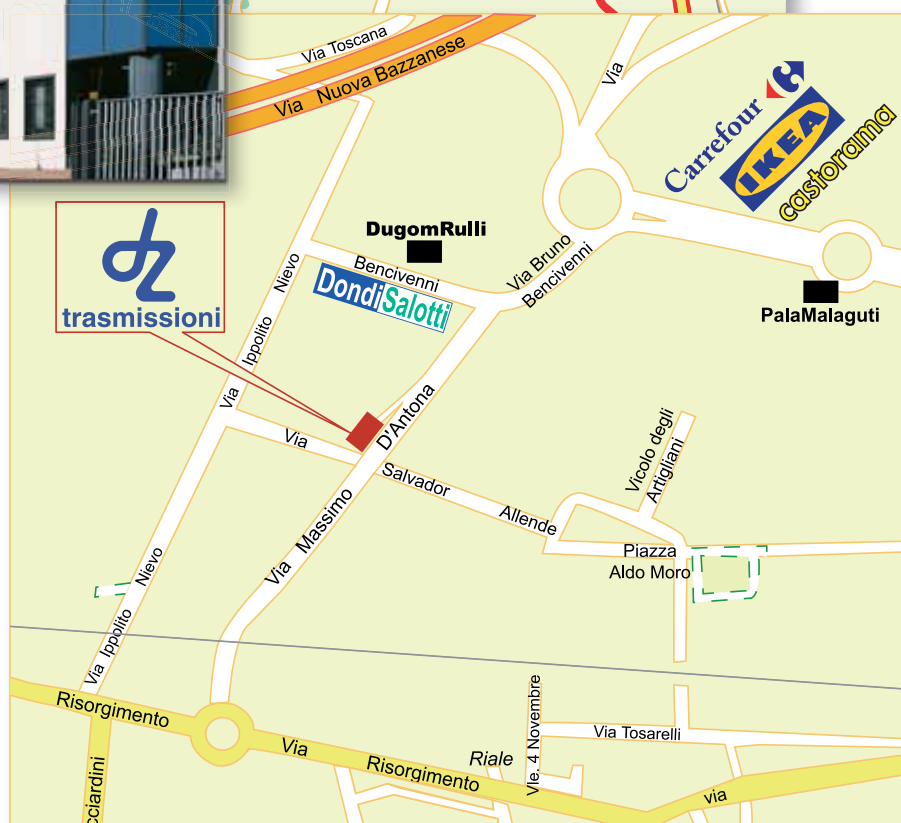
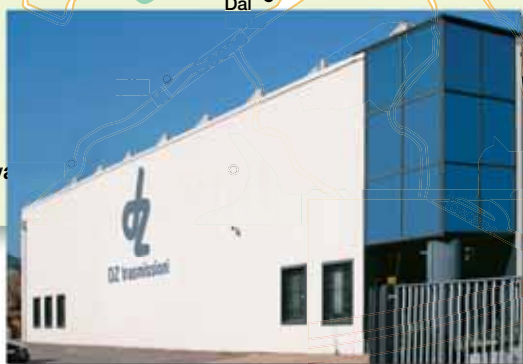
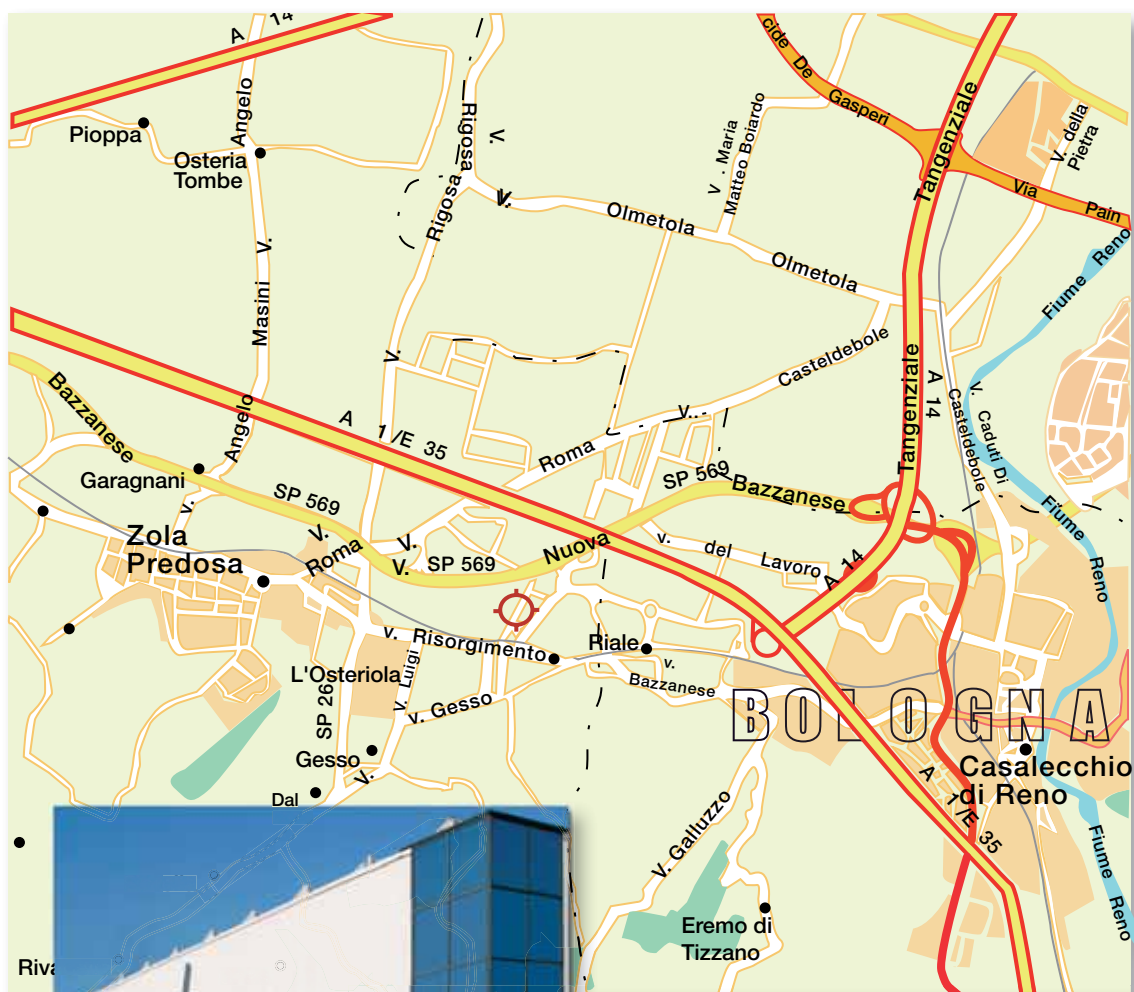
Modello	Versioni			Rapp.	E	F	G	H	J	M	K	P	R	Peso
Model	Version			Ratio										Weight
DZ 270 - 51	A-B	A-C	A-B-C	1/1	65	120	65	120	18x11x110	18x11x110	M12x25	69	69	Kg 212-221
DZ 270 - 61	A-B	A-C	A-B-C	1/1	65	120	85	170	18x11x110	22x14x160	M12x25	69	90	
DZ 270 - 71	A-B	A-C	A-B-C	1/1	85	170	85	170	22x14x160	22x14x160	M12x25	90	90	
Altri rapporti su richiesta / Other ratios are available upon request														

Per ordinativi indicare: modello - versione (alberi presenti) - rapporto / In case of order please state: model - version (shafts) - ratio





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