

FRENI E MOTORI IDRAULICI

H1 SIMBOLOGIA E UNITA' DI MISURA

Simbolo	Unità di misura	Descrizione	Simbolo	Unità di misura	Descrizione
V	[cm ³]	Cilindrata	η_v		Rendimento volumetrico
p	[bar]	Pressione	n	[min ⁻¹]	Velocità angolare
p_A. p_B	[bar]	Pressione sugli attacchi A e B	M	[Nm]	Coppia effettiva all'albero motore
Q	[l/min]	Portata	cont		Valore generico, continuo nel tempo
η_t		Rendimento totale	int		Valore generico, intermittente nel tempo
η_{mh}		Rendimento meccanico-idraulico			

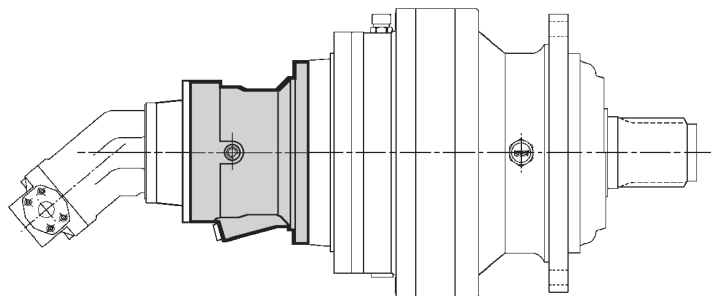
H2 FRENI IDRAULICI NEGATIVI A DISCHI MULTIPLI

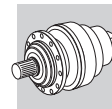
DESCRIZIONE

Sono freni statici di sicurezza, in quanto l'azione frenante è sviluppata quando la pressione idraulica di comando è nulla, mentre quando questa raggiunge i valori minimi per lo sbloccaggio, l'azione frenante cessa. Applicati in entrata ai riduttori, costituiscono un gruppo unico e compatto con essi. Si adottano in tutte quelle applicazioni dove è assolutamente necessario arrestare e tenere bloccata la trasmissione anche sotto l'azione di coppie esterne.

Applicabili in:


- argani
- rotazione torrette
- freni di parcheggio su macchine semoventi
- applicazioni industriali





H2.1 Dati tecnici freni

(A 22)

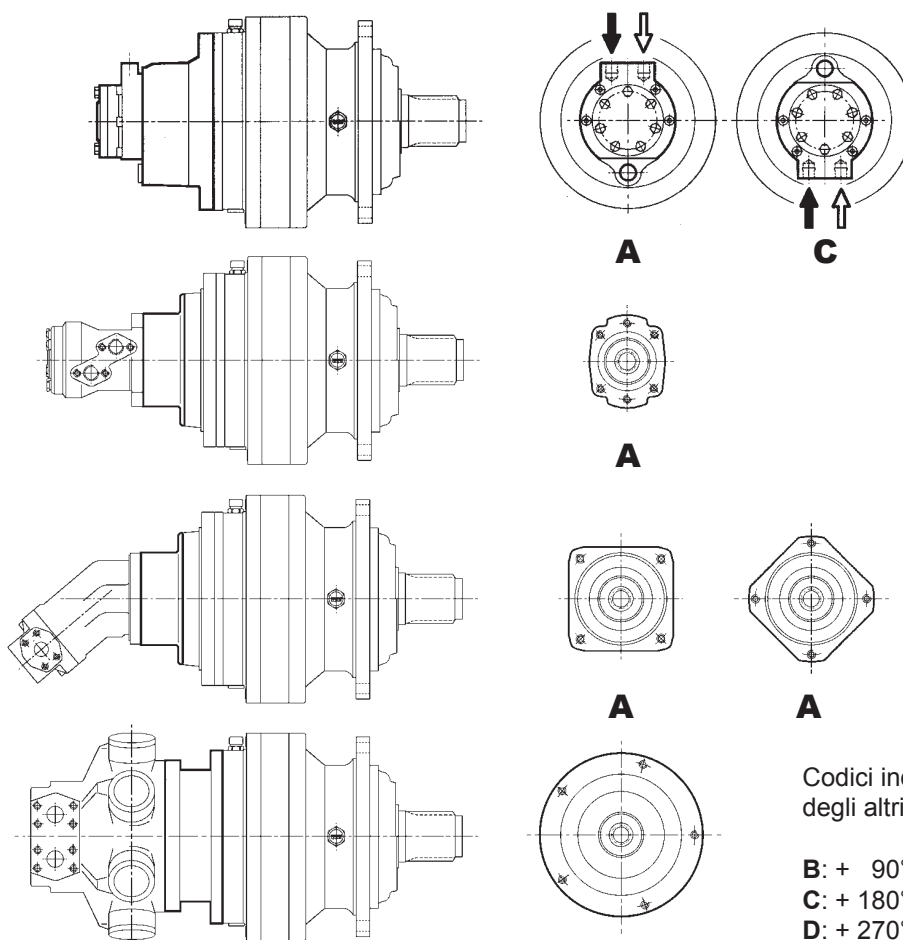
		Tipo																	
		4.							5.					6.					
		A	B	D	F	H	K	L	B	C	E	G	K	B	C	E	G	K	L
Coppia frenante statica Mb	Nm ±10%	50	100	160	260	330	400	440	400	500	630	800	1000	850	1100	1500	2100	2600	3200
Pressione minima apertura	bar	10	20	30	20	25	30	34	20	27	20	26	32	14	19	25	19	24	29
Pressione massima comando	bar	320																	
Volume d'olio per comando apertura freno	cm ³	6.65	6.65	6.65	6.65	6.65	6.65	6.65	13.96	13.96	13.96	13.96	13.96	37.2	37.2	37.2	37.2	37.2	37.2

H3 ENTRATE PER MOTORI IDRAULICI

Tutte le grandezze sono predisponibili in ingresso per motori idraulici.

I tipi di predisposizioni disponibili sono indicati nelle pagine seguenti.

Gli orientamenti standard (A) delle flange attacco motore, sono indicati negli schemi seguenti, considerando il punto di vista dal lato ingresso sul riduttore.

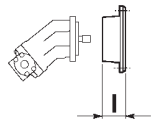
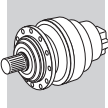


Codici indicativi degli altri orientamenti:

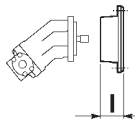
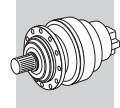
B: + 90° (senso orario)

C: + 180° (senso orario)

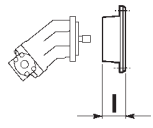
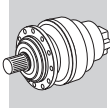
D: + 270° (senso orario)



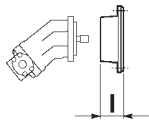
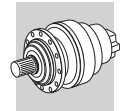
		SAE Standard J744c											
		SAE A 16/32 z9	SAE A ø15,875	SAE B 16/32 z13	SAE B ø22,2	SAE BB 16/32 z15	SAE BB ø25,4	SAE C 12/24 z14	SAE C ø31,7	SAE CC 12/24 z17	SAE C ø38,1	SAE D 8/16 z13	SAE E 8/16 z13
CODE		S5AM	S5AN	S5BA	S5BB	S5BM	S5BN	S5CA	S5CB	S5CP	S5CQ	S5DA	S5EA
		I											
300	L1-L2-L3-L4 R2-R3-R4	42 42	42 42	52 52	52 52	52 52	52 52	64 64	64 64	80 80	80 80	81 81	
301	L1-L2-L3-L4 R2-R3-R4	42 42	42 42	52 52	52 52	52 52	52 52	64 64	64 64	80 80	80 80	81 81	
303	L1 L2-L3-L4 R2-R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	81 81 81	
304	L1 L2-L3-L4 R2-R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	81 81 81	
305	L1 L2-L3-L4 R2-R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	81 81 81	
306	L1 L2 L3-L4 R2-R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	101 81 81	113 81 81
307	L1 L2 L3-L4 R2 R3-R4	42 42 42 42	42 42 42 42	52 52 52 52	52 52 52 52	52 52 52 52	52 52 52 52	64 64 64 64	64 64 64 64	80 80 80 80	80 80 80 80	101 81 81 81	113 81 81 81
309	L1 L2 L3-L4 R2 R3-R4	42 42 42 42	42 42 42 42	52 52 52 52	52 52 52 52	52 52 52 52	52 52 52 52	64 64 64 64	64 64 64 64	80 80 80 80	80 80 80 80	101 81 81 81	113 81 81 81
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	146 101 81	158 113 81
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	101 81 81	113 81 113
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	101 81 81	113 81 113
314	L1 L2 L3 L4 R3(B)-R3(C) R4	42 42 42	42 42 42	52 52 52	52 52 52	52 52 52	52 52 52	64 64 64	64 64 64	80 80 80	80 80 80	146 81 81	113 81 113
315	L1 L2 L3 L4 R3(B)-R3(C) R4	42 42	42 42	52 52	52 52	52 52	52 52	64 64	64 64	80 80	80 80	101 81	113 113
316	L1 L2 L3 L4 R3(B)-R3(C) R4	42 42	42 42	52 52	52 52	52 52	52 52	64 64	64 64	80 80	80 80	101 81	113 113
317	L1 L2 L3 L4 R3(B)-R3(C) R4	42 42	42 42	52 52	52 52	52 52	52 52	64 64	64 64	80 80	80 80	101 81	113 113
318	L1 L2 L3 L4 R4(B)-R4(C)											101 101	113 113
319	L1 L2 L3 L4 R4(B)-R4(C)											101 101	113 113
321	L1 L2 L3 L4 R4(B)-R4(C)											101 101	113 113



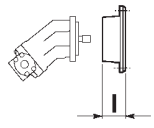
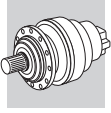
		CALZONI							CHAR-LYNN (EATON)									
		CALZONI MR190 N z8	CALZONI MR300 N z8	CALZONI MRP300 N z8	CALZONI MR450 N z8	CALZONI MR700 N z8	CALZONI MR1100 N z8	CALZONI MR1800 N z10	CALZONI MR2800 N z10	SERIE 2000 SAE A 1" 6B	SERIE 2000 SAE A ø25.4	SERIE 2000 SAE A ø32	SERIE 2000 SAE A 12/24 z14	SERIE 2000 BEARINGLESS 12/24 z12	SERIE 4000 SAE B ø31.75	SERIE 4000 SAE C	SERIE 6000 SAE C ø38.1	SERIE 6000 SAE C 12/24 z17
CODE		C0AA	C0AD	C0BL	C0AG	C0AL	C0AP	C0AS	C0AV	S5AQ	S5AS	D0AG	D0AH	E2AA	S5BP	S5CP	S5CQ	S5CP
		I																
300	L1-L2-L3-L4 R2-R3-R4	64	78	78						42	42	64	64	52	68	80	80	80
301	L1-L2-L3-L4 R2-R3-R4	64	78	78						42	42	64	64	52	68	80	80	80
303	L1 L2-L3-L4 R2-R3-R4	64	78	78						42	42	64	64	52	68	80	80	80
304	L1 L2-L3-L4 R2-R3-R4	64	78	78						42	42	64	64	52	68	80	80	80
305	L1 L2-L3-L4 R2-R3-R4	64	78	78						42	42	64	64	52	68	80	80	80
306	L1 L2 L3-L4 R2-R3-R4	64	78	78	98	102	133			42	42	64	64	52	68	80	80	80
307	L1 L2 L3-L4 R2 R3-R4	64	78	78	98	102	133			42	42	64	64	52	68	80	80	80
309	L1 L2 L3-L4 R2 R3-R4	64	78	78	98	102	133			42	42	64	64	52	68	80	80	80
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	64	78	78	143	147	178			42	42	64	64	52	68	80	80	80
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	64	78	78	98	102	133	165	200	42	42	64	64	52	68	80	80	80
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	64	78	78	98	102	133	130	130	42	42	64	64	52	68	80	80	80
314	L1 L2 L3 L4 R3(B)-R3(C) R4	64	78	78	98	102	133			42	42	64	64	52	68	80	80	80
315	L1 L2 L3 L4 R3(B)-R3(C) R4	64	78	78	98	102	133	130	130	42	42	64	64	52	68	80	80	80
316	L1 L2 L3 L4 R3(B)-R3(C) R4	64	78	78	98	102	133	130	130	42	42	64	64	52	68	80	80	80
317	L1 L2 L3 L4 R3(B)-R3(C) R4	64	78	78	98	102	133	130	130	42	42	64	64	52	68	80	80	80
318	L1 L2 L3 L4 R4(B)-R4(C)				98	102	133	130	130									
319	L1 L2 L3 L4 R4(B)-R4(C)				98	102	133	130	130									
321	L1 L2 L3 L4 R4(B)-R4(C)				98	102	133	130	130									



CODE		SAUER DANFOSS (orbit)								DENISON Hydraulics								
		OMP-OMR 50/315 ø25	OMP-OMR 50/315 SAE 1" 6B	OMS 80/315 ø32	OMS 80/315 12/24 z14	OMSS 80/315 12/24 z12	OMT 160/400 ø40	OMT 160/400 12/24 z17	OMTS 160/400 12/24 z16	OMVS 315/800 10/20 z16	M6-M7-M8 3** 12/24 z14	M11-M14 3** 8/16 z13	M3 B 16/32 z9	M4C-M4SC 16/32 z13	M4D-M4SD 12/24 z14	M4DC-M4S DC 12/24 z14	M4E-M4SE 12/24 z14	M6BS 16/32 z13
S5AP	S5AQ	D0AG	D0AH	D0AL	D0AM	D0AN	D0AQ	D0AU		S5CA	S5EA	S5AM	S5BA	S5CA	S5CA	S5CA	S5BA	
300	L1-L2-L3-L4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
301	L1-L2-L3-L4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
303	L1	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
304	L1	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
305	L1	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
306	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2-R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
307	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
309	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R3-R4	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
310	L1	42	42	64	64	37	112	112	57	115	64	158		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	R2(B)-R2(C)	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R3-R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
311	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R3-R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
313	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R3-R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
314	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	L2	42	42	64	64	37	112	112	57		64		42	52	64	64	64	52
	R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
315	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
316	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
317	L1	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
	R4	42	42	64	64	37	112	112	57	70	64	113		42	52	64	64	52
318	L1									70								
	R4(C)									70								
319	L1									70								
	R4(C)									70								
321	L1									70								
	R4(C)									70								

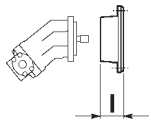
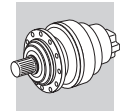


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		MMF 43 16/32 z15	MMF 63 12/24 z14	HMF 28-35-02 16/32 z15	HMF 50-02 16/32 z21	HMF-HMV 75-02 16/32 z21	HMF-HMV 105-02 16/32 z23	HMF-HMV 135-02 16/32 z27		
		S5BM	S5CA	S5BM	S5CE	S5CE	S5CD	S5DC		
		I								
300	L1-L2-L3-L4 R2-R3-R4	52 52	64 64	52 52	64 64	64 64	64 64	81 81		
301	L1-L2-L3-L4 R2-R3-R4	52 52	64 64	52 52	64 64	64 64	64 64	81 81		
303	L1 L2-L3-L4 R2-R3-R4	52 52 52	64 64 64	52 52 52	64 64 64	64 64 64	64 64 64	81 81 81		
304	L1 L2-L3-L4 R2-R3-R4	52 52 52	64 64 64	52 52 52	64 64 64	64 64 64	64 64 64	81 81 81		
305	L1 L2-L3-L4 R2-R3-R4	52 52 52	64 64 64	52 52 52	64 64 64	64 64 64	64 64 64	81 81 81		
306	L1 L2 L3-L4 R2-R3-R4	52 52 52 52	64 64 64 64	52 52 52 52	64 64 64 64	64 64 64 64	64 64 64 64	101 81 81 81	121	
307	L1 L2 L3-L4 R2 R3-R4	52 52 52 52 52	64 64 64 64 64	52 52 52 52 52	64 64 64 64 64	64 64 64 64 64	64 64 64 64 64	101 81 81 81 81	121	
309	L1 L2 L3-L4 R2 R3-R4	52 52 52 52 52	64 64 64 64 64	52 52 52 52 52	64 64 64 64 64	64 64 64 64 64	64 64 64 64 64	101 81 81 81 81	121	
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	146 101 81 81 101 81	166 121	
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
314	L1 L2 L3 L4 R3(B)-R3(C) R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
315	L1 L2 L3 L4 R3(B)-R3(C) R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
316	L1 L2 L3 L4 R3(B)-R3(C) R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
317	L1 L2 L3 L4 R3(B)-R3(C) R4	52 52 52 52 52 52	64 64 64 64 64 64	52 52 52 52 52 52	64 64 64 64 64 64	64 64 64 64 64 64	64 64 64 64 64 64	101 81 81 81 101 81	121 121	
318	L1 L2 L3 L4 R4(B)-R4(C)							101 101	121 121	
319	L1 L2 L3 L4 R4(B)-R4(C)							101 101	121 121	
321	L1 L2 L3 L4 R4(B)-R4(C)							101 101	121 121	

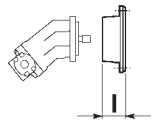
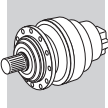


CODE

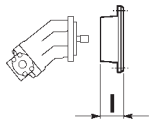
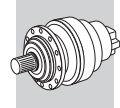
		BRUENINGHAUS HYDROMATIK (BOSCH REXROTH)																
		A2FM10-12-16 25x1,25 z18	A2FM23-28-32 A6VM28 30x2 z14	A2FM23-28 p25	A2FM45 32x2 z14	A2FM45-56 30x2 z14	A2FM66-83 A6VM65 35x2 z16	A2FM80-90 A6VM80 40x2 z18	A2FM80 35x2 z16	A2FM107-125 A6VM107 45x2 z21	A2FM107 A6VM107 40x2 z18	A2FM160-180 A6VM160 50x2 z24	A2FM160 A6VM160 45x2 z21	A2FM200 A6VM200 50x2 z24	A6VM250 50x2 z24	A2FM250 50x2 z24	A1DFM45.30W A10VM63 16x32 z15	
		H0AA	H0AE	H0AH	H0AI	H0BA	H0BC	H0BG	H0BI	H0CA	H0CC	H0CE	H0CG	H0CI	H0DA	H0DE	S5BM	
CODE		I																
300	L1-L2-L3-L4	42	52	52	64	64	64	75	75	101	101		101				52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101		101				52	
301	L1-L2-L3-L4	42	52	52	64	64	64	75	75	101	101		101				52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101		101				52	
303	L1	42	52	52	64	64	64	75	75	101	101		101				52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101		101				52	
304	L1	42	52	52	64	64	64	75	75	101	101		101				52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101		101				52	
305	L1	42	52	52	64	64	64	75	75	101	101		101				52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101		101				52	
306	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
307	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
309	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R2-R3-R4	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
310	L1	42	52	52	64	64	64	75	75	101	101	146	146	146	158	158	52	
	R2(B)-R2(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
311	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R2(B)-R2(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
313	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R2(B)-R2(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
314	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R3(B)-R3(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
315	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R3(B)-R3(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
316	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R3(B)-R3(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
317	L1	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
	R3(B)-R3(C)	42	52	52	64	64	64	75	75	101	101	101	101	101	113	113	52	
318	L1											101	101	101	113	113		
	R4(B)-R4(C)											101	101	101	113	113		
319	L1											101	101	101	113	113		
	R4(B)-R4(C)											101	101	101	113	113		
321	L1											101	101	101	113	113		
	R4(B)-R4(C)											101	101	101	113	113		



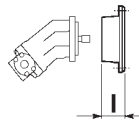
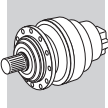
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		GM05 UNI 8953	GM1 UNI 8953	GM1/P1/S1 35x2 z 16	GM2 UNI 8953	GM3 UNI 8953	GM4/GM5 UNI 8953	SAI L7 (9) N80x3 z25	B030 z17	B045 z17	HM (HD)B150 HM (HD)B200 5/10 z16
		S2BA	S2AB	S2CE	S2AF	S2DN	S2BF	S2BH	S1AB	S1AC	S1AL
		I									
300	L1-L2-L3-L4 R2-R3-R4	73 73	37 37	57 57							
301	L1-L2-L3-L4 R2-R3-R4	73 73	37 37	57 57							
303	L1 L2-L3-L4 R2-R3-R4	73 73 73	37 37 37	57 57 57							
304	L1 L2-L3-L4 R2-R3-R4	73 73 73	37 37 37	57 57 57							
305	L1 L2-L3-L4 R2-R3-R4	73 73 73	37 37 37	57 57 57							
306	L1 L2 L3-L4 R2-R3-R4	73 73 73	74 37 37 37	57 57 57	98	98	105		135	140	
307	L1 L2 L3-L4 R2 R3-R4	73 73 73 73	74 37 37 37 37	57 57 57 57	98	98	105		135	140	
309	L1 L2 L3-L4 R2 R3-R4	73 73 73 73	74 37 37 37 37	57 57 57 57	98	98	105		135	140	
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	73 73 73	119 74 37 37 74 37	57 57	143 98	143 98	150 105		180 135	185 140	
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	73 73	74 37 37 74 37	57 57	135 98	98	150 105	90	135	140	187
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	73 73	74 37 37 74 37	57 57	135 98	98	150 105	90	135	140	187
314	L1 L2 L3 L4 R3(B)-R3(C) R4	73 73	74 37 37 74 37	57 57	98	98	105		135	140	
315	L1 L2 L3 L4 R3(B)-R3(C) R4	73	74 37 74 37	57	135 98	98	150 105	90	135	140	187
316	L1 L2 L3 L4 R3(B)-R3(C) R4	73	74 37 74 37	57	135 98	98	150 105	90	135	140	187
317	L1 L2 L3 L4 R3(B)-R3(C) R4	73	74 37 74 37	57	135 98	98	150 105	90	135	140	187
318	L1 L2 L3 L4 R4(B)-R4(C)		74 74		135 98 98	98 98	150 105 105	90	135 135	140 140	187
319	L1 L2 L3 L4 R4(B)-R4(C)		74 74		135 98 98	98 98	150 105 105	90	135 135	140 140	187
321	L1 L2 L3 L4 R4(B)-R4(C)		74 74		135 98 98	98 98	150 105 105	90	135 135	140 140	187



		SAUER DANFOSS (piston)														
		OMF-SMF- OMV-SMV 1-038 16/32 z13 SMF 2/033,052,070 16/32 z21	SMF 2/089 16/32 z23	SMF 2/119 16/32 z27	SMF 2/166-227 16/32 z27	SMF 4/023,90MM42 16/32 z13	SMF 4/046,30MM42 16/32 z15	90 MM55 16/32 z21	90 MM75-MM100 16/32 z23	90 MM130 16/32 z27	51 V 060 12/24 z14	51 V 080 12/24 z14	51 V 110 8/16 z13	51 V 160 8/16 z13	51 V 250 8/16 z15	
CODE		S5BA	S5CE	S5CD	S5DC	S5EC	S5BA	S5BM	S5CE	S5CD	S5DC	S5CA	S5CA	S5DA	S5DA	S5ED
		I														
300	L1-L2-L3-L4 R2-R3-R4	52	64	64	81		52	52	64	64	81	64	64	81	81	
301	L1-L2-L3-L4 R2-R3-R4	52	64	64	81		52	52	64	64	81	64	64	81	81	
303	L1 L2-L3-L4 R2-R3-R4	52	64	64	81		52	52	64	64	81	64	64	81	81	
304	L1 L2-L3-L4 R2-R3-R4	52	64	64	81		52	52	64	64	81	64	64	81	81	
305	L1 L2-L3-L4 R2-R3-R4	52	64	64	81		52	52	64	64	81	64	64	81	81	
306	L1 L2 L3-L4 R2-R3-R4	52	64	64	81	101	52	52	64	64	81	64	64	81	101	101
307	L1 L2 L3-L4 R2 R3-R4	52	64	64	81	101	52	52	64	64	81	64	64	81	101	101
309	L1 L2 L3-L4 R2 R3-R4	52	64	64	81	101	52	52	64	64	81	64	64	81	101	101
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52	64	64	81	146	52	52	64	64	146	64	64	146	146	158
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
314	L1 L2 L3 L4 R3(B)-R3(C) R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
315	L1 L2 L3 L4 R3(B)-R3(C) R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
316	L1 L2 L3 L4 R3(B)-R3(C) R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
317	L1 L2 L3 L4 R3(B)-R3(C) R4	52	64	64	81	101	52	52	64	64	101	64	64	101	101	113
318	L1 L2 L3 L4 R4(B)-R4(C)				101	113					101			101	101	113
319	L1 L2 L3 L4 R4(B)-R4(C)				101	113				101				101	101	113
321	L1 L2 L3 L4 R4(B)-R4(C)				101	113				101				101	101	113



CODE		TRW-TORQMOTOR (PARKER)					VICKERS (EATON)				WHITE				
		MAG 04-32 SAE 1" 6B	MAF 06-40 SAE 1" 6B	MAB 06-32 SAE 1" 6B	MAB 06-32 SAE A ø25	MAE 10-68 SAE 1" 6B	MFE 19 16/32 z15	25M**A11 16/32 z13	35-45 M**A11 12/24 z14	50 M**A11 8/16 z13	HS 02-15 SAE A ø25	HS 02-15 SAE A 1" 6B	RS 08-24 SAE A ø25	RS 08-24 SAE A 1" 6B	REO 06-45 SAE A 1" 6B
		S5AQ	S5AQ	S5AQ	S5AP	S5AQ	S5BM	S5BA	S5CA	S5DA	S5AP	S5AQ	S5AP	S5AQ	S5AP
		I													
300	L1-L2-L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
301	L1-L2-L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
303	L1 L2-L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
304	L1 L2-L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
305	L1 L2-L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
306	L1 L2 L3-L4 R2-R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
307	L1 L2 L3-L4 R2 R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
309	L1 L2 L3-L4 R2 R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
310	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
311	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
313	L1 L2 L3 L4 R2(B)-R2(C) R3-R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
314	L1 L2 L3 L4 R3(B)-R3(C) R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
315	L1 L2 L3 L4 R3(B)-R3(C) R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
316	L1 L2 L3 L4 R3(B)-R3(C) R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
317	L1 L2 L3 L4 R3(B)-R3(C) R4	42	42	42	42	42	52	52	64	81	42	42	42	42	42
318	L1 L2 L3 L4 R4(B)-R4(C)									101					
319	L1 L2 L3 L4 R4(B)-R4(C)									101					
321	L1 L2 L3 L4 R4(B)-R4(C)									101					



		VOAC (PARKER)																			
		F11-5 CK ø18	F11-10 CK ø20	F11-19 CK ø25	F11-19 CD 25x1,25 z18	F12-30 MF-PD 30x2 z14	F12-40 MF-PD 32x2 z14	F12-60 MF-PD 35x2 z16	F12-80 MF-PD 40x2 z18	F12-110 MF-PD 45x2 z21	F11-150/250 S+S	8/16 z13	V12 060 I'D	35x2 z16 V12 060 S+S	12/24 z14 V12 080 N'D	40x2 z18 V12 080 S+S	12/24 z14 V12 110 I'D	45x2 z21 V12 110 S'S 8/16 z13	V12 160 S+S 8/16 z13	V12 160 N'C 45x2 z21	
CODE		VOAA	VOAC	VOAE	VOAG	HOAE	HOAI	HOBC	HOBG	HOCA	S5DA	HOBC	S5CA	HOBG	S5CA	HOCA	S5DA	S5DA	HOCG		
		I																			
300	L1-L2-L3-L4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
301	L1-L2-L3-L4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
303	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
304	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
305	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
306	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
307	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
309	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2-R3-R4	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
310	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2(B)-R2(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
311	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2(B)-R2(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
313	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R2(B)-R2(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
314	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R3(B)-R3(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
315	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R3(B)-R3(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
316	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R3(B)-R3(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
317	L1	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
	R3(B)-R3(C)	64	52	53	53	52	64	64	75	101	81	64	64	75	64	101	81	81	101		
318	L1																				
	R4(B)-R4(C)																				
319	L1																				
	R4(B)-R4(C)																				
321	L1																				
	R4(B)-R4(C)																				